The Collection of Landfill Monitoring Data at the CAM-M Cambridge Bay Site – 2007 Report

Prepared for
Defence Construction Canada

Submitted by
Gartner Lee Limited

January, 2008

Gartner Lee

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Reference: **GLL 70-517**

Distribution:

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Gartner Lee Limited

January 7, 2008

Mr. Thuc Nyugen
Defence Construction Canada
Constitution Square, Suite 1720
350 Albert Street
Ottawa, ON K1A 0K3

Dear Mr. Nyugen:

Re: GLL 70-517 – Final Report for the 2007 Collection of Landfill Monitoring Data at the CAM-M Dew Line Site, Cambridge Bay, Nunavut

We are pleased to submit eight hard copies of the 2007 Draft Report on the Collection of Landfill Monitoring Data at the CAM-M Dew Line Site in Cambridge Bay, Nunavut. This report documents the data collected from our site visit to the CAM-M Site on August 15th, 16th, 17th, and 18th, 2007. In addition to the hard copy reports, we have also attached three digital data discs to the report which contain:

a) all numeric data files including analytical results, thermistor data and associated graphs submitted in MS Excel 2000;

b) all text files submitted in MS Word 2000;

c) all drawings submitted in AutoCAD Version 2008;

d) all photographic records of the geotechnical inspection submitted in digital format and in hardcopy in the location specific report;

e) all photographic records of the soil samples collected at each location. These have been provided as an attachment to the main report and include an index of the photo numbers and the locations;

f) all photographic records of the condition of the monitoring wells. These have been provided as attachments to the main report and include an index of the photo numbers and the locations; and

g) all field notes have been attached to each specific landfill investigation report.

Based on the visual geotechnical inspection, there does not appear to be any indications of imminent cover instability or significant erosion of concern at the landfills. Several tension cracks have been observed at the Main Landfill South and the DCC Tier II Soil Disposal Area, some of which appear to have developed since the last visual inspection in 2005. Minor erosion rills on the landfill slopes appear to be self-armouring and unchanged from previous inspections. The observed conditions are documented in the attached appendices and photographs.

300 Town Centre Boulevard, Suite 300, Markham, Ontario, L3R 5Z6 tel 905.477.8400 fax 905.477.145
www.gartnerlee.com

the landfill slopes appear to be self-armouring and unchanged from previous inspections. The observed conditions are documented in the attached appendices and photographs.

Detectable concentrations of hydrocarbons were noted in the soil samples submitted from designated location MW-6B at the Main Landfill North; MW-1 at the Main Landfill South; MW-10 and MW-11 at the DCC Tier II Landfill; CM-8, CM-10, CM-11, CM-12 and CM-13 at the Airstrip Landfill; CM-6 at the West Landfill; and CM-4 at the South Shore Landfill. With the exception of MW-6, the reported concentrations are not considered to be significant; however, Defence Construction Canada (DCC) should compare the laboratory results to their internal DEW Line Site Guidelines to confirm whether the analytical results have exceeded their guidelines. Detectable concentrations of PCBs were noted in the upper sample submitted at MW-6B located at the Main Landfill North, and the upper sample submitted at CM-4 located at the South Shore Landfill. The sample results should be compared to the internal DEW Line Site Guidelines to determine whether the analytical results have exceeded the DCC guidelines.

The water results and thermal monitoring results indicate that all wells, with the exception of MW-4, had a sufficient volume of water to be obtained for analysis. DCC should compare the laboratory results to their internal DEW Line Site Guidelines to confirm whether the analytical results are in compliance.

All of the thermistors were downloaded successfully. The batteries were also replaced, and data loggers reset in accordance with the instructions provided by other consultants representing DCC.

We trust this report meets your requirements and appreciate the opportunity to assist DCC with this interesting assignment. If you have any questions or comments concerning this report please do not hesitate to call.

Yours very truly,
GARTNER LEE LIMITED

REGISTERED PROFESSIONAL ENGINEER
JAN. 7/08
D.C. JOHNSON
LICENSEE
NWT/NU

Darrin C. Johnson, M.Sc., P.Eng.
Sr. Geotechnical Engineer and Project Manager

KAB/DCJ:pc
Attach.

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1. Introduction

The Department of National Defence (DND) in co-operation with Nunavut Tunngavik Incorporated (NTI) has developed a Landfill Monitoring Plan to address post closure monitoring requirements for the landfills at the DEW Line sites. Defence Construction Canada (DCC) is managing the clean-up monitoring programs on behalf of DND. Kitnuna Corporation and Gartner Lee Limited in a joint venture were awarded the contract for the purposes of providing services for the collection of landfill monitoring data at the CAM-M Cambridge Bay Site in the Nunavut Settlement Area for 2007. This report provides the procedures and the results for interpretation on the monitoring completed in 2007.

2. Background

The CAM-M Cambridge Bay site is located on the southern coast of Victoria Island at 69º 07' north latitude and 105º 07' west longitude. The community of Cambridge Bay is located approximately 3 km east of the site. Access to the site is gained from a gravel road connecting Cambridge Bay to the site. The CAM-M site was a former radar site on the DEW line.

The site was constructed and operated by a civilian contractor for the United States Air Force (U.S.A.F.) until 1991. As part of the North American Aerospace Defence Modernization Program, the CAM-M site was decommissioned in 2000. During the clean-up of the site, the existing landfills were remediated, an engineered extension was constructed at an existing landfill to contain non-hazardous demolition debris, and a new engineered landfill was constructed to contain contaminated soil. These landfills are identified as:

a) Main Landfill North;

b) Main Landfill South;

c) South Shore Landfill;

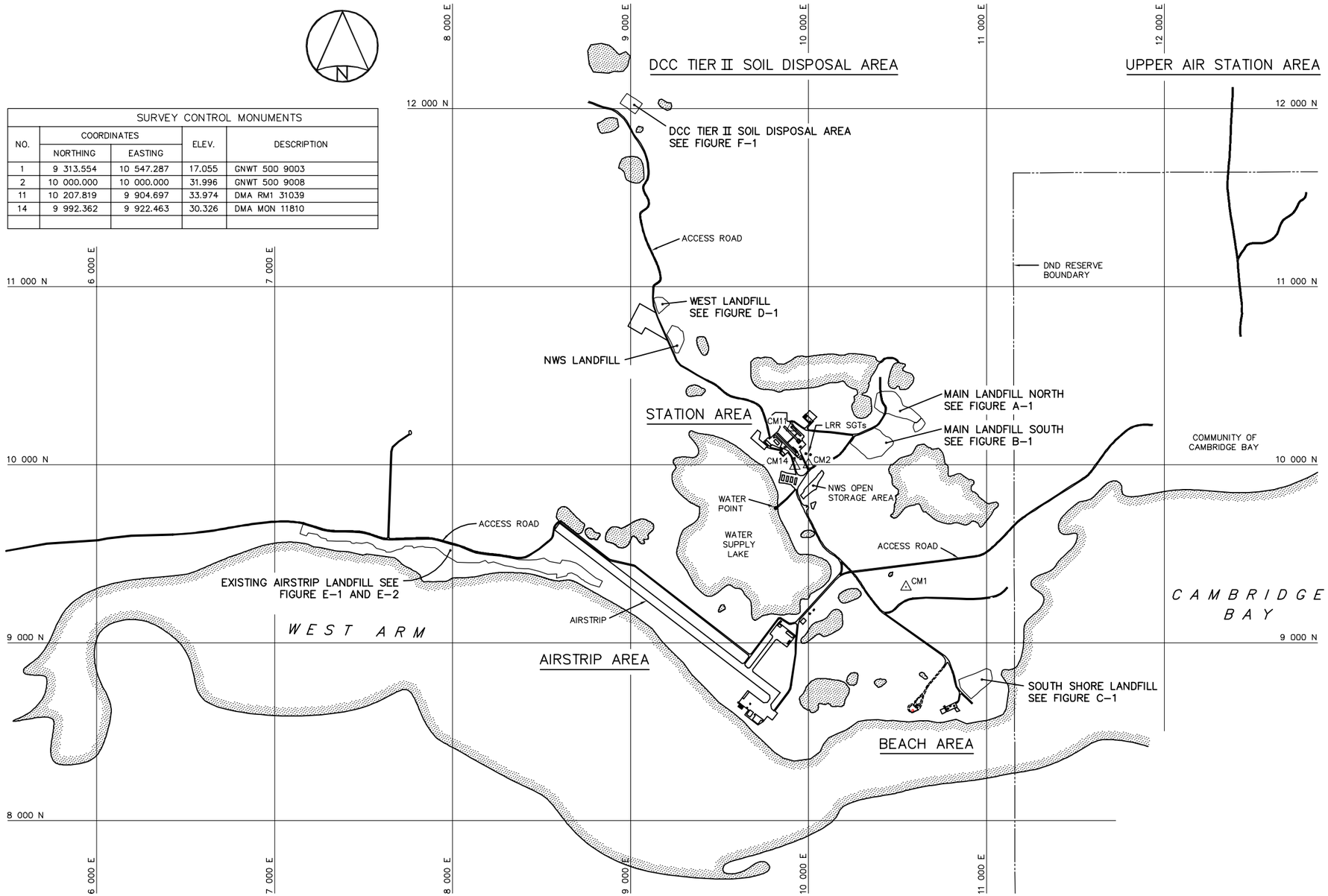
d) West Landfill;

e) Airstrip Landfill; and

f) Tier II Soil Disposal Facility.

The locations of the various landfills are shown on Figure 1. Access to the landfills was gained through on-site roads. The baseline monitoring of the landfills commenced in 1999/2000. Monitoring occurred annually until 2005, beyond which, the monitoring frequency at this site will decrease until 2025.

SURVEY CONTROL MONUMENTS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
1	9 313.554	10 547.287	17.055	GNWT 500 9003
2	10 000.000	10 000.000	31.996	GNWT 500 9008
11	10 207.819	9 904.697	33.974	DMA RM1 31039
14	9 992.362	9 922.463	30.326	DMA MON 11810



LEGEND

CM1 △ SURVEY CONTROL MONUMENT

Original baseplan - UMA Overall Site Plan
Figure CAM-M.1
April, 2002

SCALES

250m 0 500m 1000m

Scale 1:25000

DEFENCE CONSTRUCTION CANADA

DEW LINE CLEAN UP
LANDFILL MONITORING PLAN

Designed By: –	Drawn By: JEP/JDM
Checked By: –	Approved By: –
Date Issued: October, 2007	Project No.: 70-517

Gartner Lee

FIGURE 1

Nov 01, 2007 – 9:04am N:\Projects\2007\70517\2007\Final\ACAD\70517 FIG1.dwg

2.1 Project Objectives

The objective of the landfill monitoring program is to collect sufficient information to assess the performance of the landfills from a geotechnical and environmental perspective. The landfill monitoring plan specified the requirements for the visual inspection as well as the chemical and thermal monitoring of the landfills. The long term monitoring plan consists of visual monitoring for signs of settlement, collection of soil and groundwater samples to evaluate the effectiveness of the leachate containment system, and monitoring of the sub-surface ground temperatures along the toe and within the main body of the landfills.

2.2 2007 Monitoring Event

Between August 15 and 18, 2007 the field data collection event was conducted at the CAM-M DEW Line site. The monitoring event consisted of visual geotechnical inspections, soil sampling, groundwater sampling, and thermal monitoring of the landfills at designated locations (see Figure 1). The landfill monitoring requirements as outlined in the Terms of Reference (TOR) are displayed in Table 1 below.

Table 1. Summary of Landfill Monitoring Requirements for 2007

Landfill Designation	Visual Inspection	Soil Sampling	Groundwater Sampling	Thermal Monitoring
YEAR 2007				
CAM-M Cambridge Bay				
Main Landfill – North	√	√	√	√
Main Landfill – South	√	√	√	√
South Shore Landfill	√	√		
West Landfill	√	√		
Airstrip Landfill	√	√		
DCC Tier II Disposal Facility	√	√	√	√

At each of the landfill locations mentioned above, a visual inspection was conducted to observe whether there were any obvious signs of impact (such as seepage or stressed vegetation caused by the landfill) or physical instability. Photographic records of the landfill were taken to show the condition of the landfill and any areas of concern that was observed. Observations and photographic records are documented for each landfill separately in Appendices A through F.

Soil sampling was conducted at all of the designated landfills for 2007. Groundwater sampling was conducted at the Main Landfill – North, Main Landfill – South and the DCC Tier II Soil Disposal Facility. Generally, soil samples were collected at depths of 0.10 m and approximately 0.40 - 0.50 m, although there were some variations in sample depths dependent on the ground conditions. The soil samples were analyzed for Polychlorinated Biphenyls (PCBs), analyzed for Total Aroclors, total petroleum hydrocarbons (TPHs) defined by the Canadian Council of Ministers of the Environment (CCME) Canada Wide Standards (CWS) Fraction 1 to Fraction 3 (F1 to F3), and inorganic elements analyzed for total metals using low level detection limits.

The analytical results for each sampled landfill are discussed individually in the Site reports presented in Appendices A through F.

Where possible, groundwater elevations were measured at each observation well for the landfills designated to be monitored in 2007. The monitoring conditions and field measurements were documented and collected at each monitoring well and are located in the Monitoring Well Records located in Appendices A, B, and F.

The field measurements included the following:

a) presence and thickness of free product (if applicable);

b) depth to bottom of well;

c) height of well stick up; and,

d) a visual inspection of the condition of the observation well.

Groundwater samples were collected from the 2007 designated observation wells that had sufficient water volumes to obtain samples. The water samples were obtained utilizing a peristaltic pump for low flow extraction. Disposable tubing was used in every well. The groundwater samples were analyzed for PCBs, TPHs, and inorganic elements.

The field methods for collecting the groundwater samples followed the QA/QC protocols and sampling requirements as requested in the Terms of Reference. The monitoring wells were purged at a rate equivalent or less than 100 ml/min with a peristaltic pump until at least one well volume of water had been purged and until field chemistry had stabilized. Field chemistry was measured by purging through a flow-through cell with a probe continuously measuring pH, conductivity, and temperature. Final values for field chemistry parameters were recorded on the well records located in Appendices A, B, and F.

Thermal Monitoring was conducted at the Main Landfill – North, Main Landfill – South, and the DCC Tier II Soil Disposal Facility in 2007. The data was downloaded from the system using the Lakewoods Systems Ltd. software. The results are discussed in the individual Site Reports presented in Appendices A, B and F.

3. Landfill Monitoring

As requested by DCC, Gartner Lee has presented the landfill monitoring reports as individual reports under the cover of this main report. The Landfill Monitoring Reports for each locality are presented in the appendices of this main report as follows:

Appendix A Main Landfill North;
Appendix B Main Landfill South;
Appendix C South Shore Landfill;
Appendix D West Landfill;
Appendix E Airstrip Landfill; and
Appendix F Tier II Soil Disposal Facility.

All information collected that is relevant to these individual areas is presented in these sections or as attachments at the end of the sections.

4. Quality Assurance/Quality Control

For quality assurance and quality control, a total of seven (7) blind duplicate soil samples were collected at soil sample locations MW-4 (0.1 m and 0.5 m), MW-10 (0.1 m and 0.5 m), MW-14 (0.1 m and 0.5 m), and CM-12 (0.1 m). All duplicate samples were submitted for analysis to both ALS Environmental in Vancouver, and Cantest Ltd. in Burnaby.

Each soil sample was analyzed for 11 parameters yielding a total of 77 sets of numbers to be calculated for relative standard deviation (RSD). Of the seventy-seven (77) RSDs calculated, fifty-one (51) sets returned a value of not applicable (n/a) due to one or more concentrations being below the detection limit. Thirty-six (36) sets returned an acceptable RSD of below 20% for inorganics and below 30% for organics, and seven (7) sets returned unacceptable RSDs over 20% for inorganics.

The duplicate soil samples collected at CM-12, returned RSD values of 27.3%, 23.6%, 62.0%, and 44.3% for chromium, cobalt, mercury, and zinc respectively. The soil in this location contained predominantly large rocks with small amounts of soil that was variable between organic silty sand and clayey silt. Due to the variable soil types, and the small amounts available for soil, the potential for variations in metal concentrations is high. Also, in the case of mercury, two of the three samples had results within three times the method detection limit (MDL) of 0.01mg/kg and so a higher RSD is expected. The concentrations for all four metals were compared to the Ontario site condition standards in a potable groundwater condition and it is the opinion of GLL that the reported concentrations are not of significance, and as such, the results are deemed acceptable.

The duplicate shallow soil samples collected at MW-14 returned RSD values of 21.6%, 20.4%, and 22.6% for cobalt, nickel and zinc respectively. The concentrations of the metals with RSD exceedances were compared to the Ontario site condition standards in a potable groundwater condition and it is the opinion of GLL that the reported concentrations are not of significance (an order of magnitude lower). Due to the low concentrations, more variability is expected in the laboratory results.

Blind duplicates were taken at groundwater sample locations MW-1 and MW-12. All duplicate samples were submitted to both ALS Environmental in Vancouver, and Cantest Ltd. in Burnaby for analysis. Each sample was analyzed for eleven (11) parameters yielding a total of twenty-two (22) sets of values to be calculated for RSD. Of the twenty-two (22) RSDs calculated, thirteen (13) sets returned a value of "n/a" due to one or more concentrations being below the detection limit, one (1) returned an acceptable RSD of below 20% for inorganics and below 30% for organics, and nine (9) sets returned unacceptable RSDs of over 20% for inorganics. The duplicate groundwater samples collected at MW-1 and MW-12 both had unacceptable RSDs for Chromium, Cobalt, Nickel and Zinc, and the duplicate groundwater samples collected at MW-12 also had an unacceptable RSD for Lead. Through discussions with the analytical laboratories, the likely cause for the error is heterogeneity in the sample, as the samples are not filtered and are being tested for total metals (suspended and dissolved) and so differences in both the amount of suspended solids collected in the sample container as well as the amount of suspended solids which are contained in the analytical sample portion will have an effect on the total metals concentration. Also, during sampling, both MW-1 and MW-12 were pumped dry despite employing a sampling rate of less than 100 mL/min. Recharge time was between 5-7 min in order to collect a full sample. It is possible that recharging could have an additional effect on the metals concentrations, particularly in the suspended solids within each sample container. The concentrations of the metals with RSD exceedances were compared to the Ontario site condition standards in a potable groundwater condition. All the results reported by the laboratories are considered to be insignificant by GLL with the exception of both Chromium and Nickel in MW-12, which are discussed further in Appendix F, however all results should be compared in the context of the DEW Line Monitoring Project.

For the soil and groundwater samples collected, a blind duplicate was obtained with a frequency of approximately 1 sample for every 10 collected. Tables used for the calculation of RSDs are located in Appendix H.

Duplicate soil samples were submitted for archival purposes to the Environmental Services Group Ops Centre within the Royal Military College in Kingston, Ontario. All the duplicate soil and groundwater samples collected during the 2007 monitoring event and their corresponding sample locations are documented in Table 2.

Table 2. Blind Duplicates

Sample Identification	Duplicate of Sample	Sample Location	Depth (m)	Matrix	Landfill
CM-14-1	CM-MW-4-1	MW-4	0.1	Soil	Main Landfill - North
CM-14-2	CM-MW-4-2	MW-4	0.5	Soil	Main Landfill - North
CM-15-1	CM-MW-10-1	MW-10	0.1	Soil	Tier II Soil Disposal
CM-15-2	CM-MW-10-2	MW-10	0.5	Soil	Tier II Soil Disposal
CM-16-1	CM-12-1	CM-12	0.1	Soil	Airstrip Landfill
CM-17-1	CM-MW-14-1	MW-14	0.1	Soil	Main Landfill - South
CM-17-2	CM-MW-14-2	MW-14	0.5	Soil	Main Landfill - South
CM-MW-15	CM-MW-12	MW-12	-	Water	Tier II Soil Disposal
CM-MW-16	CM-MW-1	MW-1	-	Water	Mail Landfill - South

5. Conclusions

Based on the visual geotechnical inspection, there does not appear to be any indications of imminent cover instability or significant erosion concern at the landfills. Minor erosion rills on the landfill slopes appear to be self-armouring and unchanged from previous inspections. A small settlement area at the north end of the West landfill appears to be related to ground ice thaw and does not appear to be a risk to landfill cover stability. Several tension cracks have been observed at the Main Landfill South and the DCC Tier II Soil Disposal Area, some of which appear to have developed since the last visual inspection in 2005. Tension cracks and adjacent slopes should be monitored during future inspections for increased size and movement, respectively.

Soil samples were collected at the designated locations in 2007. Two samples were collected at the majority of the locations. Minor concentrations of detectable hydrocarbons were noted in at least one test pit at the Main Landfill – South, South Shore Landfill, and the Airstrip Landfill. Inspections of the chromatograms reveal that the minor hydrocarbon concentrations are likely caused by naturally occurring organics in the peat found on site. The chromatograms and field observations agree with the correlation of naturally occurring organics in the peat layer. Significant concentrations of hydrocarbons were noted at MW 6 at the Main Landfill – North. Defense Construction Canada should compare the laboratory results to the their internal DEW Line Site guidelines to determine whether the analytical results exceed those guidelines.

In 2007, groundwater samples were collected from 13 of the 14 monitoring wells at the site. The timing of the sampling appears to have occurred during maximum thaw (mid-to-late-August) based on a review of the thermal data collected at the Main Landfill North, Main Landfill South, and the DCC Tier II Disposal Facility. Based on the analytical results at the monitoring wells sampled in 2007, there does not appear to be any significant impacts with respect to groundwater contamination.

6. Limitations

This report has been prepared as an assessment of the environmental condition of the subject site located in Cambridge Bay, Nunavut. The monitoring and investigation programs as described in this report, were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practising under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

The assessment of environmental conditions and possible hazards at this Site has been made using the results of chemical analysis of soil/sediment and pore water from a limited number of locations. The Site conditions between sampling locations have been inferred based on conditions observed at sampling locations. Subsurface conditions may vary from those encountered at the sample locations. Additional study, including further subsurface investigation, can reduce the inherent uncertainties associated with this type of study. However, it is never possible, even with exhaustive sampling and testing, to dismiss the possibility that part of a Site may be contaminated and remain undetected.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based on it, are the responsibility of such third parties. GLL accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on the information contained in this report.

The content of this report is based on information collected during our investigation, our present understanding of the Site conditions, and our professional judgement in light of such information at the time of this report. This report provides a professional opinion and therefore no warranty is either expressed, implied, or made as to the conclusions, advice and recommendations offered in this report. This report does not provide a legal opinion regarding compliance with applicable laws. With respect to regulatory compliance issues, it should be noted that regulatory statutes and the interpretation of regulatory statutes are subject to change.

The findings and conclusions of this report are valid only as of the date of this report. If new information is discovered in future work, including excavations, borings, or other studies, GLL should be requested to re-evaluate the conclusions of this report, and to provide amendments as required.

Report Prepared By:

Kenneth Boldt, B.Sc.
Environmental Engineering

Darrin Johnson, M.Sc., P.Eng.
Senior Geotechnical Engineer

Report Reviewed By:

Jim Theriault, M.Sc.Eng., P.Eng.
Senior Geological Engineer

Karl Reimer, M.Sc., P.Eng.
Senior Remediation Engineer

Appendix A

Landfill Monitoring Report - Main Landfill North

- A-1: Main Landfill North
  - A-1.1 Landfill Summary
  - A-1.2 Visual Inspection
  - A-1.3 Soil Sampling
  - A-1.4 Groundwater
  - A-1.5 Thermal Monitoring

Appendix A

Landfill Monitoring Report - Main Landfill North

A.1 Main Landfill North

A.1.1 Landfill Summary

The main landfill is located to the east of the main station and encompasses an area of approximately 10,000 m^2. The depth of landfilled waste materials is approximately 1.5 to 2.0 m. The landfill configuration along with photograph and sample locations are shown on Figure A-1. Prior to the remedial work in 1999, DCC had previously classified this as a moderate potential environmental risk. The remedial work for this landfill included the installation of a synthetic liner anchored into the permafrost along the toe of the landfill and re-grading with the placement of additional granular fill material sufficient to promote the permafrost aggradation through the landfilled waste materials and into the cover. The cover of the landfill has no vegetation. The surface consists of a veneer of pebbles and cobbles overlying the granular and silt cover.

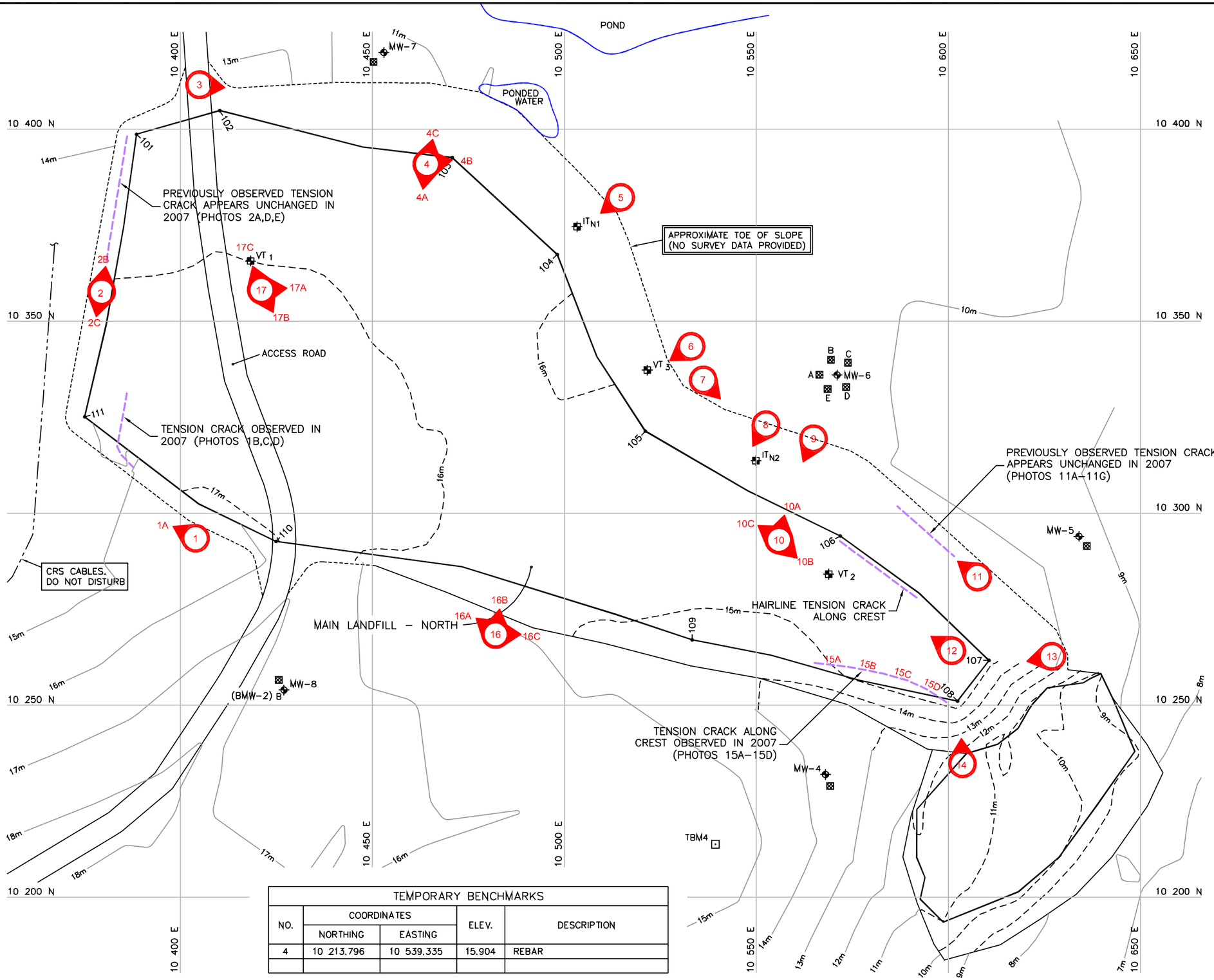
For 2007, the monitoring requirements for the Main Landfill North include visual inspection, soil sampling, groundwater sampling, and thermal monitoring.

A.1.2 Visual Inspection

Based on the 2007 visual inspection, the Main Landfill North (MLFN) area appears to be in good condition and does not exhibit signs of imminent slope instability or final cover failure. However, overall landfill performance has been assessed as "marginal" as a result of significant tension crack development. Appendix A1 presents a summary of the 2007 visual inspection results.

There are minor erosion gullies and rills on the north slope (Photo locations 6, 7, 8 and 9 on Figure A-1) that appear to be self-armouring and unchanged from previous inspections. These areas should be monitored for increased deepening of erosion gullies. The maximum erosion gully depth observed in 2007 is approximately 0.2 m.

A total of five tension cracks were observed at the MLFN, including two previously observed cracks and three new cracks. A tension crack on the west slope (Photo location 2 on Figure A-1) appears to be unchanged since 2005 with no indications of recent movement or progressive instability. A new tension crack in the southwest corner of the landfill that extends 4 m along the south slope and 10 m onto the crest was observed in 2007 (Photos MLFN-1B, 1C and 1D in Appendix A2). A midslope tension crack (Photos MLFN-11A through 11G in Appendix A2) appears unchanged since the 2005 inspection with a maximum width of approximately 0.1 m, however a hairline tension crack was observed in 2007 along the crest above this midslope crack indicating potential slope instability. A 30 m long tension crack along the southeast crest (Photos MLFN-15A through 15D in Appendix A2) was also observed in 2007. The crack has a rounded scarp shape on the crest (Photo MLFN-15C) and it appears that the southeast crest of the landfill (near as-built Coordinate Point No. 108) may have slumped as much as 0.3 m (vertical) over several metres (horizontal) since completion of construction as a result of slope movement in this corner of the landfill (to be confirmed by survey). Tension cracks and adjacent slopes should be monitored during future inspections for increased size and movement, respectively.



TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
4	10 213.796	10 539.335	15.904	REBAR

LEGEND:

- TBM4 — TEMPORARY BENCHMARK
- MONITORING WELL LOCATION
- VT — VERTICAL THERMISTOR
- IT — INCLINED THERMISTOR
- 101 — COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- 3 — APPROXIMATE PHOTOGRAPH LOCATION (3 = MLFN3)
- TENSION CRACK

MONITORING WELLS			
NO.	COORDINATES		GROUND ELEV.
	NORTHING	EASTING	
MW-4	10 232	10 568	14.0
MW-5	10 294	10 634	8.9
MW-6	10 336	10 571	10.0
MW-7	10 420	10 453	10.9
MW-8	10 254	10 427	16.5

THERMISTORS			
NO.	COORDINATES		GROUND ELEV.
	NORTHING	EASTING	
ITN1	10 374.6	10 503.3	13.11
ITN2	10 313.7	10 549.9	12.23
VT1	10 365.7	10 418.3	15.68
VT2	10 284.2	10 568.8	15.27
VT3	10 337.2	10 521.6	13.73

COORDINATE POINTS			
NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
101	10 398.7	10 388.6	15.4
102	10 404.9	10 410.3	15.0
103	10 392.6	10 470.8	15.6
104	10 367.4	10 498.1	15.9
105	10 321.4	10 521.1	15.6
106	10 294.1	10 571.8	15.2
107	10 261.7	10 610.6	15.4
108	10 251.1	10 602.4	15.5
109	10 267.0	10 533.3	14.8
110	10 292.7	10 424.9	17.0
111	10 325.1	10 375.1	16.6

DATA SOURCES:
DRAWING BY UMA
CM–RD02.DWG
DATED: APRIL, 2002
DEW LINE CLEAN UP LANDFILL MONITORING PLAN CAM–M – CAMBRIDGE BAY MAIN LANDFILL NORTH FIGURE CAM–M.2

0 5 10 20 30 Metres

SCALE 1:1000

REVIEWED BY : DL/AK
PREPARED BY : PW/NTO
DATE ISSUED : OCTOBER, 2007
PROJECT NO. : 70–517
FILE NAME : 70517 FIG A–1.dwg
REVISION : 0

Project: DEW Line Montioring
Location: Cambridge Bay, Nunavut
Client: Defence Construction Canada

MAIN LANDFILL NORTH

Gartner Lee

Figure No. A-1

A.1.3 Soil Sampling

Soil samples were collected at the designated locations of MW-4, MW-5, MW-6A, MW-6B, MW-6C, MW-6D, MW-6E, MW7 and MW8. The sampling locations are shown on Figure A-1. At each location wherever possible two samples were collected at approximately 0.10 m below ground and between 0.40-0.50 m below ground. A photograph of each test pit for each location sampled is shown in Appendix A3.

Eight additional samples were collected around MW-6 in accordance with pre-season discussions due to the presence of hydrocarbons in the area in previous monitoring events.

Total Petroleum Hydrocarbons (TPH) (C6-34) were detected in both the shallow and depth samples from sample location MW-6B, which was located North of MW-6. Samples CM-MW-6B-1 and CM-MW-6B-2 represent the shallow and depth samples respectively for this test pit. The concentrations should be evaluated in the context of the Landfill Monitoring plan, and should be compared to Defence Construction Canada's (DCC) internal Dew Line Clean Up standards. The highest concentrations of hydrocarbons were found in the F3 fraction (C16-34). No other soil samples at the Main Landfill – North contained detectable levels of TPH (>40mg/kg).

Analytical results and depths of samples are provided in Table A-1 and the Laboratory certificate is provided in Appendix G.

Table A-1. CAM-M Cambridge Bay, Summary of 2007 Soil Analysis - Main Landfill - North

Sample Ident.	Sample Location	Depth (m)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Zinc (mg/kg)	Petroleum Hydrocarbons				PCB Total Aroclors (mg/kg)
												TPH (C6-34) (mg/kg)	C6-C10 (mg/kg)	C10-C16 (mg/kg)	C16-C34 (mg/kg)	
Upgradient Samples																
CM-MW-8-1	(BMW-2) MW-8	0.1	2.8	< 0.2	13	6	12	7.4	< 0.01	11	17	< 20				< 0.03
CM-MW-8-2	(BMW-2) MW-8	0.5	3.0	< 0.2	10	4	9	5.6	< 0.01	9	11	< 20				< 0.03
Downgradient Samples																
CM-MW-4-1	MW-4	0.1	2.8	< 0.2	19	8	12	6.2	< 0.01	16	26	< 20				< 0.03
CM-14-1*	MW-4	0.1	2.7	< 0.2	17	7	13	6	< 0.01	15	22	< 20				< 0.03
CM-MW-4-2	MW-4	0.5	3.0	< 0.2	17	7	11	5.3	< 0.01	15	20	< 20				< 0.03
CM-14-2*	MW-4	0.5	3.0	< 0.2	15	6	11	5.2	< 0.01	13	22	< 20				< 0.03
CM-MW-5-1	MW-5	0.1	4.5	< 0.2	10	5	12	6.9	< 0.01	11	9	< 20				< 0.03
CM-MW-5-2	MW-5	0.5	3.3	< 0.2	22	7	17	6.8	< 0.01	17	28	< 20				< 0.03
CM-MW-6A-1	MW-6	0.1	4.3	< 0.2	24	9	14	7.1	< 0.01	19	29	< 20				< 0.03
CM-MW-6A-2	MW-6	0.5	2.0	< 0.2	10	6	17	7	< 0.01	11	8	< 20				< 0.03
CM-MW-6B-1	MW-6	0.1	1.5	0.3	8	4	11	10.6	0.02	11	149	33000	260	2800	38000	0.07
CM-MW-6B-2	MW-6	0.5	2.5	< 0.2	15	4	10	4.9	< 0.01	12	20	1300	140	200	1000	< 0.03
CM-MW-6C-1	MW-6	0.1	3.8	< 0.2	23	9	15	6.7	< 0.01	19	29	< 20				< 0.03
CM-MW-6C-2	MW-6	0.5	3.7	< 0.2	25	8	17	7	< 0.01	19	32	< 20				< 0.03
CM-MW-6D-1	MW-6	0.1	3.8	< 0.2	12	5	12	5.5	< 0.01	11	13	< 20				< 0.03
CM-MW-6D-2	MW-6	0.5	3.9	< 0.2	27	10	18	7.4	< 0.01	21	34	< 20				< 0.03
CM-MW-6E-1	MW-6	0.1	2.8	0.2	20	7	18	5.7	0.08	22	40	< 20				< 0.03
CM-MW-6E-2	MW-6	0.5	2.8	< 0.2	23	8	14	6.7	< 0.01	18	28	< 20				< 0.03
CM-MW-7-1	MW-7	0.1	1.8	< 0.2	8	2	4	2.3	< 0.01	5	7	< 20				< 0.03
CM-MW-7-2	MW-7	0.5	7.9	< 0.2	17	5	9	5.4	< 0.01	13	19	< 20				< 0.03

***** *Denotes duplicate sample. (Further information located in Table 1 of main report)*

A.1.4 Groundwater

Groundwater depths and monitoring well condition were documented for observation wells MW-4, MW-5, MW-6, MW-7 and MW-8. The monitoring well development records are provided in Appendix A4. Generally the observation wells were in good condition. Neither MW-4, or MW-5 contained a j-plug cap, however a j-plug cap could not be installed on MW-4 due to the insufficient amount of clearance between the top of the pipe and the casing lid. It is recommended that a j-plug cap be installed in MW-5 and a slip-on cap be installed on MW-4 to help prevent surface water from entering the well. In each of the wells, the bentonite seal had heaved up inside of the protective casing to an elevation parallel to, or above, the top of the monitor pipe (TOP). Excess bentonite around the top of the pipe was removed to permit access to the well without contaminating the well. Standing water was observed in the casings of MW-6 and MW-7 at an elevation above the TOP and is noted in the Monitoring Well Development records.

Observation well MW-4 had an insufficient volume of water to sample. All other wells at the Main Landfill – North were purged and sampled. The groundwater samples were analyzed for total concentration of inorganics, total petroleum hydrocarbons and PCBs. The results are presented in Table A-2 and the laboratory certificate is provided in Appendix G.

Table A-2. CAM-M Cambridge Bay, Summary of 2007 Groundwater Analysis - Main Landfill - North

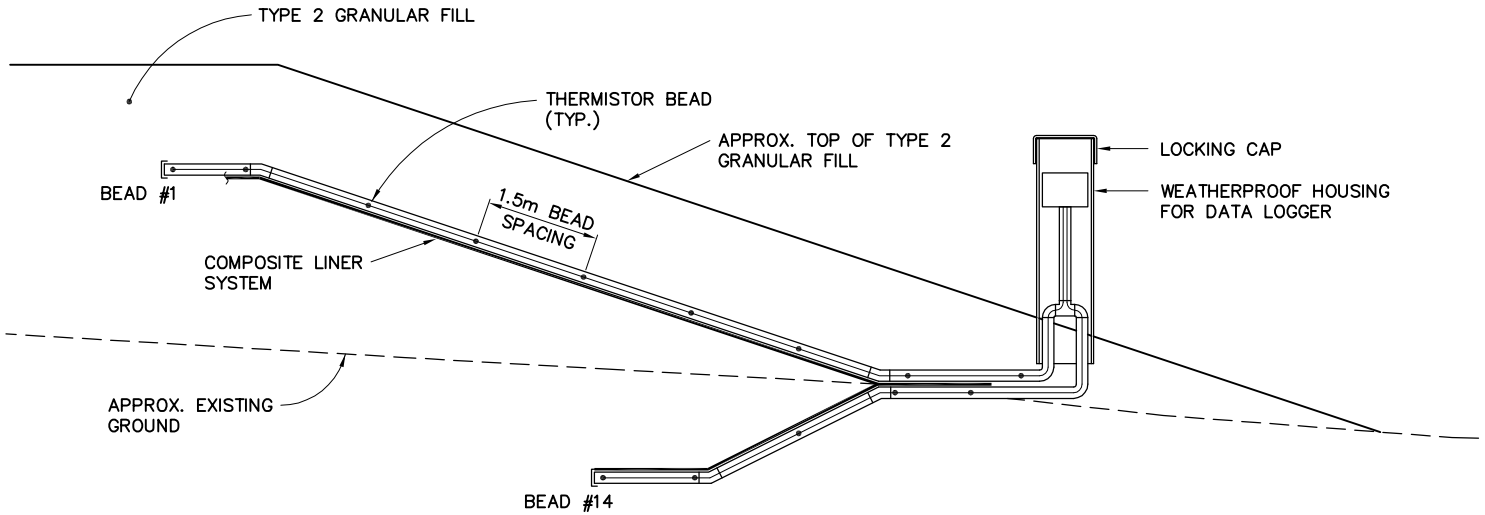
Sample Ident.	Location	Groundwater Elevation (masl)	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Petroleum Hydrocarbons				PCB Total Aroclors (mg/L)
												TPH (C6-34) (mg/L)	C6-C10 (mg/L)	C10-C16 (mg/L)	C16-C34 (mg/L)	
Upgradient Samples																
CM-MW-8	(BMW-2) MW-8	15.75	0.0008	< 0.00004	0.0009	0.01	0.0035	< 0.0002	< 0.00002	0.068	0.016	< 0.1				< 0.0004
Downgradient Samples																
CM-MW-5	MW-5	7.82	0.001	0.00025	0.0054	0.042	0.0051	< 0.0002	< 0.00002	0.831	0.16	< 0.1				< 0.0004
CM-MW-6	MW-6	9.37	0.0045	0.00022	0.0078	0.0093	0.0044	< 0.0002	< 0.00002	0.061	0.083	0.17	< 0.1	< 0.25	< 0.25	< 0.0004
CM-MW-7	MW-7	10.72	0.0035	0.00014	0.0056	0.002	0.0053	0.0002	< 0.00002	0.06	0.39	< 0.1				< 0.0004

** Denotes duplicate sample. (Further information located in Table 1 of main report)*
Note: mg/L = 1000 ug/L

A.1.5 Thermal Monitoring

The manual readings taken from each thermistor from the Main Landfill – North are provided in the maintenance records located in Appendix A5. The data downloaded from the data loggers spanned 2006 and 2007. The tabulated summary data from the thermistors for both 2006 and 2007 are contained in Appendix A5. The graphs for the 2007 data for these thermistors are provided in Graphs 1 through 5, located in Appendix A6. The graphs for the 2006 data for these thermistors are provided in Graphs 6 through 10 located in Appendix A7.

Data from all thermistors were downloaded, data loggers were reset and were provided with new batteries. A maintenance record was completed for each thermistor and is located in Appendix A5. A full download of the thermistor data loggers should be completed the summer of 2010.



National Défense
Defence nationale

DEW LINE CLEAN UP
CAM-M CAMBRIDGE BAY

MAIN LANDFILL - NORTH
INCLINED THERMISTOR INSTALLATION

FIGURE A-2

uma

Appendix A Attachments

A1 Site Condition/Visual Inspection Records

A2 Geotechnical Inspection Photographic Records

A3 Monitoring Photographic Records

A4 Monitoring Well Development Records

A5 Thermistor Data Tables 2007, 2006 & Maintenance Records

A6 Thermistor Graphs 2007

A7 Thermistor Graphs 2006

A8 Field Notes

Appendix A1

Site Condition/Visual Inspection Records

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

SITE NAME:	Cambridge Bay CAM-M
LANDFILL DESIGNATION:	Main Landfill North
DATE OF INSPECTION:	August 2007
DATE OF PREVIOUS INSPECTION:	August 2005
INSPECTED BY:	Darrin Johnson, P.Eng.
REPORT PREPARED BY:	Darrin Johnson, P.Eng.

VISUAL INSPECTION REPORT– MAIN LANDFILL NORTH - PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to landfill features)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records (Photo number referenced in photo log and on figures)	Additional Comments/Preliminary Stability Assessment
Settlement	No								
Erosion	Yes	50 m of north slope in vicinity of VT3 and ITN2	20 m (length of slope)	50 m (width of affected area)	0.2 m max.	1,000m2/ 10,000m2 = 10%	Erosion gullies max. 0.3 m wide spaced about 2-3 m apart	MLFN 6, 7A, 7B, 8, 9	Self-armouring; acceptable
Frost Action	No								
Animal Burrows	No								
Vegetation	Sparse								
Staining	No								
Vegetation Stress	No								
Seepage Points	No								
Debris Exposed	No								
Presence/Condition – Monitoring Instruments	Good								
Features of Note	Yes	West, northeast, southeast, and southwest slopes	10 to 30 m	0.1 m max.	0.1 m max.	2,000m2/ 10,000m2 = 20%	Tension cracks on slopes and crests, scarp shaped crack on crest with deformation	MLFN 1A-1D, 2A-2E, 11A-11G, 15A-15D	Marginal
General							General	MLFN 3, 4A-4C, 5, 10A-10C, 12, 13, 14, 16A-16C, 17A-17C	

PRELIMINARY STABILITY ASSESSMENT – MAIN LANDFILL NORTH

Feature	Severity Rating	Extent
Settlement	Not Observed	None
Erosion	Acceptable	Occasional
Frost Action	Not Observed	None
Staining	Not Observed	None
Vegetation Stress	Not Observed	None
Seepage/Ponded Water	Not Observed	None
Debris Exposed	Not Observed	None
Tension Cracks	Marginal	Numerous
Overall Landfill Performance	**Marginal**	

Appendix A2

Geotechnical Inspection Photographic Records

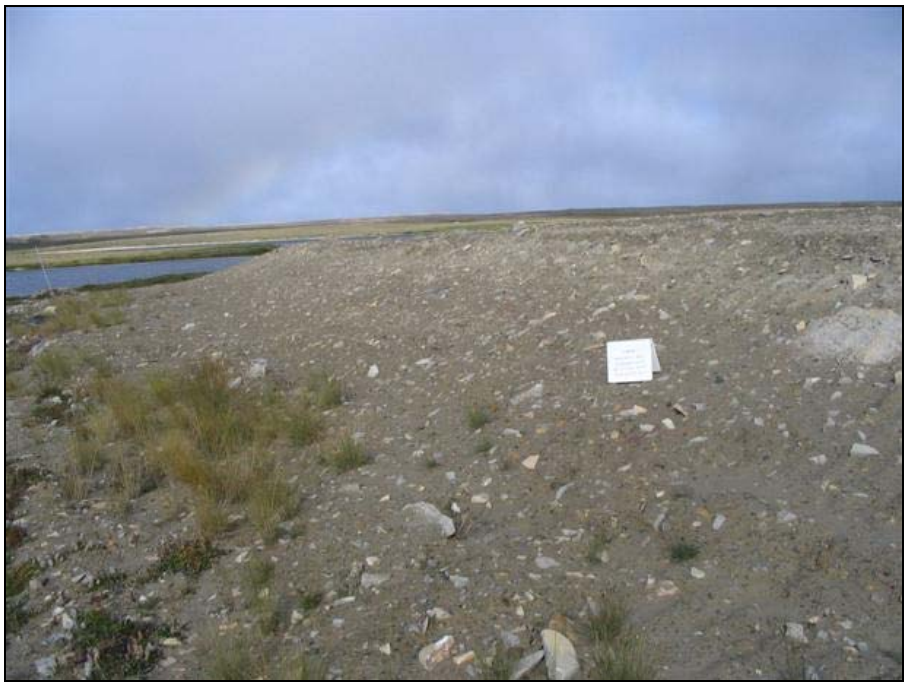


Photo MLFN-1A, Easting: 495755, Northing: 7667517, Direction: 300°
Main Landfill North; south slope, west of road
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-1B, Easting: 495755, Northing: 7667517, Direction: 110°
Main Landfill North; 2.5 cm wide by 2.5 cm deep by 4 meters long crack on south slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-1C, Easting: 495755, Northing: 7667517, Direction: 20°
Main Landfill North; view of crack on crest that extends for 10 m
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-1D, Easting: 495755, Northing: 7667517, Direction: 20°
Main Landfill North; max crack width approximately 5 cm, max crack depth approximately 7.5 cm
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-2A, Easting: 495727, Northing: 7667665, Direction: 0°
Main Landfill North; tension crack on slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-2B, Easting: 495755, Northing: 7667517, Direction: 0°
Main Landfill North; view of slope facing north

Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-2C, Easting: 495727, Northing: 7667665, Direction: 180°
Main Landfill North; view of slope facing south
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-2D, Easting: 495755, Northing: 7667517, Direction: 45°
Main Landfill North; close-up of crack
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-2E, Easting: 495727, Northing: 7667665, Direction: 45°
Main Landfill North; end of crack at top of slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

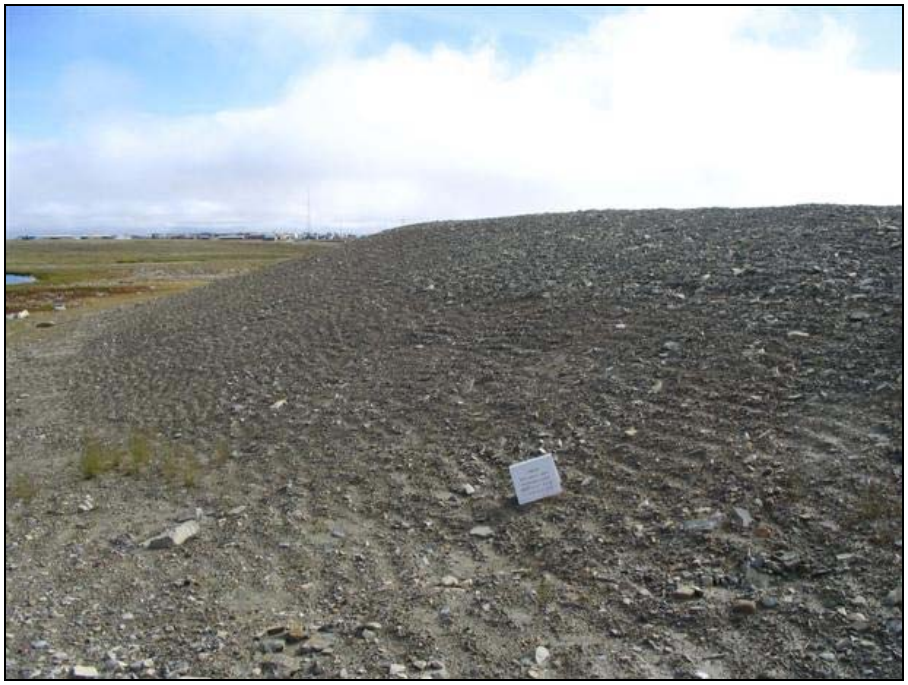


Photo MLFN-3, Easting: 495757, Northing: 7667622, Direction: 90°
Main Landfill North; north slope east of road
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-4A, Easting: 495814, Northing: 7667617, Direction: 180°
Main Landfill North; Some undulations and ponded water at top of landfill
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-4B, Easting: 495814, Northing: 7667617, Direction: 90°
Main Landfill North; north slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-4C, Easting: 495814, Northing: 7667617, Direction: 0°
Main Landfill North; downslope towards ponded water at toe
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

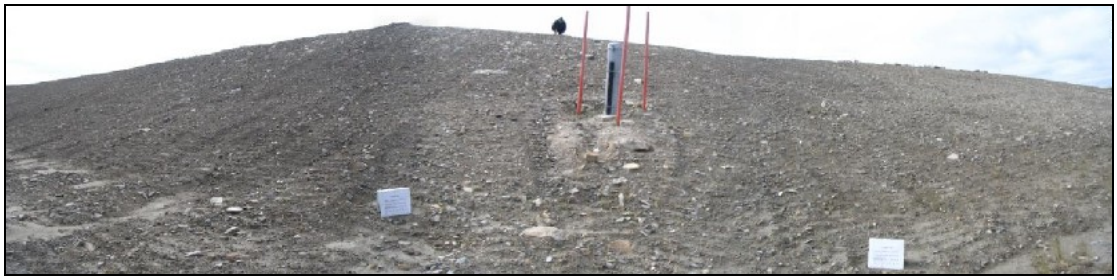


Photo MLFN-5, Easting: 495878, Northing: 7667562, Direction: 225°
Main Landfill North; facing up slope at IT_{N1}
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-6, Easting: 495814, Northing: 7667617, Direction: 225°
Main Landfill North; Erosion gullies about 0.3 m wide and 0.2 m deep spaced approximately 2 – 3 m apart
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-7A, Easting: 495874, Northing: 7667561, Direction: 110°
Main Landfill North; looking across erosion gullies on slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-7B, Easting: 495874, Northing: 7667561, Direction: 110°
Main Landfill North; view of fines covering vegetation at toe
Scale: field book dimensions are 29.5 cm wide by 20.0 cm in height

Photo MLFN-8, Easting: 495874, Northing: 7667564; Direction: 200°
Main Landfill North; looking up erosion channel West of ITN2 about 0.3 m wide and 0.1 m deep
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-9, Easting: 495898, Northing: 7667542, Direction: 200°
Main Landfill North; view of erosion gullies
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-10A, Easting: 495895, Northing: 7667528, Direction: 20°
Main Landfill North; looking down slope at erosion
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-10B, Easting: 495895, Northing: 7667528, Direction: 110°
Main Landfill North; facing east along crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-10C, Easting: 495895, Northing: 7667528, Direction: 300°
Main Landfill North; facing west along crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-11A, Easting: 495916, Northing: 7667534
Main Landfill North; west end of crack along toe of slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-11B, Easting: 495916, Northing: 7667534
Main Landfill North; crack max width 0.1 m, max depth 0.1 m
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-11C, Easting: 495916, Northing: 7667534
Main Landfill North; crack along toe of slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-11D, Easting: 495916, Northing: 7667534
Main Landfill North; crack along toe of slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-11E, Easting: 495916, Northing: 7667534
Main Landfill North; crack along toe of slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-11F, Easting: 495916, Northing: 7667534
Main Landfill North; crack along toe of slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-11G, Easting: 495916, Northing: 7667534
Main Landfill North; east end of crack along toe of slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-12, Easting: 495951, Northing: 7667491, Direction: 315°
Main Landfill North; along crest above crack below, hairline crack along crest not visible in photo
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-13, Easting: 495970, Northing: 7667473, Direction: 250°
Main Landfill North; southeast corner slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-14, Easting: 495960, Northing: 7667457, Direction: 0°
Main Landfill North; southeast corner slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-15A, Easting: 495927, Northing: 7667478, Direction: 110°
Main Landfill North; tension crack along crest, west end
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-15B, Easting: 495927, Northing: 7667478, Direction: 110°
Main Landfill North; tension crack along crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-15C, Easting: 495927, Northing: 7667478, Direction: 110°
Main Landfill North; tension crack along crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-15D, Easting: 495927, Northing: 7667478, Direction: 110°
Main Landfill North; tension crack along crest, east end
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-16A, Easting: 495866, Northing: 7667488, Direction: 290°
Main Landfill North; south central facing west
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-16B, Easting: 495866, Northing: 7667488, Direction: 0°
Main Landfill North; south central facing north
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-16C, Easting: 495866, Northing: 7667488, Direction: 90°
Main Landfill North; south central facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-17A, Easting: 495768, Northing: 7667581, Direction: 90°
Main Landfill North; east of road facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-17B, Easting: 495768, Northing: 7667581, Direction: 140°
Main Landfill North; east of road facing southeast
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFN-17C, Easting: 495768, Northing: 7667581, Direction: 0°
Main Landfill North; east of road facing north
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Appendix A3

Monitoring Photographic Records

Test pit CM-MW-4. Samples CM-MW-4-1 and CM-MW-4-2 collected. Samples with identification numbers ending in “1” (ex. CM-MW-4-1) collected at 0-10cm and samples with identification numbers ending in “2” collected at 40-50cm.

Test Pit CM-MW-5. Samples CM-MW-5-1 and CM-MW-5-2 collected.

Test pit CM-MW-6A. Samples CM-MW-6A-1 and CM-MW-6A-2 collected.

Test Pit CM-MW-6B. Samples CM-MW-6B-1 and CM-MW-6B-2 collected.

Test pit CM-MW-6C. Samples CM-MW-6C-1 and CM-MW-6C-2 collected.

Test pit CM-MW-6D. Samples CM-MW-6D-1 and CM-MW-6D-2 collected.

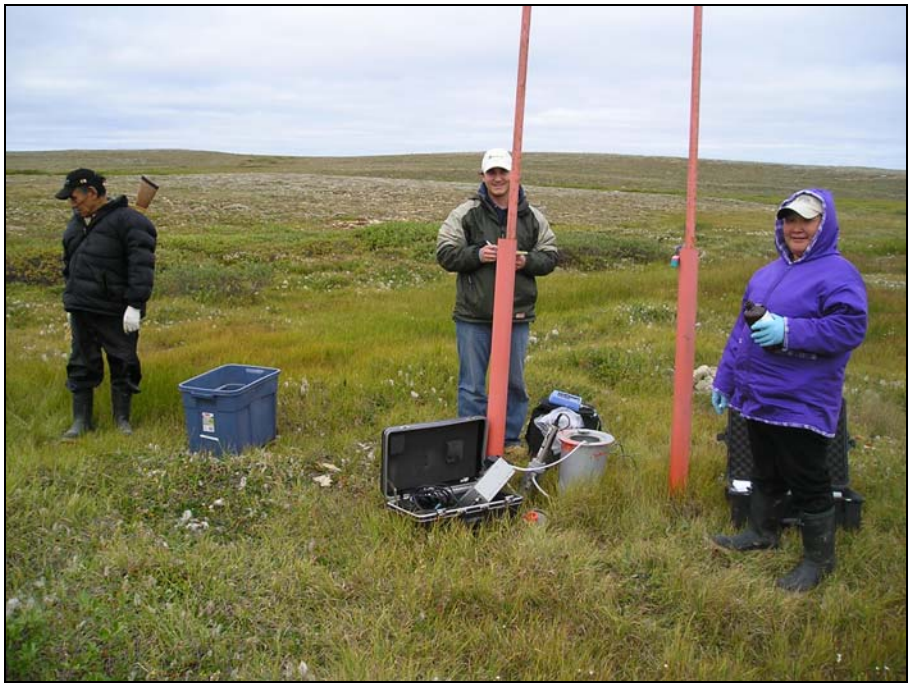
Test pit CM-MW-6E. Samples CM-MW-6E-1 and CM-MW-6E-2 collected.

Test pit CM-MW-7. Samples CM-MW-7-1 and CM-MW-7-2 collected.

Test pit CM-MW-8 (Upgradient). Samples CM-MW-8-1 and CM-MW-8-2 collected.

Monitoring well MW-4. No sample collected as well MW-4 was dry

Monitoring well MW-5. Sample CM-MW-5 collected.



Monitoring well MW-6. Sample CM-MW-6 collected.

Monitoring well MW-7. Sample CM-MW-7 collected. Bentonite swollen to top of pipe (TOP) and standing water inside well casing over TOP.

Monitoring well MW-8 (Upgradient). Sample CM-MW-8 collected.

Vertical thermistor VT-1.

Vertical thermistor VT-2.

Vertical thermistor VT-3.

Inclined thermistor ITN-1.

Inclined thermistor ITN-2.

Appendix A4

Monitoring Well Development Records

Monitoring Well Observations (MW-04)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	16-Aug-07	Time:	15:00
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill North		
Monitoring Well ID:	MW-4		
Sample Number:	No Sample Collected		
Condition of Well:	Good, bentonite swollen to top of well.		
Measured Data			
Well height above ground (cm)=	13		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=		Method:	Interface meter
Static water level (cm)=		From ground surface	
Depth to bottom (cm)=	122	Evidence of sludge or siltation:	no
Depth of water (cm)=			
Well volume of water (mL)=			
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	N	Procedure/Equipment:	N/A
Volume Purged Water (L)=	0		
Decontamination required: (Y/N)	N	*Notes:*	
Number washes:	0	Insufficient water to collect sample	
Number rinses:	0		
pH=	-		
Conductivity (uS/cm)=	-		
Temperature (degC)=	-		

n/a=not applicable

Monitoring Well Observations (MW-05)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	15:20
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill North		
Monitoring Well ID:	MW-5		
Sample Number:	CM-MW-5		
Condition of Well:	Good, missing j-plug		
Measured Data			
Well height above ground (cm)=	10		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=	118	Method:	Interface meter
Static water level (cm)=	108	From ground surface	
Depth to bottom (cm)=	142	Evidence of sludge or siltation:	no
Depth of water (cm)=	24		
Well volume of water (mL)=	471.24		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	1.5		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	6.92		
Conductivity (uS/cm)=	8490		
Temperature (degC)=	1.5		

n/a=not applicable

Monitoring Well Observations (MW-06)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	16-Aug-07	Time:	17:35
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill North		
Monitoring Well ID:	MW-6		
Sample Number:	CM-MW-6		
Condition of Well:	Good, water over TOP, bentonite over TOP		
Measured Data			
Well height above ground (cm)=	15		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=	78	Method:	Interface meter
Static water level (cm)=	63	From ground surface	
Depth to bottom (cm)=	106	Evidence of sludge or siltation:	no
Depth of water (cm)=	28		
Well volume of water (mL)=	549.78		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	4		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	6.82		
Conductivity (uS/cm)=	8090		
Temperature (degC)=	2.4		

n/a=not applicable
TOP = Top Of Pipe

Monitoring Well Observations (MW-07)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	16-Aug-07	Time:	16:50
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill North		
Monitoring Well ID:	MW-7		
Sample Number:	CM-MW-7		
Condition of Well:	Good, water over TOP		
Measured Data			
Well height above ground (cm)=	15		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=	33	Method:	Interface meter
Static water level (cm)=	18	From ground surface	
Depth to bottom (cm)=	162	Evidence of sludge or siltation:	no
Depth of water (cm)=	129		
Well volume of water (mL)=	2532.91		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	12 L		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1	Water entered well upon removal of j-plug. Purged 12L of water to ensure that sample was not impacted by water which entered the well from the surface.	
Number rinses:	1		
pH=	6.79		
Conductivity (uS/cm)=	1510		
Temperature (degC)=	2.8		

n/a=not applicable

Monitoring Well Observations (MW-08)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	16-Aug-07	Time:	15:35
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill North		
Monitoring Well ID:	MW-8		
Sample Number:	CM-MW-8		
Condition of Well:	Good, bentonite swollen over j-plug		
Measured Data			
Well height above ground (cm)=	10		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=	85	Method:	Interface meter
Static water level (cm)=	75	From ground surface	
Depth to bottom (cm)=	170	Evidence of sludge or siltation:	no
Depth of water (cm)=	85		
Well volume of water (mL)=	1668.97		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	3		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	7.19		
Conductivity (uS/cm)=	4390		
Temperature (degC)=	2.7		

n/a=not applicable

Appendix A5

Thermistor Data Tables 2007, 2006 & Maintenance Records

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**16-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Main Landfill - North**		
Thermistor Number:	**VT1**		Inclination		**Vertical**		
Install Date:	**25-Sep-99**		First Date Event		**18-Aug-05** Last Date Event		**16-Aug-07**
Coordinates and Elevation		N	**10337**	E	**10522**	Elev	**13.7**
Length of Cable (m)	**6.1**	Cable Lead Above Ground (m)		**3.7**	Nodal Points	**7**	
Datalogger Serial #	**1 - 807037**				Cable Serial Number		**TS-7NCV#2**

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.90 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**13040**	**4.5**
2	**13680**	**3.5**
3	**15150**	**1.5**
4	**16820**	**-0.5**
5	**17910**	**-1.7**
6	**18840**	**-2.7**
7	**19600**	**-3.4**

Bead	ohms	Temp. (ºC)

Observations and Proposed Maintenance

Grounding cable had come loose. I reconnected it.

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**16-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Main Landfill - North**		
Thermistor Number:	**VT2**		Inclination		**Vertical**		
Install Date:	**25-Sep-99**		First Date Event		**18-Aug-05**	Last Date Event	**16-Aug-07**
Coordinates and Elevation		N	**10284**	E	**10569**	Elev	**15.3**
Length of Cable (m)	**6.1**		Cable Lead Above Ground (m)	**3.8**	Nodal Points	**7**	
Datalogger Serial #	**2 - 807029**				Cable Serial Number		**TS-7NCV#3**

Code CAM-MVT2

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **13.26 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**12520**	**5.3**
2	**12920**	**4.6**
3	**13570**	**3.7**
4	**14330**	**2.6**
5	**15300**	**1.3**
6	**16250**	**0.2**
7	**17010**	**-0.7**

Bead	ohms	Temp. (ºC)

Observations and Proposed Maintenance

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**16-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Main Landfill - North**		
Thermistor Number:	**VT3**		Inclination		**Vertical**		
Install Date:	**25-Sep-99**		First Date Event		**18-Aug-05**	Last Date Event	**16-Aug-07**
Coordinates and Elevation		N	**10366**	E	**10418**	Elev	**15.7**
Length of Cable (m)	**6.1**		Cable Lead Above Ground (m)	**3.7**	Nodal Points	**7**	
Datalogger Serial #	**3 - 807028**				Cable Serial Number		**TS-7NCV#1**

Code CAM-MVT3

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.53 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**12330**	**5.6**
2	**12670**	**5.0**
3	**13390**	**4.0**
4	**14210**	**2.8**
5	**15110**	**1.5**
6	**16370**	**0.0**
7	**17020**	**-0.8**

Bead	ohms	Temp. (ºC)

Observations and Proposed Maintenance

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**16-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Main Landfill - North**		
Thermistor Number:	**ITN1**		Inclination		**Inclined**		
Install Date:	**25-Sep-99**		First Date Event	**18-Aug-05**	Last Date Event		**16-Aug-07**
Coordinates and Elevation	N	**10375**	E	**10503**	Elev	**Varies**	
Length of Cable (m)	**22.5**	Cable Lead Above Ground (m)	**Vari**	Nodal Points	**14**		
Datalogger Serial #	**31 - 807036**			Cable Serial Number	**TS-7NClAandB#4**		

Code CAM-MITN1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.77 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**16550**	**-0.2**
2	**17140**	**-0.9**
3	**17330**	**-1.1**
4	**17180**	**-1.0**
5	**16780**	**-0.5**
6	**16220**	**0.2**
7	**15500**	**1.1**
8	**16250**	**0.1**

Bead	ohms	Temp. (ºC)
9	**16600**	**-0.3**
10	**17830**	**-1.6**
11	**20270**	**-4.1**
12	**22630**	**-6.2**
13	**24350**	**-7.6**
14	**25360**	**-8.4**

Observations and Proposed Maintenance

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**16-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Main Landfill - North**		
Thermistor Number:	**ITN2**		Inclination		**Inclined**		
Install Date:	**25-Sep-99**		First Date Event	**18-Aug-05**	Last Date Event		**16-Aug-07**
Coordinates and Elevation	N	**10314**	E	**10550**	Elev	**Varies**	
Length of Cable (m)	**22.5**	Cable Lead Above Ground (m)	**Vari**	Nodal Points	**14**		
Datalogger Serial #	**32 - 807035**			Cable Serial Number	**TS-7NClAandB#3**		

Code CAM-MITN2

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.65 V**

Manual Ground Temperature Readings

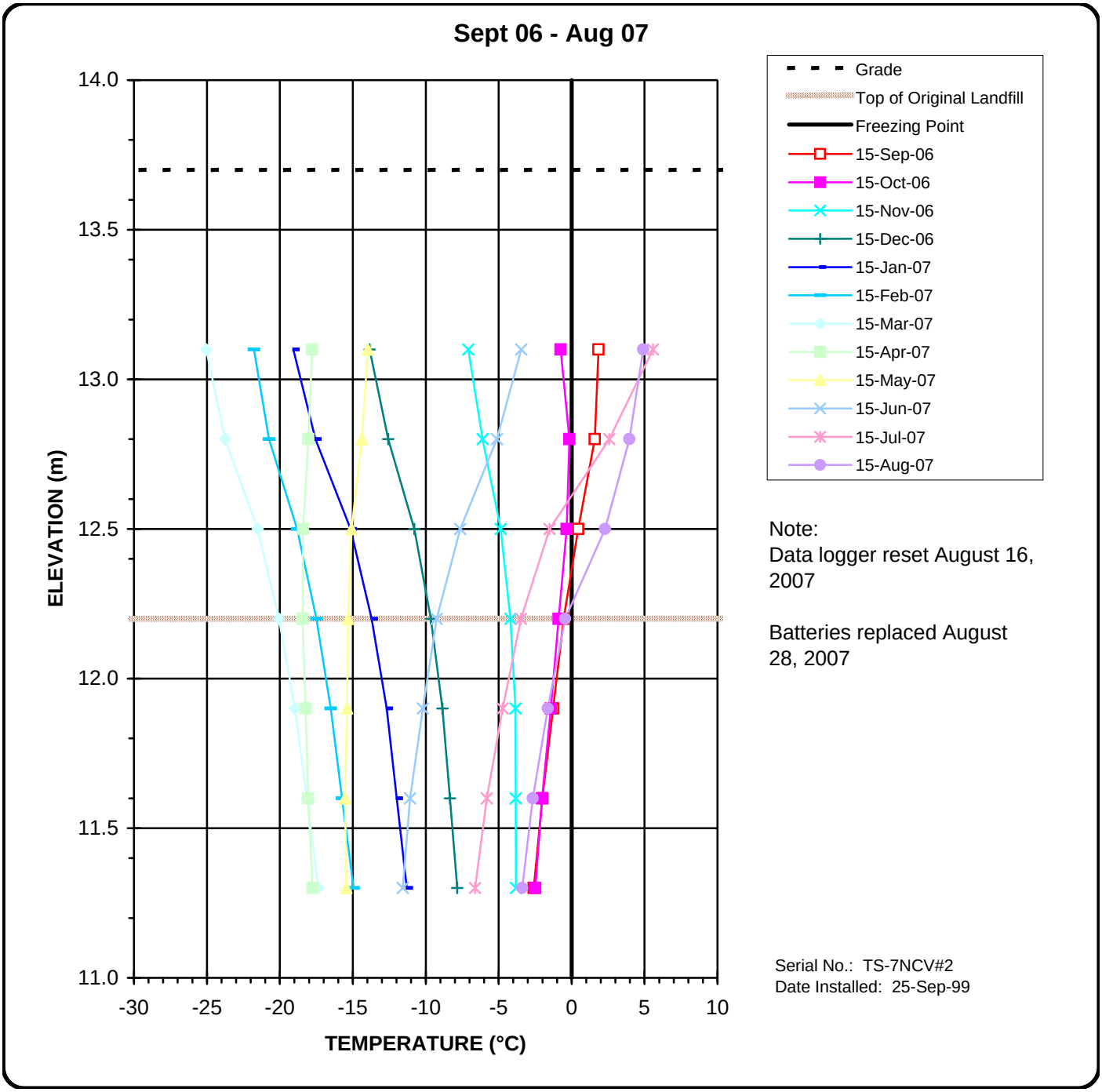
Bead	ohms	Temp. (ºC)
1	**15560**	**0.9**
2	**15160**	**1.4**
3	**14830**	**1.8**
4	**14790**	**1.8**
5	**14610**	**2.2**
6	**14610**	**2.1**
7	**15020**	**1.6**
8	**15390**	**1.3**

Bead	ohms	Temp. (ºC)
9	**15390**	**1.1**
10	**16130**	**0.3**
11	**17780**	**-1.7**
12	**20470**	**-4.3**
13	**22470**	**-6.1**
14	**23600**	**-7.0**

Observations and Proposed Maintenance

Appendix A6

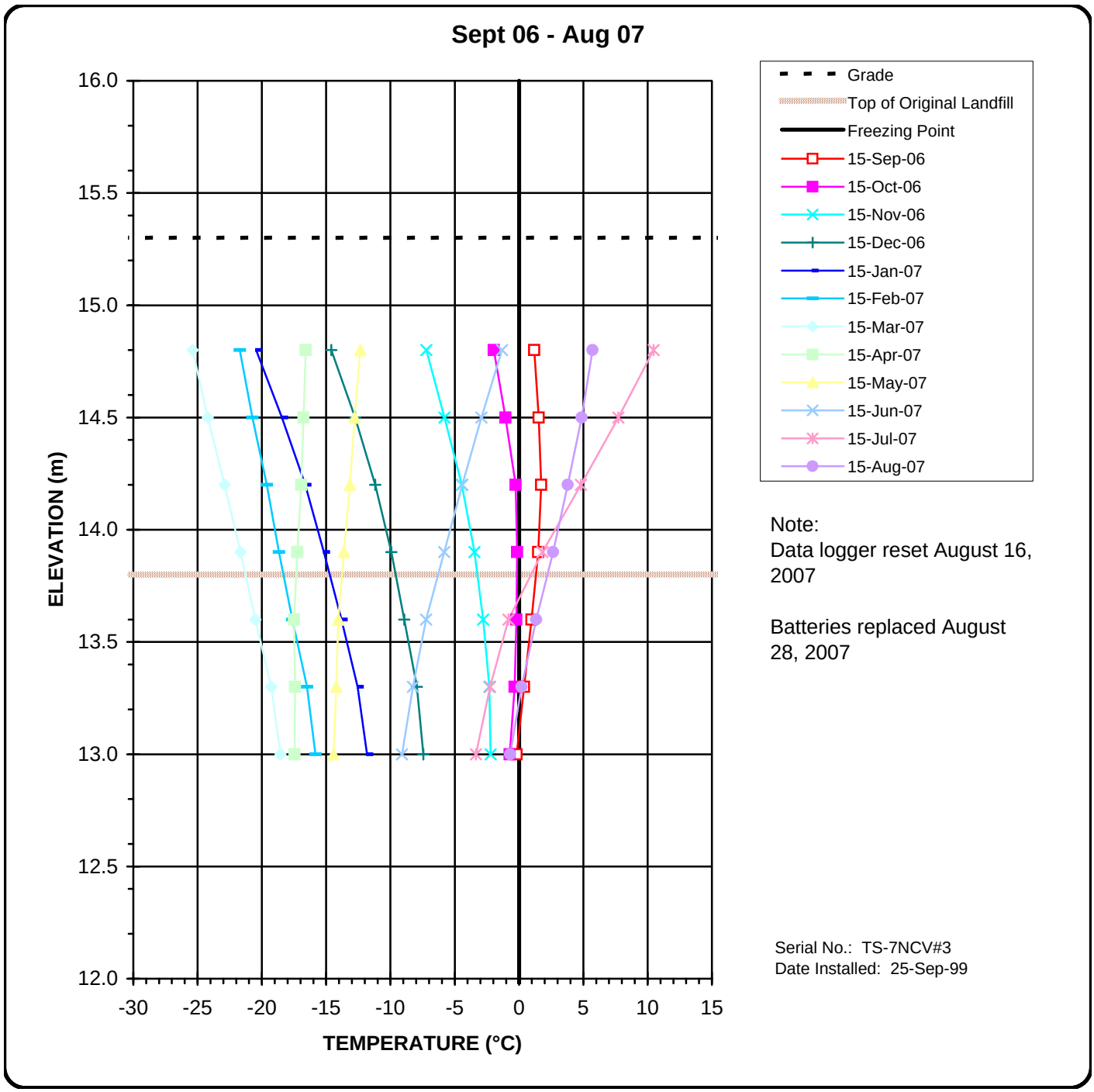
Thermistor Graphs 2007



Gartner Lee Limited

Graph 1

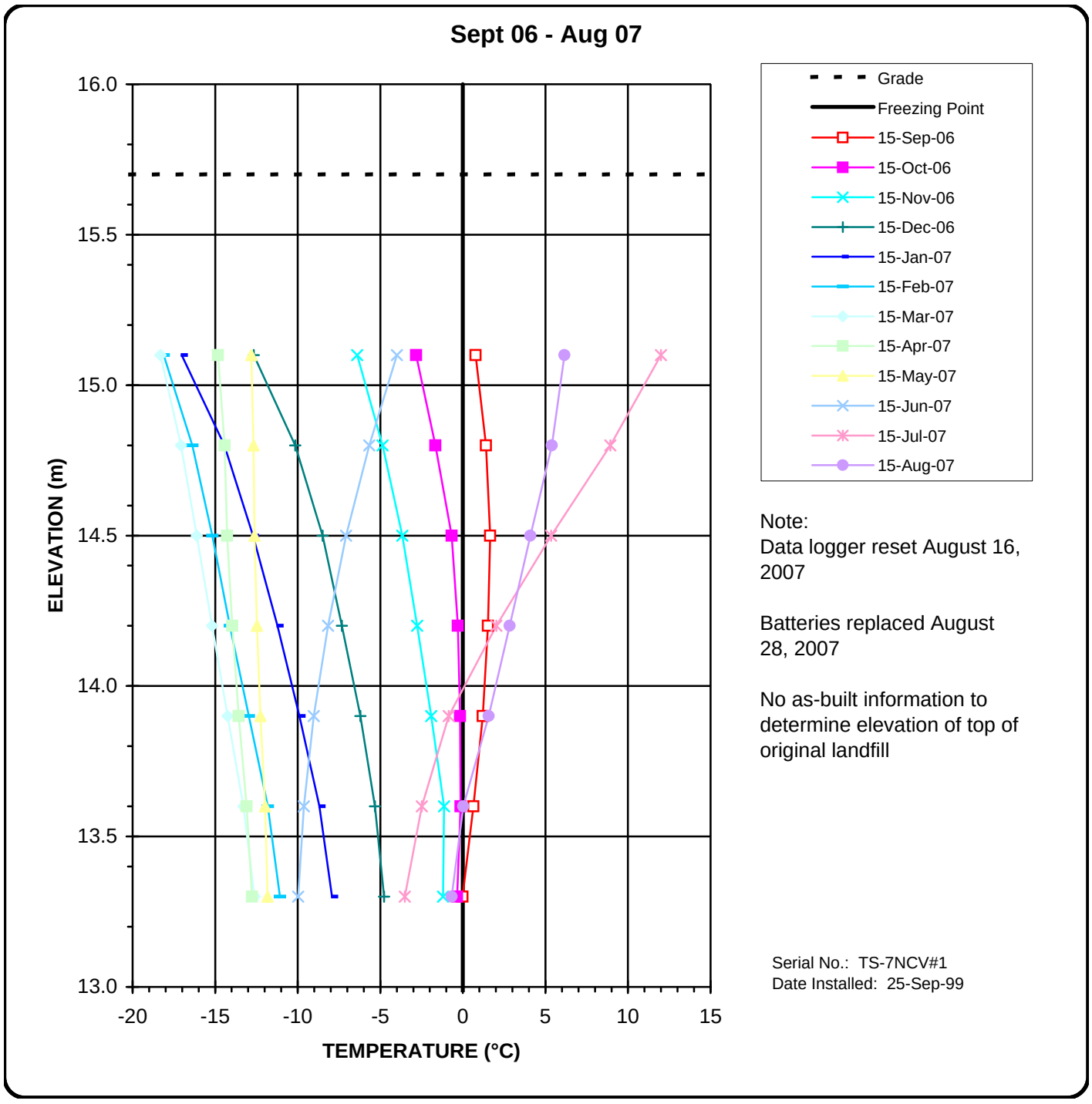
Ground Temperature Profile
Main Landfill - North
Vertical GTC VT-1



Gartner Lee Limited

Graph 2

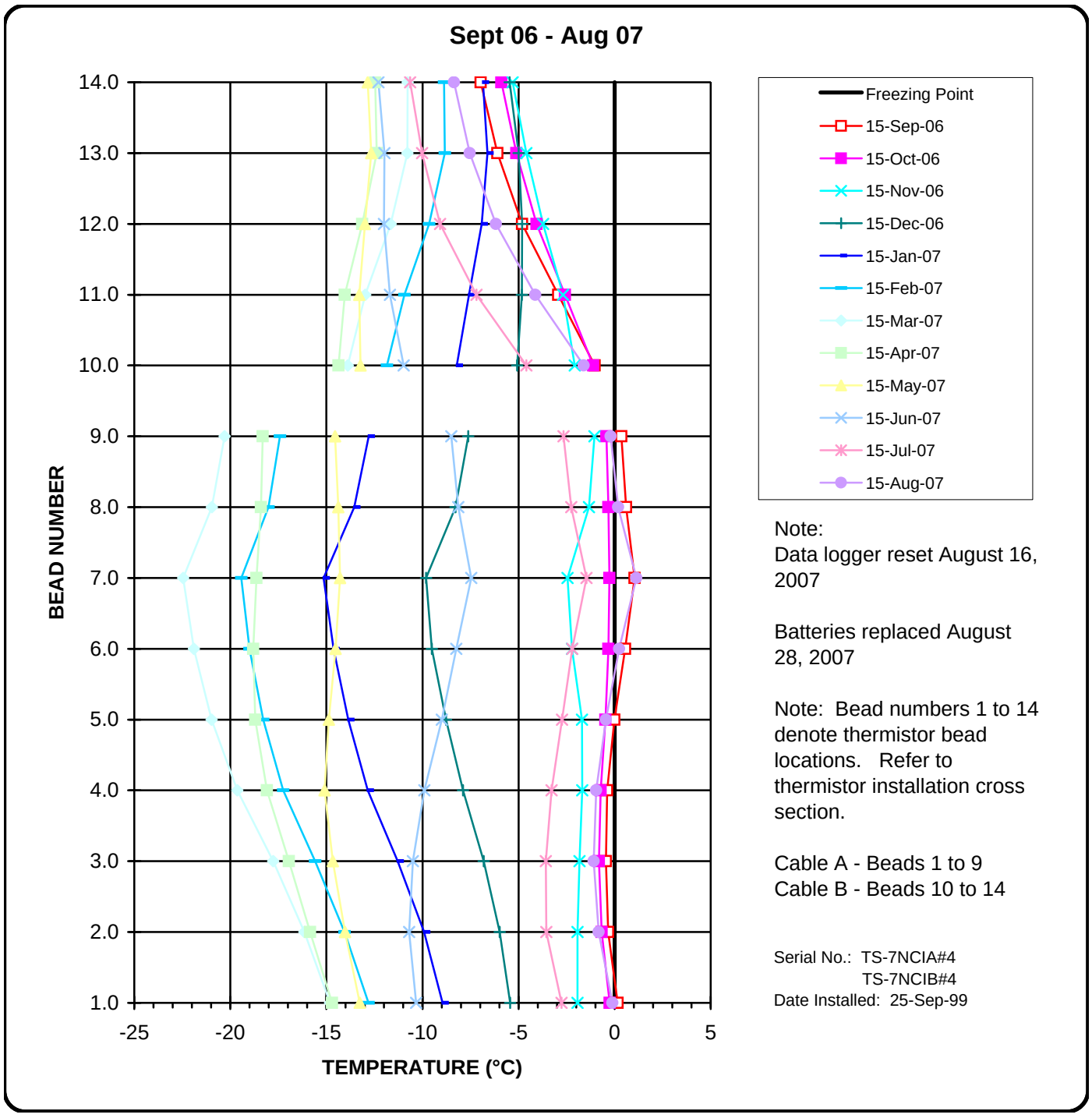
Ground Temperature Profile
Main Landfill - North
Vertical GTC VT-2



Gartner Lee Limited

Graph 3

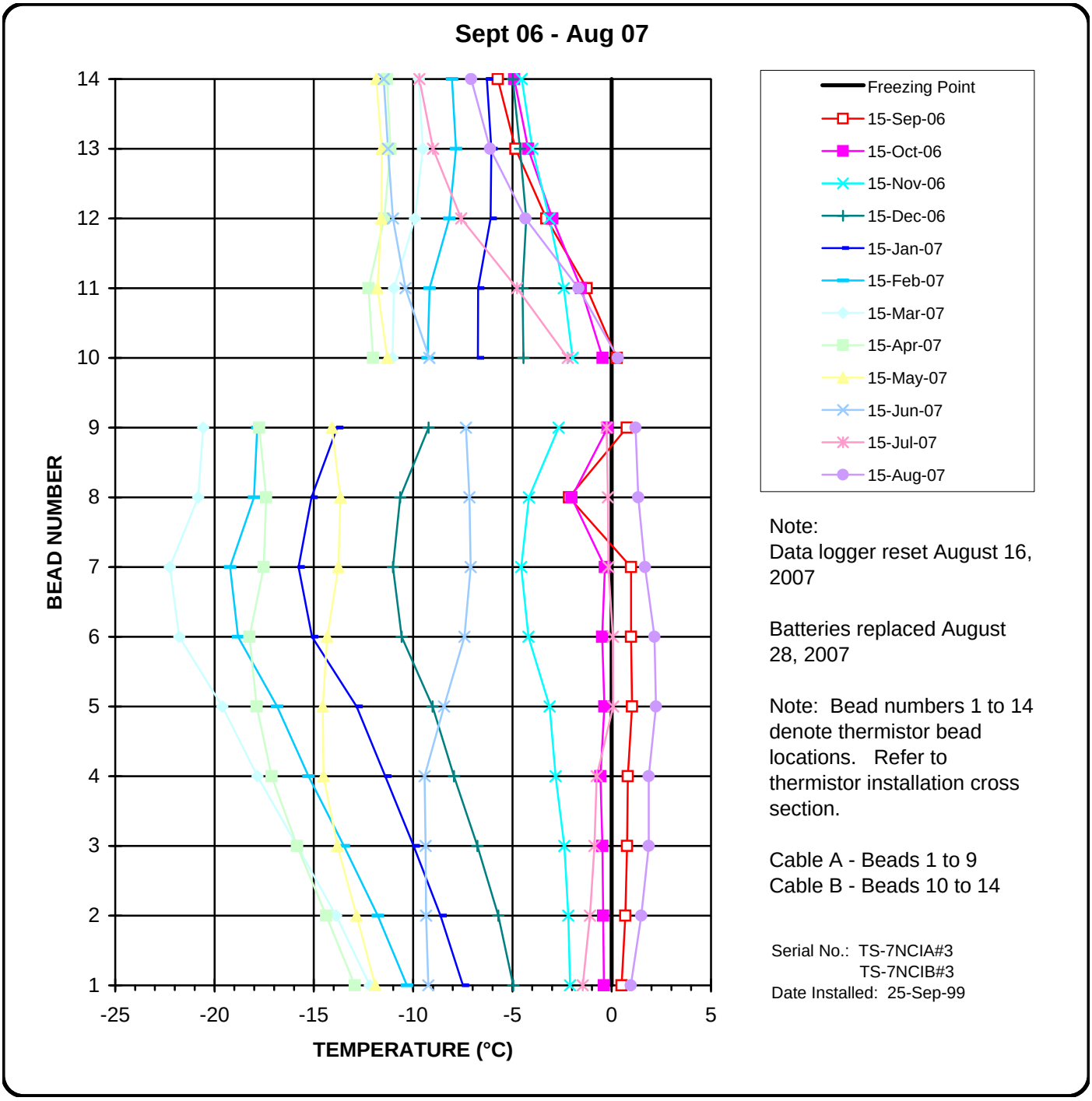
Ground Temperature Profile
Main Landfill - North
Vertical GTC VT-3



Gartner Lee Limited

Graph 4

Ground Temperature Profile
Main Landfill - North
Inclined GTC ITN1



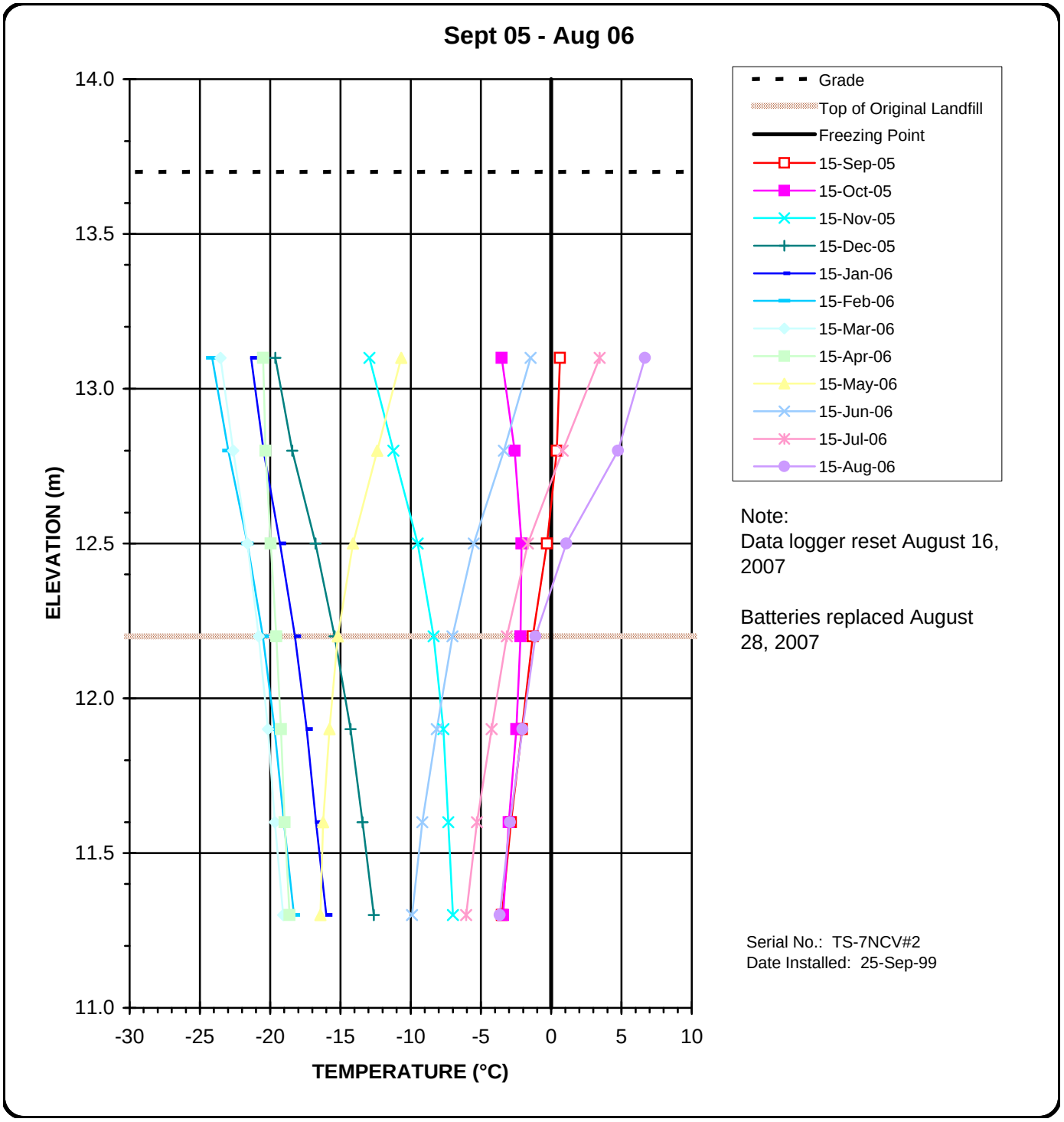
Gartner Lee Limited

Graph 5

Ground Temperature Profile
Main Landfill - North
Inclined GTC ITN2

Appendix A7

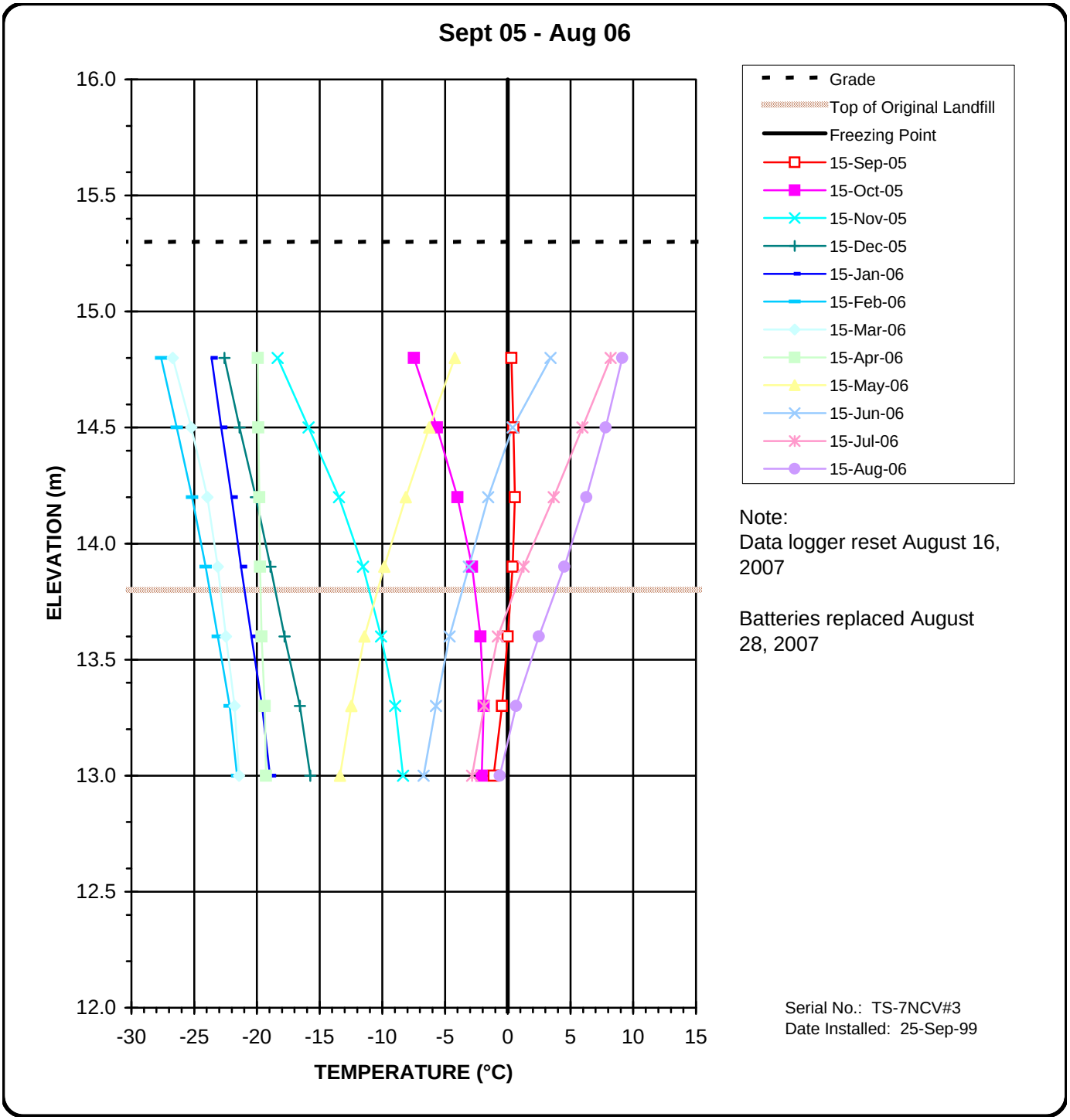
Thermistor Graphs 2006



Gartner Lee Limited

Graph 6

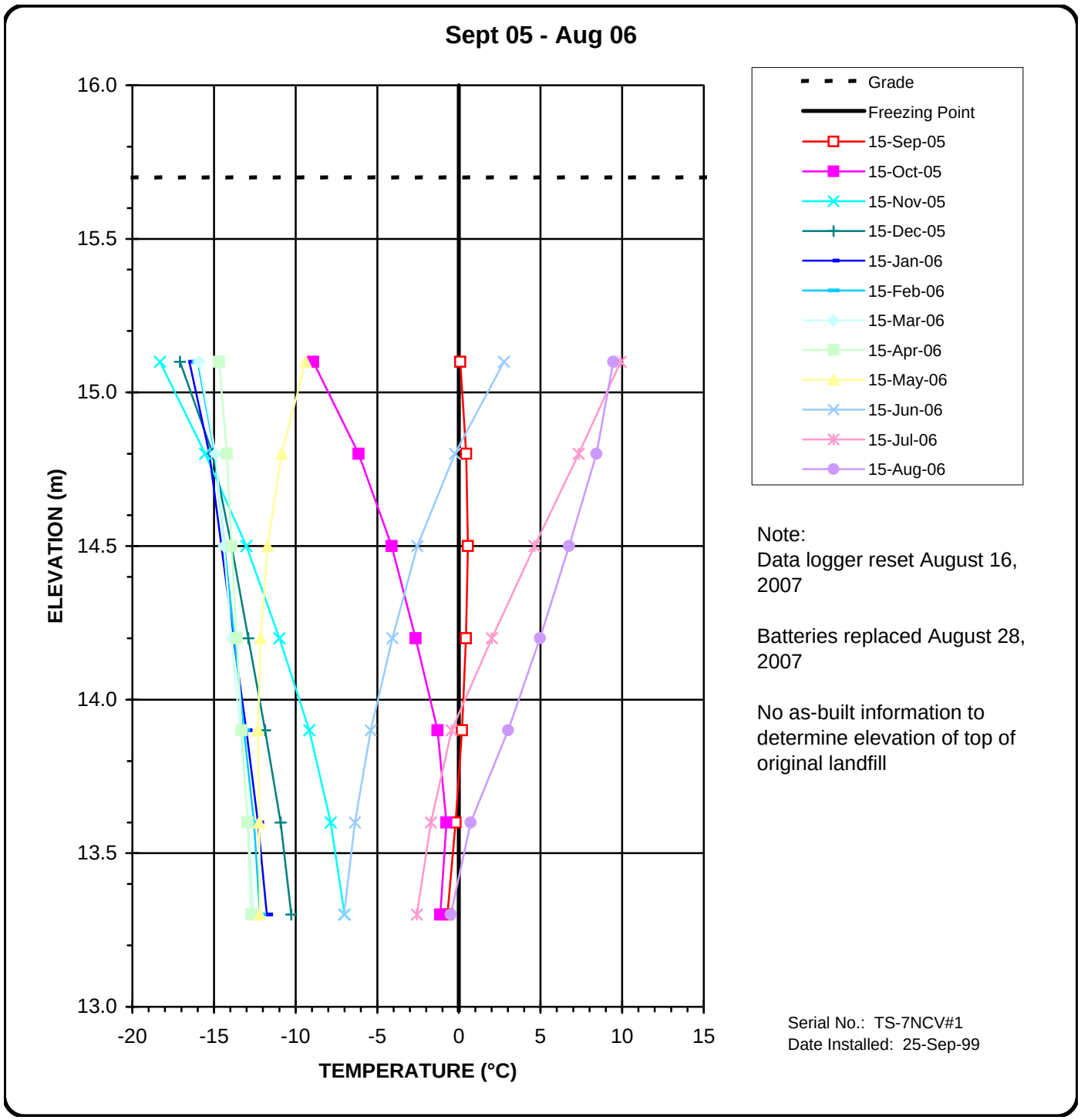
Ground Temperature Profile
Main Landfill - North
Vertical GTC VT-1



Gartner Lee Limited

Graph 7

Ground Temperature Profile
Main Landfill - North
Vertical GTC VT-2



Note:
Data logger reset August 16, 2007

Batteries replaced August 28, 2007

No as-built information to determine elevation of top of original landfill

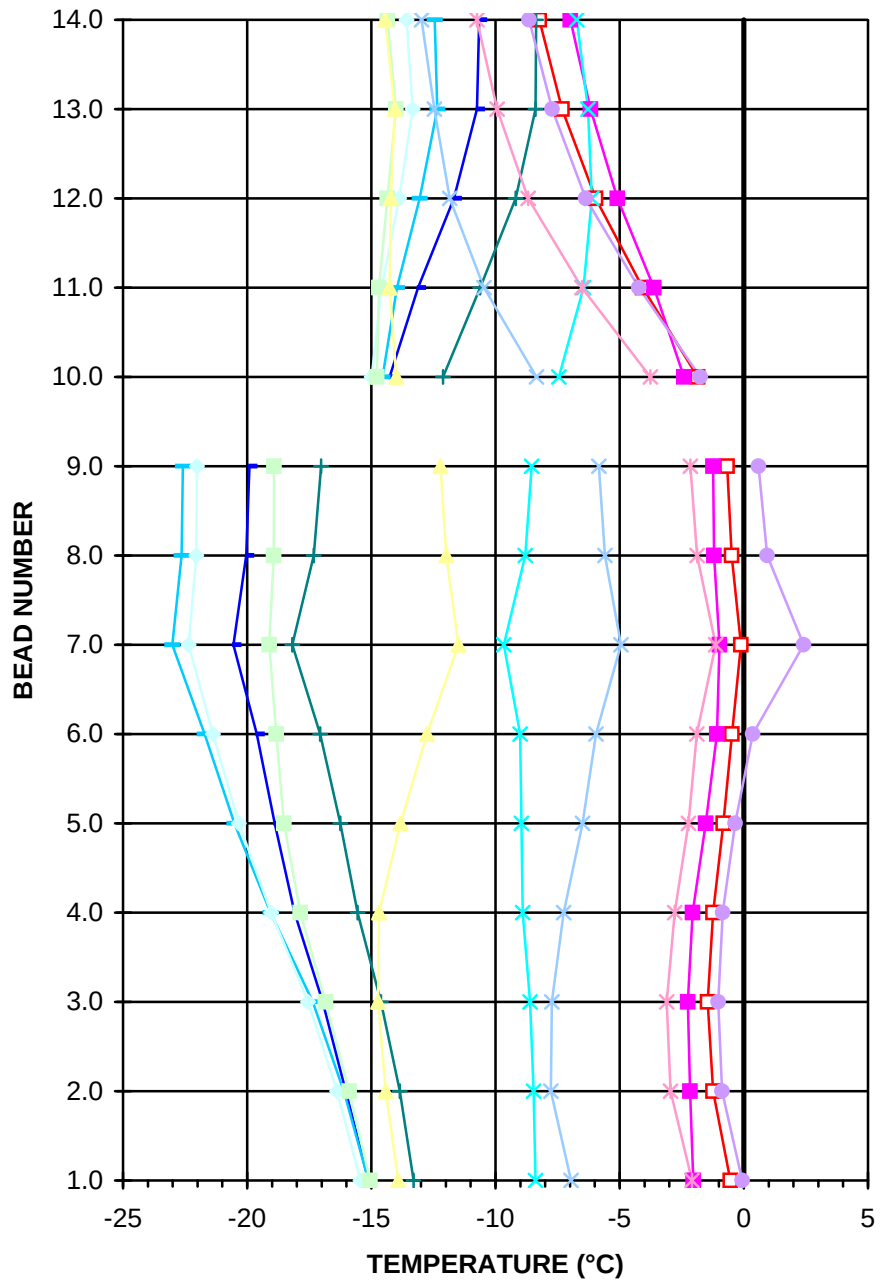
Serial No.: TS-7NCV#1
Date Installed: 25-Sep-99

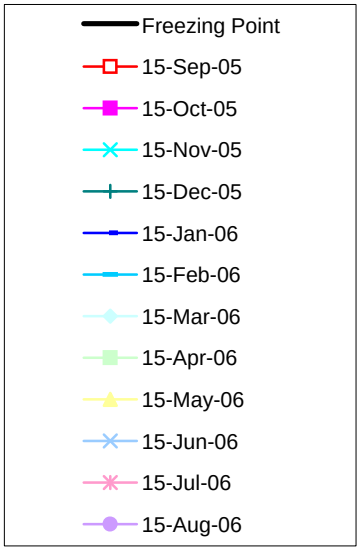
Gartner Lee Limited

Graph 8

Ground Temperature Profile
Main Landfill - North
Vertical GTC VT-3

Sept 05 - Aug 06





Note:
Data logger reset August 16, 2007

Batteries replaced August 28, 2007

Note: Bead numbers 1 to 14 denote thermistor bead locations. Refer to thermistor installation cross section.

Cable A - Beads 1 to 9
Cable B - Beads 10 to 14

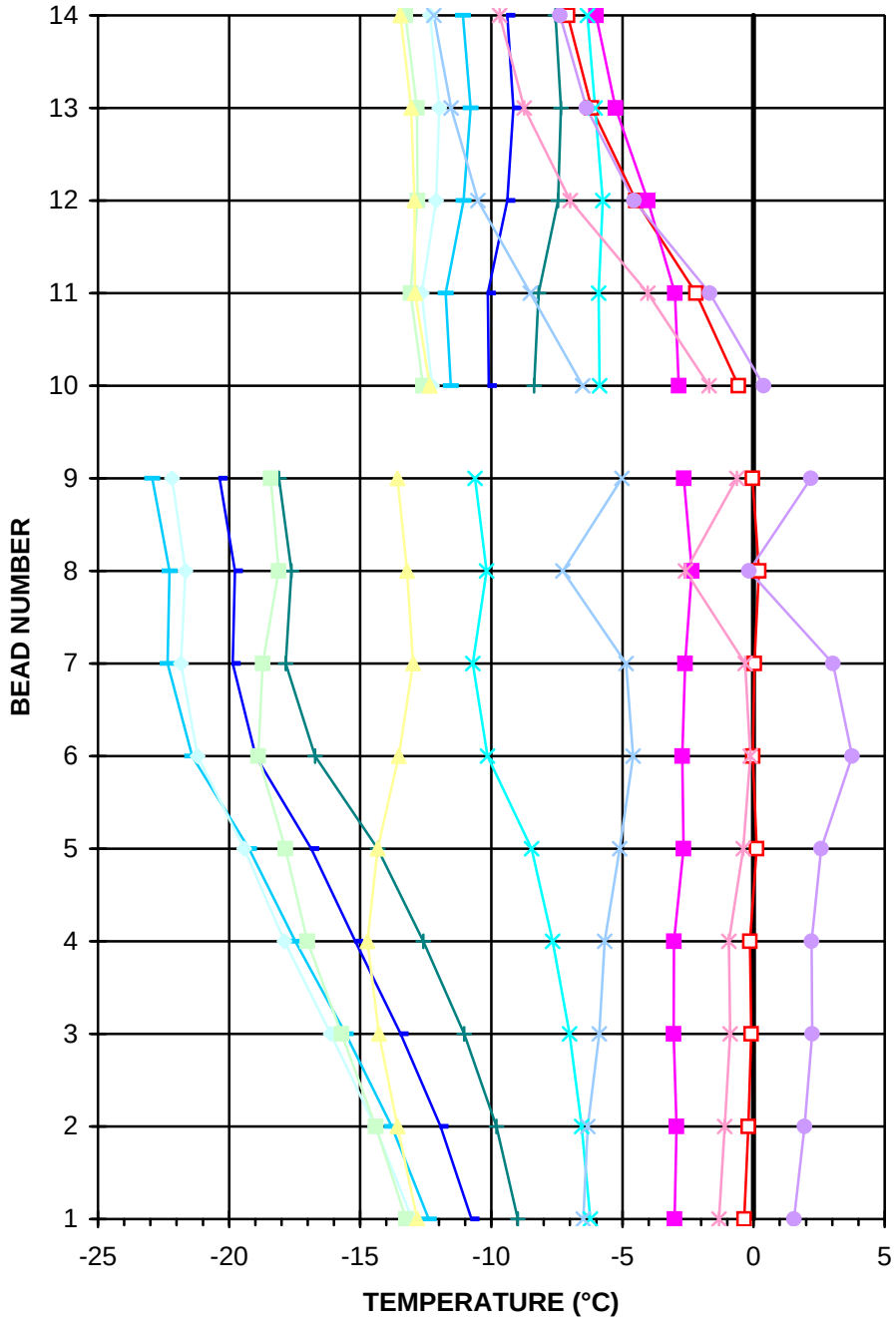
Serial No.: TS-7NCIA#4
TS-7NCIB#4
Date Installed: 25-Sep-99

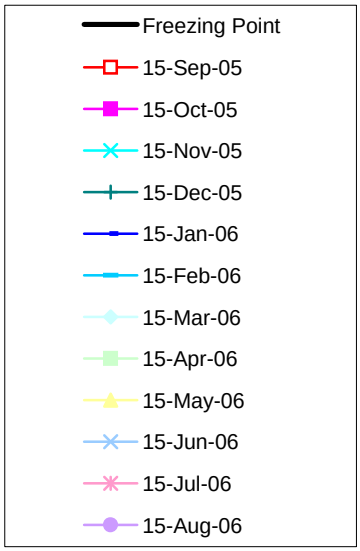
Gartner Lee Limited

Graph 9

Ground Temperature Profile
Main Landfill - North
Inclined GTC ITN1

Sept 05 - Aug 06





Note:
Data logger reset August 16, 2007

Batteries replaced August 28, 2007

Note: Bead numbers 1 to 14 denote thermistor bead locations. Refer to thermistor installation cross section.

Cable A - Beads 1 to 9
Cable B - Beads 10 to 14

Serial No.: TS-7NCIA#3
TS-7NCIB#3
Date Installed: 25-Sep-99

Gartner Lee Limited

Graph 10

Ground Temperature Profile
Main Landfill - North
Inclined ITN2

Appendix A8

Field Notes

Thursday Aug 16th, 2007 @ 9:00AM
Weather: Cold (5°C), Cloudy, Windy
Helpers: Joe Sr. (Bear monitor)
Chritalee (Sampler)
Note: Joe Jr. & Russell could not get up for work @ 8:00 AM.

Main Landfill South

ITS1 thermistor (inclined)
Condition is good
Picture 008 of ITS1

VT4 thermistor (vertical)
Condition is good
Picture 009 of VT4

ITS2 Thermistor (inclined)
Condition is good
Picture 010 of ITS2

VT5 Thermistor (Vertical)
Condition is good
Picture 011 of VT5

Aug 16, 07

Main Landfill North

VT1 thermistor (Vertical)
Condition is good, the grounding cable had come loose. I reconnected it.
Picture 012 VT1

1:00 PM
VT2 Thermistor (Vertical)
Condition is good
Picture 013 of VT2

ITN2 Thermistor (Inclined)
Condition is good
Picture 014 of ITN2

VT3 Thermistor (Vertical)
Condition is good
Picture 015 of VT3

ITN1 Thermistor (Inclined)
Condition is good
Picture 016 of ITN1

Aug 16, 07

MW-4

Picture 017 of MW-4
Well Dry, Depth to bottom of 1m 22cm
Bentonite swollen to top of pipe
no sample taken
Soil sampling
MW-4-1 @ 0-10 cm
MW-4-2 @ 40-50cm
CM-14-1 @ 0-10 cm Duplicate of MW4-1
CM-14-2 @ 40-50cm Duplicate of MW4-2
Picture 018 of soil test pit
Picture 019 of soil test pit

MW-8

Bentonite swollen up over J-plug
Sample MW-8 taken into
4 x 1000mL amber glass
1 x 500 mL plastic
1 x 250 mL amber glass
Picture 020 of MW8
Picture 021 of test pit
Sample MW-8(CM) taken

Aug 16, 07

MW-7

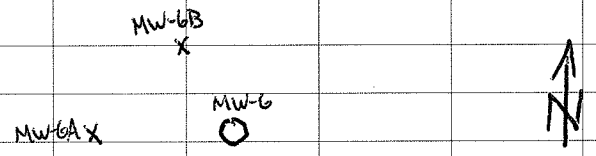
Picture 022 of well
Well in good condition, bentonite swollen to TOP and water over TOP bubbling as casing top removed from the pipe through the J-plug
When the J-plug was removed, water poured into the well
purged 12 L of water, 10 L prior to using flow through cell to try to remove water which entered well.
Sample MW7
4 x 1000mL amber glass
1 x 250 mL plastic
1 x 250 mL amber glass
Soil sampling
Water table hit @ 0.40 m
Sample collected MW-7(CM) @ 0-10cm
MW-7-2(CM) @ 40cm
Picture 023 of test pit

Aug 16, 07

MW-6

Water over top of pipe
Bentonite swelled over j-plug
Picture 024 of well ~~with water in it~~
Sample collected MLFN-MW-6
only 2x1000 mL amber glass collected due to slow refresh rate, plus 1x250 mL amber glass and 1x250 mL plastic

Soil sampling
8 additional samples collected
MW-6A-1 - west of well @ 0-10 cm
MW-6A-2 - west of well @ 40-50cm
other sample locations taken in a clock wise circle around well



Picture 025 of Testpit MW-6A
Picture 026 of Testpit MW-6B

Friday Aug 17, 2007
Tier II Landfill
Samplers: Ken Boldt
Christale
~~Joe~~ Jr.
Tom (Bear Monitor)
Weather: Cold 4-6°C, windy, overcast

MW-10

Condition is good, bentonite swollen to top of pipe, no j-plug
Picture # 027 of MW-10
Sample collected
1x250 ml amber glass
1x250 ml plastic
2x1000 ml amber glass

Soil samples
CMMW-10-1 @ 0-10cm
CMMW-10-2 @ 40-50cm
CM-15-1 Duplicate @ 0-10cm
CM-15-2 Duplicate @ 40-50cm
Picture 028 of test pit

Aug 18, 07

MW-5

Well in good condition, missing the j-plug, should be replaced

Sample collected

4 x 1000 mL amber glass

1 x 250 mL amber glass

1 x 250 mL plastic

Picture 060 of well

Soil Sampling

CM-MW-5-1 @ 0-10 cm

CM-MW-5-2 @ 40-50 cm

Picture 056 of test

MW-6

Soil Sampling

CM-MW-6C-1 @ 0-10 cm

CM-MW-6C-2 @ 40-50 cm

CM-MW-6D-1 @ 0-10 cm

CM-MW-6D-2 @ 40-50 cm

CM-MW-6E-1 @ 0-10 cm

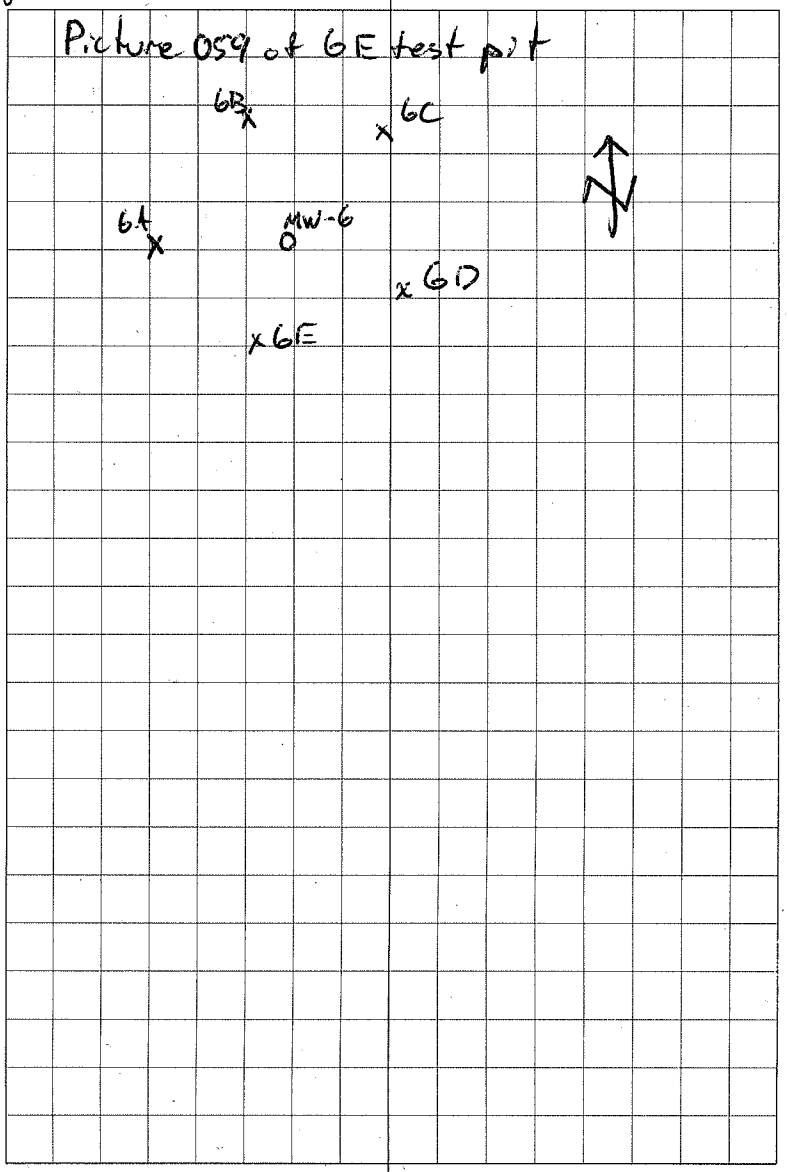
CM-MW-6E-2 @ 40-50 cm

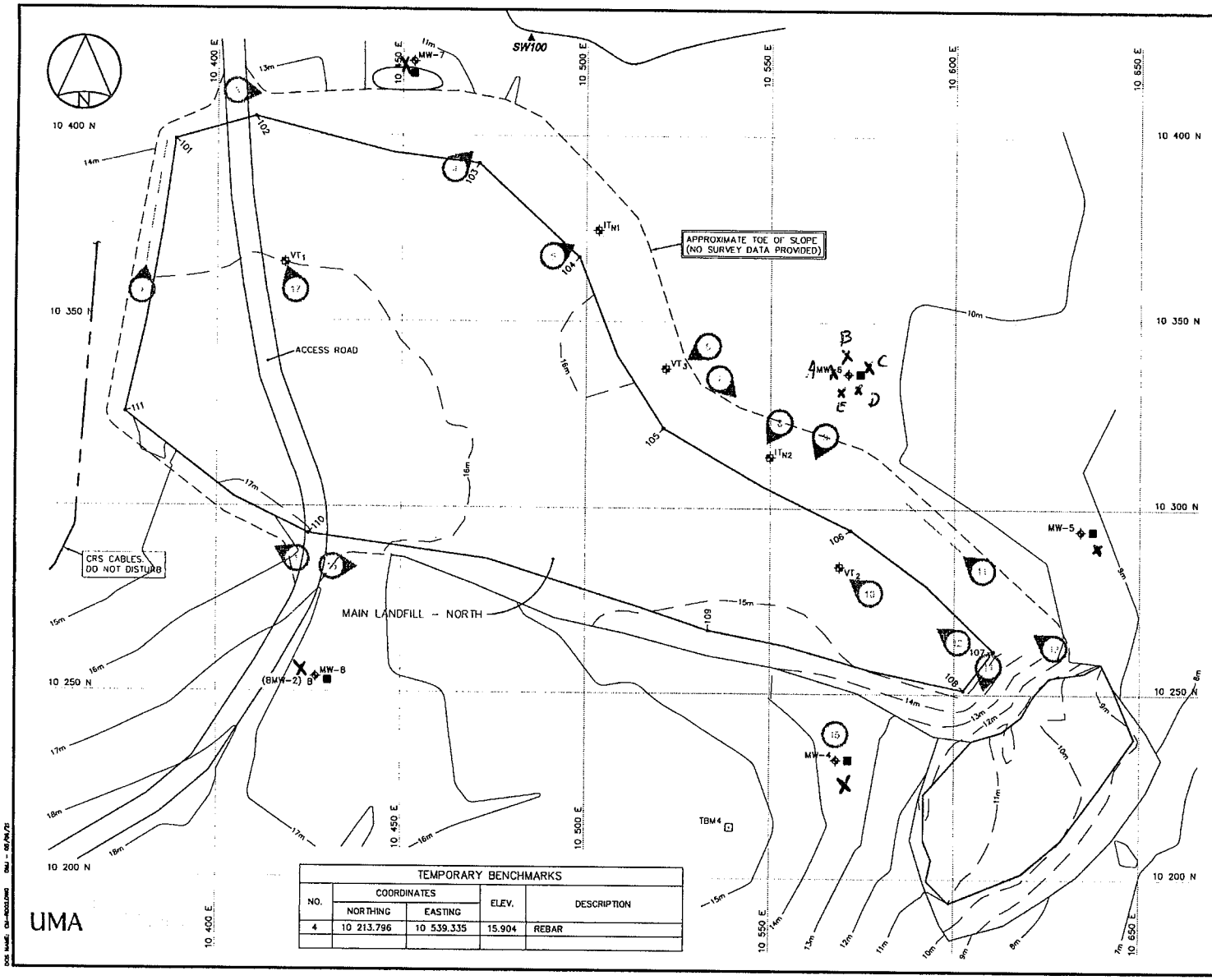
Picture 057 of 6C test pit

Picture 058 of 6D test pit

Aug 18

Picture 059 of 6E test pit





LEGEND:

- TBM4 — TEMPORARY BENCHMARK
- MONITORING WELL LOCATION
- VT — VERTICAL THERMISTOR
- IT — INCLINED THERMISTOR
- MONITORING SOIL SAMPLE LOCATION
- WATER PONDING
- PHOTOGRAPHIC VIEWPOINT
- SURFACE CRACK
- X Soil Sample 2007

MONITORING WELLS			
NO.	COORDINATES		GROUND ELEV.
	NORTHING	EASTING	
MW-4	10 232	10 568	14.0
MW-5	10 294	10 634	8.9
MW-6	10 336	10 571	10.0
MW-7	10 420	10 453	10.9
MW-8	10 254	10 427	16.5

THERMISTORS			
NO.	COORDINATES		GROUND ELEV.
	NORTHING	EASTING	
ITN1	10 374.6	10 503.3	13.11
ITN2	10 313.7	10 549.9	12.23
VT1	10 365.7	10 418.3	15.68
VT2	10 284.2	10 568.8	15.27
VT3	10 337.2	10 521.6	13.73

COORDINATE POINTS			
NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
101	10 398.7	10 388.6	15.4
102	10 404.9	10 410.3	15.0
103	10 392.6	10 470.8	15.6
104	10 367.4	10 498.1	15.9
105	10 321.4	10 521.1	15.6
106	10 294.1	10 571.8	15.2
107	10 261.7	10 610.6	15.4
108	10 251.1	10 602.4	15.5
109	10 267.0	10 533.3	14.8
110	10 292.7	10 424.9	17.0
111	10 325.1	10 375.1	16.6

TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
4	10 213.796	10 539.335	15.904	REBAR

0 10 20 30m
10 5 1:1000

UMA

DEW LINE CLEAN UP
LANDFILL MONITORING PLAN

CAM-M - CAMBRIDGE BAY

MAIN LANDFILL NORTH

FIGURE CAM-M.2

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	16-Aug-07	Time:	3:00 PM
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill – North		
Monitoring Well ID:	MW-4		
Sample Number:	~~MW-4~~	No Sample taken	
Condition of Well:	No J-plug, Bentonite swollen to top of well		
Measured Data			
Well pipe height above ground (cm)=	13		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	n/a	Measurement method: (meter, tape, etc)	interface meter
Static water level (cm)= (below ground surface)	n/a		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	122	Evidence of sludge or siltation:	no
Thickness of water column (cm)=	n/a		
Static volume of water in well (mL)=	n/a		
Free product thickness (mm)=	n/a	Measurement method: (meter, paste, etc)	interface meter
Purging: (Y/N)	N	Purging/Sampling Equipment:	—
Volume Purged Water=	—		
Decontamination required: (Y/N)	N		
Number washes:	—		
Number rinses:	—		
Final pH=	—		
Final Conductivity (uS/cm)=	—		
Final Temperature (degC)=	—		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	3:20 PM
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill - North		
Monitoring Well ID:	MW-5		
Sample Number:	CM-MW-5		
Condition of Well:	Good, missing J-plug, bentonite over TOP		
Measured Data			
Well pipe height above ground (cm)=	10		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	118	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	108		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	142	Evidence of sludge or siltation:	no
Thickness of water column (cm)=	24		
Static volume of water in well (mL)=	471		
Free product thickness (mm)=	N/A	Measurement method: (meter, paste, etc)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristaltic Pump
Volume Purged Water=	1.5 L		LDPE tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	6.92		
Final Conductivity (uS/cm)=	8490		
Final Temperature (degC)=	1.5		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	16-Aug-07	Time:	5:35 pm
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill - North		
Monitoring Well ID:	MW-6		
Sample Number:	MW-6		
Condition of Well:	Good, water over TOP, Bentonite over TOP		
Measured Data			
Well pipe height above ground (cm)=	15		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	zero		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	78	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	~~78~~ 63		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	106	Evidence of sludge or siltation:	no
Thickness of water column (cm)=	28		
Static volume of water in well (mL)=	550		
Free product thickness (mm)=	N/A	Measurement method: (meter, paste, etc)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristaltic Pump
Volume Purged Water=	4L		LDPE Tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	6.82		
Final Conductivity (uS/cm)=	8090		
Final Temperature (degC)=	2.4		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	16-Aug-07	Time:	1450
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill - North		
Monitoring Well ID:	MW-7		
Sample Number:	MLFN-MW-7		
Condition of Well:	Good, water over top of Pipe		
Measured Data			
Well pipe height above ground (cm)=	15		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	33	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	~~162~~ 18		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	162	Evidence of sludge or siltation:	NO
Thickness of water column (cm)=	129		
Static volume of water in well (mL)=	2533		
Free product thickness (mm)=	N/A	Measurement method: (meter, paste, etc)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristaltic Pump
Volume Purged Water=	12 L		LDPE Tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	6.79		
Final Conductivity (uS/cm)=	1510		
Final Temperature (degC)=	2.8		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	16-Aug-07	Time:	3:35
Names of Samplers:	Ken Bolt		
Landfill Name:	Main Landfill - North		
Monitoring Well ID:	BMW-2 (MW-8)		
Sample Number:	MW-8		
Condition of Well:	Good, Bentonite swollen over J-plug		
Measured Data			
Well pipe height above ground (cm)=	10		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	85	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	75		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	170	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	85		
Static volume of water in well (mL)=	1668		
Free product thickness (mm)=	N/A	Measurement method: (meter, paste, etc)	Interface meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristatic Pump
Volume Purged Water=	3L		LDPE Tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	7.19		
Final Conductivity (uS/cm)=	4390		
Final Temperature (degC)=	2.7		

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GLL	Inspection Date: 16/08/07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**		Thermistor Location: **Main Landfill - North**			
Thermistor Number: **VT-1**		Inclination: ~~16/08/05~~ **Vertical** 16/08/07			
Install Date: **25-Sept-99**	First Date Event: ~~**11-Aug-01**~~		Last Date Event: ~~**16-Aug-05**~~		
Coordinates and Elevation N: **10337**		E: **10522**		Elev: **13.7**	
Length of Cable (m): **6.1**	Cable Lead Above Ground (m): **3.7**		Nodal Points: **7**		
Datalogger Serial #: **1-807037**		Cable Serial Number: **TS-7NCV#2**			

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐
Battery Installation Date		
Battery Levels	Main 100% 11.34V	Aux 90% 12.90V

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	13.04	4.6151
2	13.68	3.5917
3	15.15	1.6309
4	16.82	-0.4735
5	17.91	-1.6816
6	18.84	-2.6665
7	19.60	-3.4335

Bead	Ohms	Temp. (°C)

Observations and Proposed Maintenance

Grounding cable head come loose. I reconnected it.

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GLL	Inspection Date: 16/08/07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**			Thermistor Location: **Main Landfill - North**		
Thermistor Number: **VT-2**			Inclination: 18/08/07 **Vertical**		16/08/07
Install Date: **25-Sept-99**		First Date Event: ~~**11-Aug-01**~~		Last Date Event: ~~**16 Aug 05**~~ →	
Coordinates and Elevation	N: **10284**		E: **10569**		Elev: **15.3**
Length of Cable (m): **6.1**		Cable Lead Above Ground (m): **3.8**		Nodal Points: **7**	
Datalogger Serial #: **2-807029**			Cable Serial Number: **TS-7NCV#3**		

Code CAM-MVT2

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☑	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☑	☐	
Battery Installation Date			
Battery Levels	Main 100% 11.34 V	Aux 90% 13.26 V	

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	12.52	5.3311
2	12.92	4.6500
3	13.57	3.6966
4	14.33	2.6140
5	15.30	1.3116
6	16.25	0.1278
7	17.61	-0.7178
8		

Bead	Ohms	Temp. (°C)
9		
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GLL	Inspection Date: 16/08/07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**	Thermistor Location: **Main Landfill - North**		
Thermistor Number: **VT-3**	Inclination: 18/08/07 **Vertical** 16/08/07		
Install Date: **25-Sept-99**	First Date Event: ~~**11-Aug-01**~~	Last Date Event: ~~**16-Aug-05**~~	
Coordinates and Elevation N: **10366**	E: **10418**	Elev: **15.7**	
Length of Cable (m): **6.1**	Cable Lead Above Ground (m): **3.7**	Nodal Points: **7**	
Datalogger Serial #: **3-807028**	Cable Serial Number: **TS-7NCV#1**		

Code CAM-MVT3

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐
Battery Installation Date		
Battery Levels	Main 100% 11.34V	Aux 90% 12.53V

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	12.33	5.6330
2	12.67	5.1016
3	13.39	3.9687
4	14.21	2.7742
5	15.11	1.5505
6	16.37	-0.0166
7	17.02	-0.7000
8		

Bead	Ohms	Temp. (°C)
9		
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GLL	Inspection Date: 16/08/18
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**	Thermistor Location: **Main Landfill - North**		
Thermistor Number: **ITN1**	Inclination: ~~18/02/05~~ **Inclined** 16/08/07		
Install Date: **25-Sept-99**	First Date Event: ~~**11-Aug-01**~~	Last Date Event: ~~**16-Aug-05**~~	
Coordinates and Elevation N: **10375**	E: **10503**	Elev:	
Length of Cable (m): **22.5**	Cable Lead Above Ground (m):	Nodal Points: **14**	
Datalogger Serial #: **31-807036**	Cable Serial Number: **TS-7NClAandB#4**		

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐
Battery Installation Date		
Battery Levels	Main 100% 11.34 V	Aux 90% 12.77 V

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	16.55	-0.2069
2	17.14	-0.8656
3	17.33	-1.1055
4	17.18	-0.9217
5	16.78	-0.4939
6	16.22	0.2013
7	15.50	1.0925
8	16.25	0.1278

Bead	Ohms	Temp. (°C)
9	16.60	-0.2169
10	17.83	-1.6380
11	20.27	-4.1229
12	22.63	-6.1919
13	24.35	-7.5470
14	25.36	-8.3253
15		
16		

Observations and Proposed Maintenance

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GLL	Inspection Date: 16/08/07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**		Thermistor Location: **Main Landfill - North**	
Thermistor Number: **ITN2**		Inclination: ~~18/08/05~~ **Inclined** 16/08/07	
Install Date: **25-Sept-99**	First Date Event: ~~**11-Aug-01**~~		Last Date Event: ~~**16-Aug-05**~~
Coordinates and Elevation N: **10314**		E: **10550**	Elev:
Length of Cable (m): **22.5**	Cable Lead Above Ground (m):		Nodal Points: **14**
Datalogger Serial #: **32-807035**		Cable Serial Number:	**TS-7NCIAandB#3**

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐
Battery Installation Date		
Battery Levels	Main 100% 11.34 V	Aux 90% 12.65 V

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	15.56	0.9867
2	15.16	1.5304
3	14.83	1.9147
4	14.79	1.9924
5	14.61	2.2182
6	14.61	2.2081
7	15.02	1.6711
8	15.39	1.1933

Bead	Ohms	Temp. (°C)
9	15.39	1.2109
10	16.13	0.2797
11	17.78	-1.6380
12	20.47	-4.3152
13	22.47	-6.0892
14	23.60	-7.0054
15		
16		

Observations and Proposed Maintenance

(14)

- FINISHED MAIN SOUTH @ 11:15AM
- STARTED MAIN NORTH @ 11:20AM
- SUN WAS OUT FROM 10:30 - 11:30
- FOG ROLLING IN AND WINDS PICKING UP

- MOVED TO MAIN NORTH LANDFILL
- PHOTO 1 ⇒ 13W0495755, 7667517
  WAYPOINT 065

1A — SOUTH SLOPE OF NORTH LF MAIN
- NO EROSION OR SLUMPING

1B — CRACK ON SLOPE ABOUT 1 INCH WIDE & 1 INCH DEEP × 4 m LONG

1C — CRACK RUNNING ONTO CREST

2D FOR 1 cm, MAX. WIDTH ~ 2 INCH AND MAX. DEPTH 3 INCHES

PHOTO 2 ⇒ 13W0495727, 7667605
WAYPOINT 066

- 2A ⇒ TENSION CRACK ON SLOPE ~
- 2B ⇒ SLOPE FACING NORTH
- 2C ⇒ SLOPE FACING SOUTH

J.L. DARLING CORP. TACOMA, WA 98424-1017
www.RitenthieRain.com
No. 312

(14) AUG 16/07

2D ⇒ CLOSEUP OF CRACK
- APPEARS TO BE STABLE, NO RECENT MOVEMENT AND CRACK HAS FILLED WITH SEDIMENT

2S ⇒ END OF CRACK @ TOP OF SLOPE ≈ 15m FROM START (SOUTH) OF CRACK

PT ON 3 ⇒ 13W0495757, 7667622
WAYPOINT 067
- NO EROSION
- APPEARS STABLE
- NO SEEPAGE @ TOE

LUNCH FROM 12:00PM TO 12:30 - PICKED UP JOE JR.

PHOTO 4 ⇒ 13W0495814, 7667617
WAYPOINT 068

4A - SOME MINERALIZATIONS AND PONDED WATER AT TOP OF LF FACING SOUTH TOWARDS AIRPORT

4B - FACING EAST TOWARDS TOWN

4C - FACING NORTH TOWARDS PONDING WATER AT TOE, SOME ORANGE COLOURED SOIL
- NO EROSION OR CRACKS OBSERVED

LEVEL

(16)

PHOTO 5 ⇒ 13W0495856, 7667602
WAYPOINT 069
- FACING UPSLOPE @ ITN1
- NO EROSION, NO SEEPAGE @ TOE
- 3 PHOTOS FOR PANORAMIC

PHOTO 6 ⇒ 13W0495878, 7667562
WAYPOINT 070
- LOOKING W/ AT VT3
- EROSION GULLIES ABOUT 0.3m W and 0.2m DEEP UPSLOPE SPACED ABOUT 2-3m APART

PHOTO 7 ⇒ 13W0495874, 7667561
WAYPOINT 071
7A - LOOKING ACROSS EROSION GULLIES ON SLOPE
7B - SOME FINES HAVE WASHED ONTO GROUND @ TOE AND ARE COVERING VEGETATION - FIELD BOOK

PHOTO 8 ⇒ 13W0495874, 7667564
WAYPOINT 072
- LOOKING UP EROSION CHANNEL WEST OF ITN2
- ABOUT 0.3m WIDE & 0.1m DEEP

(17)

10->14
AUG/6/07

- APPEARS TO BE SELF ARMOURING

PHOTO 9 ⇒ 13W0495898, 7667547
WAYPOINT 073
- EROSION GULLIE SIMILAR TO PHOTO 8 -
- APPEARS TO BE SELF ARMOURING
- FINES HAVE WASHED TO TOE

PHOTO 10 ⇒ 13W0495875, 7667528
WAYPOINT 074
10A ⇒ LOOKING DOWN SLOPE
10B ⇒ LOOKING EAST
10C ⇒ FACING WEST

PHOTO 11 ⇒ 13W0495916, 7667534
WAYPOINT 075
- WEST END OF CRACK ALONG TOE OF SLOPE (5m FROM TOE)
- TOOK 7 PHOTOS OF CRACK

END OF CRACK ⇒ WAYPOINT 076
13W0495946, 7667508
- MAX WIDTH ~ 4 INCHES
MAX DEPTH ~ 4 INCHES

LEVEL

(9)

PHOTO 12 ⇒ 13W0495951, 7667491
WAYPOINT 077
- FACING WEST ALONG CREST ABOVE CRACK (PHOTOS 11)
- NO TENSION CRACK OR CREST
- HAIRLINE CRACK OBSERVED

PHOTO 13 ⇒ 13W0495976, 7667473
WAYPOINT 078
- 2 PHOTOS FOR PANORAMIC
- SOME EROSION RILLS ON NORTH SLOPE. CREST SLOPE IS NOT GROUND
- NO SEEPAGE AT TOE

PHOTO 14 ⇒ 13W0495960, 7667457
WAYPOINT 079
- 2 PHOTOS OF SOUTHEAST SLOPE
- NO EROSION OR CRACKING OBSERVED

PHOTO 15 ⇒ 13W0495927, 7667478, WP 080
- 30m LONG TENSION CRACK
TOP OF CREST AND VISIBLE SCARP OF ABOUT 0.3m DROP
- END OF CRACK ⇒ WP 081
(13W0495936, 7667479)

(10)

20-517
AUG. 16, 07

PHOTO 16 ⇒ 13W0495966 7667488
WAYPOINT 082
- PHOTOS WEST, NORTH & EAST
- NO SETTLEMENT CRACK OR DEPRESSIONS OBSERVED
- 2 INCHES OF PONDED WATER ABOUT 5m x 5m

PHOTO 17 ⇒ 13W0495968, 7667591
WAYPOINT 083
17A ⇒ FACING EAST
17B ⇒ FACING SOUTHEAST
17C ⇒ FACING NORTH
MINOR UNDULATIONS, COARSE ROCK, NO SETTLEMENT OBSERVED

- FINISHED GEOTECHNICAL INSPECTION AT 3:00PM
- MEETING WITH WATER SAMPLING FROM 3:00PM - 6:00PM
- SAMPLED 3 MWs AND COLLECTED SOIL SAMPLES 4 MW LOCATIONS (ONE MW WAS DRY)
- COLLECTED SOIL SAMPLES AT 2 OF 5 LOCATIONS @ MW6
- WORKED UNTIL 6:15PM

North Pacific Supply Corp. 47 Level

Appendix B

Landfill Monitoring Report - Main Landfill South

- B-1: Main Landfill South
  - B-1.1 Landfill Summary
  - B-1.2 Visual Monitoring
  - B-1.3 Soil Sampling
  - B-1.4 Groundwater
  - B-1.5 Thermal Monitoring

Appendix B

Landfill Monitoring Report - Main Landfill South

B.1 Main Landfill South

B.1.1 Landfill Summary

The Main Landfill-South is located to the east of the main station buildings. The area of the landfill is approximately 15,000 m^2. The depth of the landfill is approximately 1.5 to 2.0 m below surface. The landfill configuration is provided on Figure B-1. Prior to the remedial work in 1999, DCC had classified the landfill as a moderate potential environmental risk. Remediation of the landfill included the installation of a double synthetic liner system anchored into the permafrost along the toe of the landfill and re-grading with the placement of additional granular fill sufficient for permafrost aggradation through the landfill contents.

For 2007, the monitoring requirements for the Main Landfill South include visual inspection, soil sampling, groundwater sampling, and thermal monitoring.

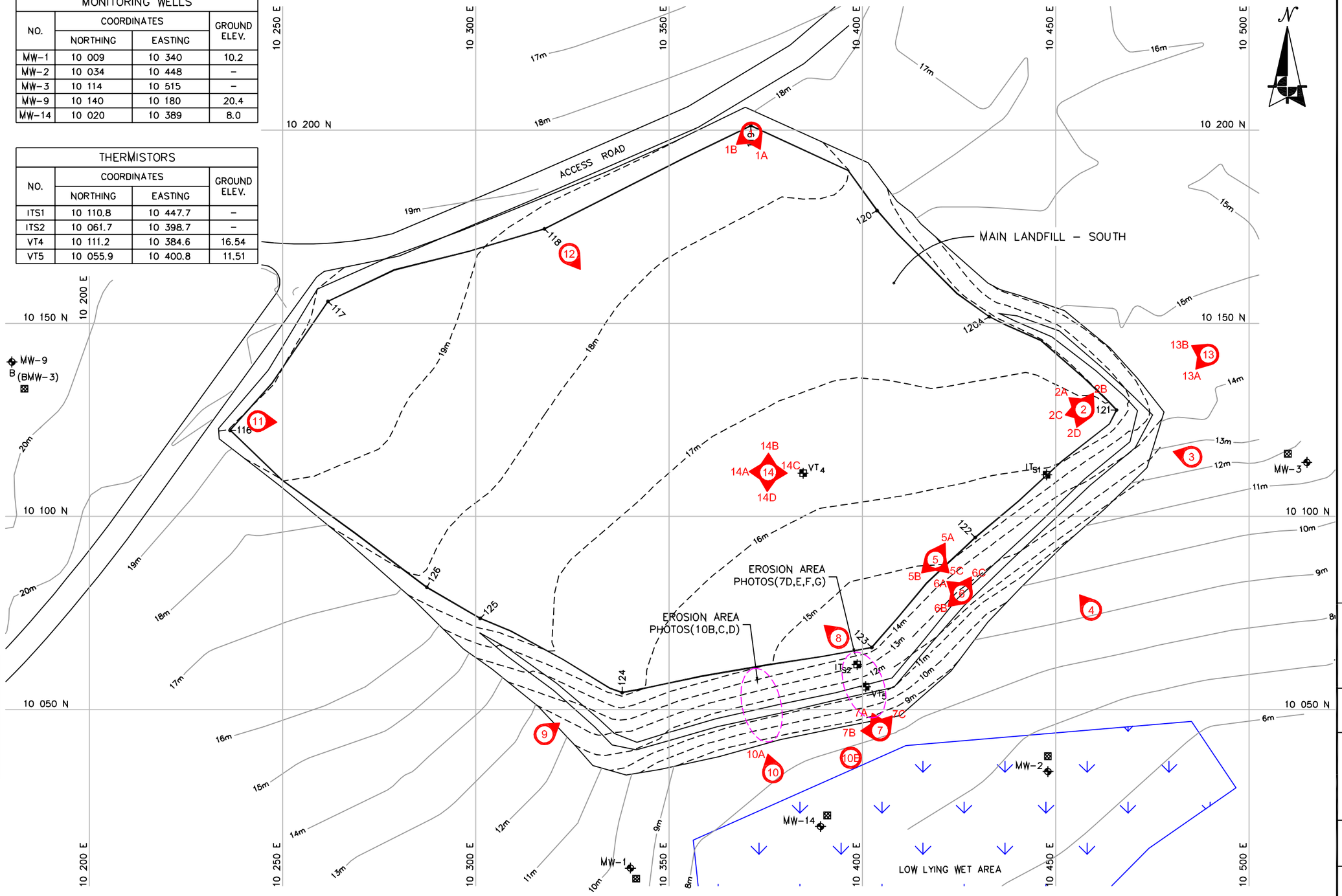
B.1.2 Visual Monitoring

No significant erosion, settlement or indications of slope instability were observed at the Main Landfill South (MLFS) area during the 2007 inspection. Overall landfill performance is assessed as "acceptable". Appendix B1 presents a summary of the 2007 visual inspection results.

Some minor erosion gullies on the southwest slope appear to be self-armouring (Photos MLFS-6A, 7A and 10D in Appendix B2) and the eroded fines appear to have been accumulating on the midslope bench (Photos MLFS-6B and 6C in Appendix B2) and at the toe of the landfill (Photo MLFS-10E in Appendix B2). Some orange stained rock was observed at the northeast toe of the landfill (Photo MLFS-3 in Appendix B2).

MONITORING WELLS			
NO.	COORDINATES		GROUND ELEV.
	NORTHING	EASTING	
MW-1	10 009	10 340	10.2
MW-2	10 034	10 448	–
MW-3	10 114	10 515	–
MW-9	10 140	10 180	20.4
MW-14	10 020	10 389	8.0

THERMISTORS			
NO.	COORDINATES		GROUND ELEV.
	NORTHING	EASTING	
ITS1	10 110.8	10 447.7	–
ITS2	10 061.7	10 398.7	–
VT4	10 111.2	10 384.6	16.54
VT5	10 055.9	10 400.8	11.51



LEGEND:

- MONITORING WELL LOCATION
- VT VERTICAL THERMISTOR
- IT INCLINED THERMISTOR
- 116 COORDINATE POINT
- MONITORING SOIL SAMPLE LOCATION
- 6 APPROXIMATE PHOTOGRAPH LOCATION(6 = MLFS-6)
- EROSION AREA

COORDINATE POINTS			
NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
116	10 122.3	10 236.4	19.9
117	10 155.7	10 261.8	19.8
118	10 174.5	10 317.7	18.5
119	10 201.2	10 371.2	18.6
120	10 179.2	10 403.8	17.6
120A	10 151.7	10 432.9	17.1
121	10 127.6	10 465.8	16.9
122	10 094.5	10 429.2	15.3
123	10 066.1	10 402.4	14.4
124	10 054.4	10 337.9	16.3
125	10 073.6	10 301.1	17.6
126	10 081.7	10 287.3	17.9

DATA SOURCES:
DRAWING BY UMA
CM-RD03.DWG
DATED: 02/04/10
DEW LINE CLEAN UP LANDFILL MONITORING PLAN CAM-M – CAMBRIDGE BAY
MAIN LANDFILL SOUTH FIGURE CAM-M.3

0 5 10 20 30 Metres

SCALE 1:1000

REVIEWED BY : DL/AK
PREPARED BY : PW/NTO
DATE ISSUED : OCTOBER, 2007
PROJECT NO. : 70-517
FILE NAME : 70517 FIG B-1.dwg
REVISION : 0

Project: DEW Line Montioring
Location: Cambridge Bay, Nunavut
Client: Defence Construction Canada

MAIN LANDFILL SOUTH

Gartner Lee

Figure No. B-1

Path: N:\Projects\2007\70517\2007\Final\ACAD\ Plotted on: Jan 02, 2008-4:00pm Edited by: mhan

B.1.3 Soil Sampling

Soil samples were collected at the designated locations of MW-1, MW-2, MW-3, MW-9 and MW-14. The sampling locations are shown on Figure B-1. At each location wherever possible, samples were collected at a depth of approximately 0.10 m below ground and between 0.40-0.50 m below ground. The photograph of each test pit sampled is shown in Appendix B2.

During the sampling there were no odours noted, no visible staining in the soil and no free product observed. The vegetation around the landfill did not appear to exhibit any stress.

Low concentrations of Total Petroleum Hydrocarbons (TPH) (200mg/kg) were detected in the shallow sample from soil sample location MW-1. The concentrations noted are not considered to be significant, however these should be evaluated in the context of the Landfill Monitoring Plan.

The analytical results are tabulated in Table B-1 and the laboratory certificates are provided in Appendix G.

Table B-1. CAM-M Cambridge Bay, Summary of 2007 Soil Analysis - Main Landfill - South

Sample Ident.	Sample Location	Depth (m)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Zinc (mg/kg)	Petroleum Hydrocarbons				PCB Total Aroclors (mg/kg)
												TPH (C6-34) (mg/kg)	C6-C10 (mg/kg)	C10-C16 (mg/kg)	C16-C34 (mg/kg)	
Upgradient Samples																
CM-MW-9-1	(BMW-3) MW-9	0.1	0.8	0.2	5	2	14	3.1	0.05	10	37	< 20				< 0.03
CM-MW-9-2	(BMW-3) MW-9	0.5	1.8	< 0.2	11	4	9	5.2	< 0.01	9	12	< 20				< 0.03
Downgradient Samples																
CM-MW-1-1	MW-1	0.1	1.4	< 0.2	7	2	12	3.8	0.05	8	35	200	< 5	< 80	< 250	< 0.03
CM-MW-1-2	MW-1	0.5	2.0	< 0.2	10	4	7	5	0.03	8	12	< 20				< 0.03
CM-MW-2-1	MW-2	0.1	1.0	< 0.2	9	1	14	2.7	< 0.01	8	16	< 80	< 5	< 80	< 250	< 0.03
CM-MW-2-2	MW-2	0.5	1.9	< 0.2	7	2	3	2.7	< 0.01	4	8	< 20				< 0.03
CM-MW-3-1	MW-3	0.1	0.8	< 0.2	3	< 1	7	1	0.03	4	13	< 80	< 5	< 80	< 250	< 0.03
CM-MW-3-2	MW-3	0.5	2.8	< 0.2	18	9	13	6.9	< 0.01	16	21	< 20				< 0.03
CM-MW-14-1	MW-14	0.1	3.6	< 0.2	16	7	13	6.1	< 0.01	15	19	< 20				< 0.03
CM-17-1*	MW-14	0.1	3.5	< 0.2	12	6	11	6	0.01	12	13	< 20				< 0.03
CM-MW-14-2	MW-14	0.5	3.0	< 0.2	13	5	12	7.4	< 0.01	12	15	< 20				< 0.03
CM-17-2*	MW-14	0.5	2.8	< 0.2	11	4	11	6.6	0.01	11	18	< 20				< 0.03

***** *Denotes duplicate sample. (Further information located in Table 1 of main report)*

Note: mg/kg = ug/g

B.1.4 Groundwater

Groundwater elevations and monitor conditions records were documented for observation wells MW-1, MW-2, MW-3, MW-9 and MW-14. The well development records are located in Appendix B4. Generally the observation wells were in good condition. There was insufficient clearance between the top of the pipe and the protective casing lid to permit the proper installation of the cap on well MW-1. This may result in the future influx of surface or storm water into the well. GLL recommends that a slip-on cap be installed on MW-1 to prevent surface water from entering the well. In wells MW-1, MW-3, and MW-9, the bentonite grout seal had heaved up inside of the protective casing to an elevation parallel to or above the top of the monitor pipe (TOP). Some of the heaved grout around the pipe was removed to permit monitoring of the well and the re-installation of the cap. Ponded water was observed inside of the casing of MW-3 above the elevation of the TOP and there is potential for some of the ponded water to flow into the pipe through any holes in the j-plug cap.

Samples were collected from all of the observation wells surrounding the Main Landfill – South and submitted to the laboratory for analysis. The water sample from MW 2 returned a moderate concentration of Zinc. These concentrations are elevated in comparison to other wells in the area and should be evaluated in the context of the Landfill Monitoring Plan. The analytical results for the observation monitors are tabulated in Table B-2 and the laboratory certificate are provided in Appendix G.

Table B-2. CAM-M Cambridge Bay, Summary of 2007 Groundwater Analysis - Main Landfill - South

Sample Ident.	Location	Groundwater Elevation (masl)	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Petroleum Hydrocarbons				PCB Total Aroclors (mg/L)
												TPH (C6-34) (mg/L)	C6-C10 (mg/L)	C10-C16 (mg/L)	C16-C34 (mg/L)	
Upgradient Samples																
CM-MW-9	MW-9	19.9	0.0005	0.0009	0.0071	0.011	0.0083	< 0.0002	< 0.00002	0.233	0.86	< 0.1				< 0.0004
Downgradient Samples																
CM-MW-1	MW-1	9.86	0.0012	0.00009	0.02	0.0039	0.0081	0.0005	< 0.00002	0.067	0.15	< 0.1				< 0.0004
CM-MW-16*	MW-1	9.86	0.0011	< 0.00004	0.0084	0.0027	0.0037	< 0.0002	< 0.00002	0.044	0.044	< 0.1				< 0.0004
CM-MW-2	MW-2	-	0.0011	0.00014	0.04	0.0023	0.007	0.0013	< 0.00002	0.06	2.91	< 0.1				< 0.0004
CM-MW-3	MW-3	-	0.0008	< 0.00004	0.024	0.032	0.0043	< 0.0002	< 0.00002	0.153	0.018	< 0.1				< 0.0004
CM-MW-14	MW-14	7.71	0.0041	0.00021	0.0066	0.0018	0.0049	0.0014	< 0.00002	0.029	0.007	0.12	< 0.1	< 0.25	< 0.25	< 0.0004

** Denotes duplicate sample. (Further information located in Table 1 of main report)*

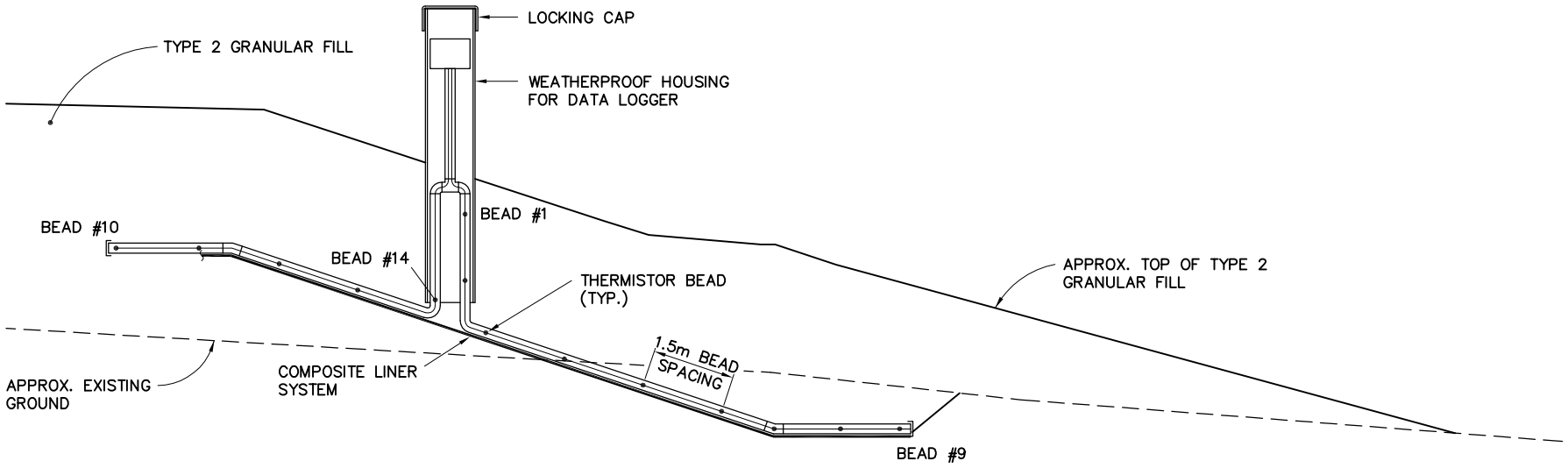
Note: mg/L = 1000 ug/L

B.1.5 Thermal Monitoring

The manual readings taken from each thermistor from the Main Landfill – South are provided in the maintenance records located in Appendix B5. The data downloaded from the data loggers spanned 2006 and 2007. The tabulated summary data from the thermistors for both 2006 and 2007 is located in Appendix B5. The graphs for the 2007 data for these thermistors are provided in Graphs 11 through 14, located in Appendix B6. The graphs for the 2006 data for these thermistors are provided in Graphs 15 through 18, located in Appendix B7.

GLL downloaded all thermistor data, reset the data logger and replaced the batteries at each location. A maintenance record was completed for each thermistor and is located in Appendix B5. A full download of the thermistor data loggers should be completed the summer of 2010.

DOS NAME: MLF-S_FIGURES.DWG CAE – 04/05/12



National Défense
Defence nationale

DEW LINE CLEAN UP
CAM-M CAMBRIDGE BAY

MAIN LANDFILL - SOUTH
INCLINED THERMISTOR INSTALLATION

FIGURE B-2

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Appendix B Attachments

B1 Site Condition/Visual Inspection Records

B2 Geotechnical Inspection Photographic Records

B3 Monitoring Photographic Records

B4 Monitoring Well Development Records

B5 Thermistor Data Tables 2007, 2006 & Maintenance Records

B6 Thermistor Graphs 2007

B7 Thermistor Graphs 2006

B8 Field Notes

Appendix B1

Site Condition/Visual Inspection Records

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

SITE NAME:	Cambridge Bay CAM-M
LANDFILL DESIGNATION:	Main Landfill South
DATE OF INSPECTION:	August 2007
DATE OF PREVIOUS INSPECTION:	August 2005
INSPECTED BY:	Darrin Johnson, P.Eng.
REPORT PREPARED BY:	Darrin Johnson, P.Eng.

VISUAL INSPECTION REPORT – MAIN LANDFILL SOUTH - PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to landfill features)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records (Photo number referenced in photo log and on figures)	Additional Comments/ Preliminary Stability Assessment
Settlement	No								
Erosion	Yes	Southwest slope in vicinity of ITS2	50 m	20 m	0.1 m max.	1000m2/ 10,000m2 = 10%	Erosion gullies with fines collecting on midslope bench	MLFS 6A, 7A, 7D-7G, 9, 10B-10D	Self-armouring; acceptable
Frost Action	No								
Animal Burrows	No								
Vegetation	Sparse								
Staining	Yes	Northeast toe	10 m	10 m	N/A	100m2/ 10,000m2 =1%	Some orange staining of rock at toe	MLFS 3	Acceptable
Vegetation Stress	No								
Seepage Points	No								
Debris Exposed	No								
Presence/Condition – Monitoring Instruments	Good								
Features of Note	None								
Genaral							General	MLFS 1A,1B,2A-2D,4,5A-5C,6B-6C,7B,7C,8,10A, 10E,11,12,13A,13B, 14A-14D	

PRELIMINARY STABILITY ASSESSMENT – MAIN LANDFILL SOUTH

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

Appendix B2

Geotechnical Inspection Photographic Records

Photo MLFS-1A, Easting: 495734, Northing: 7667434, Direction: 150°
Main Landfill South; north corner
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

PHOTO MLFS-1B, Easting: 495734, Northing: 7667434, Direction: 230°
Main Landfill South; north corner
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-2A, Easting: 495807, Northing: 7667351, Direction: 330°
Main Landfill South; facing northwest along crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-2B, Easting: 495807, Northing: 7667351, Direction: 45°
Main Landfill South; close-up of north slope where self-armouring erosion has occurred

Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-2C, Easting: 495734, Northing: 7667434, Direction: 270°
Main Landfill South
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-2D, Easting: 495734, Northing: 7667434, Direction: 225°
Main Landfill South
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-3, Easting: 495821, Northing: 7667332, Direction: 300°
Main Landfill South; facing slope from toe, some orange stained rock at toe.
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-4, Easting: 495821, Northing: 7667332, Direction: 315°
Main Landfill South; facing slope towards ITS1
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-5A, Easting: 495774, Northing: 7667314, Direction: 45°
Main Landfill South; top of landfill facing northeast along crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-5B, Easting: 495774, Northing: 7667314, Direction: 225°
Main Landfill South; top of landfill facing southwest along crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-5C, Easting: 495774, Northing: 7667314
Main Landfill South; top of landfill facing down-slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-6A, Easting: 495764, Northing: 7667296, Direction: 315°
Main Landfill South; view from bench looking up slope at fines that have washed onto bench
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-6B, Easting: 495764, Northing: 7667296, Direction: 225°
Main Landfill South; view from bench facing south
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-6C, Easting: 495764, Northing: 7667296, Direction: 45°
Main Landfill South; view from bench facing north

Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

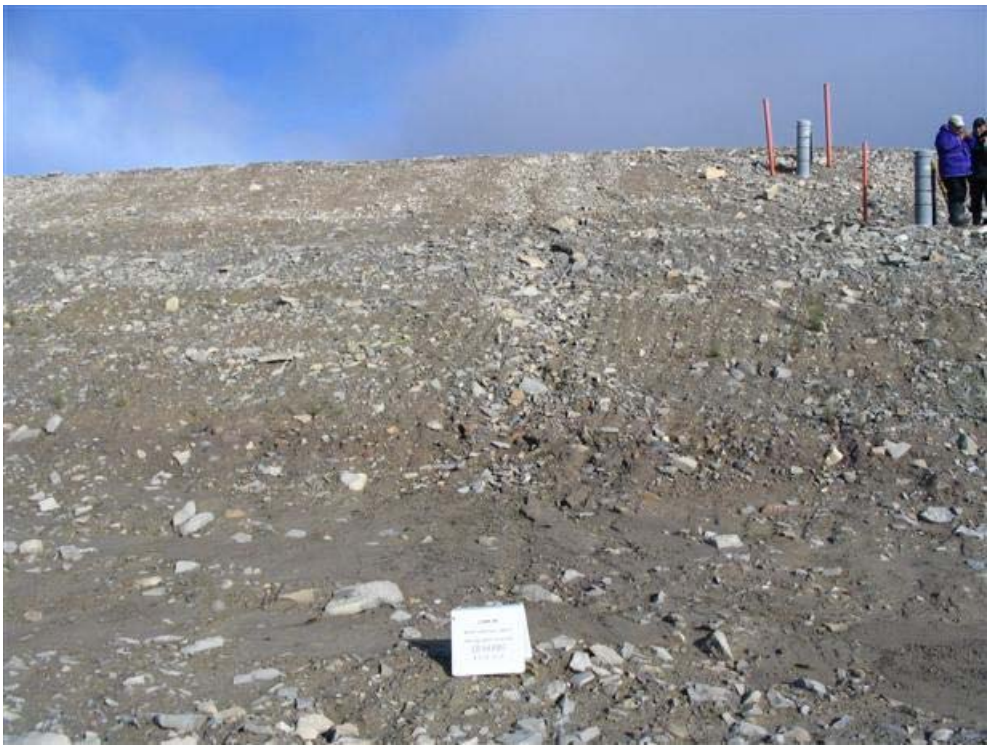


Photo MLFS-7A, Easting: 495751, Northing: 7667267, Direction: 340°
Main Landfill South; facing upslope where erosion channel has formed
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-7B, Easting: 495751, Northing: 7667267, Direction: 270°
Main Landfill South; facing southwest slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

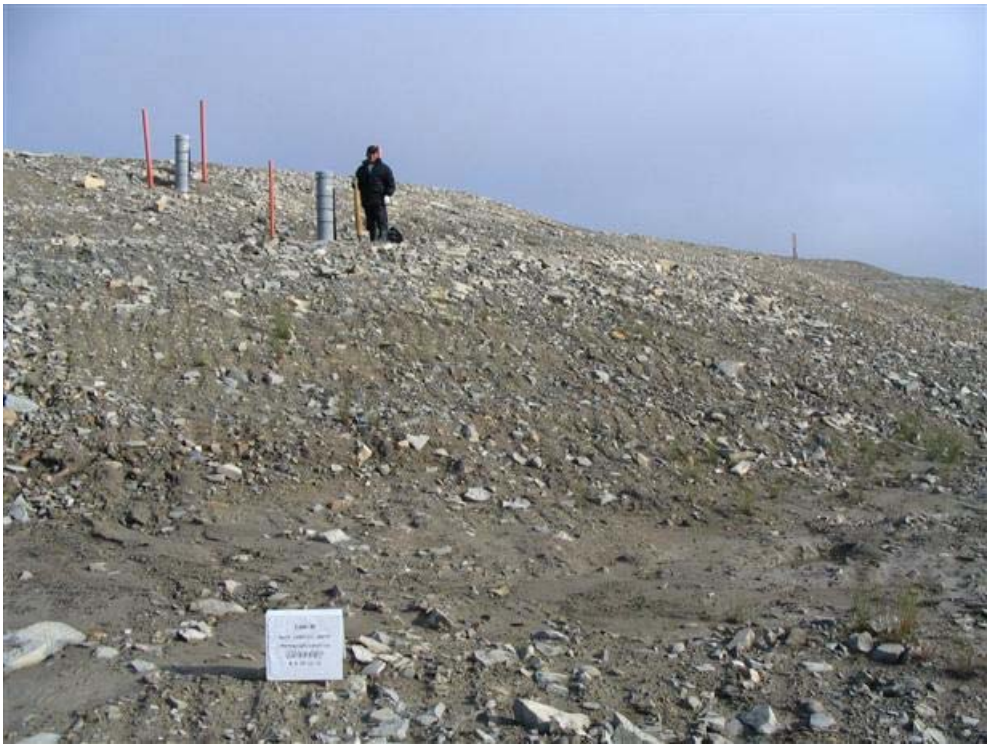


Photo MLFS-7C, Easting: 495751, Northing: 7667267, Direction: 20°
Main Landfill South; facing northeast to thermistors
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-7D, Easting: 495751, Northing: 7667267, Direction: 340°
Main Landfill South; close-up of erosion
Scale: field book dimensions are 29.5 cm wide by 20.0 cm in height

Photo MLFS-7E, Easting: 495751, Northing: 7667267, Direction: 340°
Main Landfill South; close-up of erosion
Scale: field book dimensions are 29.5 cm wide by 20.0 cm in height

Photo MLFS-7F, Easting: 495751, Northing: 7667267, Direction: 340°
Main Landfill South; close-up of erosion

Scale: field book dimensions are 29.5 cm wide by 20.0 cm in height

Photo MLFS-7G, Easting: 495751, Northing: 7667267, Direction: 340°
Main Landfill South; close-up of erosion
Scale: field book dimensions are 29.5 cm wide by 20.0 cm in height

Photo MLFS-8, Easting: 495735, Northing: 7667295, Direction: 300°
Main Landfill South; southwest crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-9, Easting: 495737, Northing: 7667296, Direction: 45°
Main Landfill South; west slope with minor erosion
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-10A, Easting: 495657, Northing: 7667274, Direction: 340°
Main Landfill South; minor erosion on south slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-10B, Easting: 495657, Northing: 7667274, Direction: 340°
Main Landfill South; close-up of erosion
Scale: field book dimensions are 29.5 cm wide by 20.0 cm in height

Photo MLFS-10C, Easting: 495657, Northing: 7667274, Direction: 340°
Main Landfill South; close-up of erosion
Scale: field book dimensions are 29.5 cm wide by 20.0 cm in height

Photo MLFS-10D, Easting: 495657, Northing: 7667274, Direction: 340°
Main Landfill South; close-up of erosion
Scale: field book dimensions are 29.5 cm wide by 20.0 cm in height

Photo MLFS-10E, Easting: 495657, Northing: 7667274, Direction: 90°
Main Landfill South; eroded fines below ITS2 and VT5

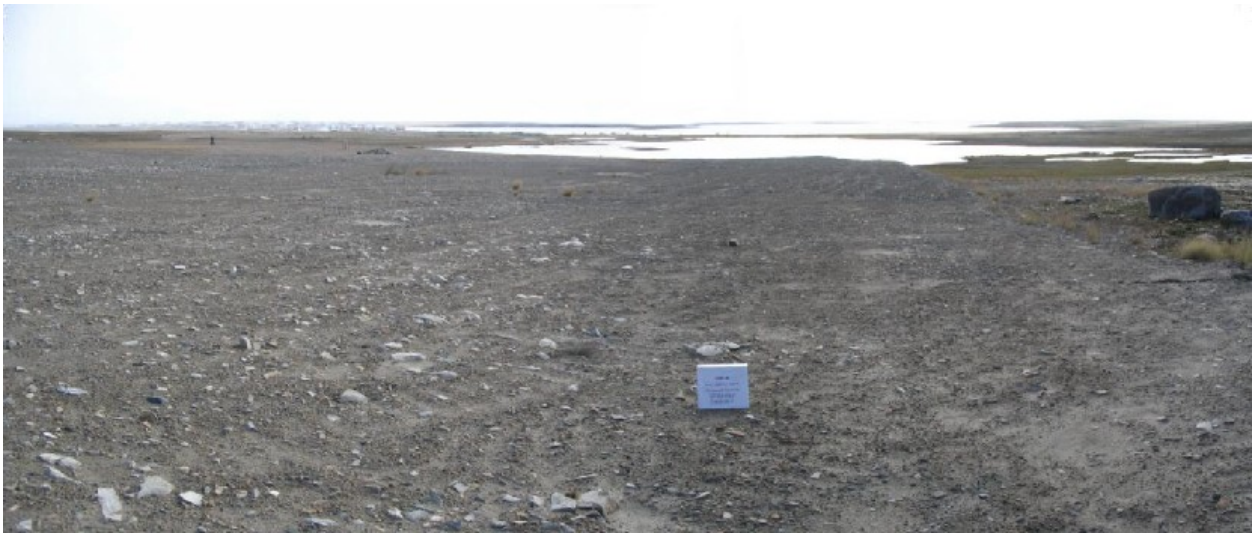


Photo MLFS-11, Easting: 495586, Northing: 7667344, Direction: 90°
Main Landfill South; west corner
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-12, Easting: 495667, Northing: 7667398, Direction: 135°
Main Landfill South; north central
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-13A, Easting: 495665, Northing: 7667394, Direction: 225°
Main Landfill South; north slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

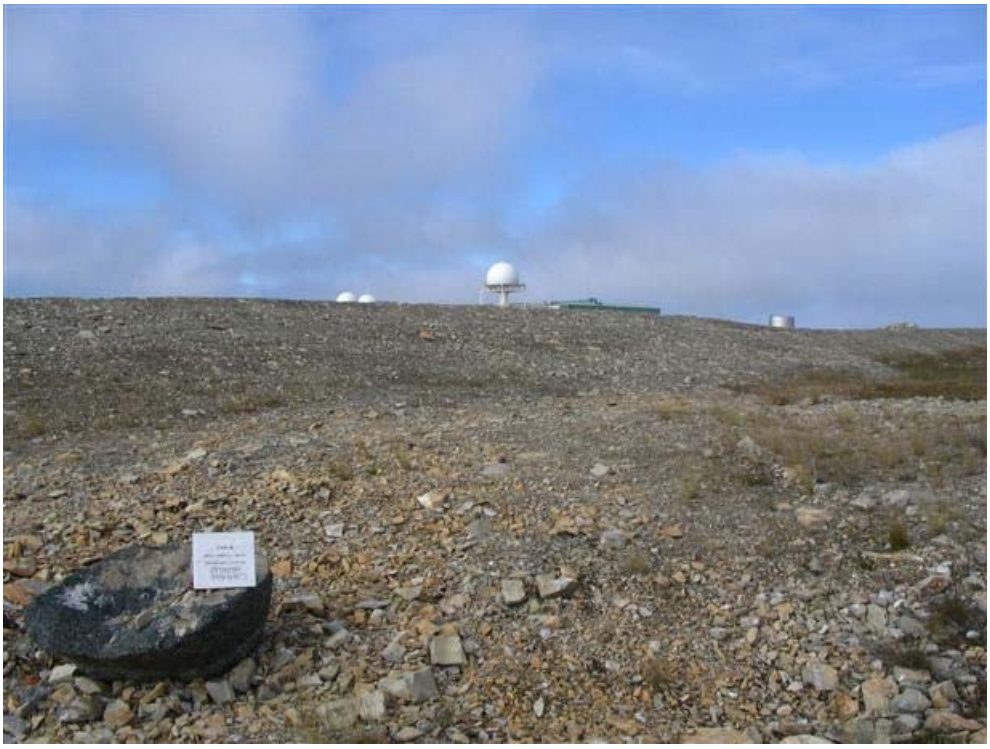


Photo MLFS-13B, Easting: 495665, Northing: 7667394, Direction: 315°
Main Landfill South; north slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo MLFS-14A, Direction: 270°
Main Landfill South; VT4 facing west

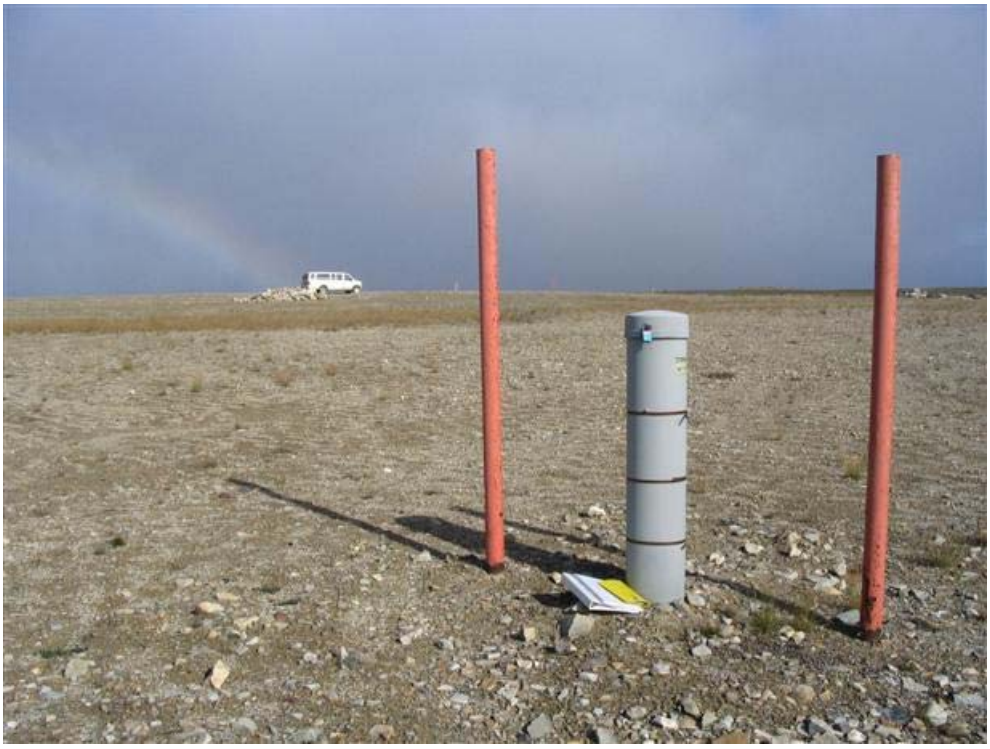


Photo MLFS-14B, Direction: 0°
Main Landfill South; VT4 facing north

Photo MLFS-14C, Direction: 90°
Main Landfill South; VT4 facing east

Photo MLFS-14D, Direction: 180°
Main Landfill South; VT4 facing south

Appendix B3

Monitoring Photographic Records

Test pit CM-MW-1. Samples CM-MW-1-1 and CM-MW-1-2 collected. Samples with identification numbers ending in "1" (ex. CM-MW-1-1) collected at 0-10cm and samples with identification numbers ending in "2" collected at 40-50cm.

Test Pit CM-MW-2. Samples CM-MW-2-1 and CM-MW-2-2 collected.

Test pit CM-MW-3. Samples CM-MW-3-1 and CM-MW-3-2 collected.

Test Pit CM-MW-9 (Upgradient). Samples CM-MW-9-1 and CM-MW-9-2 collected.

Test pit CM-MW-14. Samples CM-MW-14-1, CM-MW-14-2, CM-17-1 (Duplicate of CM-MW-14-1), CM-17-2 (Duplicate of CM-MW-14-2) collected.

Monitoring well MW-1. Sample CM-MW-1 and CM-MW-16 (Duplicate) collected.

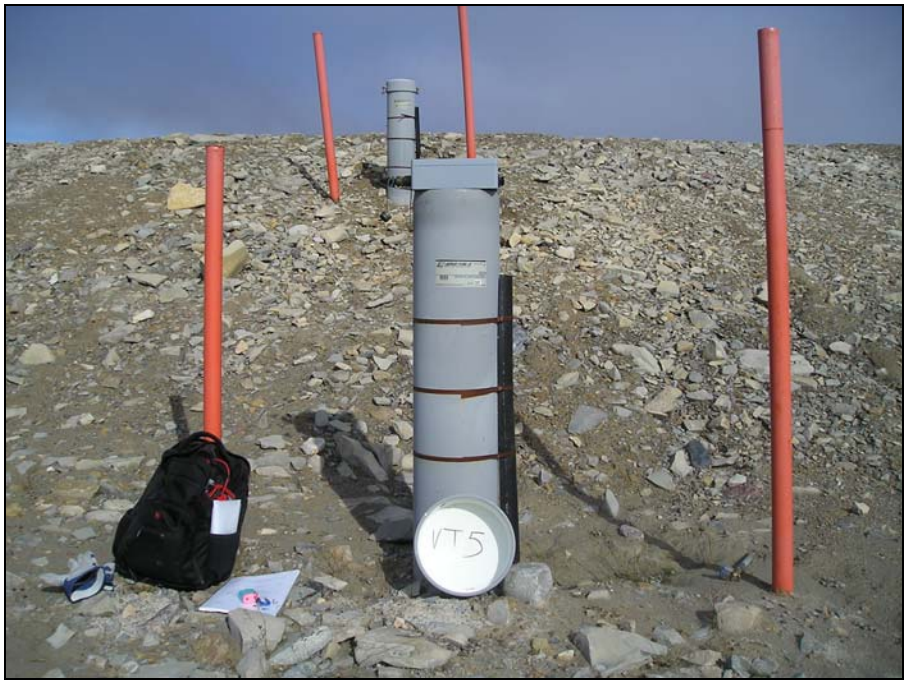
Monitoring well MW-2. Sample CM-MW-2 collected.

Monitoring well MW-3. Sample CM-MW-3 collected. Bentonite swollen to top of pipe (TOP) and standing water inside well casing over TOP.

Monitoring well MW-9 (Upgradient). Sample CM-MW-9 collected. Bentonite swollen over TOP.

Monitoring well MW-14. Sample CM-MW-14 collected.

Vertical thermistor VT-4.



Vertical thermistor VT-5.

Inclined thermistor ITS-1.

Inclined thermistor ITS-2.

Appendix B4

Monitoring Well Development Records

Monitoring Well Observations (MW-01)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	8:50
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill South		
Monitoring Well ID:	MW-1		
Sample Number:	CM-MW-1, CM-MW-16 (Duplicate)		
Condition of Well:	Good, bentonite welled up, no j-plug, missing bolts in casing		
Measured Data			
Well height above ground (cm)=	25		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=	59	Method:	Interface meter
Static water level (cm)=	34	From ground surface	
Depth to bottom (cm)=	130.5	Evidence of sludge or siltation:	no
Depth of water (cm)=	71.5		
Well volume of water (mL)=	1403.90		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE tubing
Volume Purged Water (L)=	2		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	7.31		
Conductivity (uS/cm)=	4400		
Temperature (degC)=	2.6		

n/a=not applicable
TOP = Top Of Pipe

Monitoring Well Observations (MW-02)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	11:00
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill South		
Monitoring Well ID:	MW-2		
Sample Number:	CM-MW-2		
Condition of Well:	Good		
Measured Data			
Well height above ground (cm)=	38		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=	77	Method:	Interface meter
Static water level (cm)=	39	From ground surface	
Depth to bottom (cm)=	145.5	Evidence of sludge or siltation:	no
Depth of water (cm)=	68.5		
Well volume of water (mL)=	1344.99		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	1.5		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	7.18		
Conductivity (uS/cm)=	3620		
Temperature (degC)=	2.7		

n/a=not applicable
TOP = Top Of Pipe

Monitoring Well Observations (MW-03)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	13:45
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill South		
Monitoring Well ID:	MW-3		
Sample Number:	CM-MW-3		
Condition of Well:	Good, bentonite and water over j-plug		
Measured Data			
Well height above ground (cm)=	18		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=	131	Method:	Interface meter
Static water level (cm)=	113	From ground surface	
Depth to bottom (cm)=	169	Evidence of sludge or siltation:	no
Depth of water (cm)=	38		
Well volume of water (mL)=	746.13		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	1.5		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1	standing water inside casing removed prior to opening j-plug.	
Number rinses:	1		
pH=	7.13		
Conductivity (uS/cm)=	5700		
Temperature (degC)=	2		

n/a=not applicable
TOP = Top Of Pipe

Monitoring Well Observations (MW-09)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	14:30
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill South		
Monitoring Well ID:	MW-9		
Sample Number:	CM-MW-9		
Condition of Well:	Good, bentonite over TOP		
Measured Data			
Well height above ground (cm)=	13		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=	63	Method:	Interface meter
Static water level (cm)=	50	From ground surface	
Depth to bottom (cm)=	120.3	Evidence of sludge or siltation:	no
Depth of water (cm)=	57.3		
Well volume of water (mL)=	1125.08		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	2		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	7.13		
Conductivity (uS/cm)=	3370		
Temperature (degC)=	2.3		

n/a=not applicable
TOP = Top Of Pipe

Monitoring Well Observations (MW-14)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	9:50
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill South		
Monitoring Well ID:	MW-14		
Sample Number:	CM-MW-14		
Condition of Well:	Good		
Measured Data			
Well height above ground (cm)=	28		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=	57.5	Method:	Interface meter
Static water level (cm)=	29.5	From ground surface	
Depth to bottom (cm)=	199.5	Evidence of sludge or siltation:	no
Depth of water (cm)=	142		
Well volume of water (mL)=	2788.16		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	3		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	6.84		
Conductivity (uS/cm)=	4940		
Temperature (degC)=	3		

n/a=not applicable
TOP = Top Of Pipe

Appendix B5

Thermistor Data Tables 2007, 2006 & Maintenance Records

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**16-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Main Landfill - South**		
Thermistor Number:	**VT4**		Inclination		**Vertical**		
Install Date:	**9-Aug-00**		First Date Event		**18-Aug-05**	Last Date Event	**16-Aug-07**
Coordinates and Elevation		N	**10111**	E	**10385**	Elev	**16.5**
Length of Cable (m)	**6.1**		Cable Lead Above Ground (m)	**3.7**	Nodal Points	**7**	
Datalogger Serial #	**4 - 807026**				Cable Serial Number		**TS-7NCV#4**

Code CAM-MVT4

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.41 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**12070**	**6.0**
2	**12130**	**6.0**
3	**12660**	**5.0**
4	**13400**	**3.8**
5	**14200**	**2.8**
6	**15190**	**1.4**
7	**16260**	**0.1**

Bead	ohms	Temp. (ºC)

Observations and Proposed Maintenance

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**16-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Main Landfill - South**		
Thermistor Number:	**VT5**		Inclination		**Vertical**		
Install Date:	**9-Aug-00**		First Date Event		**18-Aug-05**	Last Date Event	**16-Aug-07**
Coordinates and Elevation		N	**10056**	E	**10401**	Elev	**11.5**
Length of Cable (m)	**6.1**		Cable Lead Above Ground (m)	**3.8**	Nodal Points	**7**	
Datalogger Serial #	**5 - 807034**				Cable Serial Number		**TS-7NCV#5**

Code CAM-MVT5

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.65 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**12150**	**5.8**
2	**12240**	**5.7**
3	**12720**	**5.0**
4	**13470**	**3.8**
5	**14280**	**2.6**
6	**15140**	**1.5**
7	**15890**	**0.5**

Bead	ohms	Temp. (ºC)

Observations and Proposed Maintenance

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**16-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Main Landfill - South**		
Thermistor Number:	**ITS1**		Inclination		**Inclined**		
Install Date:	**12-Jul-00**		First Date Event	**18-Aug-05**	Last Date Event		**16-Aug-07**
Coordinates and Elevation	N	**10111**	E	**10448**	Elev	**Varies**	
Length of Cable (m)	**22.5**	Cable Lead Above Ground (m)	**Vari**	Nodal Points	**14**		
Datalogger Serial #	**33 - 807033**			Cable Serial Number	**TS-7NClAandB#1**		

Code CAM-MITS1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.53 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**10610**	**8.7**
2	**12350**	**5.6**
3	**15620**	**0.9**
4	**16860**	**-0.6**
5	**17100**	**-0.9**
6	**17550**	**-1.4**
7	**18130**	**-1.9**
8	**18330**	**-2.2**

Bead	ohms	Temp. (ºC)
9	**18060**	**-1.9**
10	**16390**	**-0.1**
11	**15700**	**0.8**
12	**15000**	**1.7**
13	**14960**	**1.7**
14	**14310**	**2.6**

Observations and Proposed Maintenance

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**16-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Main Landfill - South**		
Thermistor Number:	**ITS2**		Inclination		**Inclined**		
Install Date:	**14-Jul-00**		First Date Event	**18-Aug-05**	Last Date Event		**16-Aug-07**
Coordinates and Elevation	N	**10062**	E	**10399**	Elev	**Varies**	
Length of Cable (m)	**22.5**	Cable Lead Above Ground (m)	**Vari**	Nodal Points	**14**		
Datalogger Serial #	**34 - 807032**			Cable Serial Number	**TS-7NCIAandB#2**		

Code CAM-MITS2

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.53 V**

Manual Ground Temperature Readings

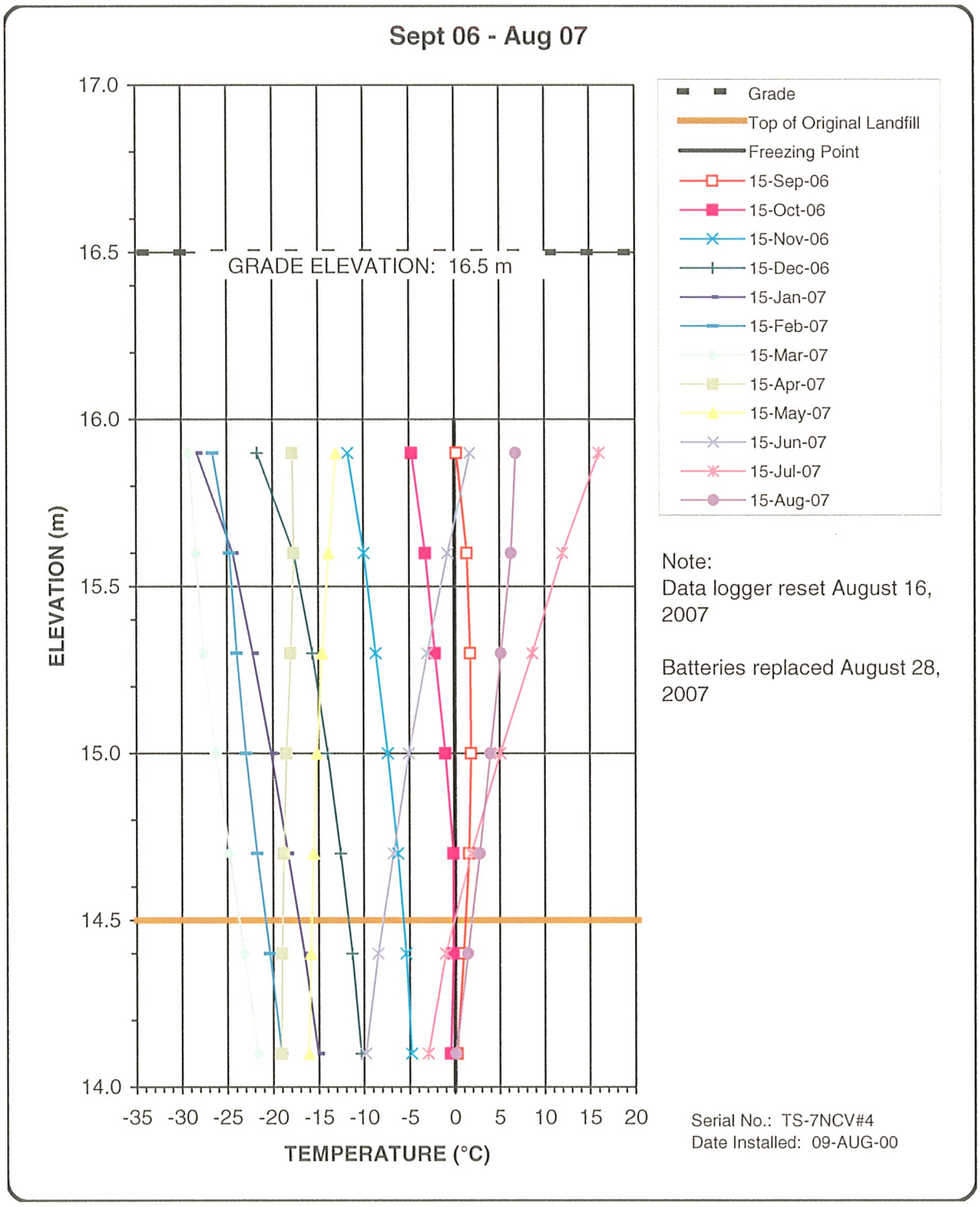
Bead	ohms	Temp. (ºC)
1	**9820**	**10.3**
2	**11170**	**7.6**
3	**14270**	**2.7**
4	**16500**	**-0.2**
5	**17020**	**-0.8**
6	**17480**	**-1.3**
7	**17930**	**-1.8**
8	**18080**	**-1.9**

Bead	ohms	Temp. (ºC)
9	**17600**	**-1.4**
10	**15620**	**0.9**
11	**15240**	**1.4**
12	**14500**	**2.3**
13	**14020**	**3.0**
14	**14330**	**2.6**

Observations and Proposed Maintenance

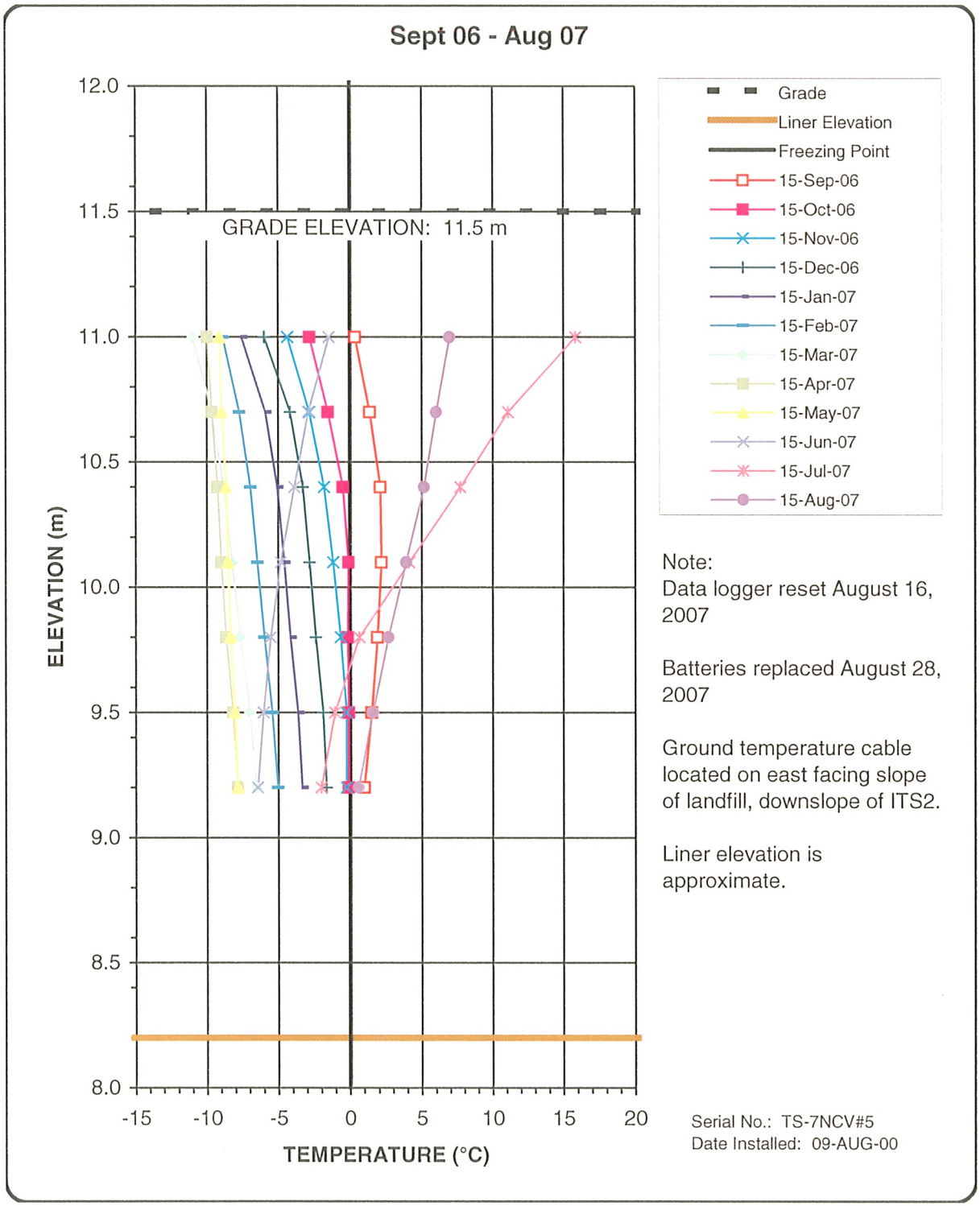
Appendix B6

Thermistor Graphs 2007



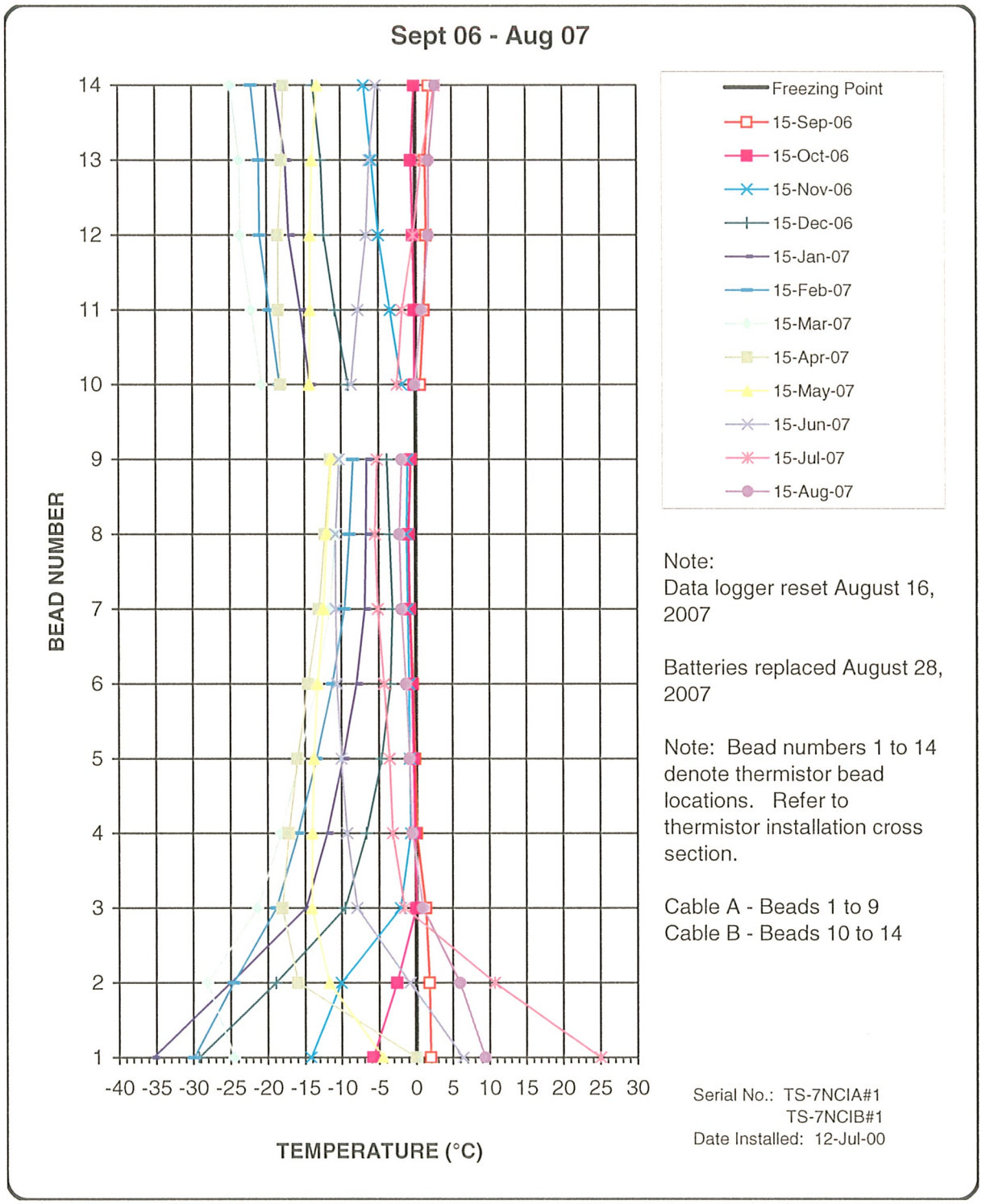
Graph 11
Ground Temperature Profile
Main Landfill - North
Vertical GTC VT-4

Gartner Lee Limited

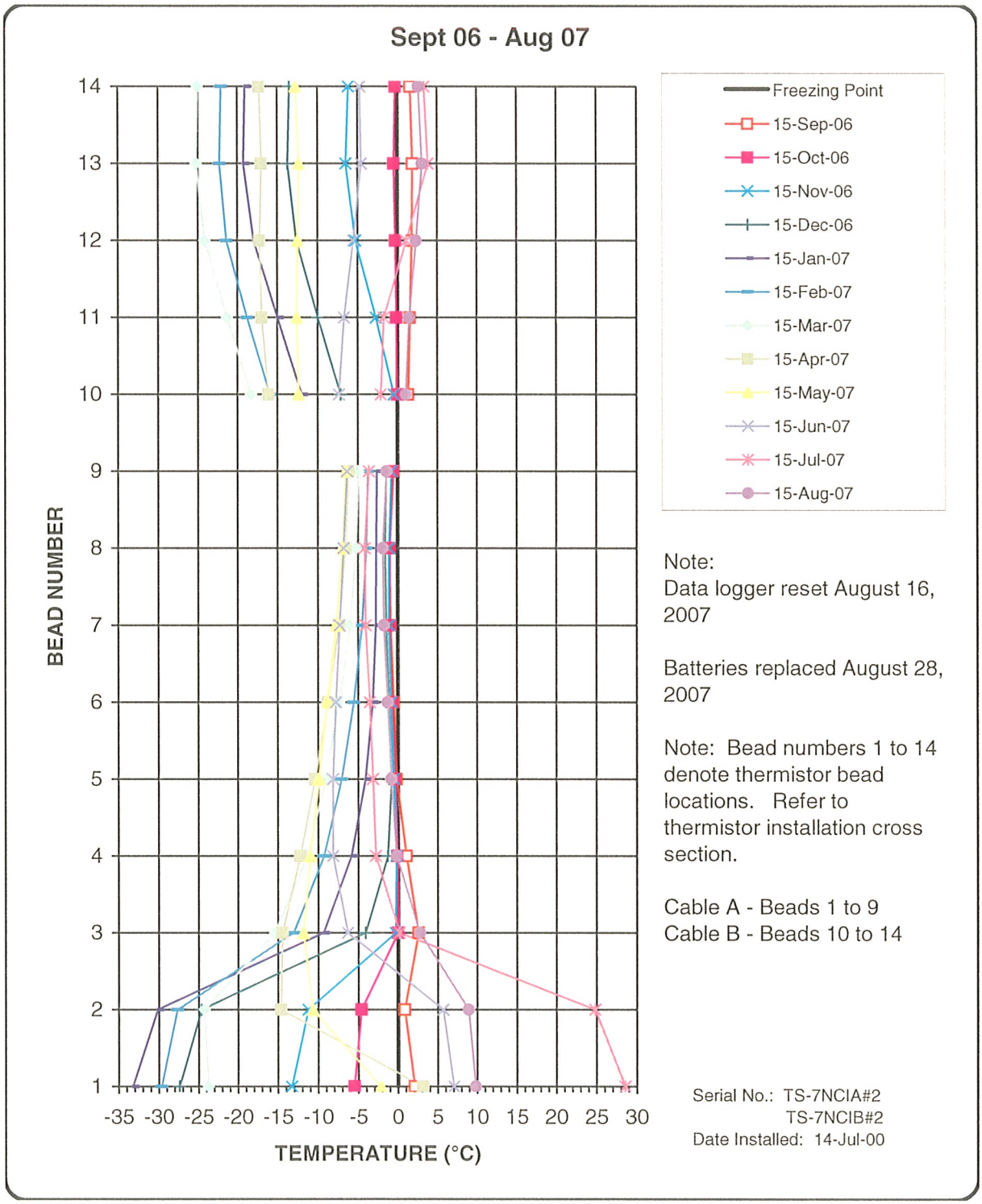


Graph 12
Ground Temperature Profile
Main Landfill - North
Vertical GTC VT-5

Gartner Lee Limited



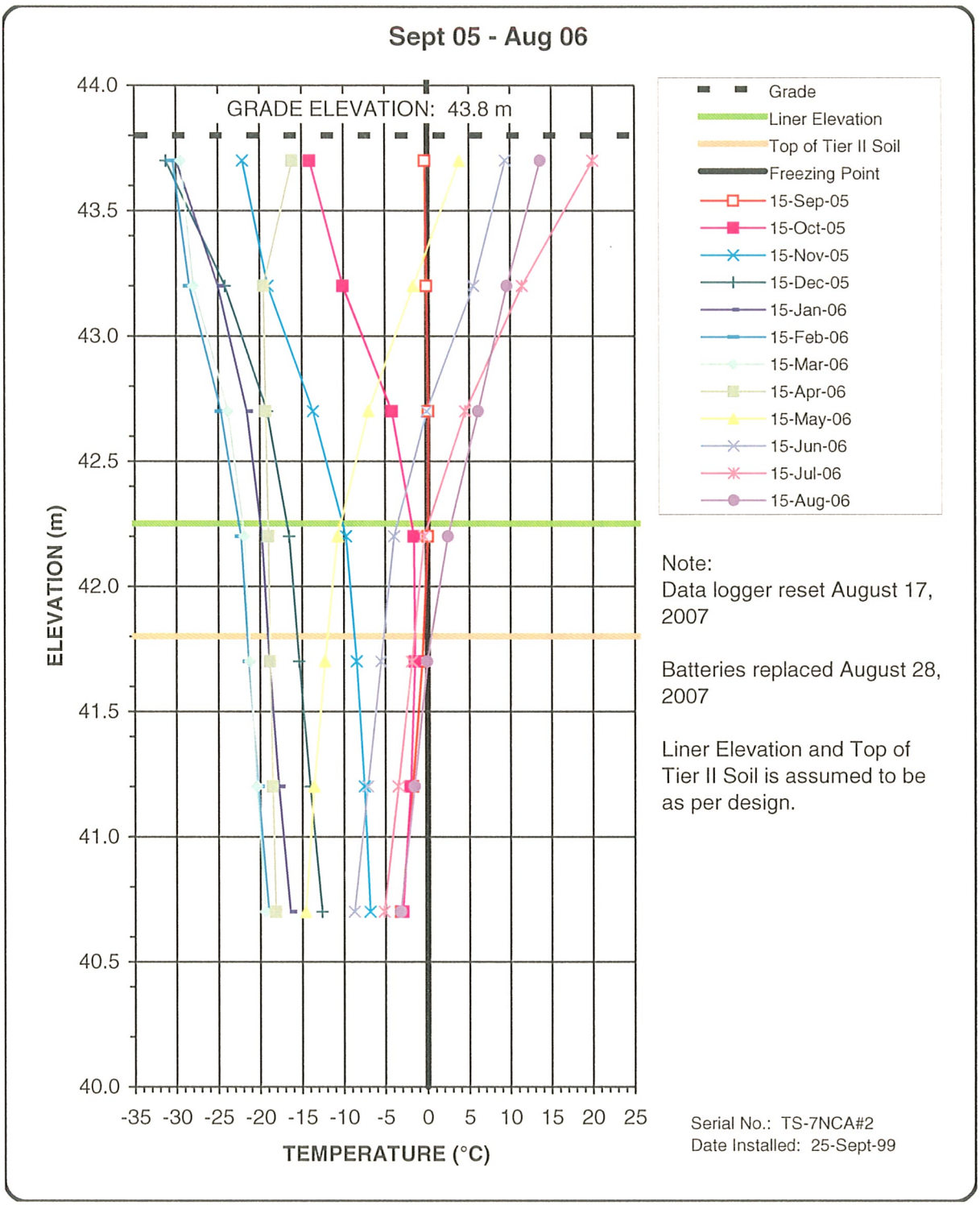
Graph 13
Ground Temperature Profile
Main Landfill - South
Inclined GTC ITS1



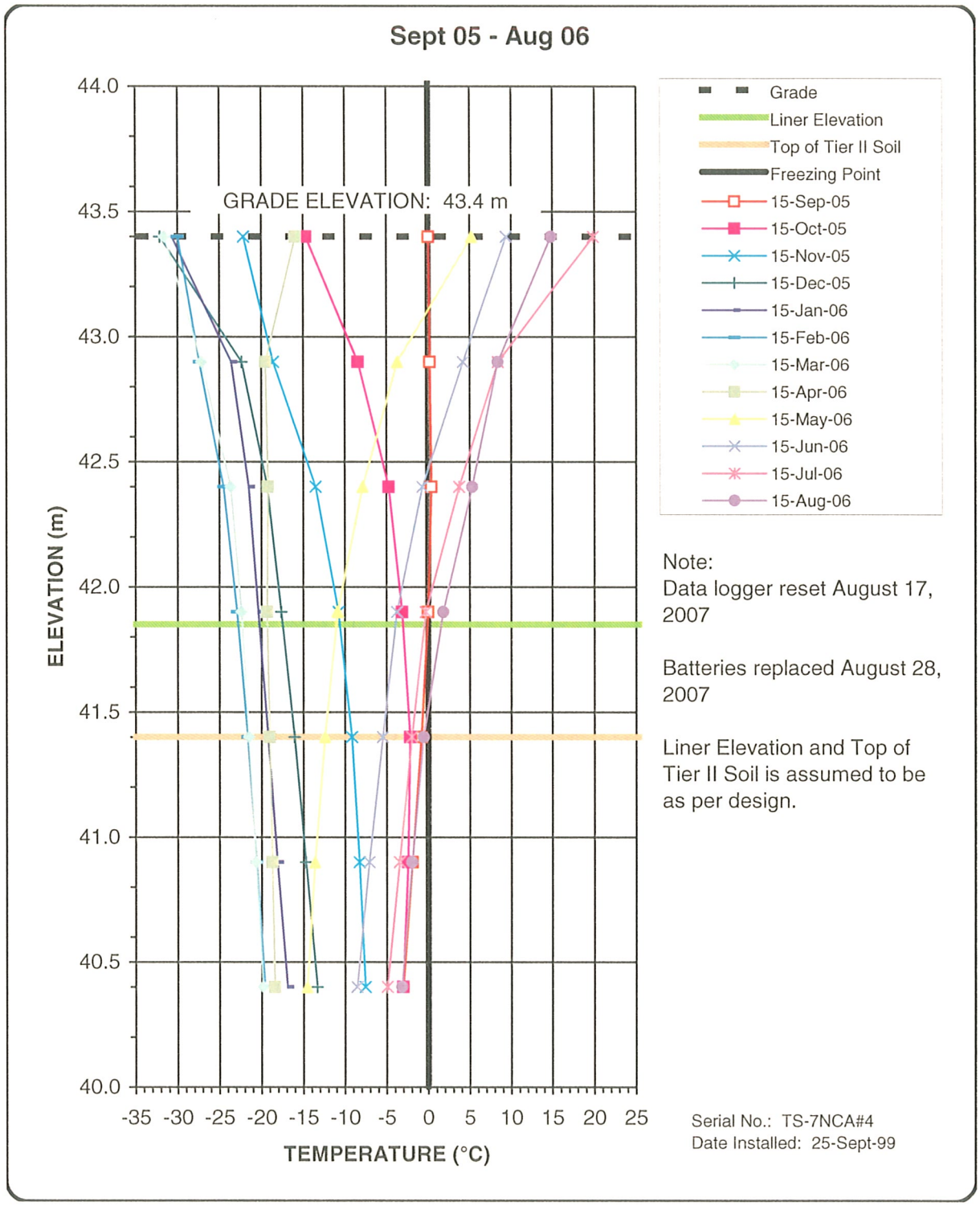
Graph 14
Ground Temperature Profile
Main Landfill - South
Inclined GTC ITS2

Appendix B7

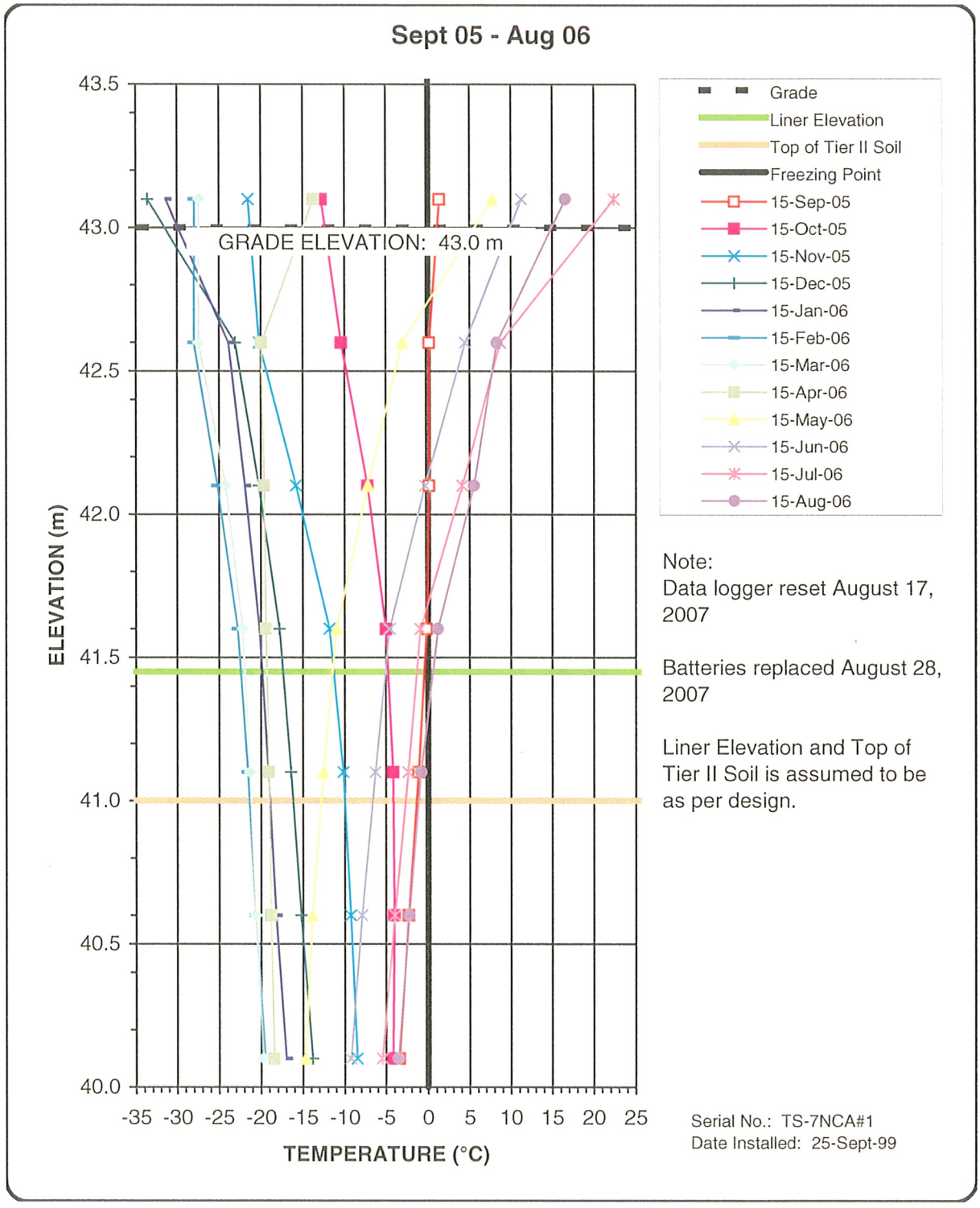
Thermistor Graphs 2006



Graph 23
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-1

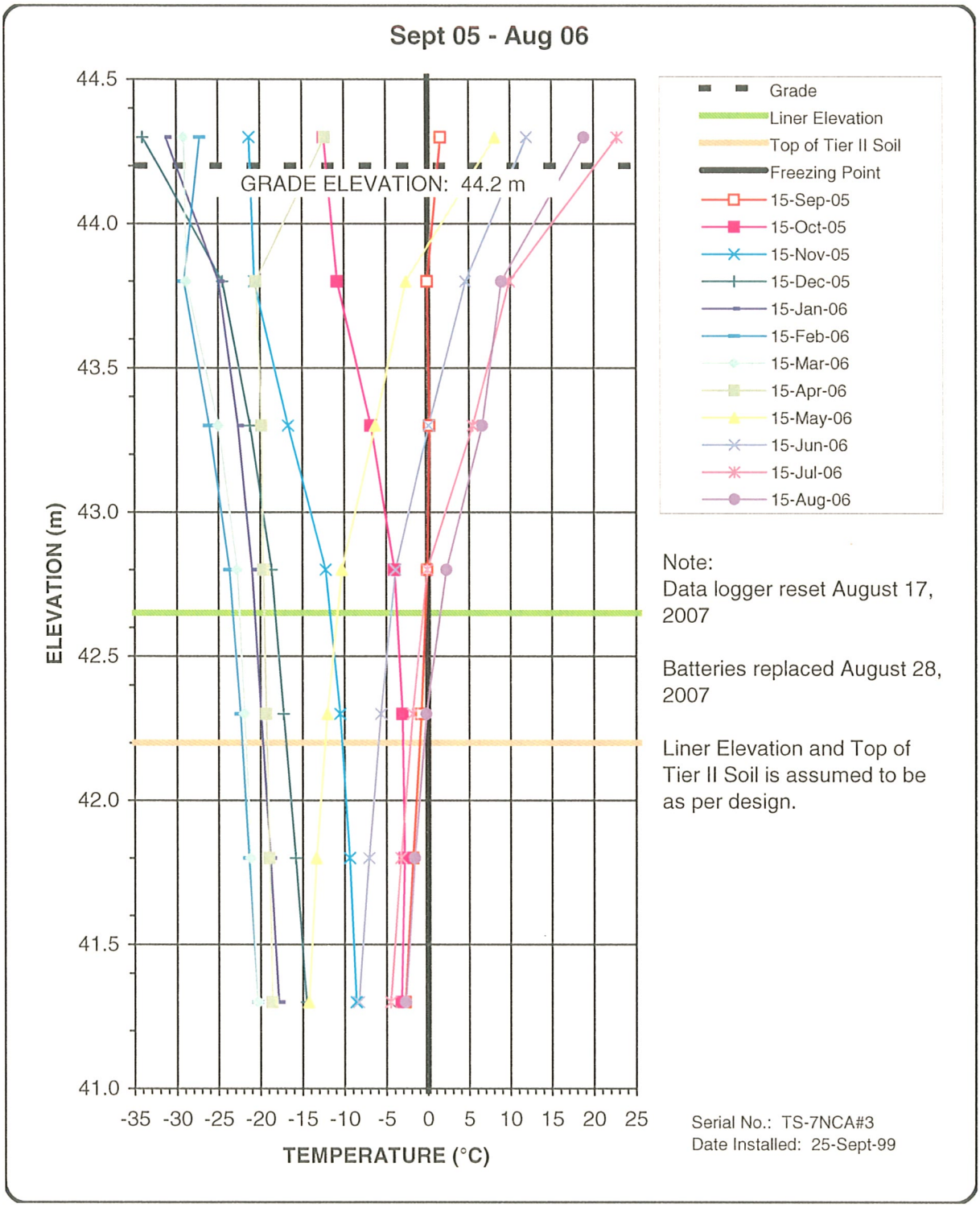


Graph 24
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-2



Graph 25
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-3

Gartner Lee Limited



Graph 26
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-4

Gartner Lee Limited

Appendix B8

Field Notes

Thursday Aug 16th, 2007 @ 9:00AM
Weather: Cold (5°C), Cloudy, Windy
Helpers: Joe Sr. (Bear monitor)
Chritalee (Sampler)
Note: Joe Jr. & Russell could not get up for work @ 8:00 AM.

Main Landfill South

ITS1 thermistor (inclined)
Condition is good
Picture 008 of ITS1

VT4 thermistor (vertical)
Condition is good
Picture 009 of VT4

ITS2 Thermistor (inclined)
Condition is good
Picture 010 of ITS2

VT5 Thermistor (Vertical)
Condition is good
Picture 011 of VT5

Aug 16, 07

Main Landfill North

VT1 thermistor (Vertical)
Condition is good, the grounding cable had come loose. I reconnected it.
Picture 012 VT1

1:00 PM
VT2 Thermistor (Vertical)
Condition is good
Picture 013 of VT2

ITN2 Thermistor (Inclined)
Condition is good
Picture 014 of ITN2

VT3 Thermistor (Vertical)
Condition is good
Picture 015 of VT3

ITN1 Thermistor (Inclined)
Condition is good
Picture 016 of ITN1

Aug 17, 07

CM-11 Soil sample
CM-11-1 @ 0-10 cm
CM-11-2 @ 40-50 cm
UTM W 0493205
13 7666758
Picture 044 of test pit

CM-10 Soil Sample
CM-10-1 @ 0-10cm
CM-10-2 @ 40-50cm
UTM W 0493629
13 7666642
Picture 045 of test pit

Saturday Aug 18th, 2007
Samplers: Durrin Johnson
Ken Boldt
Joe Sr (Bear Monitors)
Weather: Cold, 5-7°C, Windy, overcast

Main Landfill South
MW-1
Condition good, no j-plug, casing missing bolts, bentonite welled up

Aug 18, 07

Sample collected
x2 { 4 x 1000 mL amber glass
1 x 250 mL plastic
1 x 250 mL amber glass
CM-MW-1
CM-MW-16 Duplicate
ALS Duplicate CM-MW-1 { 4x 500 mL amber glass
2x VOC vials
1 x 250 mL plastic
Picture 046 of well MW-1

Soil sample
CM-MW-1-1 @ 0-10 cm
CM-MW-1-2 @ 40-50 cm
Picture 047 of test pit

MW-14
Well in good condition
Picture 048 of well MW-14
Sample collected, great production
4 x 1000 mL amber glass
1 x 250 mL plastic
1 x 250 mL amber glass

Aug 18/07

MW-14 Soil sample
CM-MW-14-1 @ 0-10cm
CM-MW-14-2 @ 40-50cm
CM-17-1 duplicate @ 0-10
CM-17-2 duplicate @ 40-50
Picture 050 of test pit

MW-2

Well in good condition
Picture 051 of MW-2
Sample collected
2x 1000 mL amber glass
1x 250 mL plastic
1x 250 mL amber glass

Soil sample
CM-MW-2-1 @ 0-10 cm
CM-MW-2-2 @ 40-50 cm
Picture 0449 of test pit

2:00PM MW-3
Well in good condition, bentonite and water over j-plug
Picture 052 of well

MW3 sample collected
4x 1000 mL amber glass
1x 250 mL plastic
1x 250 mL amber glass

Soil sampling
CM-MW-3-1 @ 0-10cm
CM-MW-3-2 @ 40-50cm
Picture 053 of test pit

MW-9

Sample collected
Well good, bentonite over j-plug
4x 1000mL amber glass
1x 250 mL amber glass
1x 250 mL plastic
Picture 054 of well

Soil Sampling
CM-MW-9-1 @ 0-10 cm
CM-MW-9-2 @ 40-50 cm
Picture 055 of test pit

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	8:50 AM
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill - South		
Monitoring Well ID:	MW-1		
Sample Number:	CM-MW-1,	CM-MW-16 (Duplicate)	
Condition of Well:	Good, bentonite welled up, no J-plug, missing bolts in casing		
Measured Data			
Well pipe height above ground (cm)=	25		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	59.0	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	34		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	130.5	Evidence of sludge or siltation:	no
Thickness of water column (cm)=	71.5		
Static volume of water in well (mL)=	1404		
Free product thickness (mm)=	no	Measurement method: (meter, paste, etc)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristaltic Pump
Volume Purged Water=	2 L		LDPE tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	7.31		
Final Conductivity (uS/cm)=	4400		
Final Temperature (degC)=	2.6		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	16-Aug-07	Time:	11:00 AM
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill - South		
Monitoring Well ID:	MW-2		
Sample Number:	CM-MW-2		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	38		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	77	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	39		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	145.5	Evidence of sludge or siltation:	no
Thickness of water column (cm)=	68.5		
Static volume of water in well (mL)=	1345		
Free product thickness (mm)=	N/A	Measurement method: (meter, paste, etc)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristaltic Pump
Volume Purged Water=	1.5 L		LDPE tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	7.18		
Final Conductivity (uS/cm)=	3620		
Final Temperature (degC)=	~~3.0~~ 12.7		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	1:45 PM
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill - South		
Monitoring Well ID:	MW-3		
Sample Number:	CM-MW-3		
Condition of Well:	Good, bentonite and water over j-plug		
Measured Data			
Well pipe height above ground (cm)=	18		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	131	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	~~169~~ 113		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	169	Evidence of sludge or siltation:	no
Thickness of water column (cm)=	38		
Static volume of water in well (mL)=	746		
Free product thickness (mm)=	N/A	Measurement method: (meter, paste, etc)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristaltic Pump
Volume Purged Water=	1.5 L		LDPE Tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	7.13		
Final Conductivity (uS/cm)=	5700		
Final Temperature (degC)=	2.0		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	2:30 PM
Names of Samplers:	KaBoldt		
Landfill Name:	Main Landfill - South		
Monitoring Well ID:	BMW-3 (MW-9)		
Sample Number:	CM-MW-9		
Condition of Well:	Good, bentonite over TOP		
Measured Data			
Well pipe height above ground (cm)=	13		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	63	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	50		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	120.3	Evidence of sludge or siltation:	no
Thickness of water column (cm)=	~~63~~ 57.3		
Static volume of water in well (mL)=	1125		
Free product thickness (mm)=	N/A	Measurement method: (meter, paste, etc)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristaltic Pump
Volume Purged Water=	2 L		LDPE Tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	7.13		
Final Conductivity (uS/cm)=	3370		
Final Temperature (degC)=	2.3		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	18-Aug-07	Time:	9:50
Names of Samplers:	Ken Boldt		
Landfill Name:	Main Landfill - South		
Monitoring Well ID:	MW-14		
Sample Number:	CM-MW-14		
Condition of Well:	Good		
Measured Data			
Well pipe height above ground (cm)=	28		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	57.5	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	29.5		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	199.5	Evidence of sludge or siltation:	no
Thickness of water column (cm)=	142		
Static volume of water in well (mL)=	2788		
Free product thickness (mm)=		Measurement method: (meter, paste, etc)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristaltic Pump
Volume Purged Water=	3L		LDPE tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	6.84		
Final Conductivity (uS/cm)=	4940		
Final Temperature (degC)=	3.0		

Great production

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: Gartner Lee Limited	Inspection Date: 16/08/07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**		Thermistor Location: **Main Landfill - South**	
Thermistor Number: **VT-4**		Inclination: ~~18/08/05~~ **Vertical** 08/16/07	
Install Date: **09-Aug-00**	First Date Event: ~~**11-Aug-01**~~	Last Date Event: ~~**16-Aug-05**~~	
Coordinates and Elevation N: **10111**	E: **10385**	Elev: **16.5**	
Length of Cable (m): **6.1**	Cable Lead Above Ground (m): **3.7**	Nodal Points: **7**	
Datalogger Serial #: **4-807026**	Cable Serial Number: **TS-7NCV#4**		

Code CAM-MVT4

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date

Battery Levels Main Full 11.34 V Aux 90% 12.41 V

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	12.07	6.0449
2	12.13	5.9500
3	12.66	5.0542
4	13.40	3.9687
5	14.20	2.7567
6	15.19	1.4348
7	16.26	0.1177
8		

Bead	Ohms	Temp. (°C)
9		
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GL	Inspection Date: 16/08/07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**		Thermistor Location: **Main Landfill - South**	
Thermistor Number: **VT-5**		Inclination: ~~16/08/05~~ **Vertical** 16/08/07	
Install Date: **09-Aug-00**	First Date Event: ~~11-Aug-01~~	Last Date Event: ~~16-Aug-05~~	
Coordinates and Elevation N: **10056**	E: **10401**	Elev: **11.5**	
Length of Cable (m): **6.1**	Cable Lead Above Ground (m): **3.8**	Nodal Points: **7**	
Datalogger Serial #: **5-807034**	Cable Serial Number: **TS-7NCV#5**		

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☐	☐

Battery Installation Date

Battery Levels Main Full 11.34 V Aux 90% 12.65 V

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	12.15	5.8477
2	12.24	5.7703
3	12.72	4.9968
4	13.47	3.8539
5	14.28	2.6540
6	15.14	1.5128
7	15.89	0.5654
8		

Bead	Ohms	Temp. (°C)
9		
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: Gartner Lee Limited	Inspection Date: 16/08/2007
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**		Thermistor Location: **Main Landfill - South**	
Thermistor Number: **ITS1**		Inclination: **Inclined**	
Install Date: **12-Jul-00**	First Date Event: ~~**11-Aug-01**~~ 16/08/05	Last Date Event: ~~**16-Aug-05**~~ 08/16/07	
Coordinates and Elevation N: **10111**	E: **10448**	Elev:	
Length of Cable (m): **22.5**	Cable Lead Above Ground (m):	Nodal Points: **14**	
Datalogger Serial #: **33-807033**		Cable Serial Number: **TS-7NClAandB#1**	

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date

Battery Levels Main Full 11.34 V (9Volt Bat) Aux 90% 12.53V (12 Volt bat)

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	10.61	6.5069
2	12.35	5.5956
3	15.62	0.9338
4	16.86	-0.5295
5	17.10	-0.8350
6	17.55	-1.3075
7	18.13	-1.9643
8	18.33	-2.1755

Bead	Ohms	Temp. (°C)
9	18.06	-1.9154
10	16.39	-0.0318
11	15.70	0.8455
12	15.00	1.7264
13	14.96	1.7741
14	14.31	2.6365
15		
16		

Observations and Proposed Maintenance

Manual ohms using multimeter
Manual Temp using computor connection

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GLL	Inspection Date: 16/08/07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**	Thermistor Location: **Main Landfill - South**		
Thermistor Number: **ITS2**	Inclination: 18/08/05 **Inclined**		
Install Date: **14-Jul-00**	First Date Event: ~~**11-Aug-01**~~	Last Date Event: ~~**10-Aug-05**~~ 16/08/07	
Coordinates and Elevation N: **10062**	E: **10399**	Elev:	
Length of Cable (m): **22.5**	Cable Lead Above Ground (m):	Nodal Points: **14**	
Datalogger Serial #: **34-807032**	Cable Serial Number: **TS-7NCIAandB#2**		

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐
Battery Installation Date		
Battery Levels	Main Full 11.34V	Aux 90% 12.53V

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	9.87	9.7161
2	11.17	7.2445
3	14.27	2.7366
4	16.50	-0.1205
5	17.02	-0.7968
6	17.48	-1.2870
7	17.93	-1.7998
8	18.08	-1.9257

Bead	Ohms	Temp. (°C)
9	17.60	-1.4483
10	15.62	0.9237
11	15.24	1.4072
12	14.50	2.4186
13	14.02	3.0393
14	14.33	2.6140
15		
16		

Observations and Proposed Maintenance

(9)

PHOTO 8 ⇒ 13W 0494491, 7668172
WAYPOINT 051
- SOME TENSION CRACKS BUT NOT RELATED TO WASTE OR LANDFILL
- PHOTO 8A FACING LANDFILL TOWARDS DEW LINE STATION
- PHOTO 8B FACING AWAY FROM LANDFILL
- CRACK WIDTH MAX. 2 INCHES AND APPROX 6-8 INCHES DEEP

PHOTO 9 ⇒ 13W 0494479, 7668169
WAYPOINT 052
2 PHOTOS 9A PANORAMIC FACING EAST TOWARDS DEW LINE STATION
- PHOTO 9B FACING NORTH TOWARDS SETTLEMENT / THAW AREA

- LEFT WEST LANDFILL @ 5:30PM
- TOOK 46 PHOTOS ON AUG 15/07

(9)

70-517
AUG. 16/07
DCO

- ARRIVED AT LANDFILL (MAIN SOUTH) @ 9:00AM WITH KRISTALE & JOE SR.
- JOE JR. & KAISER NOT AVAILABLE TO WORK (LOST 1HR)
- WEATHER: OVERCAST, TEMP = 6°C

PHOTO 1 ⇒ 13W 0495734, 7667434
WAYPOINT 053
2 PHOTOS FOR PANORAMIC
- NO SIGNS OF EROSION OR SETTLEMENT

PHOTO 2 ⇒ 13W 0495883, 7667351
WAYPOINT 054
- PHOTO 2A NW
- PHOTO 2B CLOSEUP OF NORTH SLOPE NEAR PHOTO LOCATION 2 WHERE SELF ARRESTING MINOR EROSION HAS OCCURRED
- PHOTOS 2C AND 2D

(10)

PHOTO 3 ⇒ 13W0495821, 7667332
WAYPOINT 055 (2 Photos)
- FACING SLOPE FROM TOE
- NO EROSION OR INSTABILITY
- SOME ORANGE STAINED ROCK @ TOE
- NO SEEPAGE @ TOE

PHOTO 4 ⇒ 13W0495797, 7667315
WAYPOINT 056
- FACING SLOPE TOWARDS NE
- NO EROSION OR SEEPAGE
- 3 PHOTOS FOR PANORAMIC

PHOTO 5 ⇒ 13W0495774, 7667314
WAYPOINT 056
- TOP OF LANDFILL CREST
- NO TENSION CRACKS OR EROSION
- SOME MINOR RILLING THAT IS SELF ARMOURING
- PHOTO 5A FACING NE ALONG CREST
- PHOTO 5B FACING SW ALONG CREST
- PHOTO 5C FACING DOWNSLOPE

J.L. DARLING CORP. TACOMA, WA 98424-1017
www.RiteInTheRain.com
No. 312

(11)

Aug. 16/07
70-517

PHOTO 6 ⇒ 13W0495764, 7667296
WAYPOINT 057
6A - STANDING ON BENCH LOOKING UP AT ERODED SLOPE WHERE FINES HAVE WASHED ONTO BENCH (APPEARS TO BE SELF ARMOURING)
6B & 6C ⇒ FACING NORTH & SOUTH ALONG BENCH
- NO SIGNS OF SLOPE INSTABILITY

PHOTO 7 ⇒ 13W0495751, 7667267
WAYPOINT 058
- PHOTO 7A FACING NW SLOPE WHERE EROSION CHANNEL HAS FORMED, SELF ARMOURED
- PHOTO 7B FACING SOUTHWEST
- PHOTO 7C FACING NE TO THERMISTORS
- 4 PICTURES OF EROSION NEAR PHOTO 7 CLOSEUP IN FIELD BOOK

PHOTO 8 ⇒ 13W0495735, 7667295
- 4 PHOTOS FOR PANORAMIC
- WAYPOINT 059
- NO SETTLEMENT OR PONDED WATER

(12)

PHOTO 9 ⇒ 13W 0495737, 7667296
WAYPOINT 060
- 3 PHOTOS OF SLOPE FOR PANORAMIC
- NO EROSION OF SIGNIFICANCE
- NO SURFACE OR SETTLEMENT

PHOTO 10 ⇒ 13W 0495857, 7667274
WAYPOINT 061
- 5 PHOTOS OF SLOPE FOR PANORAMIC
- MINOR EROSION THAT APPEARS TO BE SELF ARMORING
- TOOK 3 PICTURES OF EROSION CLOSE UP DOWN SLOPE FROM LAST PANORAMIC PHOTO W FIELD BOOK FOR SCALE
- TOOK 1 PHOTO LOOKING DOWN TO EROSION FIXES BELOW JTS2 & VT5 W FIELD BOOK FOR SCALE

PHOTO 11 ⇒ 13W 0495886, 7667344
WAYPOINT 062
- 4 PHOTOS FOR PANORAMIC
- NO EROSION OR SETTLEMENT OBSERVED

(13)

AUG 16/09

PHOTO 12 ⇒ 13W 0495667, 7667398
WAYPOINT 063
- 4 PHOTOS FOR PANORAMIC
- NO SETTLEMENT CRACKS OR DEPRESSIONS OBSERVED
- MINOR PONDING OF WATER (IN PHOTO 10C)
- SPARSE VEGETATION/GRASS

PHOTO 13 ⇒ 13W 0495665, 7667394
WAYPOINT 064
- 2 PHOTOS OF NORTH SLOPE
- NO EROSION OR INDICATIONS OF INSTABILITY

PHOTO 14 ⇒ VT4
- 4 PHOTOS LOOKING WEST (14A) NORTH (14B) EAST (14C), SOUTH (14D)
- VT4 FOR SCALE

- WALKED LANDFILL SURFACE FOR SETTLEMENT CRACKS
- NO CRACKS OR DEPRESSIONS OBSERVED
- SLIGHT UNDULATIONS

Appendix C

Landfill Monitoring Report – South Shore Landfill

- C-1: South Shore Landfill
  - C-1.1 Landfill Summary
  - C-1.2 Visual Monitoring
  - C-1.3 Soil Sampling

Appendix C

Landfill Monitoring Report - South Shore Landfill

C.1 South Shore Landfill

C.1.1 Landfill Summary

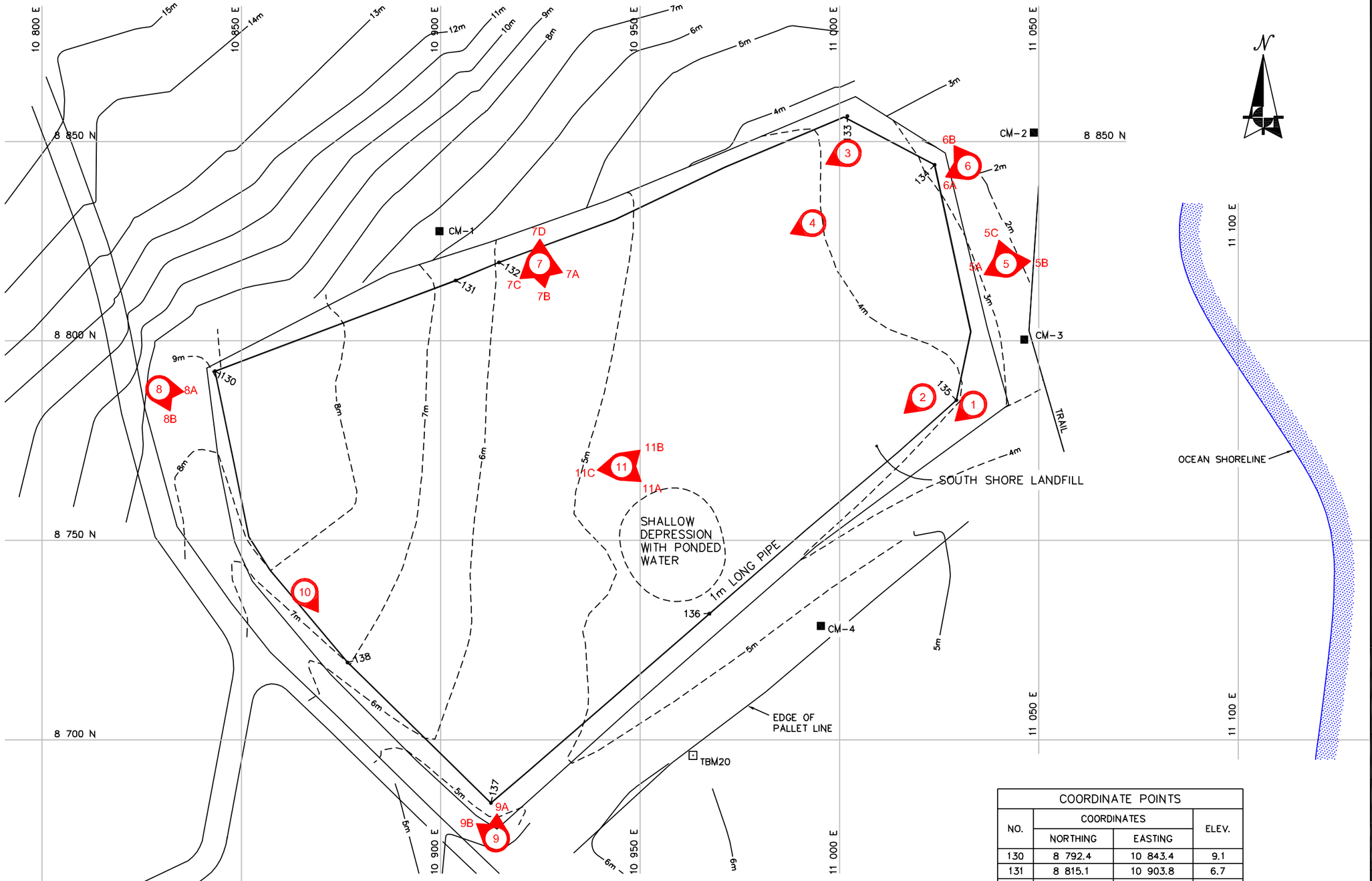
The south shore landfill is located approximately 2 km east of the main facilities near the POL Beach Staging area. The south shore landfill has an area of approximately 20,000 m^2 with an estimated depth of 1.5 m. The location of the landfill is shown on Figure C-1. It was originally classified as a moderate potential environmental risk, however prior to the 2001 sampling event, the landfill was re-assessed and it was re-classified and is now a low potential environmental risk.

For 2007, the monitoring requirements for the South Shore Landfill include visual inspection, and soil sampling.

C.1.2 Visual Monitoring

No significant erosion, settlement or indications of slope instability were observed at the South Shore Landfill (SSLF) during the 2007 inspection. The landfill cover appears to be stable with little to no change in condition from previous inspections. Overall landfill performance is assessed as "acceptable". Appendix C1 presents a summary of the 2007 visual inspection results.

Shallow depressions with ponded water were observed on southcentral surface of the landfill cover (Photo SSLF-11A in Appendix C2). Minor seepage and orange staining were observed at the northeast toe near Photo Location 6 on Figure C-1 (Photos SSLF-5C and 6B). Previously observed exposed crushed metal drums and wire at the northeast toe are still present with no apparent change from previous inspection photographs.



LEGEND:

- TBM20 — TEMPORARY BENCHMARK
- 130 — COORDINATE POINT
- ■ MONITORING SOIL SAMPLE LOCATION
- (1) APPROXIMATE PHOTOGRAPH LOCATION(1 = SSLF1)

TEMPORARY BENCHMARKS

NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
20	8 696.120	10 963.265	6.036	REBAR

COORDINATE POINTS

NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
130	8 792.4	10 843.4	9.1
131	8 815.1	10 903.8	6.7
132	8 819.6	10 914.6	5.9
133	8 856.3	11 002.0	3.9
134	8 844.1	11 023.9	2.8
135	8 785.1	11 029.3	4.1
136	8 731.6	10 967.4	4.7
137	8 684.2	10 912.6	5.5
138	8 719.4	10 876.6	7.0

DATA SOURCES:
DRAWING BY UMA
CM-RD04.DWG
DATED: 02/04/10
DEW LINE CLEAN UP LANDFILL MONITORING PLAN CAM-M - CAMBRIDGE BAY
SOUTH SHORE LANDFILL FIGURE CAM-M.4

0 5 10 20 30 Metres

SCALE 1:1000

REVIEWED BY : DL/AK
PREPARED BY : PW/NTO
DATE ISSUED : OCTOBER, 2007
PROJECT NO. : 70-517
FILE NAME : 70517 FIG C-1.dwg
REVISION : 0

Project: DEW Line Montioring
Location: Cambridge Bay, Nunavut
Client: Defence Construction Canada

SOUTH SHORE LANDFILL

Gartner Lee

Figure No. C-1

C.1.3 Soil Sampling

Soil samples were collected at the designated locations of CM-1, CM-2, CM-3 and CM-4. The sampling locations are shown on Figure C-1. At each location, two samples were collected at approximately 0.10 m below ground and between 0.40-0.50 m below ground. A photograph of each test pit for each location sampled is shown in Appendix C3. The analytical results and sample depths are tabulated in Table C-1 and the laboratory reports are provided in Appendix G.

No staining or free product was observed during the sampling event. There were no odours documented during the sampling event at the South Shore Landfill.

Low concentrations of Total Petroleum Hydrocarbons (TPH) (43mg/kg and 57mg/kg) were detected in both the shallow and deep samples respectively from soil sample location CM-4. The samples were re-analyzed to characterize the TPH CCME fractions F1-F3. All fractions were returned as non-detectable levels. Also, low concentrations of PCBs (0.04mg/kg) were detected in the shallow sample from soil sample location CM-4. The concentrations noted are low however they should be evaluated in the context of the Landfill Monitoring Plan

Table C-1. CAM-M Cambridge Bay, Summary of 2007 Soil Analysis - South Shore Landfill

Sample Ident.	Sample Location			Depth	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Zinc	Petroleum Hydrocarbons				PCB Total Aroclors (mg/kg)
	Location Id.	Northing	Easting	(m)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	TPH (C6-34) (mg/kg)	C6-C10 (mg/kg)	C10-C16 (mg/kg)	C16-C34 (mg/kg)	
Upgradient Samples																		
CM-1-1	CM-1	7666051	496240	0.1	1.9	< 0.2	12	5	10	5.4	< 0.01	11	14	< 20				< 0.03
CM-1-2	CM-1	7666051	496240	0.5	1.9	< 0.2	9	4	8	5.5	< 0.01	8	8	< 20				< 0.03
Downgradient Samples																		
CM-2-1	CM-2	7666068	496388	0.1	2.4	< 0.2	10	4	11	6.5	< 0.01	10	11	< 20				< 0.03
CM-2-2	CM-2	7666068	496388	0.5	2.4	< 0.2	10	5	10	5.9	< 0.01	11	15	< 20				< 0.03
CM-3-1	CM-3	7666018	496388	0.1	2.3	< 0.2	10	5	17	6.5	< 0.01	11	12	< 20				< 0.03
CM-3-2	CM-3	7666018	496388	0.5	1.9	< 0.2	9	5	11	7.3	< 0.01	11	9	< 20				< 0.03
CM-4-1	CM-4	7665969	496330	0.1	2.1	< 0.2	9	7	22	8.5	0.01	12	13	43	< 5	< 80	< 250	0.04
CM-4-2	CM-4	7665969	496330	0.5	1.7	< 0.2	7	5	8	6.7	< 0.01	9	10	57	< 5	< 80	< 250	< 0.03

** Denotes duplicate sample. (Further information located in Table 1 of main report)*

Appendix C Attachments

C1 Site Condition/Visual Inspection Records

C2 Geotechnical Inspection Photographic Records

C3 Monitoring Photographic Record

C4 Field Notes

Appendix C1

Site Condition/Visual Inspection Records

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

SITE NAME:	Cambridge Bay CAM-M
LANDFILL DESIGNATION:	South Shore Landfill
DATE OF INSPECTION:	August 2007
DATE OF PREVIOUS INSPECTION:	August 2005
INSPECTED BY:	Darrin Johnson, P.Eng.
REPORT PREPARED BY:	Darrin Johnson, P.Eng.

VISUAL INSPECTION REPORT – SOUTH SHORE LANDFILL – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to landfill features)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records (Photo number referenced in photo log and on figures)	Additional Comments/ Preliminary Stability Assessment
Settlement	Minor	Southcentral south of photo location 11	30 m	20 m	0.05 m	600m2/ 20,000m2 = 3%	Shallow depression with ponded water	SSLF 11A	Acceptable
Erosion	No								
Frost Action	No								
Animal Burrows	No								
Vegetation	Sparse						Clusters of grass	SSLF 3, 8A	
Staining	Yes	Northeast toe near photo location 6	20 m	20 m	N/A	400/20,000 m2=2%	Some orange staining at seepage area	SSLF 6B, 5C	Acceptable
Vegetation Stress	No								
Seepage Points	Yes	Northeast toe near photo location 6	20 m	20 m	N/A	400/20,000 m2=2%	Ponded water and staining	SSLF 6B, 5C	Acceptable
Debris Exposed	Yes	Northeast toe near photo location 5	2 m	2 m	N/A	4/20,000 m2 = <1%	Previously observed metal drum and wire	No change from previous inspection photographs	Acceptable
Presence/Condition – Monitoring Instr.	N/A								
Features of Note	None								
General							General	SSLF 1,2,4,5A,5B,6A,7A-7D,8B,9A,9B,10, 11B,11C,12	

PRELIMINARY STABILITY ASSESSMENT - SOUTH SHORE LANDFILL

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

Appendix C2

Geotechnical Inspection Photographic Records

Photo SSLF-1, Easting: 496382, Northing: 7666011, Direction: 225°
South Shore Landfill; southeast corner
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-2, Easting: 496366, Northing: 7666015, Direction: 225°
South Shore Landfill; minor depressions in landfill surface
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-3, Easting: 496339, Northing: 7666075, Direction: 240°
South Shore Landfill; northeast corner, some sparse vegetation
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-4, Easting: 496341, Northing: 7666056, Direction: 240°
South Shore Landfill; view near golf tee of shallow depression with ponded water
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-5A, Easting: 496386, Northing: 7666035, Direction: 240°
South Shore Landfill; east central slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-5B, Easting: 496386, Northing: 7666035, Direction: 70°
South Shore Landfill; east central slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-5C, Easting: 496386, Northing: 7666035, Direction: 340°
South Shore Landfill; east central slope facing ponded water and seepage
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-6A, Easting: 496383, Northing: 7666067, Direction: 240°
South Shore Landfill; northeast corner
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-6B, Easting: 496383, Northing: 7666067, Direction: 340°
South Shore Landfill; northeast corner
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-7A, Easting: 496305, Northing: 7666064, Direction: 110°
South Shore Landfill; facing east toe
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-7B, Easting: 496305, Northing: 7666064, Direction: 160°
South Shore Landfill; facing south across landfill
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

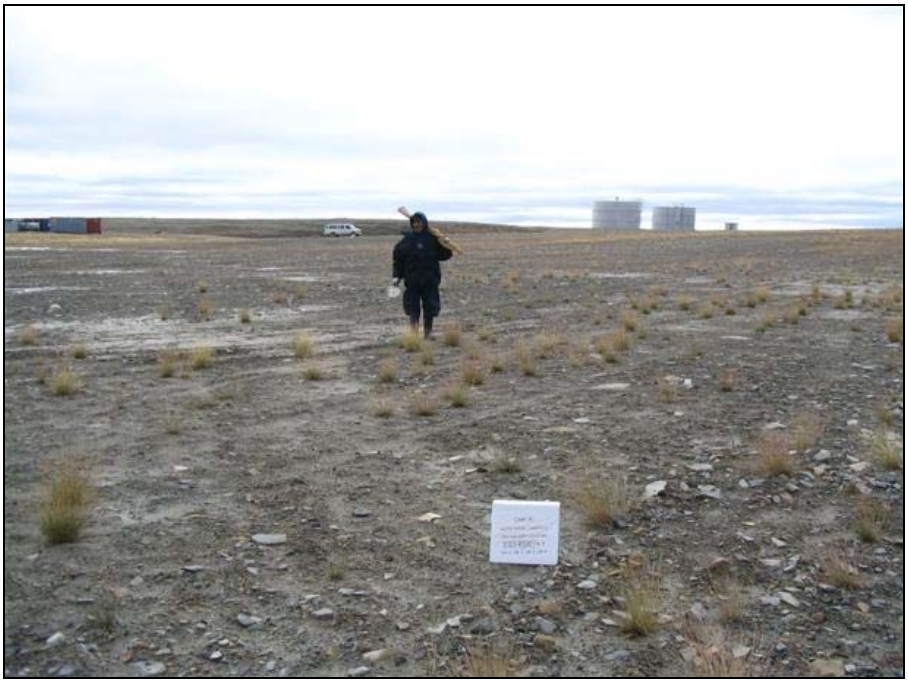


Photo SSLF-7C, Easting: 496305, Northing: 7666064, Direction: 225°
South Shore Landfill; facing southwest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-7D, Easting: 496305, Northing: 7666064; Direction: 340°
South Shore Landfill; facing north up slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-8A, Easting: 496192, Northing: 7666003, Direction: 110°
South Shore Landfill; facing east over landfill surface
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-8B, Easting: 496192, Northing: 7666003, Direction: 160°
South Shore Landfill; facing south along crest and ditch
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-9A, Easting: 496238, Northing: 7669927, Direction: 20°
South Shore Landfill; facing north over landfill surface
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-9B, Easting: 496238, Northing: 7665927
South Shore Landfill; facing northwest along crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-10, Easting: 496204, Northing: 7665961, Direction 160°
South Shore Landfill; facing south along crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-11A, Easting: 496274, Northing: 7665993, Direction: 160°
South Shore Landfill; facing south to ponded water depressions
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-11B, Easting: 496274, Northing: 7665993, Direction: 70°
South Shore Landfill; facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-11C, Easting: 496274, Northing: 7665993, Direction: 250°
South Shore Landfill; facing west towards well vegetated area
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SSLF-12, Easting: 496292, Northing: 7665877, Direction: 0°
South Shore Landfill; southwest corner of landfill facing ditch with ponded water
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Appendix C3

Monitoring Photographic Records

Test pit CM-1 (Upgradient). Samples CM-1-1 and CM-1-2 collected. Samples with identification numbers ending in "1" (ex. CM-1-1) collected at 0-10cm and samples with identification numbers ending in "2" collected at 40-50cm.

Test pit CM-2. Samples CM-2-1 and CM-2-2 collected. Water table reached at 20cm.

Test pit CM-3. Samples CM-3-1 and CM-3-2 collected.

Test pit CM-4. Samples CM-4-1 and CM-4-2 collected.

Appendix C4

Field Notes

Aug 15th, 2007 1:00 PM

Samplers: Ken Beldt
Joe Jr.
Russell

South Shore Landfill

Weather: Overcast, windy, cold 7°C

Collecting Samples @ 0-10cm and 40-50cm

Sample CM-4 soil 2 jars per sample

UTM W 0496330
13 7665969

Picture #1 CM-4 test pit & samples for scale (120mL)

Sample CM-3 soil

UTM W 0496388
13 7666018

Picture #2 CM-3 test pit & samples for scale (120mL)

Aug 15th, 2007

Sample CM-2 soil

UTM W 0496388
13 7666068

Picture #3 CM-2 test pit & soil samples plus trowel for scale

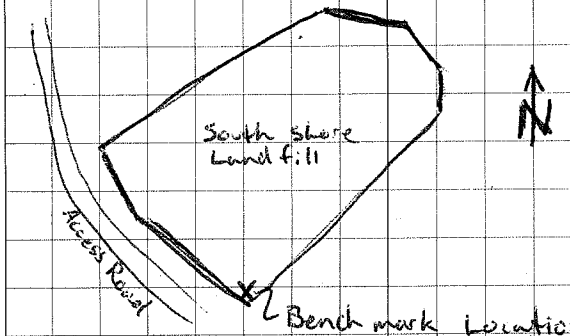
Sample CM-1 soil

UTM W 0496240
13 7666051

Picture #4 CM-2 test pit & soil samples for scale

Benchmark taken with GPS at south corner of landfill for reference

UTM W 0496239
13 7665928



Soil Sampling Record

	Previous Coordinates		2007 Coordinates UTM		Surface Sample	Depth Sample	Photograph
Monitoring Locations	North (m)	East (m)	North (m)	East (m)	0 - 10 cm	40 - 50 cm	
South Shore Landfill							
CM-1 (soil)	8820	10900	7666051	0496240	✓	✓	#4
CM-2 (soil)	8850	11050	7666068	0496388	✓	✓	3
CM-3 (soil)	8800	11040	7666018	0496388	✓	✓	2
CM-4 (soil)	8730	10990	7665969	0496330	✓	✓	1

Comments: UTM Area 13

Benchmark @ Southcorner N7665928 E0496239

(1)

70-517

CAM-M INSPECTION AUG. 15/07 DCJ

- ORGANIZED EQUIPMENT AND SUPPLIES ON AUG. 15/07 FROM 7-8:00AM
- MET ED POWELL & BOB IN KITIMAA
- GPS GARMIN ETREX LEGEND

OFFICE LOCATION: 13 W 0497547 7667220

ELEV. +5m

ACCURACY TO 7m

- WEATHER: COLD, WINDY, OVERCAST

TEMP @ 8:30AM = 6°C

- SAMPLERS JOE JR. AND ~~RUSSEL~~ RANDY BOTH ARRIVED @ KITIMAA OFFICE FOR 8:30-9:00
- JOE SR. POTENTIAL BEAR MONITOR STOPPED BY @ 10:00, PICKED UP @ 12:30
- WAITED FROM 7:30AM UNTIL 10:00AM FOR ED
- LOOKED THROUGH STORE STORAGE RM SUPPLIES
- TOURED CAM-M CAMP/OFFICE AREAS WITH ED POWELL

- LUNCH FROM 12 - 12:30 pm
- LOADED VAN, PICKED UP WATER AND JOE JR & SR
- SOUTH SHORE LANDFILL @ 1:00 pm
- OVERALL LANDFILL APPEARS STABLE WITH NO OBVIOUS OR APPARENT INSTABILITY, EROSION OR SETTLEMENT
- SOME PONDED WATER IN NORTH-WEST QUADRANT (VISIBLE IN PHOTO 8)
- PHOTO 1 13W 0496382, 7666011
  - SOUTH ~~EAST~~ CORNER
  - VEGETATED, NO EROSION IN DITCH
- PHOTO 2 13W 0496366, 7666015
  - MINOR DEPRESSIONS IN LANDFILL SURFACE ONLY
  - 0.15m OR LESS ⇒ NO CONCERN)

TO - 711
AUG. 15/07

PHOTO 8 ⇒ 13W 0496339, 7666075
~~SOUTH~~ NORTH EAST CORNER FACING NORTH
- NO EROSION, GOOD STANDS OF GRASS

PHOTO 4 ⇒ 13W 0496341, 7666056
- NEAR A GOLF TEE
- SHALLOW DEPRESSION WITH PONDED WATER

PHOTO 6 ⇒ 13W 0496383, 7666067
~~SOUTH~~ NORTH EAST CORNER
- SOME ORANGE STAINING SEEPAGES (CLOSEUP PHOTO 6B)

PHOTO 5 ⇒ 13W 0496386 7666035
- ~~SOUTH~~ EAST SLOPE, ~~WEST~~ SOUTH OF ROCK PILE, NO EROSION OR INDICATIONS OF INSTABILITY
- PHOTO 5B FACING ~~SOUTH~~ EAST TO WATER
- PHOTO 5C FACING ~~EAST~~ NORTH EAST TO PONDED WATER AND SEEPAGE CROSSING

NOTE: BARREL & WIRE ROPE STILL PRESENT.

PHOTO 7 ⇒ 13W 0496305 7666064
- 7A ⇒ FACING ~~SOUTH~~ EAST TO TOP
- 7B ⇒ FACING ~~SOUTH~~ SOUTH ACROSS LF
- 7C ⇒ FACING ~~NORTH~~ SOUTH WEST
- 7D ⇒ FACING ~~EAST~~ NORTH UP SLOPE LEVEL

PHOTO 8 ⇒ 13W 0496192 7666003
- PHOTO 8A FACING ~~SOUTH~~ EAST OVER LANDFILL SURFACE, NO EROSION
- PHOTO 8B FACING ~~WEST~~ SOUTH ALONG CREST AND WEST ~~NORTH~~ DITCH, NO EROSION

PHOTO 10 ⇒ 13W 0496204, 7665961
- FACING ~~SOUTH~~ WEST ALONG CREST
- SOME 4-WHEELER ATV TIRE TRACKS, NO EROSION

PHOTO 9 ⇒ 13W 0496238, 7665927
- PHOTO 9A FACING ~~SOUTH~~ NORTH OVER LANDFILL SURFACE
- PHOTO 9B FACING ~~EAST~~ NORTHWEST ALONG CREST
- NO EROSION OR INSTABILITY

PHOTO 11 ⇒ 13W 0496274 7665993
- PHOTO 11A FACING ~~EAST~~ SOUTH TO PONDED WATER DEPRESSIONS
- PHOTO 11B FACING ~~SOUTH~~ EAST
- PHOTO 11C FACING ~~NORTHEAST~~ WEST TOWARDS WELL VEGETATED AREA

AUG. 15/07
70-517

PHOTO 12 ⇒ 13W 0496292 7665877
SOUTHWEST ~~SOUTHWEST~~ CORNER OF LF
- DITCH W. PONDED WATER
- LEFT SOUTH SHORE LANDFILL @ 3:30PM
- WEST LANDFILL
- ARRIVED AT 3:35PM
- OVERALL APPEARS STABLE AND NO OBVIOUS EROSION OR EXPOSED WASTE

- PHOTO 1 ⇒ 13W 0494499 7668077
PHOTO 1A FACING NORTH
1B FACING NORTHWEST
1C FACING WEST ~~NORTHWEST~~

PHOTO 2 ⇒ 13W 0494559, 7668121
WAYPOINT 044
- EAST LANDFILL SLOPE
- NO EROSION
- SOME GRASS & HERBS

Appendix D

Landfill Monitoring Report – West Landfill

- D-1: West Landfill
  - D-1.1 Landfill Summary
  - D-1.2 Visual Monitoring
  - D-1.3 Soil Sampling

Appendix D

Landfill Monitoring Report - West Landfill

D.1 West Landfill

D.1.1 Landfill Summary

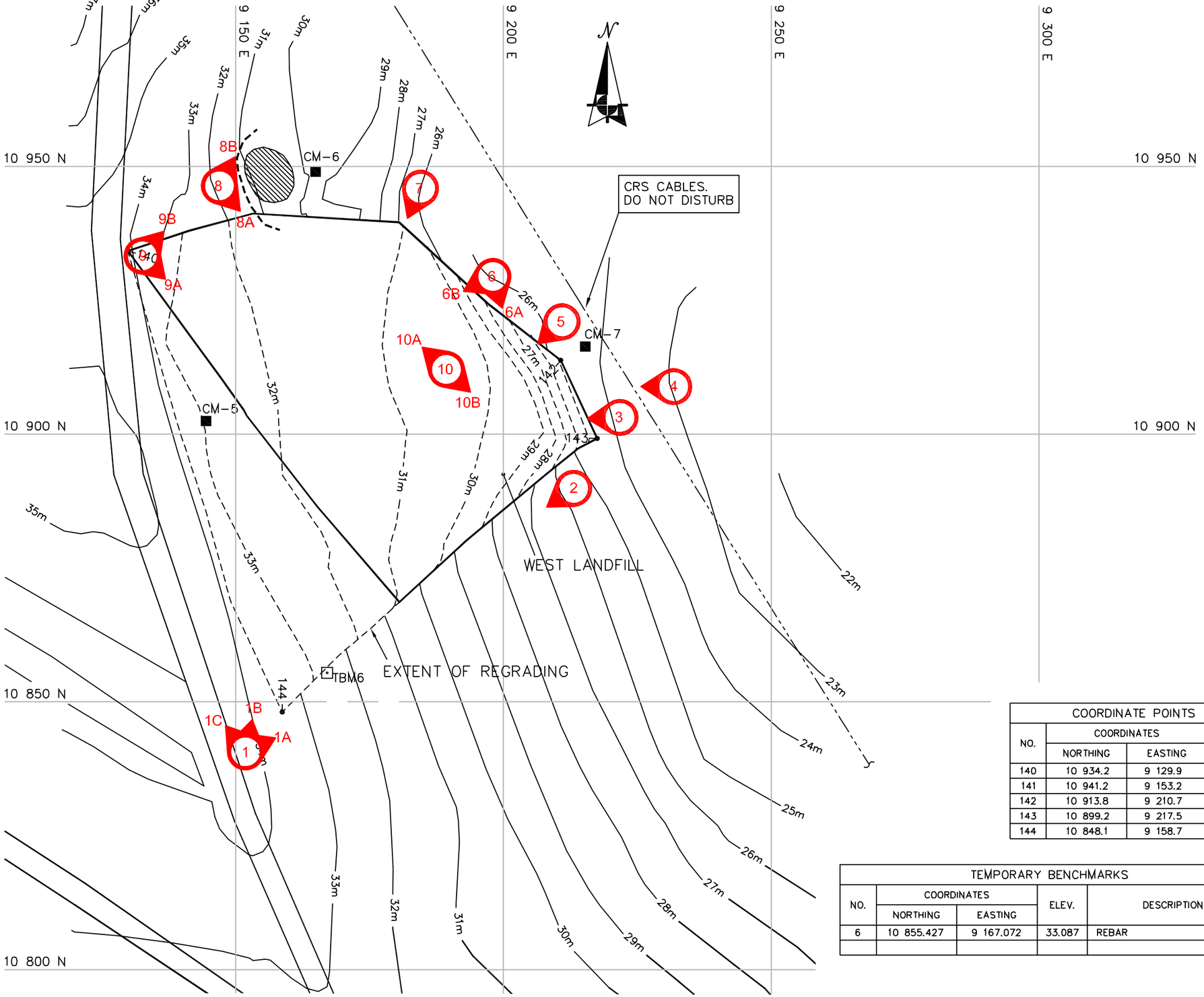
The west landfill is located approximately 600 m northwest of the main facilities. The area of the landfill is approximately 4,500 m^2 with an estimated depth of greater than 1.5 m. The location of the landfill is shown on Figure D-1. The DCC has classified this landfill as a low potential environmental risk. Remediation of this landfill included re-grading with the placement of additional granular fill.

For 2007, the monitoring requirements for the West Landfill include visual inspection, and soil sampling.

D.1.2 Visual Monitoring

Based on the 2007 visual inspection, the West Landfill (WLF) appears to be in good condition with no signs of imminent slope instability or final cover failure. Overall landfill performance is assessed as "acceptable". Appendix D1 presents a summary of the 2007 visual inspection results.

There is some minor erosion on the east slope that appears to be self-armouring (Photos WLF-3, 5 and 6A in Appendix D2). There is an area of settlement at the north end of the landfill, east of Photo Location 8 on Figure D-1. The settlement area appears to be north of the constructed landfill cover indicating that the settlement may be related to thaw of ground ice north of the landfill. The settlement has resulted in the formation of tension cracks (Photos WLF-8A and 8B in Appendix D2) that encircle the north, west and south perimeter of the depression. The maximum width of the cracks is about 5 cm and maximum visible depth is about 20 cm. Photo WLF-9 (Appendix D2) illustrates the proximity of the depression relative to the landfill. Previously documented tension cracks up to 40 cm in width (Photos WLF-8 and 8A in 2005 Inspection Report) could not be located during the 2007 inspection and it is suspected that the area may have been repaired since 2005 (see light coloured gravel area at top of Photo WLF-10A in Appendix D2).



LEGEND:

- TBM6 ⊡ TEMPORARY BENCHMARK
- 140→ COORDINATE POINT
- ■ MONITORING SOIL SAMPLE LOCATION
- (3) APPROXIMATE PHOTOGRAPH LOCATION(3 = WLF3)
- SETTLEMENT AREA
- ----- TENSION CRACK

COORDINATE POINTS			
NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
140	10 934.2	9 129.9	33.7
141	10 941.2	9 153.2	31.4
142	10 913.8	9 210.7	24.9
143	10 899.2	9 217.5	24.4
144	10 848.1	9 158.7	33.8

TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
6	10 855.427	9 167.072	33.087	REBAR

DATA SOURCES:
DRAWING BY UMA
CM-RD05.DWG
DATED: 02/04/10
DEW LINE CLEAN UP
LANDFILL MONITORING PLAN
CAM-M - CAMBRIDGE BAY
WEST LANDFILL AND NWS LANDFILL FIGURE
CAM-M.5

0 7.5 15 22.5 Metres

SCALE 1:750

REVIEWED BY : DL/AK
PREPARED BY : PW/NTO
DATE ISSUED : OCTOBER, 2007
PROJECT NO. : 70-517
FILE NAME : 70517 FIG D-1.dwg
REVISION : 0

Project: DEW Line Montioring
Location: Cambridge Bay, Nunavut
Client: Defence Construction Canada

WEST LANDFILL

Gartner Lee

Figure No. D-1

D.1.3 Soil Sampling

Soil samples were collected at the designated locations of CM-5, CM-6, and CM-7. The sampling locations are shown on Figure D-1. At each location, two samples were collected at approximately 0.10 m below ground and between 0.40-0.50 m below ground. A photograph of each test pit for each location sampled is shown in Appendix D3. The analytical results and sample depths are tabulated in Table D-1 and the laboratory reports are provided in Appendix G.

No staining or free product was observed during the sampling event. There were no odours documented during the sampling event at the West Landfill.

Table D-1. CAM-M Cambridge Bay, Summary of 2007 Soil Analysis - West Landfill

Sample Ident.	Sample Location			Depth	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Zinc	Petroleum Hydrocarbons				PCB Total Aroclors (mg/kg)
	Location Id.	Northing	Easting	(m)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	TPH (C6-34) (mg/kg)	C6-C10 (mg/kg)	C10-C16 (mg/kg)	C16-C34 (mg/kg)	
Upgradient Samples																		
CM-5-1	CM-5	7668135	494486	0.1	1.7	< 0.2	6	3	6	3.7	< 0.01	5	7	< 20				< 0.03
CM-5-2	CM-5	7668135	494486	0.5	1.8	< 0.2	7	3	5	3.6	< 0.01	6	8	< 20				< 0.03
Downgradient Samples																		
CM-6-1	CM-6	7668177	494517	0.1	1.1	< 0.2	13	3	16	6.5	0.04	11	26	35	< 5	< 80	< 250	< 0.03
CM-6-2	CM-6	7668177	494517	0.5	3.1	< 0.2	13	5	15	7.7	0.03	11	22	34	< 5	< 80	< 250	< 0.03
CM-7-1	CM-7	7668148	494563	0.1	0.8	0.4	6	2	7	2.1	< 0.01	6	7	< 20				< 0.03
CM-7-2	CM-7	7668148	494563	0.5	0.8	0.3	6	2	6	2.2	< 0.01	5	7	< 20				< 0.03

***** *Denotes duplicate sample. (Further information located in Table 1 of main report)*

Appendix D Attachments

D1 Site Condition/Visual Inspection Records

D2 Geotechnical Inspection Photographic Records

D3 Monitoring Photographic Records

D4 Field Notes

Appendix D1

Site Condition/Visual Inspection Records

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

SITE NAME:	Cambridge Bay CAM-M
LANDFILL DESIGNATION:	West Landfill
DATE OF INSPECTION:	August 2007
DATE OF PREVIOUS INSPECTION:	August 2005
INSPECTED BY:	Darrin Johnson, P.Eng.
REPORT PREPARED BY:	Darrin Johnson, P.Eng.

VISUAL INSPECTION REPORT – WEST LANDFILL – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to landfill features)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records (Photo number referenced in photo log and on figures)	Additional Comments/Preliminary Stability Assessment
Settlement	Yes	Northern edge of landfill east of photo location 8	10 m	10 m	<0.5 m	100m2/ 4500m2 = 2%	Tension cracks around north and west sides of depressed area	WLF 8A, 8B and 9B	Acceptable
Erosion	Minor	East slope	10 m (slope length)	20 m (width of affected area)	0.1 m max.	200m2/ 4500m2 = 4.5%	Minor rills	WLF 3, 5, 6A	Self-armouring; acceptable
Frost Action	No								
Animal Burrows	No								
Vegetation	Sparse							WLF 8A, 9A, 10A	
Staining	No								
Vegetation Stress	No								
Seepage Points	No								
Debris Exposed	No								
Presence/Condition – Monitoring Instruments	N/A								
Features of Note	None								
General							General	WLF 1A-1C, 2, 4, 6B, 7, 9A, 10A, 10B	

PRELIMINARY STABILITY ASSESSMENT - WEST LANDFILL

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

Appendix D2

Geotechnical Inspection Photographic Records

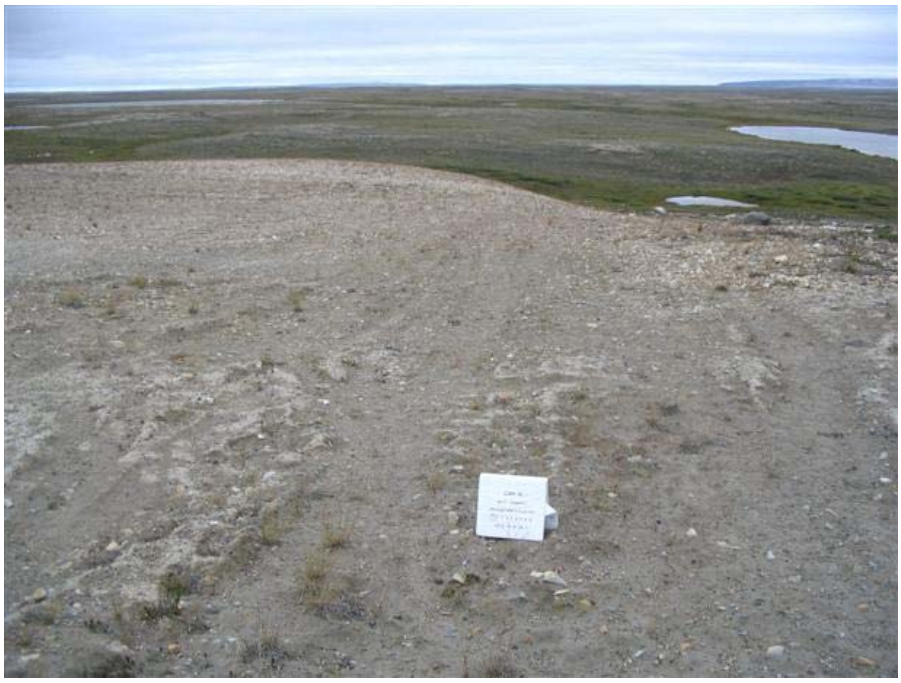


Photo WLF-1A, Easting: 494499, Northing: 7668077, Direction: 340°
West Landfill; facing north
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-1B, Easting: 494499, Northing: 7668077, Direction: 290°
West Landfill; facing northwest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-1C, Easting: 494499, Northing: 7668077, Direction: 250°
West Landfill; facing west
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-2, Easting: 494559, Northing: 7668121, Direction: 150°
West Landfill; east landfill slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-3, Easting: 494566, Northing: 7668131, Direction: 180°
West Landfill; northeast slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-4, Easting: 494559, Northing: 7668121, Direction: 180°
West Landfill; north landfill slope facing south
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-5, Easting: 494549, Northing: 7668155, Direction: 135°
West Landfill; northwest slope facing southeast
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-6A, Easting: 494519, Northing: 7668166, Direction: 90°
West Landfill; view facing east towards dew line station
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-6B, Easting: 494519, Northing: 7668166, Direction: 160°
West Landfill; view facing south towards slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

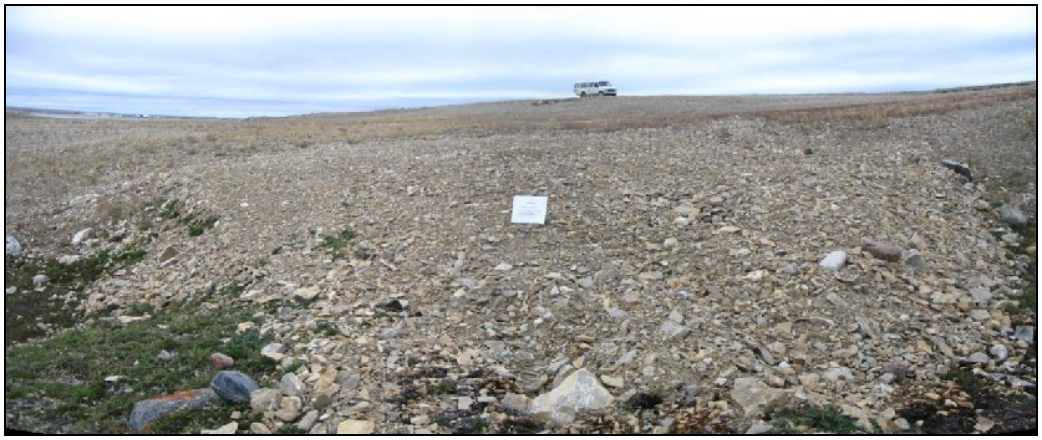


Photo WLF-7, Easting: 494507, Northing: 7668176, Direction: 130°
West Landfill; view facing east towards western slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-8A, Easting: 494491, Northing: 7668172, Direction: 45°
West Landfill; facing landfill from area of settlement west of landfill
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-8B, Easting: 494491, Northing: 7668172, Direction: 270°
West Landfill; tension cracks above thaw settlement area, maximum width 5 cm, maximum observed depth about 20 cm.
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height.

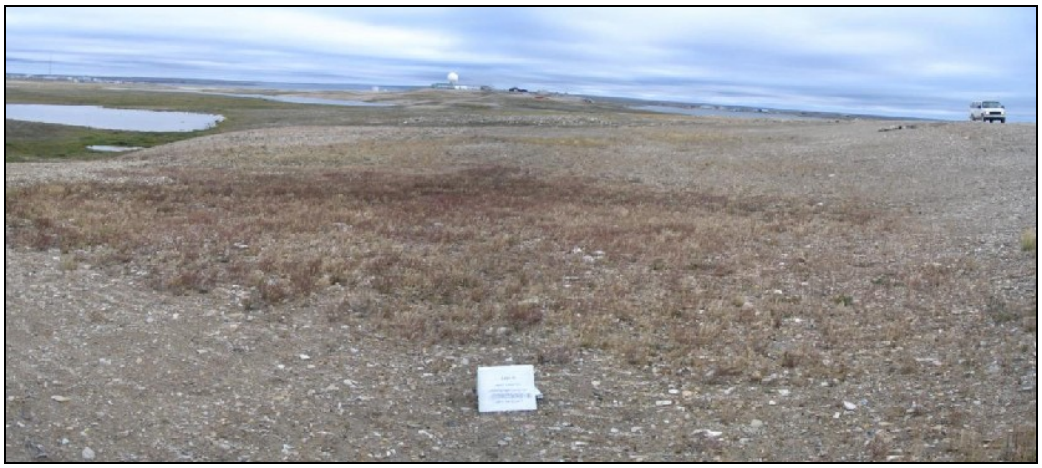


Photo WLF-9A, Easting: 494479, Northing: 7668169, Direction: 50°
West Landfill; facing southeast over sparsely vegetated landfill surface
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF- 9B, Easting: 494479, Northing: 7668169
West Landfill; facing northeast towards thaw settlement area
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-10A, Easting: 494520, Northing: 7668142, Direction: 250°
West Landfill; view facing northwest towards suspected regraded area
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo WLF-10B, Easting: 494520, Northing: 7668142, Direction: 70°
West Landfill; view facing southeast
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Appendix D3

Monitoring Photographic Records

Test pit CM-5 (Upgradient). Samples CM-5-1 and CM-5-2 collected. Samples with identification numbers ending in "1" (ex. CM-5-1) collected at 0-10cm and samples with identification numbers ending in "2" collected at 40-50cm.

Test pit CM-6. Samples CM-6-1 and CM-6-2 collected.

Test pit CM-7. Samples CM-7-1 and CM-7-2 collected.

Appendix D4

Field Notes

Aug 15th, 2007 3:35 PM
West Landfill sampling soil into
120 mL glass jars at 10cm and 40-50cm
2 jars per sample

CM-5 soil sample
UTM W 0494486
13 7668135
Picture #5 CM-5 test pit & soil samples for scale
120mL jars

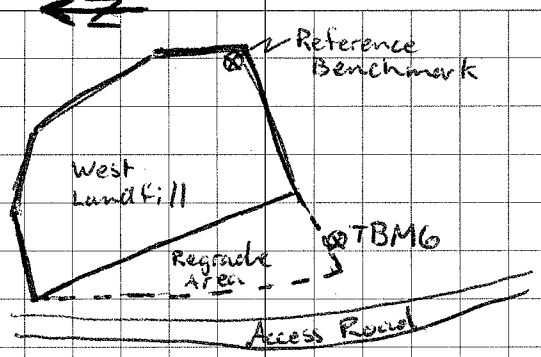
CM-7 soil sample
UTM W 0494563
13 7668148
Picture #6 CM-7 test pit & soil samples for scale
This sample location had highly organic soil

CM-6 soil sample
UTM W 0494517
13 7668177
Picture #7 CM-6 test pit & soil samples for scale
This sample location had highly organic soil

Benchmarks taken @ TBM6 and western corner of LF

TBM6	UTM 13	W 0494547 7668092	west corner	UTM 13	W 0494564 7668130

Aug 15, 07



Soil Sampling Record

	Previous Coordinates		2007 Coordinates		Surface Sample	Depth Sample	Photograph
Monitoring Locations	North (m)	East (m)	North (m)	East (m)	0 - 10 cm	40 - 50 cm	
West Landfill							
CM-5 (soil)	10900	9140	7668135	0494486	✓	✓	5
CM-6 (soil)	10950	9160	7668177	0494517	✓	✓	7
CM-7 (soil)	10920	9220	7668148	0494563	✓	✓	6

Comments: Soil at CM-6 and CM-7 was highly organic

Reference BMs taken at TBM6 UTM 13 N 7668082 E0494547
and West corner UTM 13 N 7668130 E0494564

PHOTO 8 ⇒ 13W0496192 7666003
- PHOTO 8A FACING ~~SOUTH~~ EAST OVER LANDFILL SURFACE, NO EROSION
- PHOTO 8B FACING ~~WEST~~ SOUTH ALONG CREST AND WEST ~~NORTH~~ DITCH, NO EROSION

PHOTO 10 ⇒ 13W0496204, 7665961
- FACING ~~SOUTH~~ WEST ALONG CREST
- SOME 4-WHEELER ATV TIRE TRACKS, NO EROSION

PHOTO 9 ⇒ 13W0496238, 7665927
- PHOTO 9A FACING ~~NORTH~~ OVER LANDFILL SURFACE
- PHOTO 9B FACING ~~EAST~~ NORTHWEST ALONG CREST
- NO EROSION OR INSTABILITY

PHOTO 11 ⇒ 13W0496274 7665993
- PHOTO 11A FACING ~~SOUTH~~ WEST TO PONDED WATER DEPRESSIONS
- PHOTO 11B FACING ~~SOUTH~~ EAST
- PHOTO 11C FACING ~~NORTHEAST~~ WEST TOWARDS WELL VEGETATED AREA

AUG. 15/07
70-517

PHOTO 12 ⇒ 13W0496292 7665877
SOUTHWEST ~~SOUTHWEST~~ CORNER OF LF
- DITCH W. PONDED WATER

- ALERT SOUTH SHORE LANDFILL @ 3:30PM

- WEST LANDFILL
- ARRIVED AT 3:35PM
- OVERALL APPEARS STABLE AND NO OBVIOUS EROSION OR EXPOSED WASTE

- PHOTO 1 ⇒ 13W0494499 7668077
PHOTO 1A FACING NORTH
1B FACING NORTHWEST
1C FACING WEST ~~NORTHWEST~~

PHOTO 2 ⇒ 13W0494559, 7668124
WAYPOINT 044
- EAST LANDFILL SLOPE
- NO EROSION
- SOME GRASS & HERBS

LEVEL

(6)

PHOTO 3 ⇒ 13W0494566, 7668131
WAYPOINT 045
- NORTHEAST SLOPE
- NO SEEPAGE @ TOE
- SOME SELF ARMOURING
EROSION ON SLOPE (PHOTO 3)

PHOTO 4 ⇒ 13W0494577, 7668134
WAYPOINT 046
- 2 PHOTOS FOR PANORAMIC
- SLOPE IS STABLE, NO SIGNIFICANT EROSION,
- NO SEEPAGE @ TOE
- NO STAINING
- SPARSE VEGETATION

PHOTO 5 ⇒ 13W0494549, 7668155
WAYPOINT 047
- 3 PHOTOS FOR PANORAMIC
- SOME EROSION RILLING THAT APPEARS TO BE SELF ARMOURING
- NO SPILLAGE OF [illegible] ALONG TOE
- NO SEEPAGE @ TOE

(7)

70-517
Aug 15/06

PHOTO 6 ⇒ 13W 0494519, 7668166
WAYPOINT 048
- PHOTO 6A FACING EAST TOWARDS DEW LINE STATION
- SLOPE APPEARS STABLE
- NO SIGNIFICANT EROSION
- SPARSE VEGETATION
- PHOTO 6B FACING SOUTH TOWARDS SLOPE

PHOTO 7 ⇒ 13W0494507, 7668176
WAYPOINT 049
- 2 PHOTOS FOR PANORAMIC
- AREA APPEARS TO HAVE BEEN REPAIRED WITH ROCK FILL
- GOOD VEGETATION AT TOP ABOVE REPAIRED AREA

PHOTO 10 ⇒ 13W0494520, 7668158
WAYPOINT 050
- ALONG CREST FACING WEST (10A) & EAST (10B)
- NO TENSION CRACKS OR SETTLEMENT

(8)

PHOTO 8 ⇒ 13W 0494491, 7668172
WAYPOINT 051
- SOME TENSION CRACKS BUT NOT RELATED TO WASTE OR LANDFILL
- PHOTO 8A FACING LANDFILL TOWARDS DEW LINE STATION
- PHOTO 8B FACING AWAY FROM LANDFILL
- CRACK WIDTH MAX. 2 INCHES AND APPROX 6-8 INCHES DEEP

PHOTO 9 ⇒ 13W 0494479, 7668169
WAYPOINT 052
2 PHOTOS 9A ~~PHOTO~~ PANORAMIC FACING EAST TOWARDS DEW LINE STATION
- PHOTO 9B FACING NORTH TOWARDS SETTLEMENT/ THAW AREA

- LEFT WEST LANDFILL @ 5:30PM
- TOOK 46 PHOTOS ON AUG. 15/07

(9)

70-517
AUG. 16/07
DCO

- ARRIVED AT LANDFILL (MAIN SOUTH) @ 9:00AM WITH KRISTALLE & JOE JR.
- JOE JR. & RAISSA NOT AVAILABLE TO WORK (LOST 1HR)
- WEATHER: OVERCAST, TEMP = 6.0°C

PHOTO 1 ⇒ 13W 0495734, 7667434
WAYPOINT 053
2 PHOTOS FOR PANORAMIC
- NO SIGNS OF EROSION OR SETTLEMENT

PHOTO 2 ⇒ 13W 0495809, 7667357
WAYPOINT 054
- PHOTO 2A NW
- PHOTO 2B CLOSEUP OF NORTH SLOPE NEAR PHOTO LOCATION 2 WHERE SELF ARRESTING MINOR EROSION HAS OCCURRED
- PHOTOS 2C AND 2D

Appendix E

Landfill Monitoring Report – Airstrip Landfill

- E-1: Airstrip Landfill
  - E-1.1 Landfill Summary
  - E-1.2 Visual Monitoring
  - E-1.3 Soil Sampling

Appendix E

Landfill Monitoring Report - Airstrip Landfill

E.1 Airstrip Landfill

E.1.1 Landfill Summary

The airstrip landfill is located southwest of the airstrip, along the edge of the west arm of Cambridge Bay. The disturbed area associated with the landfill extends along the road over 2 km. The landfill configuration is shown on Figures E-1 and E-2. The waste materials were placed in low-lying area along the road, therefore the depth of the waste varies accordingly. On average the thickness of the waste is between 1 and 2 m. The location of the landfill is shown on Figure E-1. The type of waste varies from domestic waste to industrial waste. Waste samples were collected in 1998 and identified localized areas of DCC Tier I and DCC Tier II contamination. Based on the available information, prior to the remedial work, the DCC has classified the landfill as a moderate potential environmental risk. Remediation of the landfill included the removal of debris pockets, removal of contaminated materials (material transported to the DCC Tier I and II Landfills) and re-grading with the placement of additional fill material.

It should be noted that Gartner Lee considers that the Figures that were provided in the original RFP (2004) do not accurately depict the dimensions and location of the Airstrip Landfill. The land features and the scale shown on the drawings vary from the features and distances observed in the field. In 2004, the site was re-surveyed and new drawings were issued to reflect this work. These drawings were provided to Gartner Lee via DCC and Figures E-1 and E-2 have been updated with this information.

For 2007, the monitoring requirements for the Airstrip Landfill include visual inspection, and soil sampling.

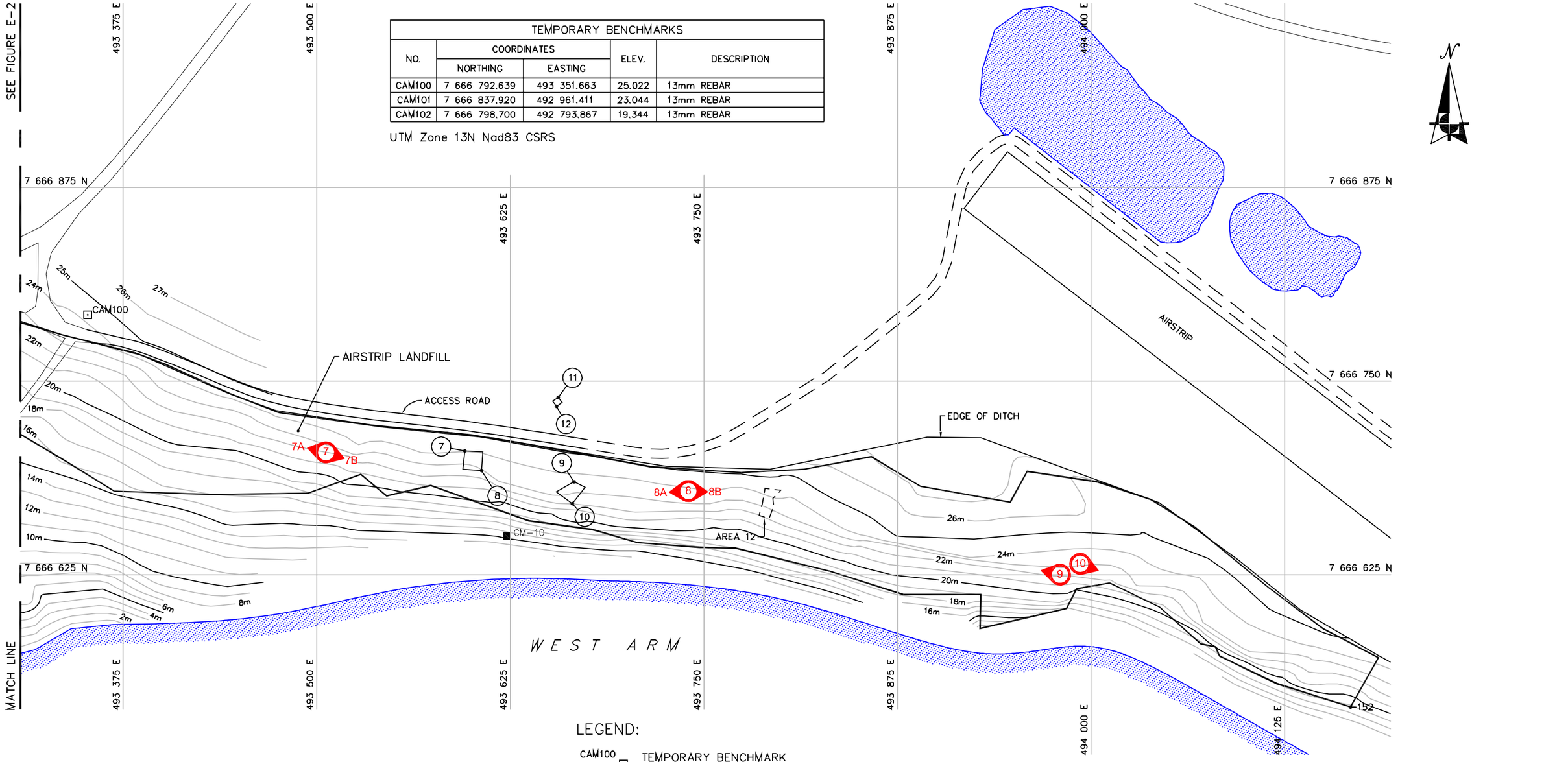
E.1.2 Visual Monitoring

No significant erosion or indications of instability were observed at the Airstrip Landfill (ALF) during the 2007 inspection. Overall the landfill performance is assessed as “acceptable”. Appendix E1 presents a summary of the 2007 visual inspection results.

There is some minor erosion on the south slope of Area 8 that appears to be self-armouring (Photo WLF-4A in Appendix E2). Previously observed exposed crushed metal drums at the west end of Area 7 are still present (Photo ALF-5A) with no apparent change from previous inspection photographs.

TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
CAM100	7 666 792.639	493 351.663	25.022	13mm REBAR
CAM101	7 666 837.920	492 961.411	23.044	13mm REBAR
CAM102	7 666 798.700	492 793.867	19.344	13mm REBAR

UTM Zone 13N Nad83 CSRS



COORDINATE POINTS		
NO.	COORDINATES	
	NORTHING	EASTING
152	7 666 539.5	494 167.6

MONITORING LOCATIONS		
NO.	COORDINATES	
	NORTHING	EASTING
CM10	7 666 650.3	493 622.7

REFERENCE POINTS		
NO.	COORDINATES	
	NORTHING	EASTING
7	7 666 704.9	493 595.6
8	7 666 692.3	493 606.4
9	7 666 685.0	493 666.2
10	7 666 670.9	493 665.0
11	7 666 739.5	493 655.9
12	7 666 733.7	493 654.8

LEGEND:

- CAM100 ⊡ TEMPORARY BENCHMARK
- (7) REFERENCE POINT
- 152 → COORDINATE POINT
- ▭ REGRADED AREAS
- ◇ FORMER CONTAMINATED SOIL AREAS
- ■ MONITORING SOIL SAMPLE LOCATION
- (8) APPROXIMATE PHOTOGRAPH LOCATION(8 = ALF8)

DATA SOURCES:
DRAWING BY UMA
CM-RD08.DWG
DATED: 04/07/27
DEW LINE CLEAN UP
LANDFILL MONITORING PLAN
CAM-M - CAMBRIDGE BAY
EXISTING AIRSTRIP LANDFILL
FIGURE CAM-M.8

0 25 50 100 Metres

SCALE 1:2,500

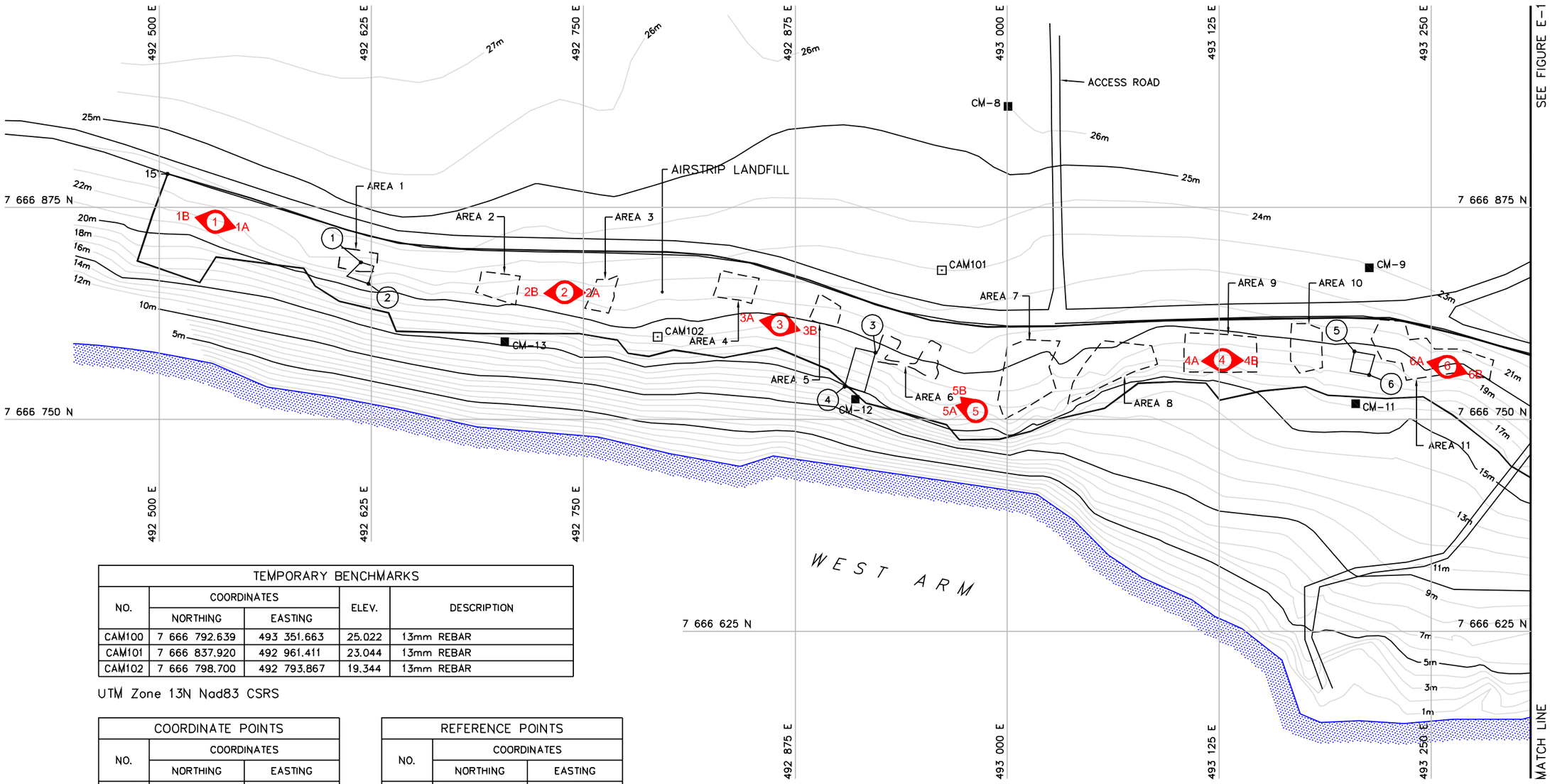
REVIEWED BY : DL/AK
PREPARED BY : PW/NTO
DATE ISSUED : OCTOBER, 2007
PROJECT NO. : 70-517
FILE NAME : 70517 FIG E-1.dwg
REVISION : 0

Project: DEW Line Montioring
Location: Cambridge Bay, Nunavut
Client: Defence Construction Canada

EXISTING AIRPORT LANDFILL

Gartner Lee

Figure No. E-1



TEMPORARY BENCHMARKS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
CAM100	7 666 792.639	493 351.663	25.022	13mm REBAR
CAM101	7 666 837.920	492 961.411	23.044	13mm REBAR
CAM102	7 666 798.700	492 793.867	19.344	13mm REBAR

UTM Zone 13N Nad83 CSRS

COORDINATE POINTS		
NO.	COORDINATES	
	NORTHING	EASTING
151	7 666 894.8	492 504.8

REFERENCE POINTS		
NO.	COORDINATES	
	NORTHING	EASTING
1	7 666 842.6	492 618.8
2	7 666 829.9	492 623.3
3	7 666 789.3	492 922.2
4	7 666 769.3	492 904.0
5	7 666 790.1	493 204.8
6	7 666 776.2	493 213.4

MONITORING LOCATIONS		
NO.	COORDINATES	
	NORTHING	EASTING
CM8	7 666 934.7	493 000.4
CM9	7 666 839.4	493 213.5
CM11	7 666 759.2	493 205.6
CM12	7 666 761.9	492 910.4
CM13	7 666 795.8	492 703.7

LEGEND:

- CAM101 — TEMPORARY BENCHMARK
- 1 — REFERENCE POINT
- 151 — COORDINATE POINT
- REGRADED AREAS
- EXCAVATED AREAS
- FORMER CONTAMINATED SOIL AREAS
- MONITORING SOIL SAMPLE LOCATION
- 3 — APPROXIMATE PHOTOGRAPH LOCATION (3=ALF3)

DATA SOURCES:
DRAWING BY UMA
CM-RD07.DWG
DATED: 04/07/27
DEW LINE CLEAN UP
LANDFILL MONITORING PLAN
CAM-M - CAMBRIDGE BAY
EXISTING AIRSTRIP LANDFILL
FIGURE CAM-M.7

0 25 50 100 Metres
SCALE 1:2,500

REVIEWED BY : DL/AK
PREPARED BY : PW/NTO
DATE ISSUED : OCTOBER, 2007
PROJECT NO. : 70-517
FILE NAME : 70517 FIG E-2.dwg
REVISION : 0

Project: DEW Line Montioring
Location: Cambridge Bay, Nunavut
Client: Defence Construction Canada

EXISTING AIRPORT LANDFILL

Gartner Lee

Figure No. E-2

E.1.3 Soil Sampling

Soil samples were collected at the designated locations of CM-8, CM-9, CM-10, CM-11 CM-12 and CM-13. The sampling locations are shown on Figure E-1 and E-2. At each location, wherever possible, two samples were collected at approximately 0.10 m below ground and between 0.40-0.50 m below ground. The photograph of each test pit for each location sampled is shown in Appendix E3. The analytical results and sample depths are tabulated in Table E-1 and the laboratory reports are provided in Appendix G.

No staining or free product was observed during the sampling event. There were no odours documented during the sampling event at the Western Landfill.

Low concentrations of Petroleum Hydrocarbons (TPH) (150mg/kg and 110mg/kg) were detected in the shallow samples from soil sample locations CM-11 and CM-13 respectively. GLL does not consider that the concentrations detected to be significant, however the sample will need to be evaluated in the context of the Landfill Monitoring Plan. The samples were reanalyzed to characterize the TPH CCME hydrocarbon fractions F1-F3. All fractions were reported as non-detectable.

Table E-1. CAM-M Cambridge Bay, Summary of 2007 Soil Analysis - Airstrip Landfill

Sample Ident.	Sample Location			Depth	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Zinc	Petroleum Hydrocarbons				PCB Total Aroclors (mg/kg)
	Location Id.	Northing	Easting	(m)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	TPH (C6-34) (mg/kg)	C6-C10 (mg/kg)	C10-C16 (mg/kg)	C16-C34 (mg/kg)	
Upgradient Samples																		
CM-8-1	CM-8	7666935	492995	0.1	1.5	< 0.2	6	2	6	2.7	0.03	5	14	26	< 5	< 80	< 250	< 0.03
CM-8-2	CM-8	7666935	492995	0.5	1.7	< 0.2	9	4	7	3.3	< 0.01	7	11	< 20				< 0.03
CM-9-1	CM-9	7666840	493213	0.1	1.2	< 0.2	5	2	11	3.5	0.01	6	6	< 20				< 0.03
CM-9-2	CM-9	7666840	493213	0.5	1.4	< 0.2	10	6	10	5.1	< 0.01	10	13	< 20				< 0.03
Downgradient Samples																		
CM-10-1	CM-10	7666642	493629	0.1	2.0	< 0.2	12	4	10	11.8	0.04	12	31	39	< 5	< 80	< 250	< 0.03
CM-10-2	CM-10	7666642	493629	0.5	2.4	< 0.2	18	14	48	13.1	0.01	25	22	< 20				< 0.03
CM-11-1	CM-11	7666758	493205	0.1	1.8	< 0.2	8	2	9	3.9	0.05	6	10	150	< 5	< 80	< 250	< 0.03
CM-11-2	CM-11	7666758	493205	0.5	1.6	< 0.2	12	7	10	4.8	< 0.01	11	14	< 20				< 0.03
CM-12-1	CM-12	7666761	492908	0.1	4.5	< 0.2	17	8	15	10.6	0.02	16	23	23	< 5	< 80	< 250	< 0.03
CM-16-1*	CM-12	7666761	492908	0.1	4.3	< 0.2	13	10	17	10.8	0.01	19	11	< 20				< 0.03
CM-12-2	CM-12	7666761	492908	0.5	5.5	< 0.2	13	11	15	10.8	0.01	17	11	< 20				< 0.03
CM-13-1	CM-13	7666796	492703	0.1	2.4	< 0.2	11	4	12	5.7	0.07	11	31	110	< 5	< 80	< 250	< 0.03
CM-13-2	CM-13	7666796	492703	0.5	1.8	< 0.2	5	2	5	3.3	< 0.01	6	5	< 20				< 0.03

***** *Denotes duplicate sample. (Further information located in Table 1 of main report)*

Appendix E Attachments

E1 Site Condition/Visual Inspection Records

E2 Geotechnical Inspection Photographic Records

E3 Monitoring Photographic Records

E4 Field Notes

Appendix E1

Site Condition/Visual Inspection Records

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

SITE NAME:	Cambridge Bay CAM-M
LANDFILL DESIGNATION:	Airstrip Landfill
DATE OF INSPECTION:	August 2007
DATE OF PREVIOUS INSPECTION:	August 2005
INSPECTED BY:	Darrin Johnson, P.Eng.
REPORT PREPARED BY:	Darrin Johnson, P.Eng.

VISUAL INSPECTION REPORT – AIRSTRIP LANDFILL – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to landfill features)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records (Photo number referenced in photo log and on figures)	Additional Comments/ Preliminary Stability Assessment
Settlement	No								
Erosion	Minor	South slope of Area 8					Minor rills	ALF 4A	No gullies of concern; acceptable
Frost Action	No								
Animal Burrows	No								
Vegetation	Sparse								
Staining	No								
Vegetation Stress	No								
Seepage Points	No								
Debris Exposed	Yes	West of Area 7 (photo location 5)					Previously observed exposed metal drums	ALF 5A	Acceptable
Presence/Condition – Monitoring Instruments	N/A								
Features of Note	None								
General							General	ALF 1A, 1B, 2A, 2B, 3A, 3B, 4B, 5B, 6A, 6B, 7A, 7B, 8A, 8B, 9, 10	

PRELIMINARY STABILITY ASSESSMENT – AIRSTRIP LANDFILL

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

Appendix E2

Geotechnical Inspection Photographic Records

Photo ALF-1A, Easting: 492501, Northing: 7666876, Direction: 90°
Airport Landfill; view facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

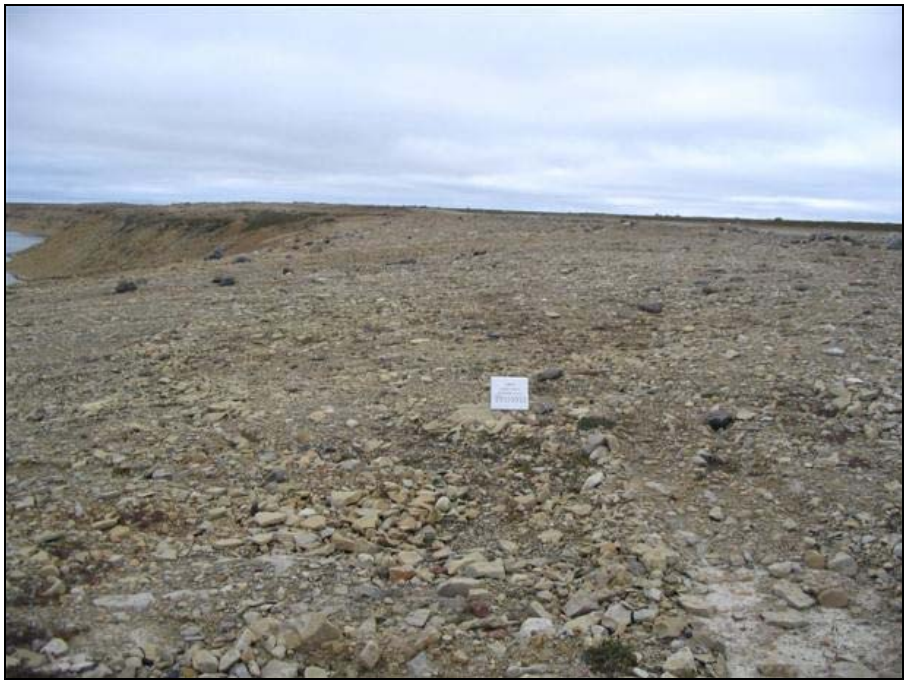


Photo ALF-1B, Easting: 492501, Northing: 7666876, Direction: 270°
Airport Landfill; view facing west
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-2A, Easting: 492739, Northing: 7666825, Direction: 90°
Airport Landfill; view facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-2B, Easting: 492739, Northing: 7666825, Direction: 270°
Airport Landfill; view facing west
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-3A, Easting: 492866, Northing: 7666809, Direction: 270°
Airport Landfill; view facing west
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-3B, Easting: 492806, Northing: 7666809, Direction: 90°
Airport Landfill; view facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-4A, Easting: 493127, Northing: 7666785, Direction: 270°
Airport Landfill; facing west to Area 8 slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-4B, Easting: 493127, Northing: 7666785, Direction: 90°
Airport Landfill; view facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-5A, Easting: 492972, Northing: 7666752, Direction: 315°
Airport Landfill; close-up of exposed metal drums
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-5B, Easting: 492972, Northing: 7666752, Direction: 315°
Airport Landfill; view facing northwest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-6A, Easting: 493259, Northing: 7666781, Direction: 270°
Airport Landfill; view facing west
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

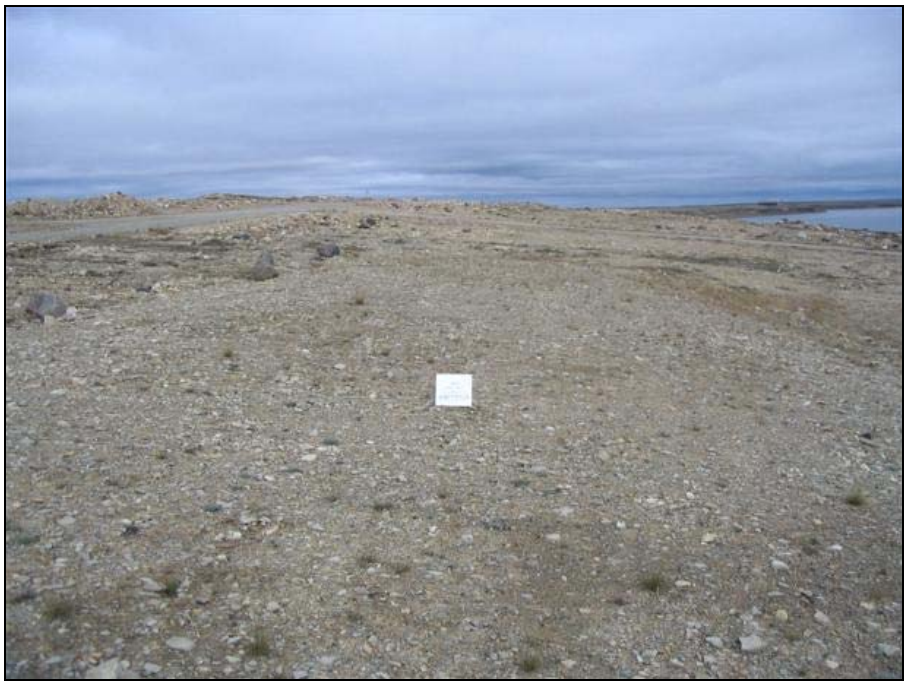


Photo ALF-6B, Easting: 493259, Northing: 7666781, Direction: 90°
Airport Landfill; view facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-7A, Easting: 493494, Northing: 7666704, Direction: 270°
Airport Landfill; view facing west
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-7B, Easting: 493494, Northing: 7666704, Direction: 90°
Airport Landfill; view facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

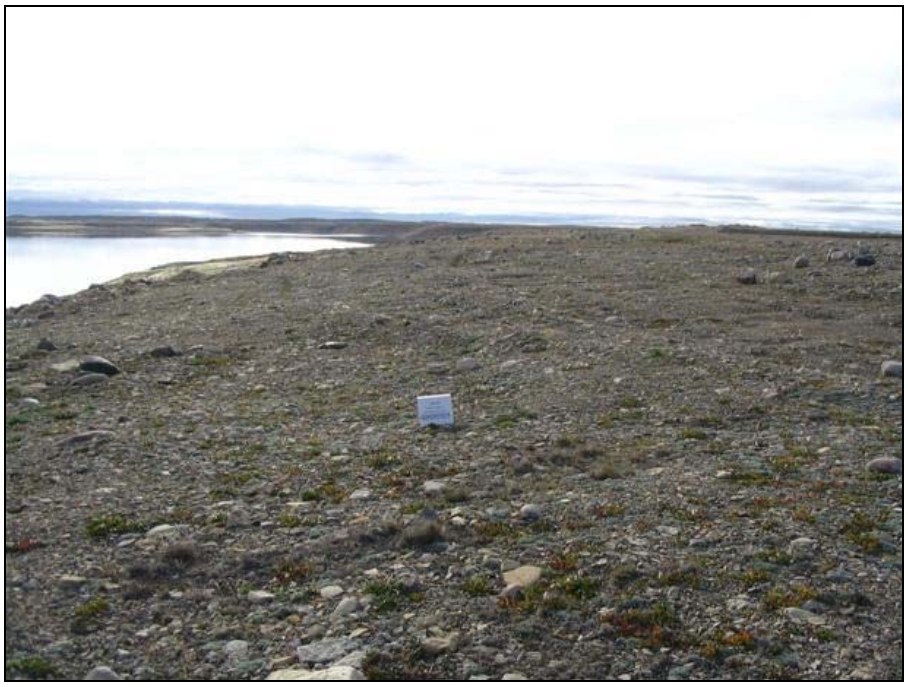


Photo ALF-8A, Easting: 493740, Northing: 7666679, Direction: 270°
Airport Landfill; view facing west
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-8B, Easting: 493740, Northing: 7666679, Direction: 90°
Airport Landfill; view facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-9, Easting: 493980, Northing: 7666625, Direction: 270°
Airport Landfill; view facing west
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo ALF-10, Easting: 493993, Northing: 7666632, Direction: 90°
Airport Landfill; view facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Appendix E3

Monitoring Photographic Records

Test pit CM-8 (Upgradient). Samples CM-8-1 and CM-8-2 collected. Samples with identification numbers ending in "1" (ex. CM-8-1) collected at 0-10cm and samples with identification numbers ending in "2" collected at 40-50cm.

Test Pit CM-9 (Upgradient). Samples CM-9-1 and CM-9-2 collected.

Test pit CM-10. Samples CM-10-1 and CM-10-2 collected.

Test Pit CM-11. Samples CM-11-1 and CM-11-2 collected.

Test pit CM-12. Samples CM-12-1, CM-12-2, and CM-16-1 (Duplicate of CM-12-1) collected.

Test pit CM-13-1. Samples CM-13-1 and CM-13-2 collected.

Appendix E4

Field Notes

Aug 17, 07

MW-11 Soil sampling
Picture 038 of test pit
Sample collected
CMMW-11-1 @ 0-10 cm
CMMW-11-2 @ 40-50 cm

TA3 Thermistor (Vertical)
Condition is good
Picture 036 of TA3

TA4 Thermistor (Vertical)
Condition is good
Picture 037 of TA4

Airstrip Landfill
Sample Soil
CM-13-1 @ 0-10 cm
CM-13-2 @ 40-50 cm
Highly organic soil with many stones
Picture 040 of test pit
UTM W 0492703
13 7666796

Aug 17, 07

CM-12 Soil Sample
CM-12-1 @ 0-10 cm
CM-12-2 @ 40-50 cm
CM-16-1 Duplicate of CM-12-1
Picture 041 of test pit
UTM W 0492908
13 7666761

CM-8 soil sample
CM-8-1 @ 0-10 cm
CM-8-2 @ 40-50 cm
UTM W 0492995
13 7666935
Picture 042 of test pit

CM-9 soil sample
CM-9-1 @ 0-10 cm
CM-9-2 @ 40-50 cm
UTM W 0493213
13 7666840
Picture 043 of test pit

Aug 17, 07

CM-11 Soil sample
CM-11-1 @ 0-10 cm
CM-11-2 @ 40-50 cm
UTM W 0493205
13 7666758
Picture 044 of test pit

CM-10 Soil Sample
CM-10-1 @ 0-10cm
CM-10-2 @ 40-50cm
UTM W 0493629
13 7666642
Picture 045 of test pit

Saturday Aug 18th, 2007
Samplers: Durrin Johnson
Ken Boldt
Joe Sr (Bear Monitors)
Weather: Cold, 5-7°C, Windy, overcast

Main Landfill South
MW-1
Condition good, no j-plug, casing missing bolts, bentonite welled up

Aug 18, 07

Sample collected
x2 { 4 x 1000 mL amber glass
1 x 250 mL plastic
1 x 250 mL amber glass
CM-MW-1
CM-MW-16 Duplicate
ALS Duplicate CM-MW-1 { 4x 500 mL amber glass
2x VOC vials
1 x 250 mL plastic
Picture 046 of well MW-1

Soil sample
CM-MW-1-1 @ 0-10 cm
CM-MW-1-2 @ 40-50 cm
Picture 047 of test pit

MW-14
Well in good condition
Picture 048 of well MW-14
Sample collected, great production
4 x 1000 mL amber glass
1 x 250 mL plastic
1 x 250 mL amber glass

Soil Sampling Record

	Previous Coordinates		2007 Coordinates		Surface Sample	Depth Sample	Photograph
Monitoring Locations	North (m)	East (m)	North (m)	East (m)	0 - 10 cm	40 - 50 cm	
Airstrip Landfill							
CM-8 (soil)	7 666 935	493 000	7666935	0492995	✓	✓	042
CM-9 (soil)	7 666 839	493 214	7666840	049 3213	✓	✓	043
CM-10 (soil)	7 665 650	493 623	7666642	049 3629	✓	✓	045
CM-11 (soil)	7 666 839	494 206	7666 758	049 3205	✓	✓	044
CM-12 (soil)	7 666 761	492 910	7666 761	0492908	✓	✓	041
CM-13 (soil)	7 666 796	492 704	7666 796	0492703	✓	✓	040

Coordinates referenced to UTM Zone 13N, NAD83

Comments:

Appendix F

Landfill Monitoring Report – Tier II Disposal Facility

- F-1: Tier II Disposal Facility
  - F-1.1 Landfill Summary
  - F-1.2 Visual Monitoring
  - F-1.3 Soil Sampling
  - F-1.4 Groundwater
  - F-1.5 Termal Monitoring

Appendix F

Landfill Monitoring Report - Tier II Disposal Facility

F.1 Tier II Disposal Facility

F.1.1 Landfill Summary

The DCC Tier II Soil Disposal Facility was constructed at the Cambridge Bay site for the disposal of Tier II soil excavated during the cleanup. The Tier II Disposal Facility is located approximately 2 km northwest of the Station Area.

The design of this landfill included a double containment system consisting of a liner system and the placement of sufficient fill to promote freezing of the landfill contents. The liner was placed along the bottom of the landfill, along the berms, and over the top of the landfill contents.

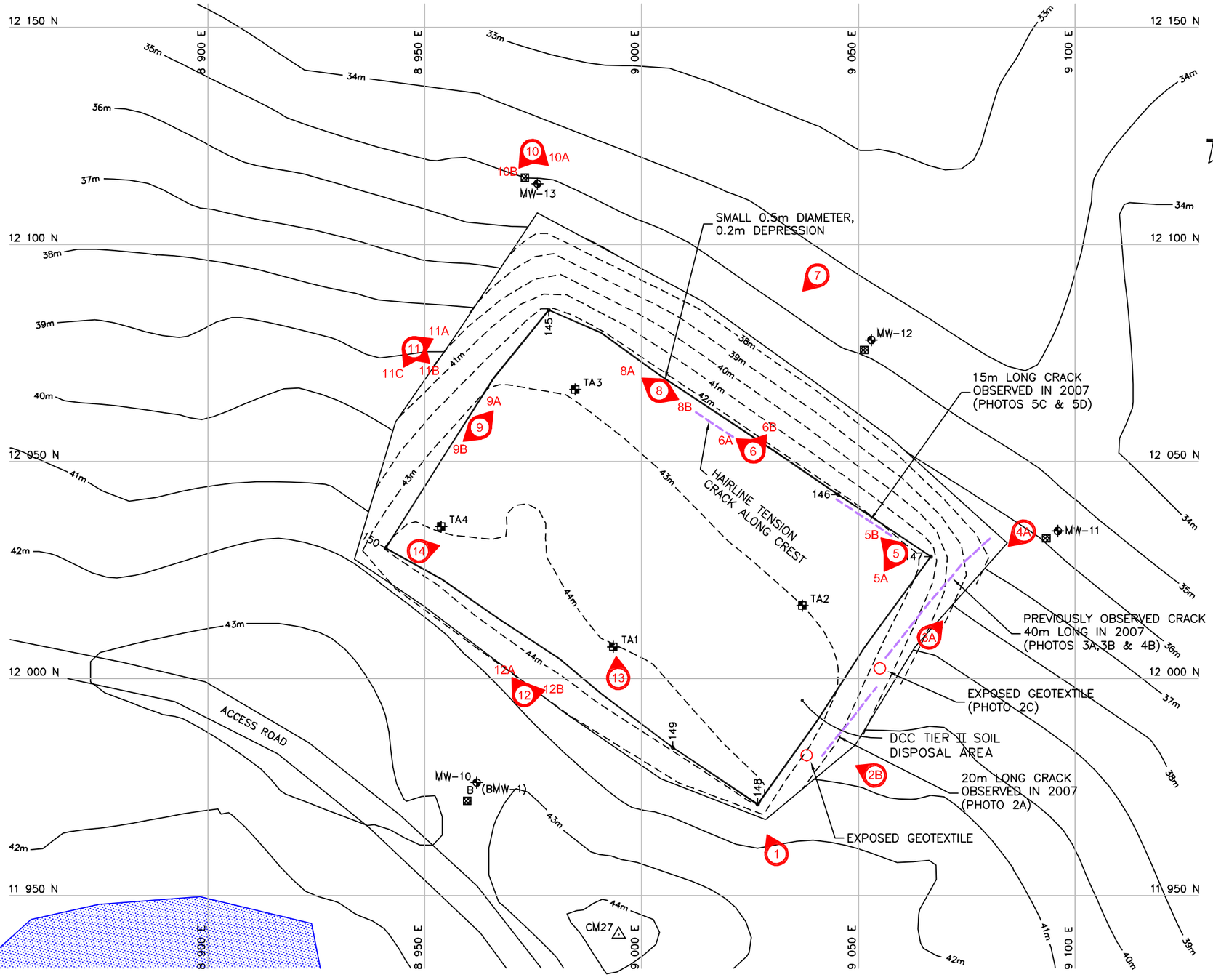
Monitoring of the Tier II soil disposal facility consists of visual monitoring, collection of soil and groundwater, and monitoring of subsurface ground temperatures in the berms and in the main body of the disposal facility. The landfill configuration is shown on Figure F-1.

For 2007, the monitoring requirements for the DCC Tier II Disposal Facility include visual inspection, soil sampling, groundwater sampling, and thermal monitoring.

F.1.2 Visual Monitoring

Based on the 2007 visual inspection, the DCC Tier II Soil Disposal Area (SDA) appears to be in fairly good condition with no signs of imminent slope instability or final cover failure. However, overall landfill performance has been assessed as "marginal" as a result of significant tension crack development. Appendix F1 presents a summary of the 2007 visual inspection results.

Minor erosion rills on the northwest and northeast slopes appear to be self-armouring. A small 0.5 m diameter settlement depression was observed on the crest near Photo Location 8 on Figure F-1 (Photo SDA-8A in Appendix F2). A total of four tension cracks were observed at the SDA, including one previously observed crack and three new cracks. A previously observed tension crack on the northeast slope measures approximately 40 m in length from the northeast corner with a maximum width of about 2.5 cm (Photos SDA-3A, 3B and 4B in Appendix F2). A few parallel tension cracks have formed at the northeast end of this crack near the landfill toe (Photos SDA-4B in Appendix F2). A new tension crack on the southeast slope of the landfill measures approximately 20 m in length with a maximum width of about 1.5 cm (Photos SDA-2A and 2B in Appendix F2). A new 15 m long tension crack was observed in 2007 along the southeast crest with a maximum width of about 5 cm (Photos SDA-5C and 5D in Appendix F2). A hairline tension crack was observed in 2007 along the crest between Photo Locations 6 and 8. Tension cracks and adjacent slopes should be monitored during future inspections for increased size and movement, respectively.



SURVEY CONTROL MONUMENTS

NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
27	11 940.993	8 994.768	44.981	GNWT 500 9018

LEGEND:

- CM27 △ SURVEY CONTROL MONUMENT
- ◆ MONITORING WELL LOCATION
- ✚ THERMISTOR
- 145 → COORDINATE POINT
- ▩ MONITORING SOIL SAMPLE LOCATION
- (2) APPROXIMATE PHOTOGRAPH LOCATION (2=SDA2)
- TENSION CRACK

MONITORING WELLS

NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
MW-10	11 976	8 962	43.6
MW-11	12 034	9 096	35.1
MW-12	12 078	9 053	34.9
MW-13	12 114	8 976	35.3

THERMISTORS

NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
TA1	12 007.3	8 993.5	43.8
TA2	12 016.8	9 037.1	43.4
TA3	12 066.6	8 984.7	43.0
TA4	12 035.0	8 953.8	44.2

COORDINATE POINTS

NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
145	12 084.9	8 978.6	42.4
146	12 042.4	9 045.3	42.2
147	12 028.1	9 066.7	41.8
148	11 971.0	9 026.8	44.1
149	11 984.1	9 007.2	44.1
150	12 030.0	8 941.0	44.1

DATA SOURCES:
DRAWING BY UMA
CM-RD06.DWG
DATED: 02/04/10
DEW LINE CLEAN UP
LANDFILL MONITORING PLAN
CAM-M - CAMBRIDGE BAY
DCC TIER II SOIL DISPOSAL AREA
FIGURE CAM-M.6

0 5 10 20 30 Metres

SCALE 1:1000

REVIEWED BY : DL/AK
PREPARED BY : PW/NTO
DATE ISSUED : OCTOBER, 2007
PROJECT NO. : 70-517
FILE NAME : 70517 FIG F-1.dwg
REVISION : 0

Project: DEW Line Montioring
Location: Cambridge Bay, Nunavut
Client: Defence Construction Canada

D.C.C TIER II SOIL DISPOSAL AREA

Gartner Lee

Figure No. F-1

F.1.3 Soil Sampling

Soil samples were collected at the designated locations of MW-10, MW-11, MW-12 and MW-13. The sampling locations are shown on Figure F-1. At each location wherever possible two samples were collected at approximately 0.10 m below ground and between 0.40-0.50 m below ground. The photograph of each test pit for each location sampled is shown in Appendix F3.

No staining or free product was observed during the sampling event. There were no odours documented during the sampling event at the DCC Tier II Soil Disposal Facility.

Low concentrations of Total Petroleum Hydrocarbons (TPH) (88mg/kg) were detected in the shallow samples from soil sample MW-11. GLL does not consider the concentrations detected to be significant, however these will need to be evaluated in the context of the Landfill Monitoring Plan.

The analytical results and depths of samples are provided in Table F-1 and the laboratory certificate is provided in Appendix G.

Table F-1. CAM-M Cambridge Bay, Summary of 2007 Soil Analysis - Tier II Soil Disposal Facility

Sample Ident.	Sample Location	Depth (m)	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Cobalt (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Zinc (mg/kg)	Petroleum Hydrocarbons				PCB Total Aroclors (mg/kg)
												TPH (C6-34) (mg/kg)	C6-C10 (mg/kg)	C10-C16 (mg/kg)	C16-C34 (mg/kg)	
Upgradient Samples																
CM-MW-10-1	MW-10	0.1	1.6	< 0.2	7	3	7	3.3	< 0.01	6	9	< 20				< 0.03
CM-15-1*	MW-10	0.1	1.6	< 0.2	8	3	7	3.5	< 0.01	6	9	< 20				< 0.03
CM-MW-10-2	MW-10	0.5	1.6	< 0.2	8	3	6	3.4	< 0.01	7	9	< 20				< 0.03
CM-15-2*	MW-10	0.5	1.6	< 0.2	8	3	6	3.5	< 0.01	6	9	24	< 5	< 80	< 250	< 0.03
Downgradient Samples																
CM-MW-11-1	MW-11	0.1	0.5	< 0.2	3	3	8	1.8	< 0.01	4	13	88	< 5	< 80	< 250	< 0.03
CM-MW-11-2	MW-11	0.5	1.0	< 0.2	7	2	3	2.9	< 0.01	4	5	< 20				< 0.03
CM-MW-12-1	MW-12	0.1	1.3	< 0.2	8	5	10	4.2	< 0.01	9	11	< 20				< 0.03
CM-MW-12-2	MW-12	0.5	1.8	< 0.2	9	3	12	4.5	< 0.01	10	10	< 20				< 0.03
CM-MW-13-1	MW-13	0.1	1.6	< 0.2	5	2	7	4.3	0.04	5	21	< 20				< 0.03
CM-MW-13-2	MW-13	0.5	1.8	< 0.2	6	2	4	3.9	0.02	4	9	< 20				< 0.03

** Denotes duplicate sample. (Further information located in Table 1 of main report)*

Note: mg/kg = ug/g

F.1.4 Groundwater

Groundwater measurements and monitor condition records were documented for observation wells MW-10, MW-11, MW-12 and MW-13. These well development records are located in Appendix F4. Generally the observation wells were in good condition. All wells contained a j-plug with the exception of MW-10, as there is insufficient clearance between the top of the pipe and the casing lid. GLL recommends that a slip-on cap be installed on MW-10 to prevent the influx of surface water. In each well, the bentonite seal had heaved up inside of the protective casing to an elevation parallel to, or above the top of the monitor pipe. To some of the bentonite around the monitor pipe was removed in order to sample the well without contamination. Ponded water was observed inside of the casing to an elevation above the top of the monitor pipe. There is potential for this water to enter the well during the year through any holes in the j-plug.

All observation monitors MW-10, MW-11, MW-12 and MW-13, were purged and sampled. The groundwater samples were analyzed for total concentration of inorganics, TPHs and PCBs. The results are presented in Table F-2 and the laboratory certificate is provided in Appendix G.

The groundwater samples collected at MW-12 contained concentrations that exceed the site condition standards in a potable groundwater source in Ontario for both Chromium and Nickel, however these values should be evaluated in the context of the DEW Line Monitoring Project. The average concentrations for Chromium and Nickel in the MW-12 samples were 0.184 and 0.174mg/L respectively compared to Ontario standards of 0.05 and 0.1mg/L for Chromium and Nickel respectively.

Table F-2. CAM-M Cambridge Bay, Summary of 2007 Groundwater Analysis - Tier II Soil Disposal Facility

Sample Ident.	Location	Groundwater Elevation (masl)	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Petroleum Hydrocarbons				PCB Total Aroclors (mg/L)
												TPH (C6-34) (mg/L)	C6-C10 (mg/L)	C10-C16 (mg/L)	C16-C34 (mg/L)	
Upgradient Samples																
CM-MW-10	MW-10	42.154	0.0007	0.00005	0.036	0.022	0.0057	< 0.0002	< 0.00002	0.124	0.017	< 0.1				< 0.0004
Downgradient Samples																
CM-MW-11	MW-11	33.915	0.0009	< 0.00004	0.0061	0.0016	0.0052	< 0.0002	< 0.00002	0.028	0.003	< 0.1				< 0.0004
CM-MW-12	MW-12	33.960	0.0011	0.00015	0.19	0.0075	0.0062	0.0003	< 0.00002	0.269	0.1	< 0.1				< 0.0004
CM-MW-15*	MW-12	33.960	0.0013	0.00007	0.141	0.005	0.0049	0.0031	< 0.00002	0.079	0.063	< 0.1				< 0.0004
CM-MW-13	MW-13	34.190	0.0007	0.00011	0.019	0.0022	0.0052	0.0014	< 0.00002	0.106	0.22	< 0.1				< 0.0004

** Denotes duplicate sample. (Further information located in Table 1 of main report)*

Note: mg/L = 1000 ug/L

F.1.5 Thermal Monitoring

The manual readings taken from each thermistor from the DCC Tier II Soil Disposal Facility are provided in the maintenance records located in Appendix F5. The data downloaded from the data loggers spanned 2006 and 2007. The tabulated summary data from the thermistors for both 2006 and 2007 is located in Appendix F5. The graphs for the 2007 data for these thermistors are provided in Graphs 19 through 22, located in Appendix F6. The graphs for the 2006 data for these thermistors are provided in Graphs 23 through 26, located in Appendix F7.

GLL downloaded all thermistor data, reset the data loggers and replaced their batteries. A maintenance record was completed for each thermistor and is located in Appendix F5. A full download of the thermistor data loggers should be completed the summer of 2010.

Appendix F Attachments

F1 Site Condition/Visual Inspection Records

F2 Geotechnical Inspection Photographic Records

F3 Monitoring Photographic Records

F4 Monitoring Well Development Records

F5 Thermistor Data Tables 2007, 2006 & Maintenance Records

F6 Thermistor Graphs 2007

F7 Thermistor Graphs 2006

F8 Field Notes

Appendix F1

Site Condition/Visual Inspection Records

DEW LINE CLEANUP: POST-CONSTRUCTION - LANDFILL MONITORING
VISUAL INSPECTION REPORT – DCC TIER II SOIL DISPOSAL AREA – PAGE 1 OF 2

SITE NAME:	Cambridge Bay CAM-M
LANDFILL DESIGNATION:	DCC Tier II Soil Disposal Area
DATE OF INSPECTION:	August 2007
DATE OF PREVIOUS INSPECTION:	August 2005
INSPECTED BY:	Darrin Johnson, P.Eng.
REPORT PREPARED BY:	Darrin Johnson, P.Eng.

VISUAL INSPECTION REPORT – DCC TIER II SOIL DISPOSAL AREA – PAGE 2 OF 2

Checklist Item	Present Yes/No	Location (Describe relative to landfill features)	Length	Width	Depth	Extent relative to Area of Landfill (%)	Description	Photographic Records (Photo number referenced in photo log and on figures)	Additional Comments/ Preliminary Stability Assessment
Settlement	Yes	Along crest near photo location 8	0.5 m	0.5 m	0.2 m	<1%	Small settlement depression	SDA 8A	Acceptable
Erosion	Minor	Northwest and northeast slopes					Shallow rills that appear to be self-armouring	SDA 7, 11B	Acceptable
Frost Action	No								
Animal Burrows	No								
Vegetation	Sparse						Tuffs of grass	SDA 2B, 8A	
Staining	No								
Vegetation Stress	No								
Seepage Points	No								
Debris Exposed	Yes	Southeast slope in two locations	0.3 m	0.3 m	N/A	<1%	Geotextile	SDA 2C	Acceptable
Presence/Condition – Monitoring Instruments	Good								
Features of Note.	Yes	Southeast slope and northeast crest	15 m, 20 m and 40 m	5 cm max.	10 cm max.	2,000 m2/ 15,000 m2 =13%	Tension cracks midslope and along crest	SDA 2A, 3A, 3B, 4B, 5C, 5D	Marginal
General							General	SDA 1, 4A, 5A, 5B, 6A, 6B, 8B, 9A, 9B, 10A, 10B, 11A, 11C, 12A, 12B, 13, 14	

PRELIMINARY STABILITY ASSESSMENT – DCC TIER II SOIL DISPOSAL AREA

Feature	Severity Rating	Extent
Settlement	Acceptable	Isolated
Erosion	Acceptable	Occasional
Frost Action	Not Observed	None
Staining	Not Observed	None
Vegetation Stress	Not Observed	None
Seepage/Ponded Water	Not Observed	None
Debris Exposed	Acceptable	Occasional
Tension Cracks	Marginal	Numerous
Overall Landfill Performance	**Marginal**	

Appendix F2

Geotechnical Inspection Photographic Records

Photo SDA-1, Easting: 494380, Northing: 7669187, Direction: 315°
D.C.C. Tier II Soil Disposal Area; southeast corner facing northwest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-2A, Easting: 494390, Northing: 7669207, Direction: 315°
D.C.C. Tier II Soil Disposal Area; close-up of crack, max. width 1.5 cm
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-2B, Easting: 494390, Northing: 7669207, Direction: 315°
D.C.C. Tier II Soil Disposal Area; slope, facing northwest, sparse vegetation
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-2C, Easting: 494390, Northing: 7669207, Direction: 315°
D.C.C. Tier II Soil Disposal Area; exposed geotextile

Scale: field book dimensions are 29.5 cm wide by 20.0 cm in height

Photo SDA-3A, Easting: 494417, Northing: 7669235, Direction: 45°
D.C.C. Tier II Soil Disposal Area; 40 m long crack, max. width 2.5 cm, max. depth 10 cm
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-3B, Easting: 494417, Northing: 7669235, Direction: 45°
D.C.C. Tier II Soil Disposal Area; close-up of crack

Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-4A, Easting: 494431, Northing: 7669256, Direction: 200°
D.C.C. Tier II Soil Disposal Area; north east corner facing south
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-4B, Easting: 494431, Northing: 7669256, Direction: 200°

D.C.C. Tier II Soil Disposal Area; close-up of cracking at toe
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-5A, Easting: 494413, Northing: 7669256, Direction: 200°
D.C.C. Tier II Soil Disposal Area; view facing south along east crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-5B, Easting: 494413, Northing: 7669256, Direction: 315°
D.C.C. Tier II Soil Disposal Area; view facing west along north crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-5C, Easting: 494413, Northing: 7669256, Direction: 315°
D.C.C. Tier II Soil Disposal Area; close up of tension crack along north crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-5D, Easting: 494431, Northing: 7669256, Direction: 315°
D.C.C. Tier II Soil Disposal Area; west end of crack, max. width 5 cm, max. depth 10 cm
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-6A, Easting: 494388, Northing: 7669274, Direction: 315°
D.C.C. Tier II Soil Disposal Area; view facing west along crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-6B, Easting: 494388, Northing: 7669274, Direction: 45°
D.C.C. Tier II Soil Disposal Area; view facing north down slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-7, Easting: 494388, Northing: 7669325, Direction: 225°
D.C.C. Tier II Soil Disposal Area; view of north slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-8A, Easting: 494371, Northing: 7669282, Direction: 315°
D.C.C. Tier II Soil Disposal Area; small settlement area at crest, 0.5 m diameter, 0.2 m deep
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-8B, Easting: 494371, Northing: 7669282, Direction: 315°
D.C.C. Tier II Soil Disposal Area; west of settlement area facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-9A, Easting: 494332, Northing: 7669312, Direction: 45°
D.C.C. Tier II Soil Disposal Area; view facing northeast along west crest
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-9B, Easting: 494332, Northing: 7669312, Direction: 225°
D.C.C. Tier II Soil Disposal Area; view facing southwest along west crest

Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-10A, Easting: 494327, Northing: 7669340, Direction: 135°
D.C.C. Tier II Soil Disposal Area; view facing east along north slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-10B, Easting: 494327, Northing: 7669340, Direction: 225°

D.C.C. Tier II Soil Disposal Area; view facing south along west slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-11A, Easting: 494300, Northing: 7669297, Direction: 60°
D.C.C. Tier II Soil Disposal Area; view facing northeast
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-11B, Easting: 494300, Northing: 7669297, Direction: 110°
D.C.C. Tier II Soil Disposal Area; view facing east, minor erosion rills
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-11C, Easting: 494300, Northing: 7669297, Direction: 160°
D.C.C. Tier II Soil Disposal Area; view facing southeast
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-12A, Easting: 494294, Northing: 7669271, Direction: 315°
D.C.C. Tier II Soil Disposal Area; view facing northwest along west slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-12B, Easting: 494294, Northing: 7669271, Direction: 70°
D.C.C. Tier II Soil Disposal Area; view facing northeast along south slope
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Photo SDA-13, Easting: 494308, Northing: 7669250, Direction: 0°
D.C.C. Tier II Soil Disposal Area; view facing north
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

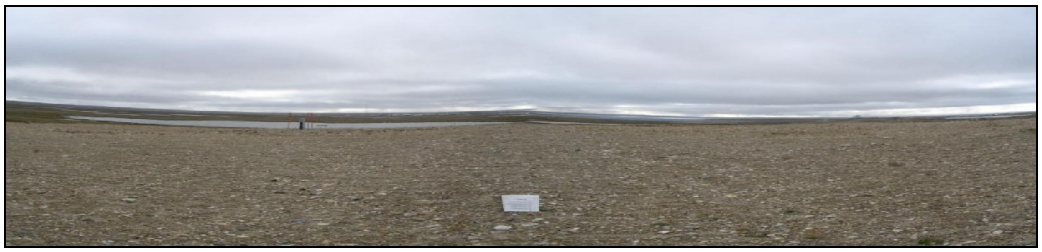


Photo SDA-14, Easting: 494345, Northing: 7669257, Direction: 90°
D.C.C. Tier II Soil Disposal Area; central facing east
Scale: photo placard dimensions are 29.4 cm wide by 27.5 cm in height

Appendix F3

Monitoring Photographic Records

Test pit CM-MW-10. Samples CM-MW-10-1, CM-MW-10-2, CM-15-1 (Duplicate of CM-MW-10-1) and CM-15-2 (Duplicate of CM-MW-10-2) collected. Samples with identification numbers ending in "1" (ex. CM-MW-10-1) collected at 0-10cm and samples with identification numbers ending in "2" collected at 40-50cm.

Test Pit CM-MW-11. Samples CM-MW-11-1 and CM-MW-11-2 collected.

Test pit CM-MW-12. Samples CM-MW-12-1 and CM-MW-12-2 collected.

Test Pit CM-MW-13. Samples CM-MW-13-1 and CM-MW-13-2 collected.

Monitoring well MW-10 (Upgradient). Sample CM-MW-10.

Monitoring well MW-11. Sample CM-MW-11 collected.

Monitoring well MW-12. Samples CM-MW-12 and CM-MW-15 (Duplicate) collected.

Monitoring well MW-13. Sample CM-MW-13 collected.

Vertical thermistor TA-1.

Vertical thermistor TA-2.

Vertical thermistor TA-3.

Vertical thermistor TA-4.

Appendix F4

Monitoring Well Development Records

Monitoring Well Observations (MW-10)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	17-Aug-07	Time:	8:50
Names of Samplers:	Ken Boldt		
Landfill Name:	Tier II Soil Disposal Facility		
Monitoring Well ID:	MW-10		
Sample Number:	CM-MW-10		
Condition of Well:	Good, no j-plug, bentonite swollen over TOP		
Measured Data			
Well height above ground=	6.4		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen=	50	From ground surface	
Depth to water surface (cm)=	151	Method:	Interface meter
Static water level (cm)=	144.6	From ground surface	
Depth to bottom (cm)=	160	Evidence of sludge or siltation:	no
Depth of water (cm)=	9		
Well volume of water (mL)=	176.71		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE tubing
Volume Purged Water (L)=	1		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	7.07		
Conductivity (uS/cm)=	5060		
Temperature (degC)=	2.2		

n/a=not applicable
TOP = Top Of Pipe

Monitoring Well Observations (MW-11)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	17-Aug-07	Time:	13:20
Names of Samplers:	Ken Boldt		
Landfill Name:	Tier II Soil Disposal Facility		
Monitoring Well ID:	MW-11		
Sample Number:	CM-MW-11		
Condition of Well:	Good, bentonite over TOP		
Measured Data			
Well height above ground (cm)=	14		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen (cm)=	50	From ground surface	
Depth to water surface (cm)=	132.5	Method:	Interface meter
Static water level (cm)=	118.5	From ground surface	
Depth to bottom (cm)=	142.5	Evidence of sludge or siltation:	no
Depth of water (cm)=	10		
Well volume of water (mL)=	196.35		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	1		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	7.25		
Conductivity (uS/cm)=	3950		
Temperature (degC)=	1.8		

n/a=not applicable
TOP = Top Of Pipe

Monitoring Well Observations (MW-12)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	17-Aug-07	Time:	10:50
Names of Samplers:	Ken Boldt		
Landfill Name:	Tier II Soil Disposal Facility		
Monitoring Well ID:	MW-12		
Sample Number:	CM-MW-12, CM-MW-15 (Duplicate)		
Condition of Well:	Good, Bentonite welled up to TOP		
Measured Data			
Well height above ground=	12		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen=	50	From ground surface	
Depth to water surface (cm)=	106	Method:	Interface meter
Static water level (cm)=	94	From ground surface	
Depth to bottom (cm)=	136	Evidence of sludge or siltation:	no
Depth of water (cm)=	30		
Well volume of water (mL)=	589.05		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	2		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	7.09		
Conductivity (uS/cm)=	3830		
Temperature (degC)=	2		

n/a=not applicable
TOP = Top Of Pipe

Monitoring Well Observations (MW-13)

Development of Monitoring Wells (2007)			
Site Name:	CAM-M		
Date of Sampling Event:	17-Aug-07	Time:	10:00
Names of Samplers:	Ken Boldt		
Landfill Name:	Tier II Soil Disposal Facility		
Monitoring Well ID:	MW-13		
Sample Number:	CM-MW-13		
Condition of Well:	Good, standing water and bentonite over TOP		
Measured Data			
Well height above ground=	5		
Diameter of well (cm)=	5		
Depth of installation (cm)=	350	From ground surface	
Length screened section (cm)=	200		
Depth to top of screen=	50	From ground surface	
Depth to water surface (cm)=	116	Method:	Interface meter
Static water level (cm)=	111	From ground surface	
Depth to bottom (cm)=	135	Evidence of sludge or siltation:	no
Depth of water (cm)=	19		
Well volume of water (mL)=	373.06		
Free product thickness (mm)=	N/A	Method:	Interface meter
Purging: (Y/N)	Y	Procedure/Equipment:	Peristaltic Pump, LDPE Tubing
Volume Purged Water (L)=	2		
Decontamination required: (Y/N)	Y	*Notes:*	
Number washes:	1		
Number rinses:	1		
pH=	7.66		
Conductivity (uS/cm)=	2250		
Temperature (degC)=	1.5		

n/a=not applicable
TOP = Top Of Pipe

Appendix F5

Thermistor Data Tables 2007, 2006 & Maintenance Records

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**17-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**TA1**		Inclination		**Vertical**		
Install Date:	**25-Sep-99**		First Date Event		**18-Aug-05**	Last Date Event	**17-Aug-07**
Coordinates and Elevation		N	**12007**	E	**8994**	Elev	**43.8**
Length of Cable (m)	**7.5**	Cable Lead Above Ground (m)	**4.4**	Nodal Points	**7**		
Datalogger Serial #	**21 - 807031**			Cable Serial Number			**TS-7CNA#2**

Code CAM-MTA1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.77 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**11740**	**6.6**
2	**12160**	**5.9**
3	**13480**	**3.8**
4	**15170**	**1.5**
5	**16440**	**-0.1**
6	**17600**	**-1.4**
7	**19010**	**-2.9**

Bead	ohms	Temp. (ºC)

Observations and Proposed Maintenance

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**17-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**TA2**		Inclination		**Vertical**		
Install Date:	**25-Sep-99**		First Date Event		**18-Aug-05**	Last Date Event	**17-Aug-07**
Coordinates and Elevation		N	**12017**	E	**9037**	Elev	**43.4**
Length of Cable (m)	**7.5**	Cable Lead Above Ground (m)	**4.4**	Nodal Points	**7**		
Datalogger Serial #	**22 - 807030**			Cable Serial Number			**TS-7CNA#4**

Code CAM-MTA2

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.65 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**11580**	**6.9**
2	**12470**	**5.4**
3	**13830**	**3.3**
4	**15390**	**1.1**
5	**16770**	**-0.5**
6	**17850**	**-1.7**
7	**19010**	**-2.9**

Bead	ohms	Temp. (ºC)

Observations and Proposed Maintenance

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**17-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**TA3**		Inclination		**Vertical**		
Install Date:	**25-Sep-99**		First Date Event		**18-Aug-05**	Last Date Event	**17-Aug-07**
Coordinates and Elevation		N	**12067**	E	**8985**	Elev	**43**
Length of Cable (m)	**7.5**	Cable Lead Above Ground (m)		**4.6**	Nodal Points	**7**	
Datalogger Serial #	**23 - 807025**				Cable Serial Number		**TS-7CNA#1**

Code CAM-MTA3

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **12.77 V**

Manual Ground Temperature Readings

Bead	ohms	Temp. (ºC)
1	**10140**	**9.7**
2	**12550**	**5.3**
3	**13730**	**3.4**
4	**15750**	**0.7**
5	**16990**	**-0.7**
6	**18140**	**-2.0**
7	**19300**	**-3.1**

Bead	ohms	Temp. (ºC)

Observations and Proposed Maintenance

Thermal Monitoring
Ground Temperature Annual Maintenance Report

Contarctor Name:	**Gartner Lee Limited**	Inspection Date:	**17-Aug-07**
Prepared By:	**Ken Boldt**		

Thermistor Information

Site Name:	**CAM-M**		Thermistor Location		**Tier II Disposal Facility**		
Thermistor Number:	**TA4**		Inclination		**Vertical**		
Install Date:	**25-Sep-99**		First Date Event		**18-Aug-05**	Last Date Event	**17-Aug-07**
Coordinates and Elevation		N	**12035**	E	**8954**	Elev	**44.2**
Length of Cable (m)	**7.5**	Cable Lead Above Ground (m)	**4.6**	Nodal Points	**7**		
Datalogger Serial #	**24 - 807027**			Cable Serial Number			**TS-7CNA#3**

Code CAM-MTA4

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐

Battery Installation Date **28-Aug-07**

Battery Levels Main **11.34 V** Aux **13.02 V**

Manual Ground Temperature Readings

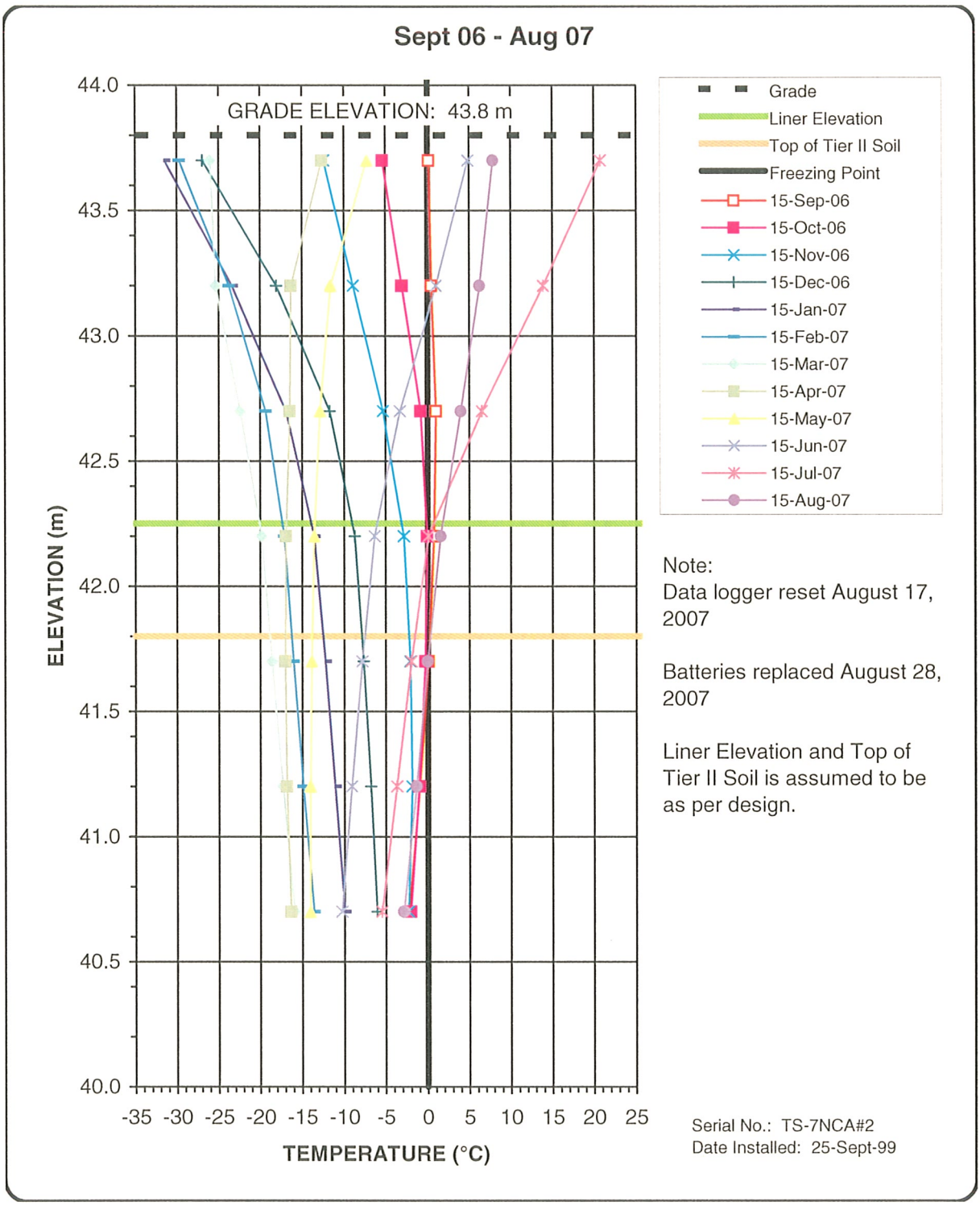
Bead	ohms	Temp. (ºC)
1	**10080**	**9.7**
2	**12350**	**5.5**
3	**13310**	**4.0**
4	**15270**	**1.3**
5	**16580**	**-0.3**
6	**17580**	**-1.4**
7	**18530**	**-2.4**

Bead	ohms	Temp. (ºC)

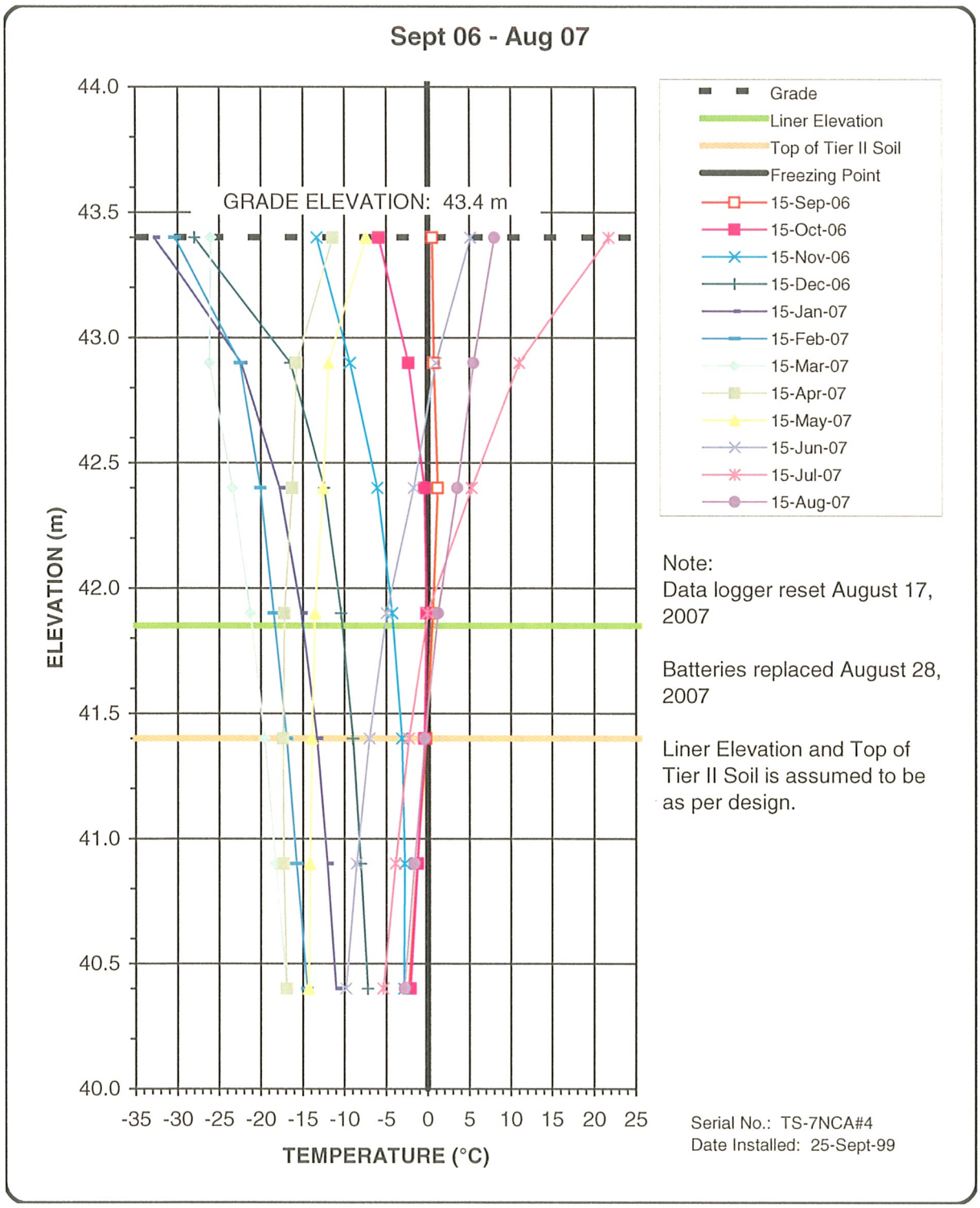
Observations and Proposed Maintenance

Appendix F6

Thermistor Graphs 2007

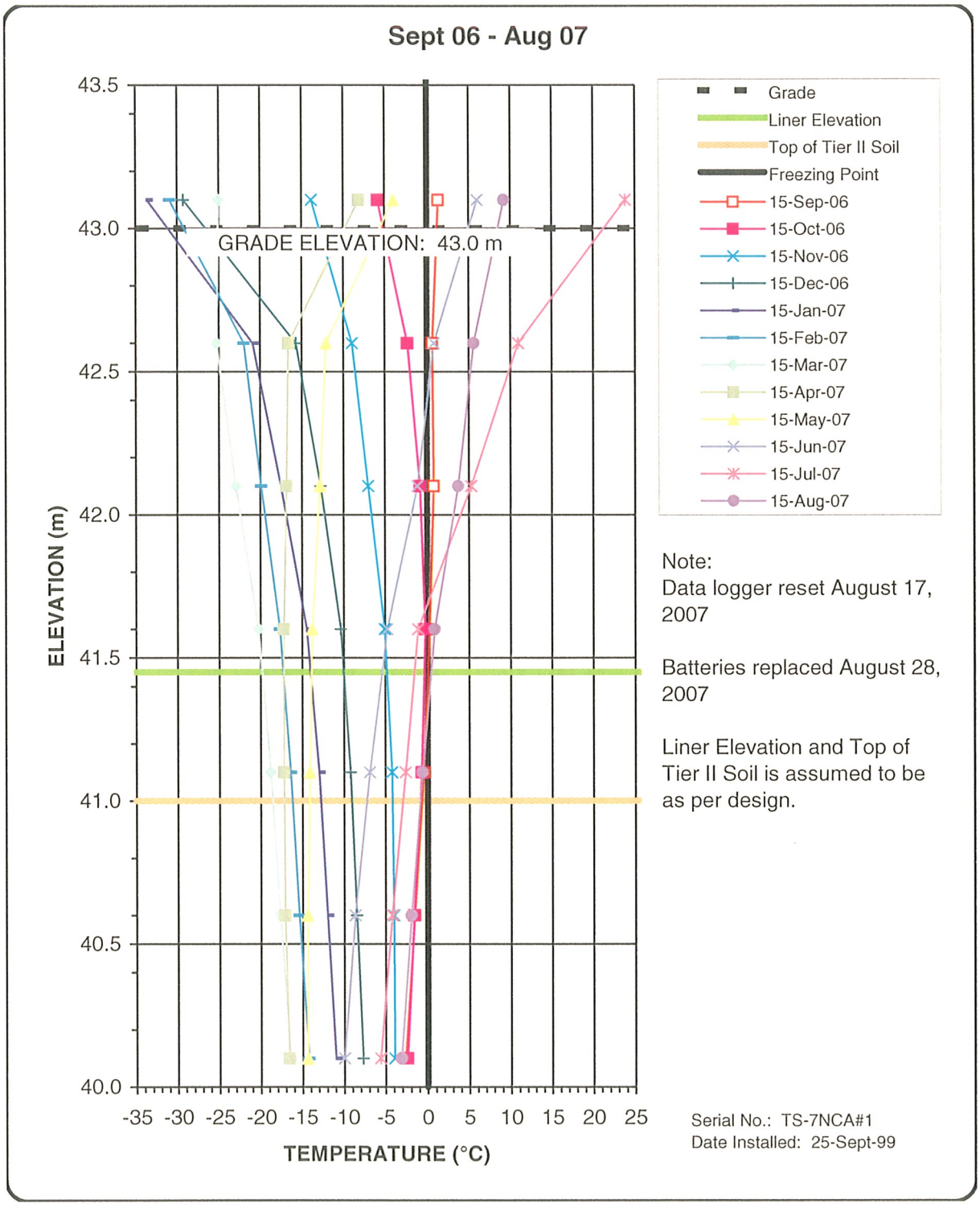


Graph 19
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-1



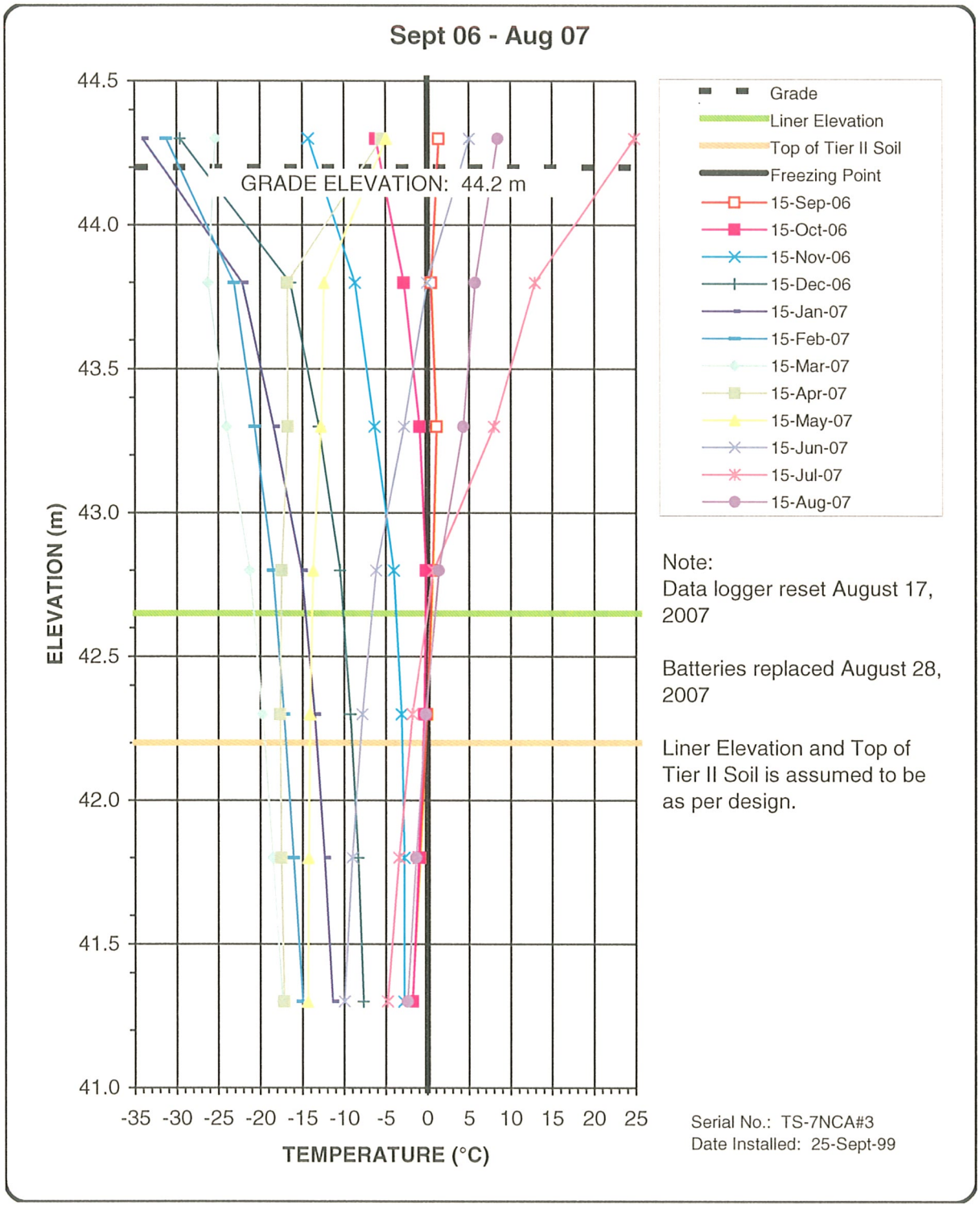
Graph 20
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-2

Gartner Lee Limited



Graph 21
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-3

Gartner Lee Limited

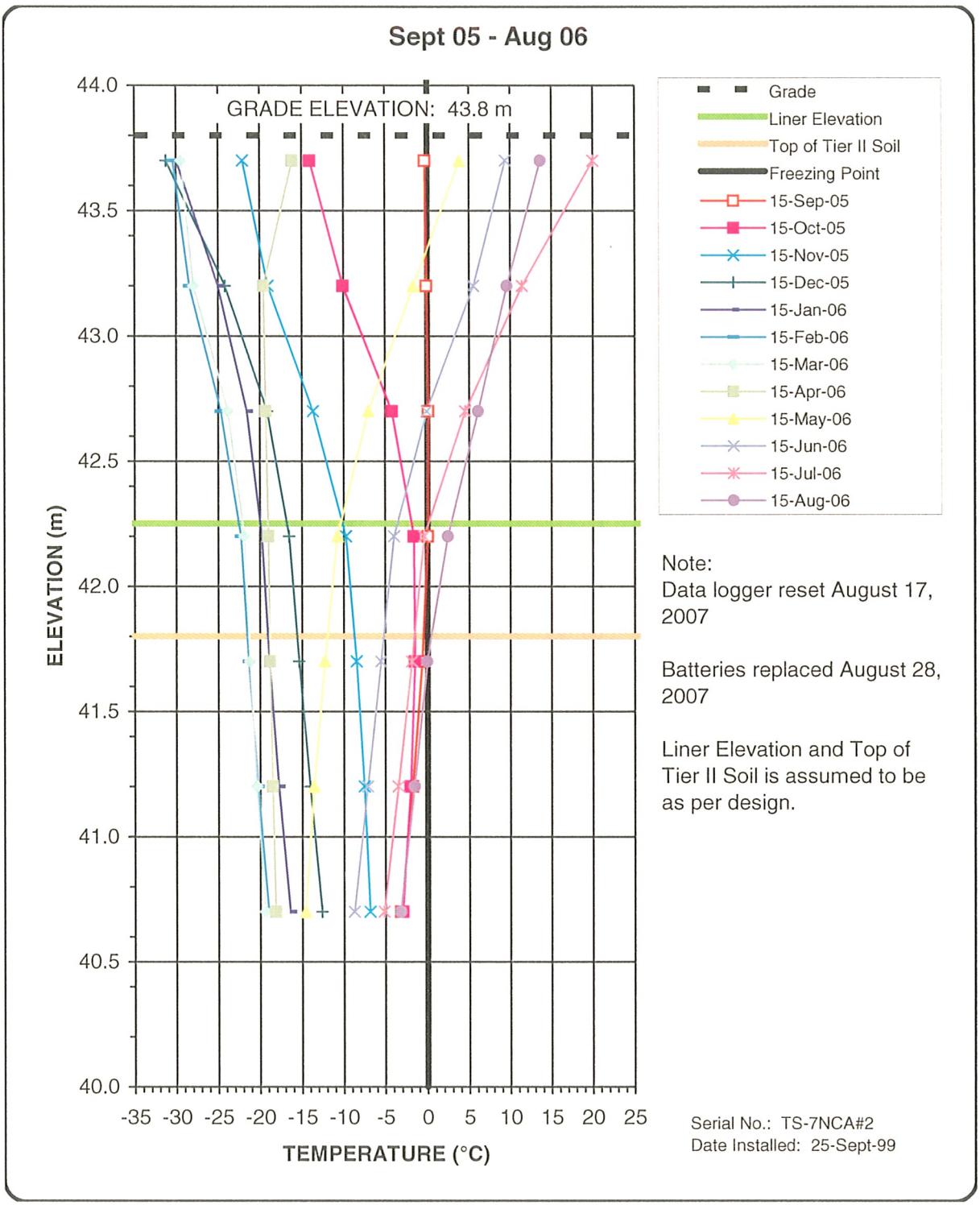


Graph 22
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-4

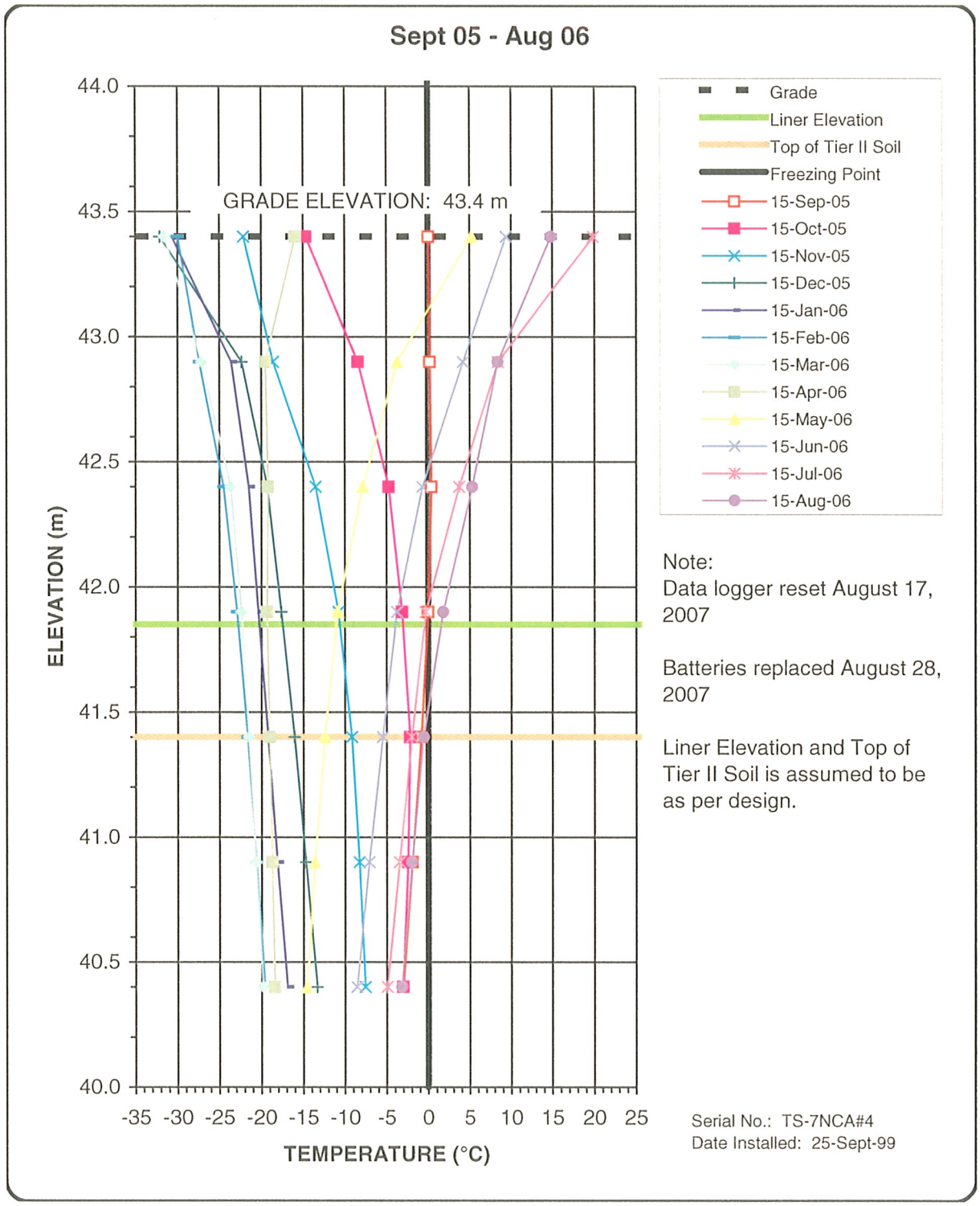
Gartner Lee Limited

Appendix F7

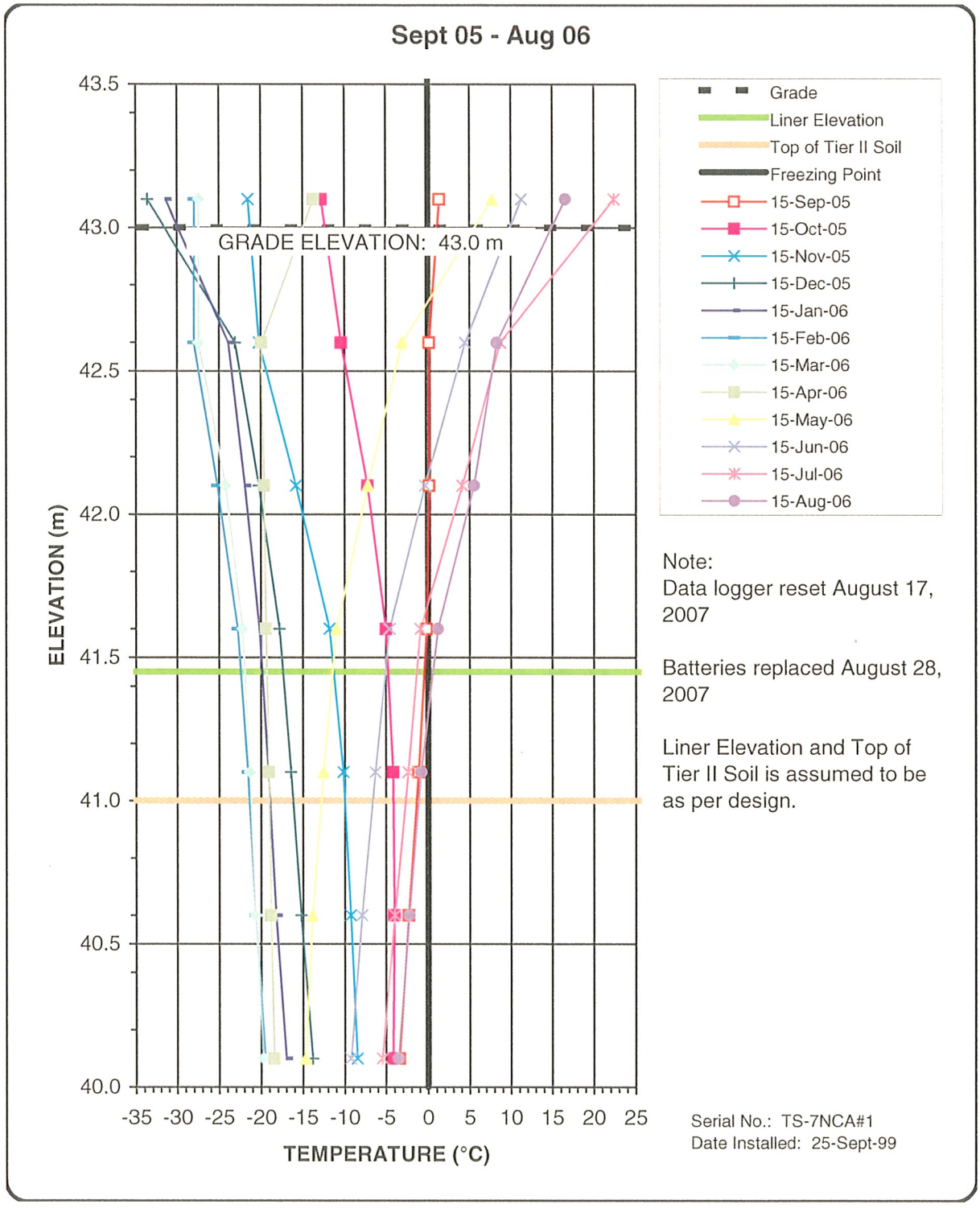
Thermistor Graphs 2006



Graph 23
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-1

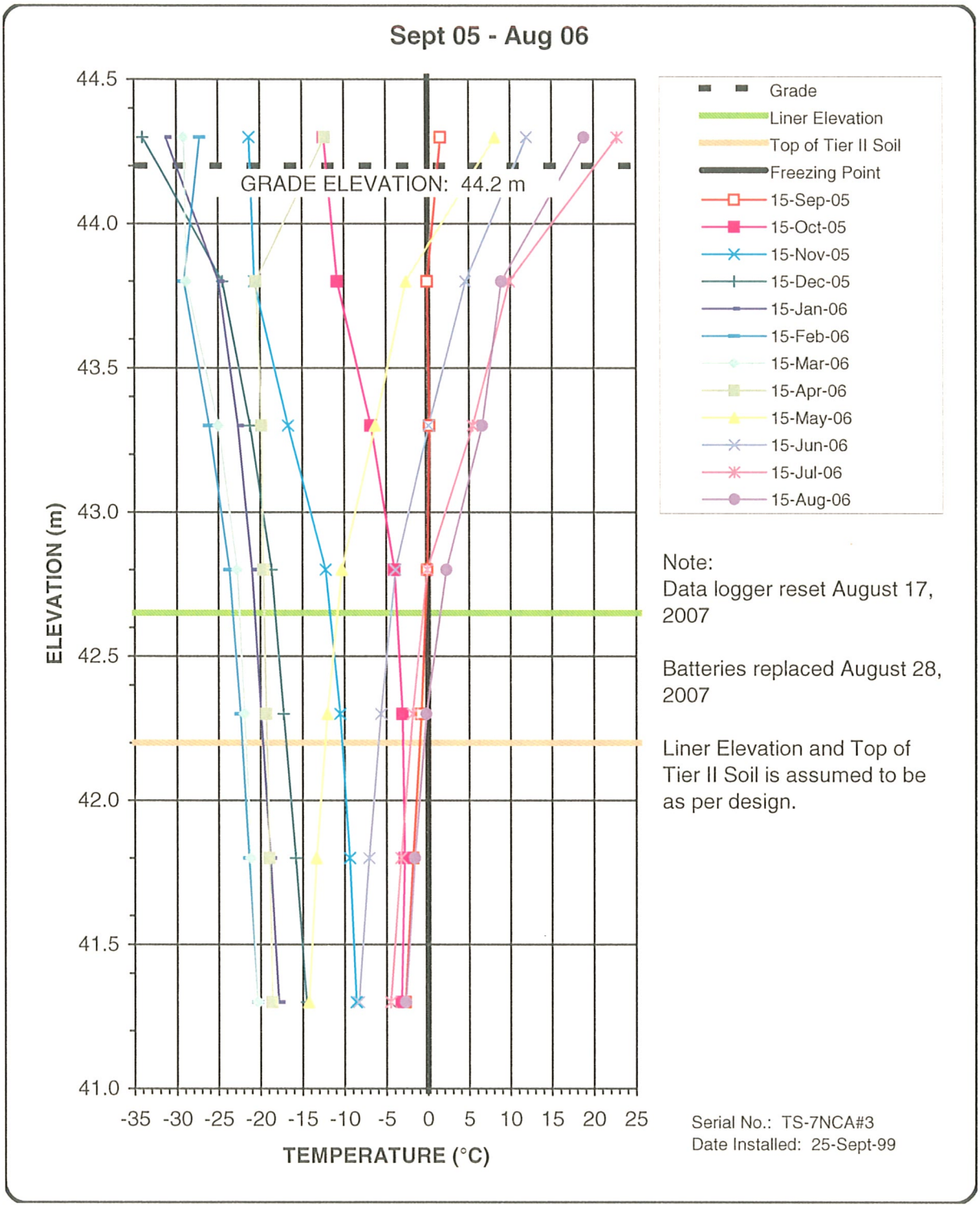


Graph 24
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-2



Graph 25
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-3

Gartner Lee Limited



Graph 26
Ground Temperature Profile
Tier II Soil Disposal Facility
Vertical GTC TA-4

Gartner Lee Limited

Appendix F8

Field Notes

(20)

- MET [illegible] AND [illegible] @ STORE STORAGE ROOM AND WENT THROUGH SUPPLIES FOR PIN-3 AND CAM-2 SITE VISITS
- LOADED SUPPLIES INTO BIN
- TOOK INVENTORY OF REMAINING BOTTLES & COOLERS FROM 2006
- EMPTIED GARBAGE FROM VAN
- PUT ICE PACKS IN FREEZER
- MADE GROCERY LIST FOR TRIP TO PIN-3
- WORKED UNTIL 10:00 PM

HOURS

DJ WED 7:00 - 6:00PM + 1 HR = 12 HR
THUR 7:30 - 6:30 + 3 HRS = 14 HR
JOE JR WED 9-12 & 1-6 = 8 HR
THURS 12:30 - 6:30 = 6 HR
RUSSEL WED 9-6PM = 9 HR
JOE SR WED 1-6 = 5 HR
THUR 8 - 6:30 W 0.5 HR LUNCH = 10.5 HR
KRISTALEE THUR 9 - 6:30 W 0.5 HR LUNCH = 9.5 HR

North Pacific Supply Corp. 47 Level

(21)

70-517
AUG. 17/07

- PICKED UP KRISTALEE, JOE JR. & TOM
- JOE SR. NOT AVAILABLE
- ARRIVED AT DEC TIER II SOIL STORAGE AREA @ 8:30AM
- TAILGATE SAFETY MEETING:
↳ REVIEWED BEARS AND GLOVE USE

[signatures]
- Christalee K
Joe Kooga Jr

DCC TIER II SOIL DISPOSAL AREA
- WALKED LANDFILL CREST
↳ NO CRACKS OBSERVED

- PHOTO 1 ⇒ 13W0494380, 7669187
WAYPOINT 84 (SE CORNER)
- NO EROSION ON SLOPES

PHOTO 2 ⇒ 13W0494390, 7669207
WAYPOINT 085 (EAST SLOPE)
- CRACK ABOUT 20m LONG ABOUT 5m FROM TOE
- ONLY ABOUT 0.5 INCH WIDE
- PHOTO 2A ⇒ CLOSEUP OF CRACK
- PHOTO 2B ⇒ SLOPE FACING NW
- NO APPARENT SLOPE INSTABILITY OR EROSION, NO SEEPAGE
- COUPLE OF PLACES WITH EXPOSED GEOTEXTILE (PHOTO 2C)

North Pacific Supply Corp. 47 Level

(22)

PHOTO 3 ⇒ 13W0494447, 7669235
WAYPOINT 086
- LARGER CRACK ALONG NE SLOPE ABOUT 2 INCH WIDE AND 4 INCHES DEEP
- ABOUT 40m LONG
- EXTENDS FROM NE CORNER ALONG EAST SLOPE TO ABOUT 8m UPSLOPE FROM TOE
- 2 PHOTOS OF CRACK

PHOTO 4 ⇒ 13W 0494431, 7669256
WAYPOINT 087
- FROM NE CORNER FACING SOUTH
- PHOTO 4A ⇒ FROM CORNER
- PHOTO 4B ⇒ CLOSEUP OF CRACK

PHOTO 5 ⇒ 13W0494413 7669256
WAYPOINT 088
- PHOTO 5A ⇒ FACING SOUTH ALONG EAST CREST
- PHOTO 5B ⇒ FACING WEST ALONG NORTH CREST
- PHOTO 5C ⇒ CLOSE UP OF TENSION CRACK ALONG NORTH CREST
- VISIBLE CRACK EXTENDS 15m W FROM NE CORNER OF CREST
- MAX WIDTH 2 INCH AND 4 IN. DEEP
- PHOTO 5D ⇒ END OF CRACK (WEST)

PHOTO 6 ⇒ 13W0494388, 7669294
WAYPOINT 089
- 10m LONG TENSION CRACK
- PHOTO 6A ⇒ FACING WEST ALONG CREST
PHOTO 6B ⇒ FACING NORTH DOWNSLOPE

(23) AUG. 17/07

PHOTO 7 ⇒ 13W0494388, 7669325
(4 PHOTOS) WAYPOINT 090
- PANORAMIC OF NORTH SLOPE
- NO EROSION OR SLUMPING
- NO SEEPAGE OBSERVED AT TOE

PHOTO 8 ⇒ 13W0494371, 7669282
WAYPOINT 091
8A - SINK HOLE OR THAW SETTLEMENT AT CREST
8B - WEST OF SINK HOLE FACING EAST
- APPEARS TO BE A HAIRLINE CRACK ALONG MOST OF NORTH CREST

PHOTO 9 ⇒ 13W0494332, 7669312
WAYPOINT 092 (NW CORNER)
9A ⇒ FACING EAST TOWARDS TOWN
9B ⇒ FACING SOUTH ALONG WEST CREST

PHOTO 10 ⇒ 13W0494327, 7669340
WAYPOINT 093 (NW CORNER TOE)
10A ⇒ FACING EAST ALONG NORTH SLOPE
10B ⇒ FACING SOUTH ALONG WEST SLOPE
- MINOR EROSION CHANNELS THAT ARE SELF ARMOURING

PHOTO 11 ⇒ 13W0494300, 9669297
WAYPOINT 094 (WEST SLOPE @ TOE)
PHOTO 11A ⇒ FACING NORTH EAST
11B ⇒ FACING EAST (MINOR EROSION)
11C ⇒ FACING SOUTH EAST

(24)

PHOTO 12 ⇒ 13W0494299, 7669271
WAYPOINT 95 (SW corner)
12A ⇒ FACING NW ALONG WEST SLOPE
12B ⇒ FACING NE ALONG SOUTH SLOPE

PHOTO 13 ⇒ 13W0494308, 7669250
WAYPOINT 96 (FACING NORTH)
- LANDFILL COVER SURFACE IS FLAT WITH NO SIGNS OF SETTLEMENT, NO PONDING, NO EROSION.

PHOTO 14 ⇒ 13W0494345, 7669257
- WAYPOINT 097 (CENTRAL FACING EAST)
- NO SETTLEMENT OR PONDED WATER

- FINISHED INSPECTION @ 10:15AM
- ICEN & JOE JR. @ MW-13
- DJ & KRISTALEE HELP WITH GW MONITORING
- SAMPLED MW-10 UNTIL 12:15PM
- LUNCH UNTIL 12:45PM
- BACK AT DCC TETR TT SOIL AREA TO SAMPLE MW-11 @ 1:10PM

- COLLECTED DATA FROM 2 THERMISTORS BEFORE LUNCH AND 2 AFTER LUNCH.

- MET JIM AT OFFICE @ 3:00PM
- JOE SR & KRISTALEE @ OFFICE @ 3:30PM

(25) AUG. 16/07

- STARTED AIRPORT LANDFILL INSPECTION AT 4:00PM
- DROVE TO WEST END

PHOTO 1 ⇒ 492504, 7666876
WAYPOINT 098
1A ⇒ FACING EAST
1B ⇒ FACING WEST
- COARSE ROCK FILL
- NO EXPOSED WASTE OBSERVED
- NO EROSION OBSERVED ⇒ VERY COARSE
- NO SLUMPING OR CRACKS OBSERVED
- NO SIGNIFICANT SETTLEMENT
- SOME MINOR UNDULATIONS

PHOTO 2 ⇒ 492739, 7666825
ELEV. 16m, WAYPOINT 099
- ANY MINOR EROSION IS SELF ARMOURING
- SPARCE VEGETATION CONSISTING OF GRASS AND HERBS
2A ⇒ FACING EAST
2B ⇒ FACING WEST

PHOTO 3 ⇒ 492866 7666809
ELEV. 12 WAYPOINT 100
- NO EROSION OR INSTABILITY OBSERVED
3A ⇒ FACING WEST
3B ⇒ FACING EAST
- NO SEEPAGE OR STAINING OBSERVED

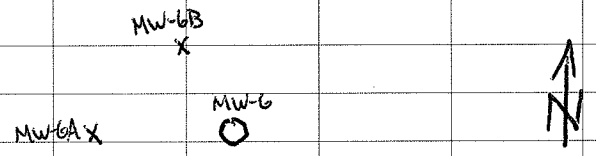
North Pacific Supply Corp. 47 Level

Aug 16, 07

MW-6

Water over top of pipe
Bentonite swelled over j-plug
Picture 024 of well ~~with water in it~~
Sample collected MLFN-MW-6
only 2x1000 mL amber glass collected due to slow refresh rate, plus 1x250 mL amber glass and 1x250 mL plastic

Soil sampling
8 additional samples collected
MW-6A-1 - west of well @ 0-10 cm
MW-6A-2 - west of well @ 40-50cm
other sample locations taken in a clock wise circle around well



Picture 025 of Testpit MW-6A
Picture 026 of Testpit MW-6B

Friday Aug 17, 2007
Tier II Landfill
Samplers: Ken Boldt
Christale
~~Joe~~ Jr.
Tom (Bear Monitor)
Weather: Cold 4-6°C, windy, overcast

MW-10

Condition is good, bentonite swollen to top of pipe, no j-plug
Picture # 027 of MW-10
Sample collected
1x250 ml amber glass
1x250 ml plastic
2x1000 ml amber glass

Soil samples
CMMW-10-1 @ 0-10cm
CMMW-10-2 @ 40-50cm
CM-15-1 Duplicate @ 0-10cm
CM-15-2 Duplicate @ 40-50cm
Picture 028 of test pit

12

Aug 17, 07

MW-13

Condition good, standing water and bentonite over TOP

Sample collected

1 x 250 mL amber glass

1 x 250 mL plastic

1 x 1000 mL amber glass

not enough water to collect any more sample for TPH analysis

Picture 030 of MW-13

Soil sample

CMMW-13-1 @ 0-10cm

CMMW-13-2 @40-50cm

Picture 029 of test pit

MW-12

Condition is good

Bentonite over top of pipe

Collected Sample CMMW-12, CMMW-15(Dup)

Picture 032 of MW-12

106

13

Aug 17, 07

MW-12 Soil

Sample collected

CMMW-12-1

CM MW-12-2

Picture 031 of test pit

TA2 Thermistor (Vertical)

Condition good

Picture 033 of TA2

TA1 Thermistor (Vertical)

Condition good

Picture 034 of TA1

MW-11

Condition is good

Bentonite to the TOP

Picture 035 of MW-11

Sample collected

1 x 250 mL amber glass

1 x 250 mL plastic

2 x 250 mL amber glass

Picture 039 of broken bottle, was dropped after completion by helper by accident

Aug 17, 07

MW-11 Soil sampling
Picture 038 of test pit
Sample collected
CMMW-11-1 @ 0-10 cm
CMMW-11-2 @ 40-50 cm

TA3 Thermistor (Vertical)
Condition is good
Picture 036 of TA3

TA4 Thermistor (Vertical)
Condition is good
Picture 037 of TA4

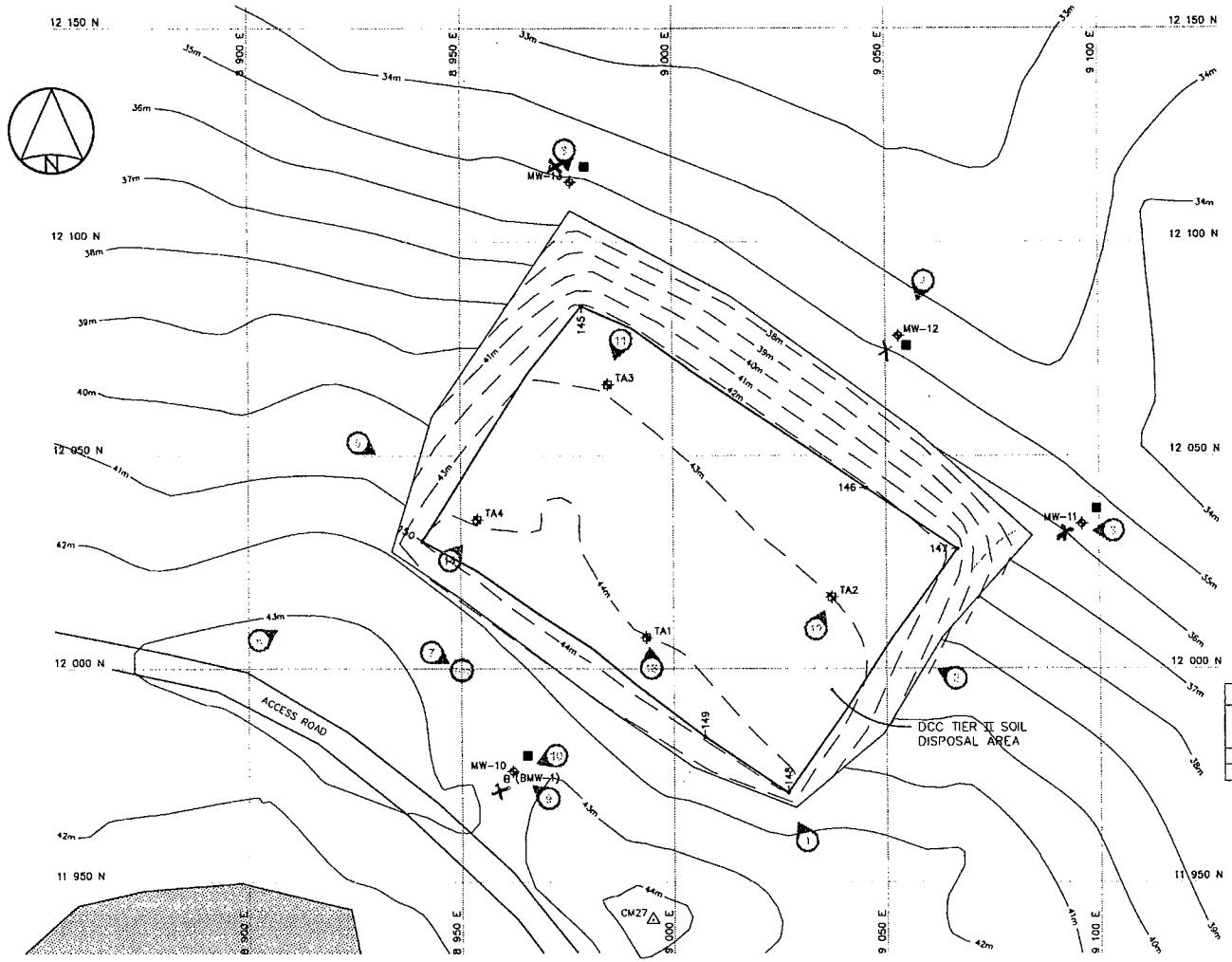
Airstrip Landfill
Sample Soil
CM-13-1 @ 0-10 cm
CM-13-2 @ 40-50 cm
Highly organic soil with many stones
Picture 040 of test pit
UTM W 0492703
13 7666796

Aug 17, 07

CM-12 Soil Sample
CM-12-1 @ 0-10 cm
CM-12-2 @ 40-50 cm
CM-16-1 Duplicate of CM-12-1
Picture 041 of test pit
UTM W 0492908
13 7666761

CM-8 soil sample
CM-8-1 @ 0-10 cm
CM-8-2 @ 40-50 cm
UTM W 0492995
13 7666935
Picture 042 of test pit

CM-9 soil sample
CM-9-1 @ 0-10 cm
CM-9-2 @ 40-50 cm
UTM W 0493213
13 7666840
Picture 043 of test pit



LEGEND:

- CM27 — SURVEY CONTROL MONUMENT
- MONITORING WELL LOCATION
- THERMISTOR
- MONITORING SOIL SAMPLE LOCATION
- PHOTOGRAPHIC VIEWPOINTS
- SURFACE CRACK

MONITORING WELLS			
NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
MW-10	11 976	8 962	43.6
MW-11	12 034	9 096	35.1
MW-12	12 078	9 053	34.9
MW-13	12 114	8 976	35.3

THERMISTORS			
NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
TA1	12 007.3	8 993.5	43.8
TA2	12 016.8	9 037.1	43.4
TA3	12 066.6	8 984.7	43.0
TA4	12 035.0	8 953.8	44.2

COORDINATE POINTS			
NO.	COORDINATES		ELEV.
	NORTHING	EASTING	
145	12 084.9	8 978.6	42.4
146	12 042.4	9 045.3	42.2
147	12 028.1	9 066.7	41.8
148	11 971.0	9 026.8	44.1
149	11 984.1	9 007.2	44.1
150	12 030.0	8 941.0	44.1

SURVEY CONTROL MONUMENTS				
NO.	COORDINATES		ELEV.	DESCRIPTION
	NORTHING	EASTING		
27	11 940.993	8 994.768	44.981	GNWT 500 9018

0 10 20 30m
10 5 1:1000

UMA

DEW LINE CLEAN UP
LANDFILL MONITORING PLAN

CAM-M - CAMBRIDGE BAY

DCC TIER II SOIL DISPOSAL AREA

FIGURE CAM-M.6

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	17-Aug-07	Time:	8:50 AM
Names of Samplers:	Ken Boldt		
Landfill Name:	DCC Tier II Soil Disposal Facility		
Monitoring Well ID:	BMW-1 (MW-10)		
Sample Number:	CMMW-10		
Condition of Well:	Good, no j-plug, bentonite swollen to TOP		
Measured Data			
Well pipe height above ground (cm)=	6.4		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	151	Measurement method: (meter, tape, etc)	interface
Static water level (cm)= (below ground surface)	144.6		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	160	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	9		
Static volume of water in well (mL)=	176		
Free product thickness (mm)=	N/A	Measurement method: (meter, paste, etc)	interface
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristaltic pump
Volume Purged Water=	1L		LDPE tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	7.07		
Final Conductivity (uS/cm)=	5060		
Final Temperature (degC)=	2.2		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	17-Aug-07	Time:	1:20 PM
Names of Samplers:	Ken Boldt		
Landfill Name:	DCC Tier II Soil Disposal Facility		
Monitoring Well ID:	MW-11		
Sample Number:	CM-MW-11		
Condition of Well:	Good, bentonite to TOP		
Measured Data			
Well pipe height above ground (cm)=	14		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	80		
Depth to water surface (cm)= (from top of pipe)	132.5	Measurement method: (meter, tape, etc)	interface
Static water level (cm)= (below ground surface)	118.5		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	142.5	Evidence of sludge or siltation:	no
Thickness of water column (cm)=	10		
Static volume of water in well (mL)=	196		
Free product thickness (mm)=	n/a	Measurement method: (meter, paste, etc)	interface
Purging: (Y/N)	Y	Purging/Sampling Equipment:	Peristaltic Pump
Volume Purged Water=	1 L		LDPE Tubing
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	7.25		
Final Conductivity (uS/cm)=	3950		
Final Temperature (degC)=	1.8		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	17-Aug-07	Time:	10:50 AM
Names of Samplers:	Ken Boldt		
Landfill Name:	DCC Tier II Soil Disposal Facility		
Monitoring Well ID:	MW-12		
Sample Number:	MW-12, MW-15 (Duplicate)		
Condition of Well:	Good, Bentonite welled up to TOP		
Measured Data			
Well pipe height above ground (cm)=	12		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	106	Measurement method: (meter, tape, etc)	Interface Meter
Static water level (cm)= (below ground surface)	94		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	136	Evidence of sludge or siltation:	No
Thickness of water column (cm)=	30		
Static volume of water in well (mL)=	589		
Free product thickness (mm)=	N/A	Measurement method: (meter, paste, etc)	Interface Meter
Purging: (Y/N)	Y	Purging/Sampling Equipment:	P. Pump
Volume Purged Water=	2L		LDPE Tube
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	7.09		
Final Conductivity (uS/cm)=	3830		
Final Temperature (degC)=	2.0		

Monitoring Well Sampling Record

Site Name:	CAM-M		
Date of Sampling Event:	17-Aug-07	Time:	10:00 AM
Names of Samplers:	Ken Bolelt		
Landfill Name:	DCC Tier II Soil Disposal Facility		
Monitoring Well ID:	MW-13		
Sample Number:	CMMW-13		
Condition of Well:	Good, standing water and bentonite over TOP		
Measured Data			
Well pipe height above ground (cm)=	5		
Diameter of well (cm)=	5		
Depth of well installation (cm)= (from ground surface)	350		
Length screened section (cm)=	200		
Depth to top of screen (cm)= (from ground surface)	50		
Depth to water surface (cm)= (from top of pipe)	116	Measurement method: (meter, tape, etc)	Interface
Static water level (cm)= (below ground surface)	111		
Measured well refusal depth (cm)= (i.e. depth to frozen ground)	135	Evidence of sludge or siltation:	no
Thickness of water column (cm)=	19		
Static volume of water in well (mL)=	373		
Free product thickness (mm)=	N/A	Measurement method: (meter, paste, etc)	Interface
Purging: (Y/N)	Y	Purging/Sampling Equipment:	P. Pump
Volume Purged Water=	2 L		LDPE Tube
Decontamination required: (Y/N)	Y		
Number washes:	1		
Number rinses:	1		
Final pH=	7.66		
Final Conductivity (uS/cm)=	2250		
Final Temperature (degC)=	1.5		

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GLL	Inspection Date: 17-Aug-07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**		Thermistor Location: **Tier II Disposal Facility**			
Thermistor Number: **TA-1**		Inclination: 17/08/05 **Vertical** 17/08/07			
Install Date: **25-Sept-99**	First Date Event: **~~11-Aug-01~~**		Last Date Event: **~~16-Aug-05~~**		
Coordinates and Elevation N: **12007**		E: **8994**		Elev: **43.8**	
Length of Cable (m): **7.5**	Cable Lead Above Ground (m): **4.4**			Nodal Points: **7**	
Datalogger Serial #: **21-807031**		Cable Serial Number: **TS-7CNA#2**			

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance
Casing	☑	☐
Cover	☑	☐
Data Logger	☑	☐
Cable	☑	☐
Beads	☑	☐
Battery Installation Date		
Battery Levels	Main 11.34	Aux 12.77

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	11.74	6.6293
2	12.16	6.0074
3	13.48	3.8913
4	15.17	1.5128
5	16.44	-0.0419
6	17.66	-1.3689
7	19.01	-2.8298
8		

Bead	Ohms	Temp. (°C)
9		
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GLL	Inspection Date: 17-Aug-07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**	Thermistor Location: **Tier II Disposal Facility**		
Thermistor Number: **TA-2**	Inclination: ~~17/08/05~~ **Vertical** 17/08/07		
Install Date: **25-Sept-99**	First Date Event: ~~**11-Aug-01**~~	Last Date Event: ~~**16-Aug-05**~~	
Coordinates and Elevation N: **12017**	E: **9037**	Elev: **43.4**	
Length of Cable (m): **7.5**	Cable Lead Above Ground (m): **4.4**	Nodal Points: **7**	
Datalogger Serial #: **22-807030**	Cable Serial Number: **TS-7CNA#4**		

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☑	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☑	☐	
Battery Installation Date			
Battery Levels	Main 100% 11.34 V	Aux 90% 12.65 V	

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	11.58	6.8718
2	12.47	5.4708
3	13.83	3.4118
4	15.39	1.2487
5	16.77	-0.3337
6	17.85	-1.6175
7	19.01	-2.8298
8		

Bead	Ohms	Temp. (°C)
9		
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GLL	Inspection Date: 17-Aug-07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**	Thermistor Location: **Tier II Disposal Facility**		
Thermistor Number: **TA-3**	Inclination: 17/08/05 **Vertical**		17/08/07
Install Date: **25-Sept-99**	First Date Event: **11-Aug-01**	Last Date Event: ~~**16-Aug-05**~~	
Coordinates and Elevation N: **12067**	E: **8985**	Elev: **43**	
Length of Cable (m): **7.5**	Cable Lead Above Ground (m): **4.6**	Nodal Points: **7**	
Datalogger Serial #: **23-807025**	Cable Serial Number: **TS-7CNA#1**		

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☑	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☑	☐	
Battery Installation Date			
Battery Levels	Main 100% 11.34 V	Aux 90% 12.72V	

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	10.14	9.6781
2	12.55	5.3311
3	13.73	3.5142
4	15.75	0.7901
5	16.99	-0.6898
6	18.14	-1.9437
7	19.30	-3.1416
8		

Bead	Ohms	Temp. (°C)
9		
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Thermal Monitoring

Ground Temperature Annual Maintenance Report

Contractor Name: GLL	Inspection Date: 17-Aug-07
Prepared By: Ken Boldt	

Thermistor Information

Site Name: **CAM-M**			Thermistor Location: **Tier II Disposal Facility**		
Thermistor Number: **TA-4**			Inclination: 17/08/05 **Vertical** 17/08/07		
Install Date: **25-Sept-99**		First Date Event: ~~11-Aug-01~~		Last Date Event: ~~16-Aug-05~~	
Coordinates and Elevation	N: **12035**		E: **8954**		Elev: **44.2**
Length of Cable (m): **7.5**		Cable Lead Above Ground (m): **4.6**		Nodal Points: **7**	
Datalogger Serial #: **24-807027**			Cable Serial Number: **TS-7CNA#3**		

Code CAM-MVT1

Thermistor Inspection

	Good	Needs Maintenance	
Casing	☑	☐	
Cover	☑	☐	
Data Logger	☑	☐	
Cable	☑	☐	
Beads	☑	☐	
Battery Installation Date			
Battery Levels	Main 11.34	Aux 13.02	

Manual Ground Bead Temperature Readings

Bead	Ohms	Temp. (°C)
1	10.08	9.7439
2	12.35	5.5756
3	13.31	4.1110
4	15.27	1.3896
5	16.58	-0.2068
6	17.58	-1.3510
7	18.53	-2.3768
8		

Bead	Ohms	Temp. (°C)
9		
10		
11		
12		
13		
14		
15		
16		

Observations and Proposed Maintenance

Appendix G

Laboratory Results

CHROMATOGRAM COVER SHEET

CANTEST

CONTACT	COMPANY NAME	
KEN BOLDT	GARTNER LEE LTD.	
FAX NUMBER	**DATE**	**PGS INCL. COVER**
1-905-477-1456	AUGUST 29, 2007	10
FROM	**RETURN FAX**	**TELEPHONE**
CANTEST LTD	604 731 2386	604 734 7276

SUBJECT

Chromatogram(s).

Please find the attached chromatograms associated with:

CANTEST Group # 8082228

Your Project Name ..... Cam - M

Your Project Number 70517

Sample Matrix ..... SOIL

The originals will follow with the report.

Data File C:\HPCHEM\1\DATA\070827C\016F1701.D Sample Name: 708220600

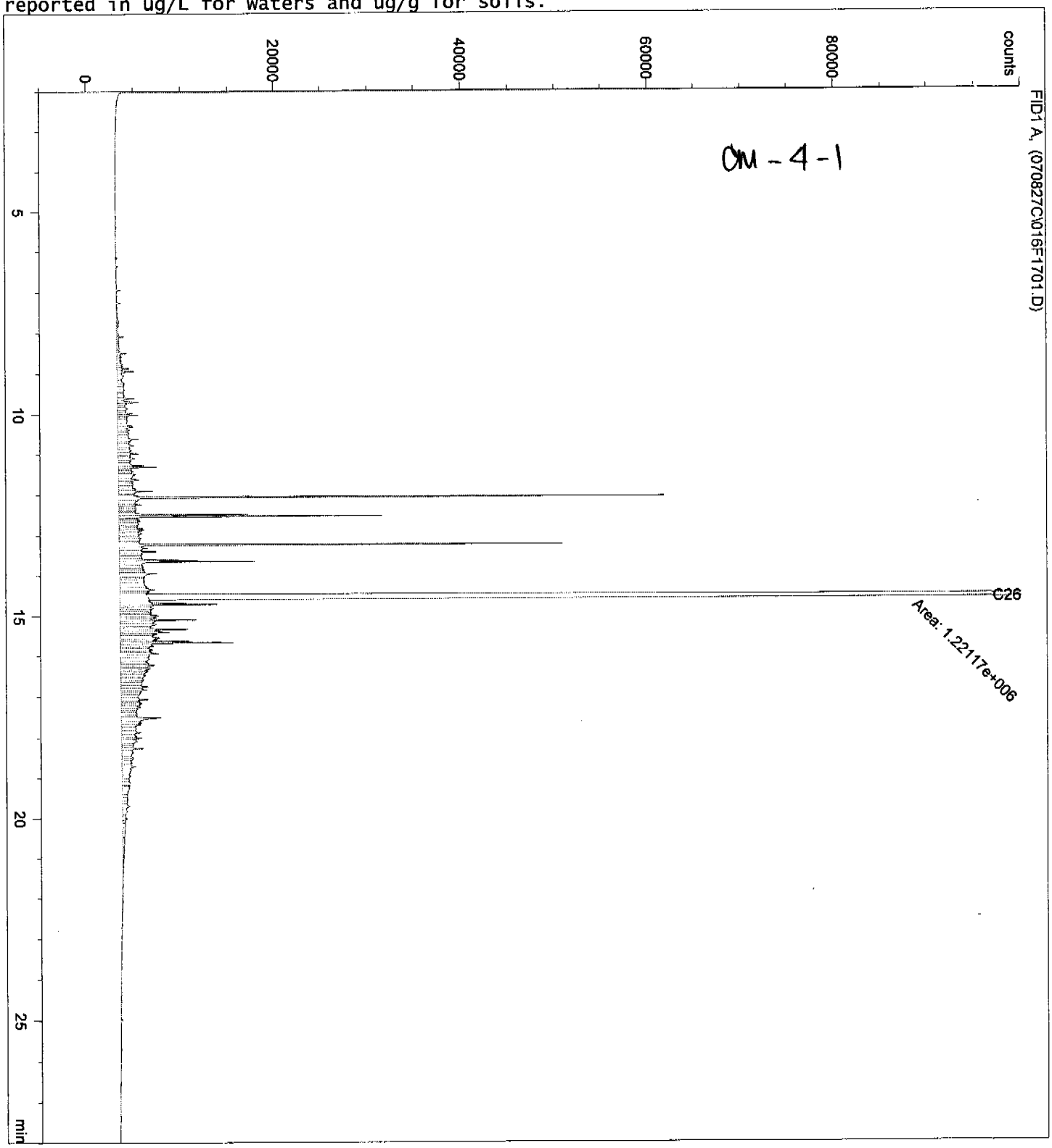
Injection Date : 8/27/07 6:23:23 PM Seq. Line : 17
Sample Name : 708220600 Vial : 16
Acq. Operator : pcn Inj : 1
Inj Volume : 2 µl

Acq. Method : C:\HPCHEM\1\METHODS\!EPH.M
Last changed : 8/27/07 9:38:48 AM by pcn
Analysis Method : C:\HPCHEM\1\METHODS\!TEH_BNP.M
Last changed : 8/29/07 7:34:09 AM by pcn
(modified after loading)

8082128

GAR 005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



FID 8/29/07 7:35:35 AM pcn

Data File C:\HPCHEM\1\DATA\070827C\021F2301.D

Sample Name: 708220606

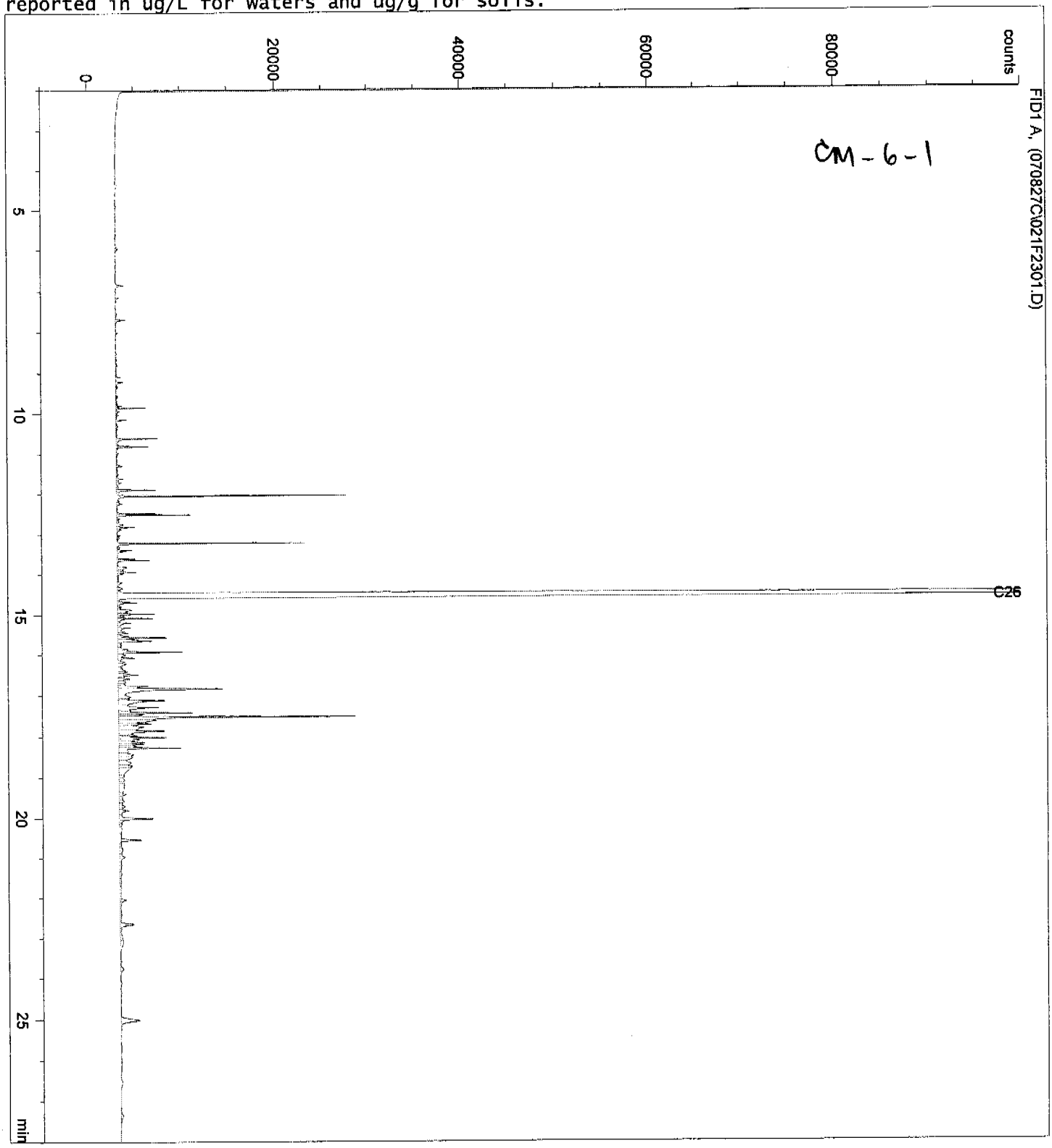
Injection Date : 8/27/07 10:05:10 PM
Sample Name : 708220606
Acq. Operator : pcn

Seq. Line : 23
Vial : 21
Inj : 1
Inj Volume : 2 µl

Acq. Method : C:\HPCHEM\1\METHODS\!EPH.M
Last changed : 8/27/07 7:30:43 PM by pcn
Analysis Method : C:\HPCHEM\1\METHODS\!TEH_BNP.M
Last changed : 8/29/07 7:34:09 AM by pcn
(modified after loading)

GAR005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



FID 8/29/07 7:37:00 AM pcn

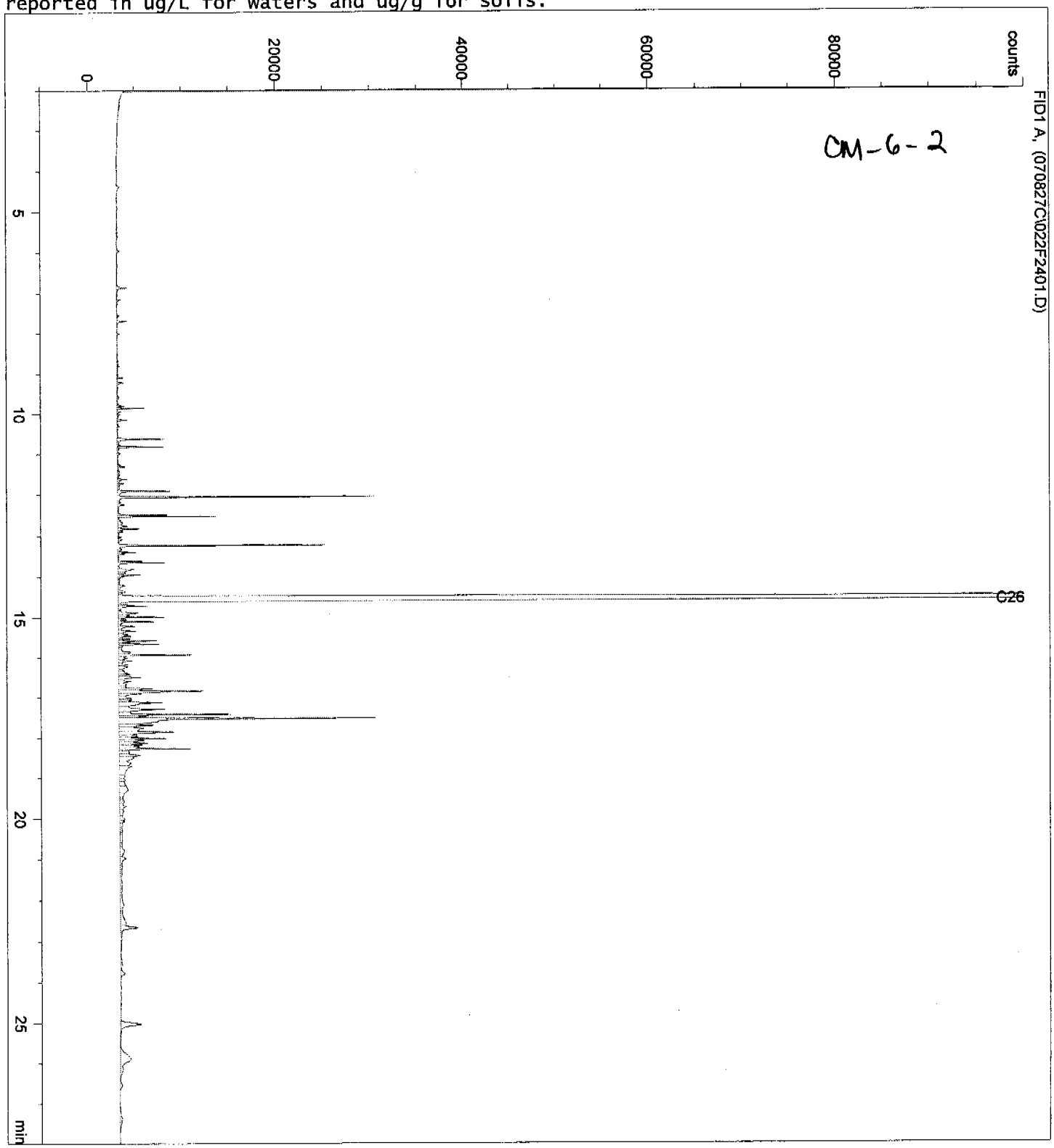
Data File C:\HPCHEM\1\DATA\070827C\022F2401.D Sample Name: 708220607

Injection Date : 8/27/07 10:42:05 PM Seq. Line : 24
Sample Name : 708220607 Vial : 22
Acq. Operator : pcn Inj : 1
Inj Volume : 2 µl

Acq. Method : C:\HPCHEM\1\METHODS\!EPH.M
Last changed : 8/27/07 7:30:43 PM by pcn
Analysis Method : C:\HPCHEM\1\METHODS\!TEH_BNP.M
Last changed : 8/29/07 7:34:09 AM by pcn
(modified after loading)

GAR005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



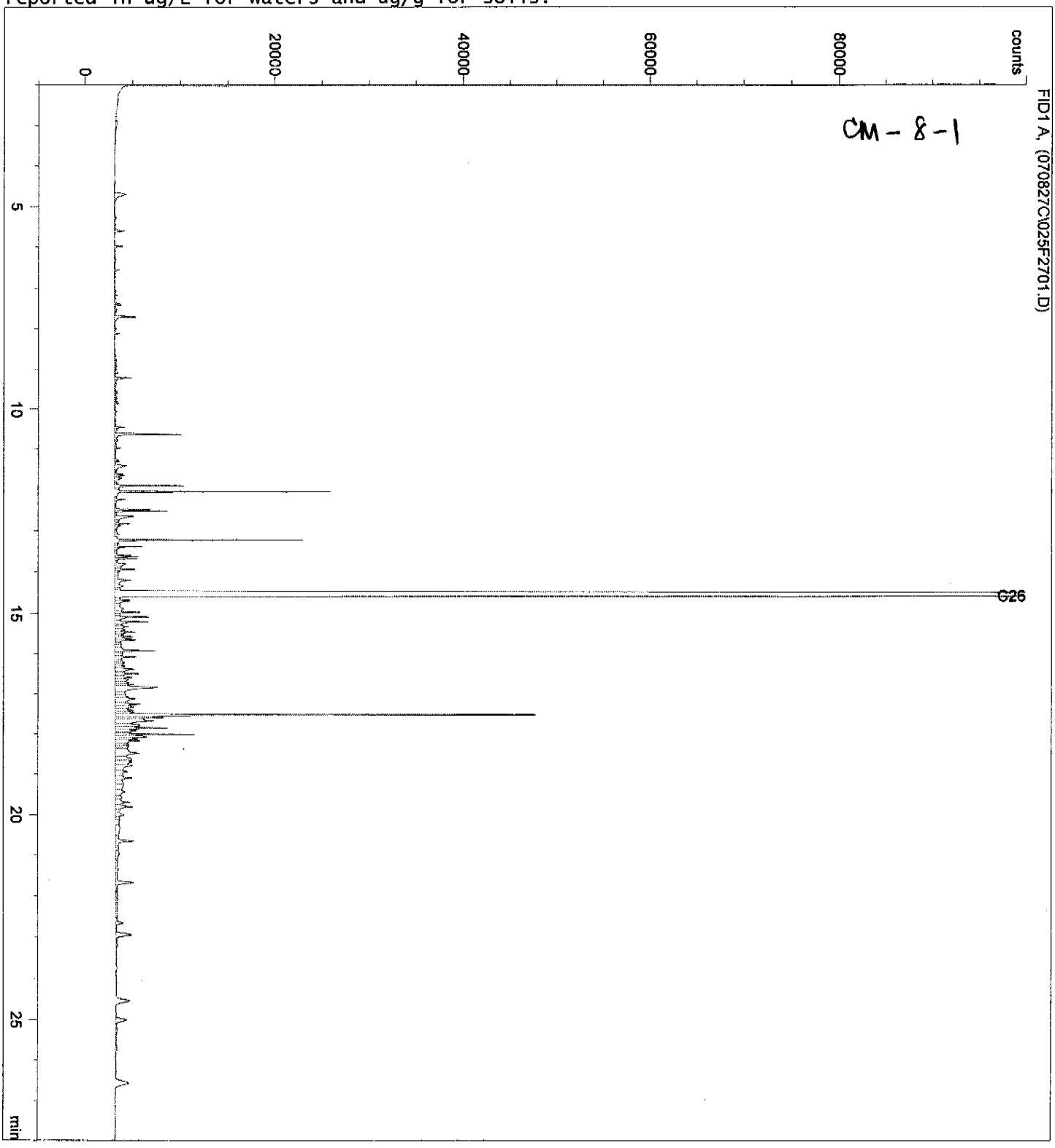
FID 8/29/07 7:37:09 AM pcn

Injection Date : 8/28/07 12:32:39 AM Seq. Line : 27
Sample Name : 708220611 Vial : 25
Acq. Operator : pcn Inj : 1
Inj Volume : 2 µl

Acq. Method : C:\HPCHEM\1\METHODS\!EPH.M
Last changed : 8/27/07 7:30:43 PM by pcn
Analysis Method : C:\HPCHEM\1\METHODS\!TEH_BNP.M
Last changed : 8/29/07 7:34:09 AM by pcn
(modified after loading)

GAR005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



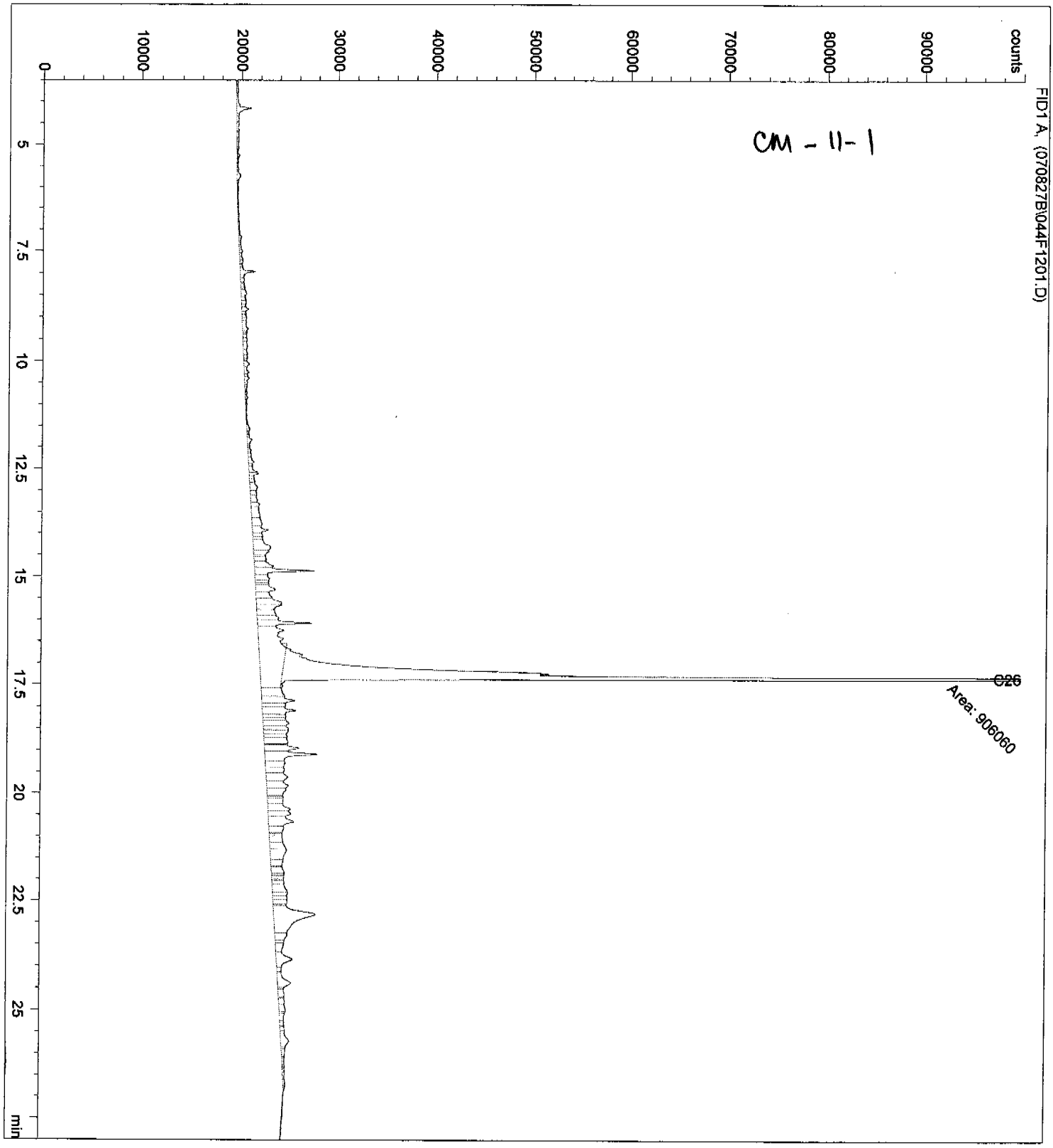
Data File D:\HPCHEM\1\DATA\070827B\044F1201.D Sample Name: 708220627

Injection Date	: 8/27/07 3:31:47 PM	Seq. Line	: 12
Sample Name	: 708220627	Vial	: 44
Acq. Operator	: pcn	Inj	: 1
		Inj Volume	: 2 µl

Acq. Method : D:\HPCHEM~1\1\METHODS\!EPH.M
Last changed : 8/27/07 9:57:39 AM by pcn
Analysis Method : D:\HPCHEM~1\1\METHODS\!TEH_NAP.M
Last changed : 8/29/07 6:24:53 AM by pcn

GAR 005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



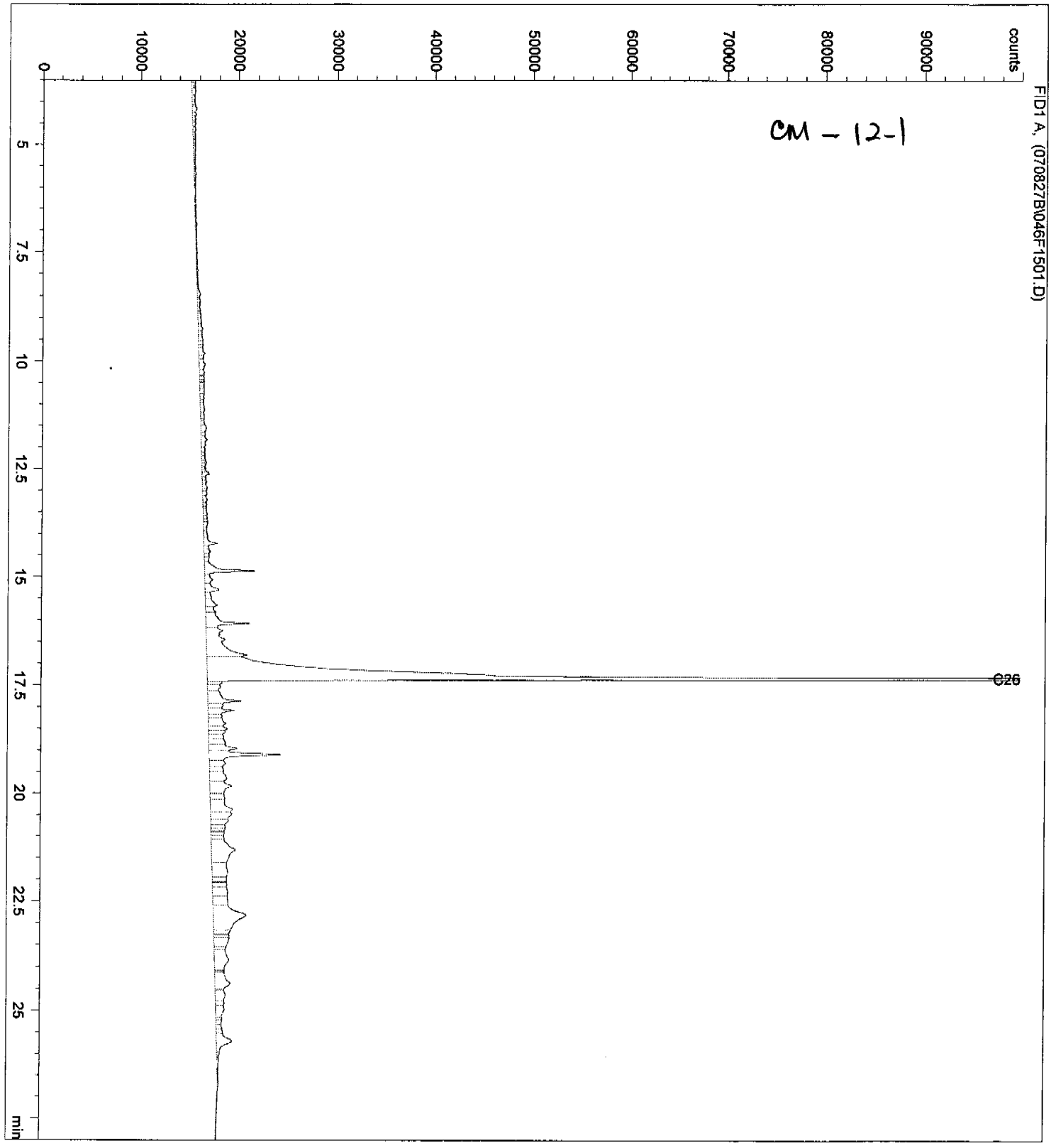
Data File D:\HPCHEM\1\DATA\070827B\046F1501.D Sample Name: 708220630

Injection Date : 8/27/07 5:20:55 PM Seq. Line : 15
Sample Name : 708220630 Vial : 46
Acq. Operator : pcn Inj : 1
Inj Volume : 2 µl

Acq. Method : D:\HPCHEM~1\1\METHODS\!EPH.M
Last changed : 8/27/07 5:14:51 PM by pcn
Analysis Method : D:\HPCHEM~1\1\METHODS\!TEH_NAP.M
Last changed : 8/29/07 6:24:53 AM by pcn

GAR 005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



Data File D:\HPCHEM\1\DATA\070827B\048F1701.D

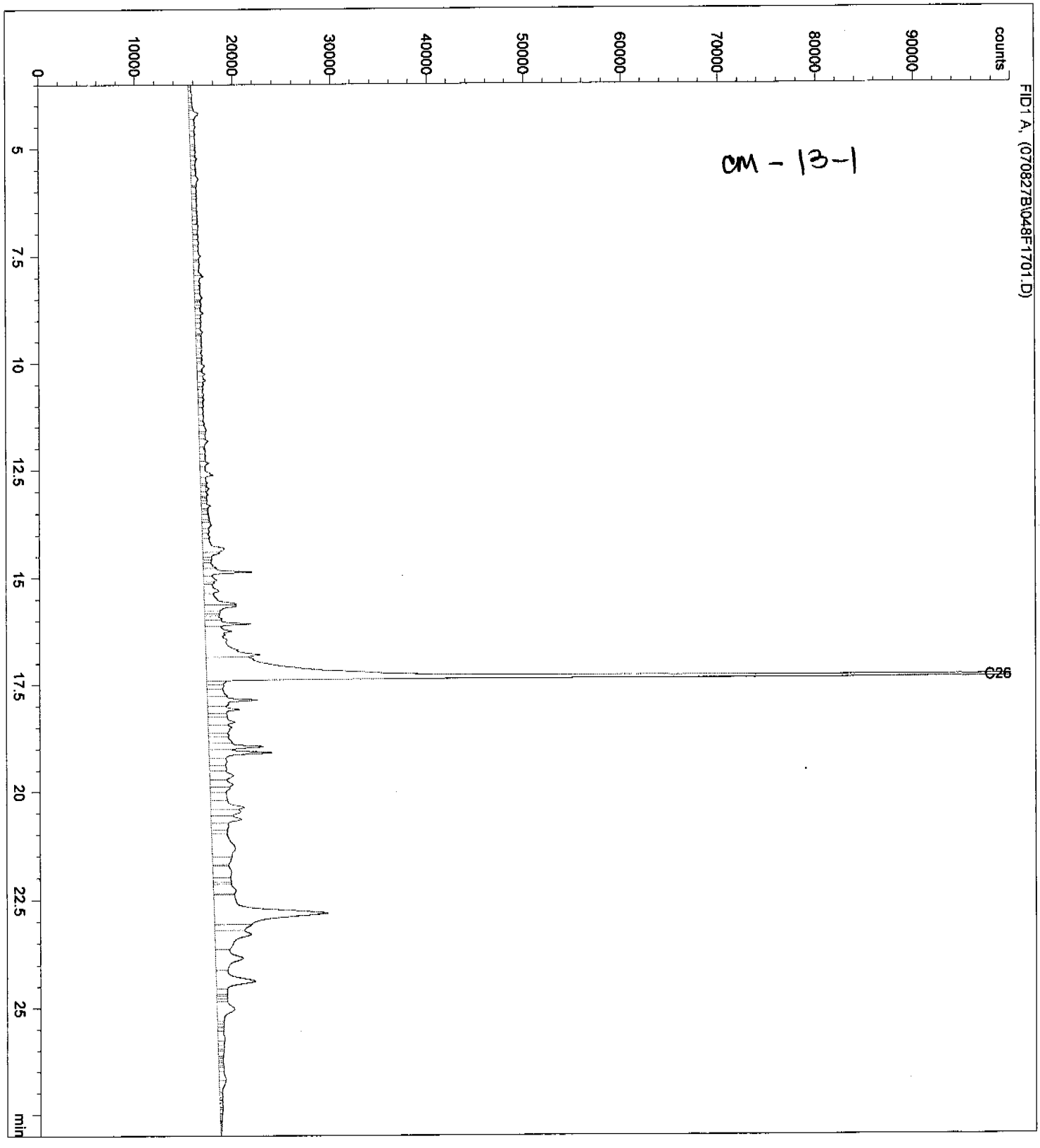
Sample Name: 708220632

Injection Date : 8/27/07 6:33:38 PM
Sample Name : 708220632
Acq. Operator : pcn

Seq. Line : 17
Vial : 48
Inj : 1
Inj Volume : 2 µl

Acq. Method : D:\HPCHEM~1\1\METHODS\!EPH.M
Last changed : 8/27/07 5:14:51 PM by pcn
Analysis Method : D:\HPCHEM~1\1\METHODS\!TEH_NAP.M
Last changed : 8/29/07 6:24:53 AM by pcn
Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.

GAR005



Data File D:\HPCHEM\1\DATA\070827B\053F2401.D Sample Name: 708220638

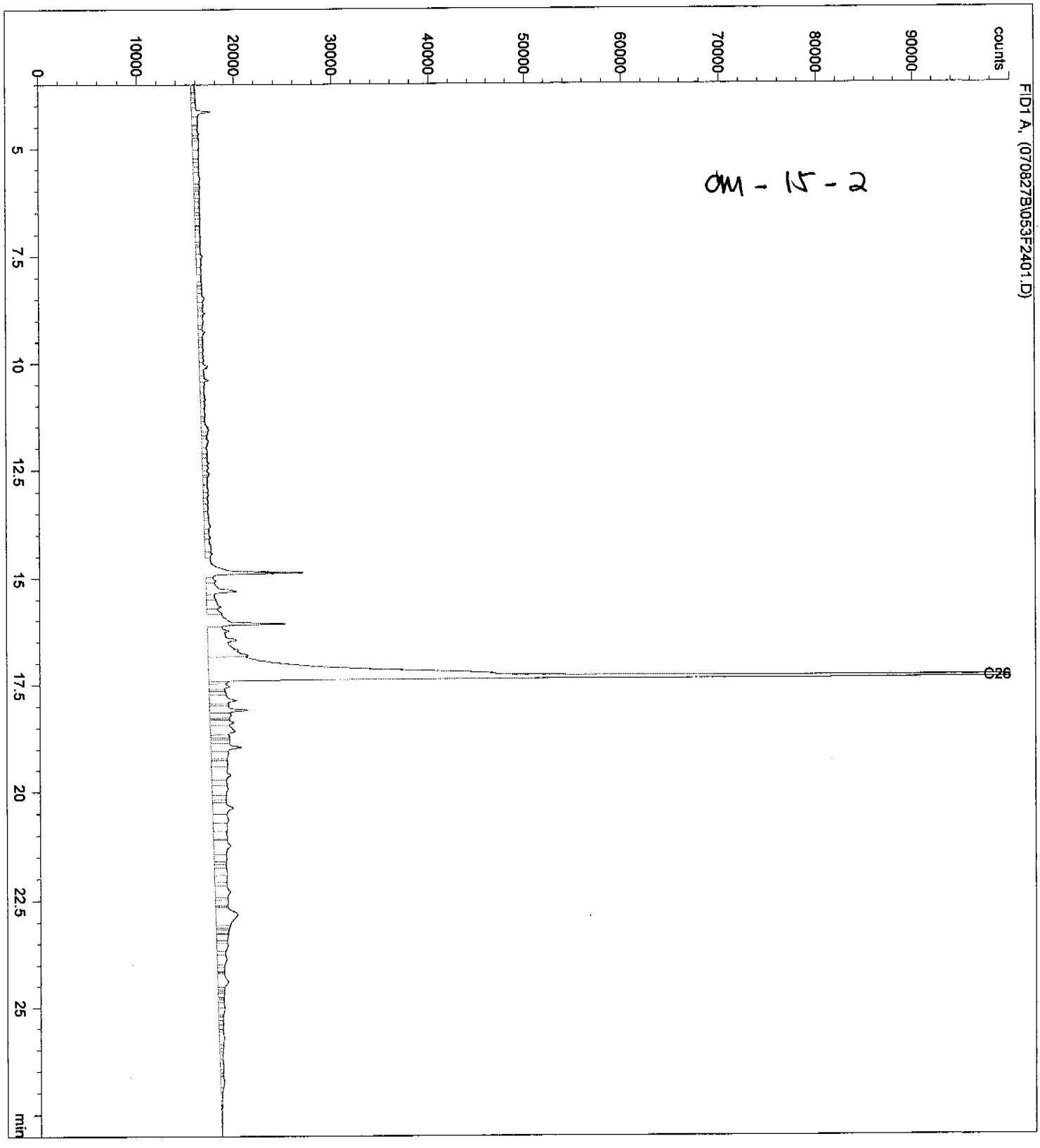
Injection Date : 8/27/07 10:48:21 PM
Sample Name : 708220638
Acq. Operator : pcn

Seq. Line : 24
Vial : 53
Inj : 1
Inj Volume : 2 µl

Acq. Method : D:\HPCHEM~1\1\METHODS\!EPH.M
Last changed : 8/27/07 7:40:32 PM by pcn
Analysis Method : D:\HPCHEM~1\1\METHODS\!TEH_NAP.M
Last changed : 8/29/07 6:24:53 AM by pcn

GA ROUT

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



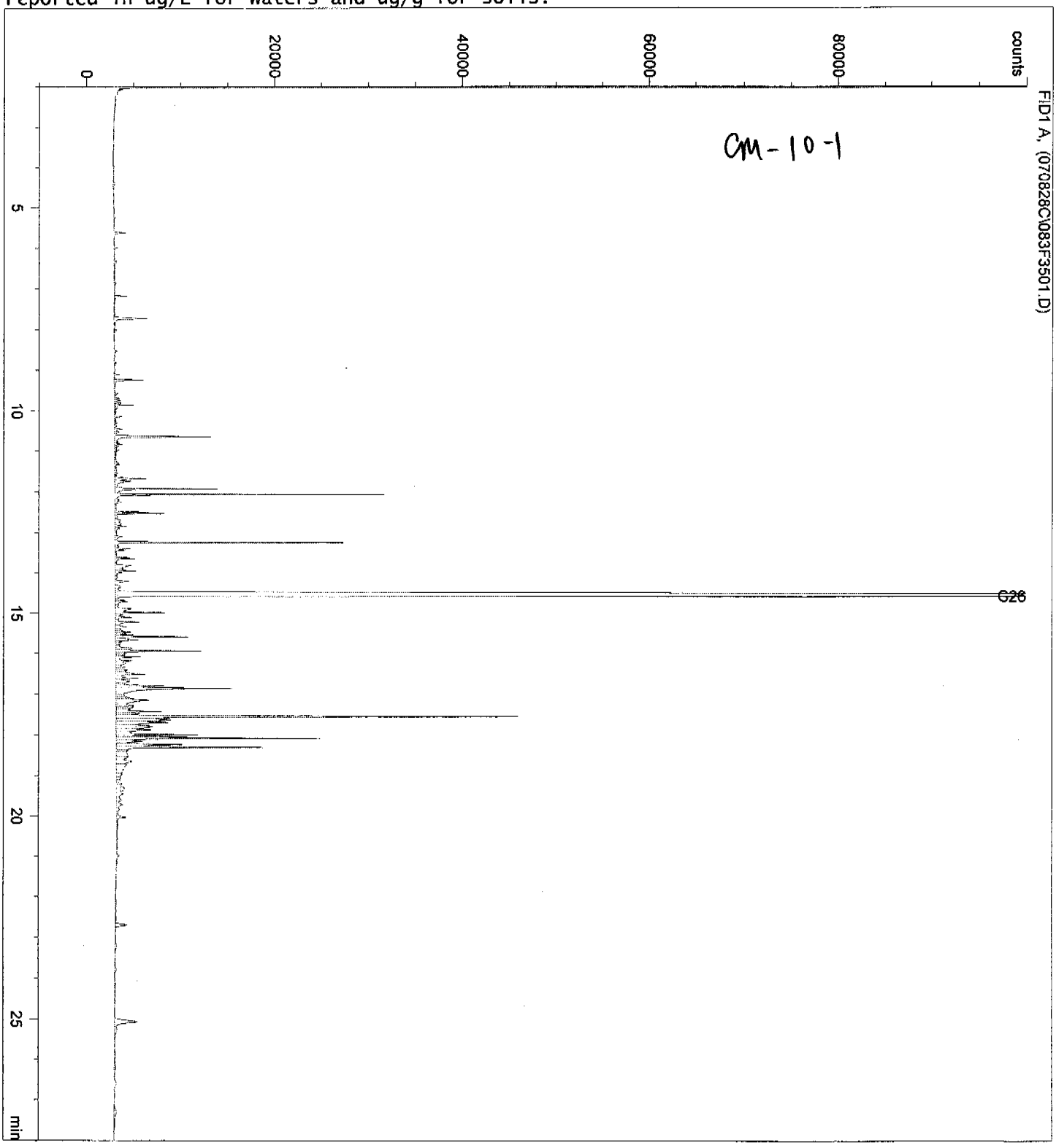
Data File C:\HPCHEM\1\DATA\070828C\083F3501.D Sample Name: 708220616

Injection Date	: 8/29/07 8:42:33 AM	Seq. Line	: 35
Sample Name	: 708220616	Vial	: 83
Acq. Operator	: pcn	Inj	: 1
		Inj Volume	: 2 µl

Acq. Method : C:\HPCHEM\1\METHODS\!EPH.M
Last changed : 5/25/07 11:01:41 AM by ry
Analysis Method : C:\HPCHEM\1\METHODS\!TEH_BNP.M
Last changed : 8/29/07 7:34:09 AM by pcn
(modified after loading)

GA2005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



Analysis Report

REPORT ON: Analysis of Soil Samples

REPORTED TO: Gartner Lee Limited
Suite 300
300 Town Centre Boulevard
Markham, ON
L3R 5Z6

Att'n: Ken Boldt

CHAIN OF CUSTODY: 2090869, 2090870, 2090857, 2090858
PROJECT NAME: CAM-M
PROJECT NUMBER: 70517

NUMBER OF SAMPLES: 33

REPORT DATE: September 5, 2007

DATE SUBMITTED: August 22, 2007

GROUP NUMBER: 80822128

SAMPLE TYPE: Soil

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Aromatic Volatile Organic Compounds in Water and Soil - analysis was performed using procedures based on U.S. EPA Methods 624/8240, involving sparging/collection with a Purge and Trap apparatus and analysis using GC/MS.

Volatile Hydrocarbons - analysis was performed by sparging/collection with a Purge and Trap apparatus, followed by analysis using GC/FID. The components present in the boiling range of C5 to C10 were quantified with m & p-xylenes.

CCME Petroleum Hydrocarbons in Soil - analysis was performed using Canadian Council of Ministers of the Environment (CCME) "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil" approved December 2000. The method involves extraction of the different hydrocarbon fractions and analysis by gas chromatography with flame ionization detection (GC/FID).

Canada-Wide Standard for Petroleum Hydrocarbons in Soil (F1 Fraction) - The F1 Fraction (nC6 to nC10) was analyzed based on the CCME Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method (2001). Analysis involves methanol extraction and quantitation using GasChromatography with Flame Ionization Detector (GC-FID). The F1 Fraction is reported with the BTEX compounds (benzene, toluene, ethylbenzene, and ortho, meta and para-xylenes) subtracted (e.g. corrected). These BTEX compounds analyzed by GCMS may be included in this report on request by the customer.

Moisture in Soil - analysis was performed gravimetrically by heating a separate sample portion at 105 C

(Continued)

CANTEST LTD.

Anna Becalska, PhD
Coordinator, Trace Metals

4606 Canada Way, Burnaby, BC V5G 1K5
Tel: 604 734 7276 Fax: 604 731 2386

Moisture in Soil

and measuring the weight loss.

pH in Soil or Solid - analysis was performed based on procedures described in the Manual on Soil Sampling and Methods of Analysis, published by the Canadian Society of Soil Science,1993. The test was performed using a deionized water leach with measurement by pH meter.

Polychlorinated Biphenyls - analysis was performed using procedures based upon U.S. EPA Methods 608/8080, involving extraction, clean-up steps, and analysis using GC/ECD. Arochlors 1242, 1248, 1254 and 1260 were included.

Silver in Soil - analysis was performed using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Arsenic in Soil - analysis was performed using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Cadmium in Soil - analysis was performed using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Mercury in Soil - analysis was performed using Cold Vapour Atomic Fluorescence.

Molybdenum in Soil - analysis was performed using an acid digestion followed by determination using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Strong Acid Leachable Metals in Soil - analysis was performed using B.C. MOELP Method "Strong Acid Leachable Metals in Soil, Version 1.0". The method involves drying the sample at 60 C, sieving using a 2 mm (10 mesh) sieve and digestion using a mixture of hydrochloric and nitric acids. Analysis was performed using Inductively Coupled Argon Plasma Spectroscopy (ICAP) or by specific techniques as described.

Selenium in Soil - analysis was using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Thallium in Soil - analysis was performed using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Semi-Volatile Hydrocarbons - analysis was performed using procedures based on U.S. EPA Method 8015, involving dichloromethane extraction and analysis using GC/FID. Components in the C10 to C30 range are included, using an alkane standard for quantitation.

Total Petroleum Hydrocarbons - analysis was performed using procedures based on Alberta Environment Site Investigation requirements, involving summation of the total volatile (purgeable) and semi-volatile (extractable) hydrocarbons.

TEST RESULTS:

(See following pages)

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Conventional Parameters in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Moisture	pH
CM-1-1	Aug 15/07	708220594	8.2	7.6
CM-1-2	Aug 15/07	708220595	5.8	7.9
CM-2-1	Aug 15/07	708220596	16.1	7.8
CM-2-2	Aug 15/07	708220597	16.6	7.7
CM-3-1	Aug 15/07	708220598	6.7	7.9
CM-4-1	Aug 15/07	708220600	7.9	8.0
CM-3-2	Aug 15/07	708220601	7.6	7.7
CM-4-2	Aug 15/07	708220602	7.6	7.8
CM-5-1	Aug 15/07	708220603	6.0	8.4
CM-5-2	Aug 15/07	708220604	5.5	8.4
CM-6-1	Aug 15/07	708220606	60.3	7.2
CM-6-2	Aug 15/07	708220607	47.6	7.5
CM-7-1	Aug 15/07	708220608	21.4	7.8
CM-7-2	Aug 15/07	708220609	20.8	7.9
CM-8-1	Aug 17/07	708220611	20.2	7.8
CM-8-2	Aug 17/07	708220612	7.0	8.1
CM-9-1	Aug 17/07	708220613	28.6	7.9
CM-9-2	Aug 17/07	708220614	11.0	8.2
CM-10-1	Aug 17/07	708220616	43.2	7.6
CM-10-2	Aug 17/07	708220617	9.7	8.0
CM-11-1	Aug 17/07	708220627	41.0	7.3
CM-11-2	Aug 17/07	708220628	7.2	8.0
CM-12-1	Aug 17/07	708220630	17.6	7.8
CM-12-2	Aug 17/07	708220631	10.1	7.8
CM-13-1	Aug 17/07	708220632	45.3	7.5
CM-13-2	Aug 17/07	708220633	5.0	7.4
CM-14-1	Aug 17/07	708220634	10.2	7.9
CM-14-2	Aug 17/07	708220635	8.6	8.1
CM-15-1	Aug 17/07	708220636	5.4	8.1
CM-15-2	Aug 17/07	708220638	6.0	8.0
CM-16-1	Aug 17/07	708220639	11.4	8.0
CM-17-1	Aug 18/07	708220640	11.9	8.0
CM-17-2	Aug 18/07	708220641	11.7	7.9
DETECTION LIMIT			0.1	0.1
UNITS			%	pH units

% = percent

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-1-1	CM-1-2	CM-2-1	CM-2-2	
DATE SAMPLED:	Aug 15/07	Aug 15/07	Aug 15/07	Aug 15/07	DETECTION LIMIT
CANTEST ID:	708220594	708220595	708220596	708220597	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	95	101	88	89	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-3-1	CM-4-1	CM-3-2	CM-4-2	
DATE SAMPLED:	Aug 15/07	Aug 15/07	Aug 15/07	Aug 15/07	DETECTION LIMIT
CANTEST ID:	708220598	708220600	708220601	708220602	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	0.04	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	0.04	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	97	97	90	93	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-5-1	CM-5-2	CM-6-1	CM-6-2	
DATE SAMPLED:	Aug 15/07	Aug 15/07	Aug 15/07	Aug 15/07	DETECTION LIMIT
CANTEST ID:	708220603	708220604	708220606	708220607	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	87	103	72	58	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-7-1	CM-7-2	CM-8-1	CM-8-2	
DATE SAMPLED:	Aug 15/07	Aug 15/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220608	708220609	708220611	708220612	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	56	76	60	77	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-9-1	CM-9-2	CM-10-1	CM-10-2	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220613	708220614	708220616	708220617	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	64	100	105	75	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-11-1	CM-11-2	CM-12-1	CM-12-2	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220627	708220628	708220630	708220631	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	60	90	91	93	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-13-1	CM-13-2	CM-14-1	CM-14-2	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220632	708220633	708220634	708220635	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	56	98	102	83	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-15-1	CM-15-2	CM-16-1	CM-17-1	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 17/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220636	708220638	708220639	708220640	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	100	102	92	91	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-17-2	
DATE SAMPLED:	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220641	
Arochlor 1242	<	0.03
Arochlor 1248	<	0.03
Arochlor 1254	<	0.03
Arochlor 1260	<	0.03
Total PCB	<	0.03
Surrogate Recovery		
2,2',4,4',6,6'-hexabromobiphenyl	72	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Semi-Volatile Hydrocarbons in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Total Extractable Hydrocarbons
CM-1-1	Aug 15/07	708220594	<
CM-1-2	Aug 15/07	708220595	<
CM-2-1	Aug 15/07	708220596	<
CM-2-2	Aug 15/07	708220597	<
CM-3-1	Aug 15/07	708220598	<
CM-4-1	Aug 15/07	708220600	43
CM-3-2	Aug 15/07	708220601	<
CM-4-2	Aug 15/07	708220602	57
CM-5-1	Aug 15/07	708220603	<
CM-5-2	Aug 15/07	708220604	<
CM-6-1	Aug 15/07	708220606	35
CM-6-2	Aug 15/07	708220607	34
CM-7-1	Aug 15/07	708220608	<
CM-7-2	Aug 15/07	708220609	<
CM-8-1	Aug 17/07	708220611	26
CM-8-2	Aug 17/07	708220612	<
CM-9-1	Aug 17/07	708220613	<
CM-9-2	Aug 17/07	708220614	<
CM-10-1	Aug 17/07	708220616	39
CM-10-2	Aug 17/07	708220617	<
CM-11-1	Aug 17/07	708220627	150
CM-11-2	Aug 17/07	708220628	<
CM-12-1	Aug 17/07	708220630	23
CM-12-2	Aug 17/07	708220631	<
CM-13-1	Aug 17/07	708220632	110
CM-13-2	Aug 17/07	708220633	<
CM-14-1	Aug 17/07	708220634	<
CM-14-2	Aug 17/07	708220635	<
CM-15-1	Aug 17/07	708220636	<
CM-15-2	Aug 17/07	708220638	24
CM-16-1	Aug 17/07	708220639	<
CM-17-1	Aug 18/07	708220640	<
CM-17-2	Aug 18/07	708220641	<
DETECTION LIMIT			20
UNITS			µg/g

µg/g = micrograms per gram, on a dry weight basis.
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Total Petroleum Hydrocarbons in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Total Petroleum Hydrocarbons
CM-1-1	Aug 15/07	708220594	<
CM-1-2	Aug 15/07	708220595	<
CM-2-1	Aug 15/07	708220596	<
CM-2-2	Aug 15/07	708220597	<
CM-3-1	Aug 15/07	708220598	<
CM-4-1	Aug 15/07	708220600	43
CM-3-2	Aug 15/07	708220601	<
CM-4-2	Aug 15/07	708220602	57
CM-5-1	Aug 15/07	708220603	<
CM-5-2	Aug 15/07	708220604	<
CM-6-1	Aug 15/07	708220606	35
CM-6-2	Aug 15/07	708220607	34
CM-7-1	Aug 15/07	708220608	<
CM-7-2	Aug 15/07	708220609	<
CM-8-1	Aug 17/07	708220611	26
CM-8-2	Aug 17/07	708220612	<
CM-9-1	Aug 17/07	708220613	<
CM-9-2	Aug 17/07	708220614	<
CM-10-1	Aug 17/07	708220616	39
CM-10-2	Aug 17/07	708220617	<
CM-11-1	Aug 17/07	708220627	150
CM-11-2	Aug 17/07	708220628	<
CM-12-1	Aug 17/07	708220630	23
CM-12-2	Aug 17/07	708220631	<
CM-13-1	Aug 17/07	708220632	110
CM-13-2	Aug 17/07	708220633	<
CM-14-1	Aug 17/07	708220634	<
CM-14-2	Aug 17/07	708220635	<
CM-15-1	Aug 17/07	708220636	<
CM-15-2	Aug 17/07	708220638	24
CM-16-1	Aug 17/07	708220639	<
CM-17-1	Aug 18/07	708220640	<
CM-17-2	Aug 18/07	708220641	<
DETECTION LIMIT			20
UNITS			µg/g

µg/g = micrograms per gram, on a dry weight basis.
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

CCME Petroleum Hydrocarbons in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	F2 uncorrected (C10-C16)	F3 uncorrected (C16-C34)
CM-4-1	Aug 15/07	708220600	<	<
CM-4-2	Aug 15/07	708220602	<	<
CM-6-1	Aug 15/07	708220606	<	<
CM-6-2	Aug 15/07	708220607	<	<
CM-8-1	Aug 17/07	708220611	<	<
CM-10-1	Aug 17/07	708220616	<	<
CM-11-1	Aug 17/07	708220627	<	<
CM-12-1	Aug 17/07	708220630	<	<
CM-13-1	Aug 17/07	708220632	<	<
CM-15-2	Aug 17/07	708220638	<	<
DETECTION LIMIT			80	250
UNITS			µg/g	µg/g

µg/g = micrograms per gram, on a dry weight basis.
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

CCME Petroleum Hydrocarbons in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	F1 (C6-C10) uncorrected
CM-4-1	Aug 15/07	708220600	<
CM-4-2	Aug 15/07	708220602	<
CM-6-1	Aug 15/07	708220606	<
CM-6-2	Aug 15/07	708220607	<
CM-8-1	Aug 17/07	708220611	<
CM-10-1	Aug 17/07	708220616	<
CM-11-1	Aug 17/07	708220627	<
CM-12-1	Aug 17/07	708220630	<
CM-13-1	Aug 17/07	708220632	<
CM-15-2	Aug 17/07	708220638	<
DETECTION LIMIT			5
UNITS			µg/g

µg/g = micrograms per gram, on a dry weight basis.
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-1-1	CM-1-2	CM-2-1	CM-2-2	
DATE SAMPLED:		Aug 15/07	Aug 15/07	Aug 15/07	Aug 15/07	DETECTION LIMIT
CANTEST ID:		708220594	708220595	708220596	708220597	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	1.9	1.9	2.4	2.4	0.1
Barium	Ba	33	23	17	21	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	12	9	10	10	2
Cobalt	Co	5	4	4	5	1
Copper	Cu	10	8	11	10	1
Lead	Pb	5.4	5.5	6.5	5.9	0.2
Mercury	Hg	<	<	<	<	0.01
Molybdenum	Mo	0.3	0.3	0.3	0.3	0.1
Nickel	Ni	11	8	10	11	2
Selenium	Se	0.4	0.5	0.4	0.3	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	<	0.1	0.1	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	15	12	10	10	1
Zinc	Zn	14	8	11	15	1
Aluminum	Al	3560	2210	3480	4420	10
Boron	B	18	13	25	28	1
Calcium	Ca	77500	109000	30700	27900	1
Iron	Fe	9770	9060	10400	10200	2
Magnesium	Mg	56800	75000	18800	18400	1
Manganese	Mn	320	388	292	261	1
Phosphorus	P	452	374	1240	727	20
Potassium	K	1790	1090	2230	2910	10
Sodium	Na	665	783	1070	1200	5
Strontium	Sr	24	27	24	20	1
Titanium	Ti	170	105	98	92	1
Zirconium	Zr	6	4	5	7	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-3-1	CM-4-1	CM-3-2	CM-4-2	
DATE SAMPLED:		Aug 15/07	Aug 15/07	Aug 15/07	Aug 15/07	DETECTION LIMIT
CANTEST ID:		708220598	708220600	708220601	708220602	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	2.3	2.1	1.9	1.7	0.1
Barium	Ba	25	23	22	19	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	10	9	9	7	2
Cobalt	Co	5	7	5	5	1
Copper	Cu	17	22	11	8	1
Lead	Pb	6.5	8.5	7.3	6.7	0.2
Mercury	Hg	<	0.01	<	<	0.01
Molybdenum	Mo	0.5	0.4	0.4	0.4	0.1
Nickel	Ni	11	12	11	9	2
Selenium	Se	0.4	0.3	0.3	0.2	0.2
Silver	Ag	<	<	<	0.1	0.1
Thallium	Tl	0.1	0.2	0.1	0.1	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	12	10	10	7	1
Zinc	Zn	12	13	9	10	1
Aluminum	Al	3190	3050	2780	2690	10
Boron	B	24	24	22	23	1
Calcium	Ca	45900	37300	39700	24100	1
Iron	Fe	9880	10500	9450	7330	2
Magnesium	Mg	29100	23000	24200	16000	1
Manganese	Mn	314	304	318	209	1
Phosphorus	P	820	776	775	642	20
Potassium	K	1970	1960	1720	1760	10
Sodium	Na	360	173	227	154	5
Strontium	Sr	21	20	21	15	1
Titanium	Ti	109	99	79	85	1
Zirconium	Zr	6	6	6	7	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-5-1	CM-5-2	CM-6-1	CM-6-2	
DATE SAMPLED:		Aug 15/07	Aug 15/07	Aug 15/07	Aug 15/07	DETECTION LIMIT
CANTEST ID:		708220603	708220604	708220606	708220607	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	1.7	1.8	1.1	3.1	0.1
Barium	Ba	33	41	122	127	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	6	7	13	13	2
Cobalt	Co	3	3	3	5	1
Copper	Cu	6	5	16	15	1
Lead	Pb	3.7	3.6	6.5	7.7	0.2
Mercury	Hg	<	<	0.04	0.03	0.01
Molybdenum	Mo	0.3	0.2	0.4	0.6	0.1
Nickel	Ni	5	6	11	11	2
Selenium	Se	0.5	0.4	0.6	0.8	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	<	<	<	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	10	11	17	21	1
Zinc	Zn	7	8	26	22	1
Aluminum	Al	1790	2340	5200	4900	10
Boron	B	10	11	32	30	1
Calcium	Ca	83600	81900	14900	31900	1
Iron	Fe	6450	6860	9500	15200	2
Magnesium	Mg	58000	55600	6160	16800	1
Manganese	Mn	237	248	92	512	1
Phosphorus	P	352	343	891	1240	20
Potassium	K	704	819	1040	1120	10
Sodium	Na	104	105	529	540	5
Strontium	Sr	27	27	21	27	1
Titanium	Ti	76	92	143	128	1
Zirconium	Zr	2	2	4	1	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-7-1	CM-7-2	CM-8-1	CM-8-2	
DATE SAMPLED:		Aug 15/07	Aug 15/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:		708220608	708220609	708220611	708220612	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	0.8	0.8	1.5	1.7	0.1
Barium	Ba	16	33	27	25	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	0.4	0.3	<	<	0.2
Chromium	Cr	6	6	6	9	2
Cobalt	Co	2	2	2	4	1
Copper	Cu	7	6	6	7	1
Lead	Pb	2.1	2.2	2.7	3.3	0.2
Mercury	Hg	<	<	0.03	<	0.01
Molybdenum	Mo	3.2	2.1	0.5	0.2	0.1
Nickel	Ni	6	5	5	7	2
Selenium	Se	0.6	0.5	0.4	0.3	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	<	<	<	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	11	10	9	12	1
Zinc	Zn	7	7	14	11	1
Aluminum	Al	1440	1390	1530	3430	10
Boron	B	7	8	21	12	1
Calcium	Ca	63000	69000	61100	44200	1
Iron	Fe	5100	5460	6420	7880	2
Magnesium	Mg	41300	47800	34700	30400	1
Manganese	Mn	181	222	282	213	1
Phosphorus	P	469	498	630	484	20
Potassium	K	490	543	611	1360	10
Sodium	Na	105	116	204	136	5
Strontium	Sr	19	21	25	16	1
Titanium	Ti	73	58	41	108	1
Zirconium	Zr	2	2	<	3	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-9-1	CM-9-2	CM-10-1	CM-10-2	
DATE SAMPLED:		Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:		708220613	708220614	708220616	708220617	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	1.2	1.4	2.0	2.4	0.1
Barium	Ba	27	29	37	85	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	5	10	12	18	2
Cobalt	Co	2	6	4	14	1
Copper	Cu	11	10	10	48	1
Lead	Pb	3.5	5.1	11.8	13.1	0.2
Mercury	Hg	0.01	<	0.04	0.01	0.01
Molybdenum	Mo	0.1	0.2	0.5	0.6	0.1
Nickel	Ni	6	10	12	25	2
Selenium	Se	0.6	0.2	0.4	0.3	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	0.1	<	0.3	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	9	13	15	13	1
Zinc	Zn	6	13	31	22	1
Aluminum	Al	1270	4400	4060	8110	10
Boron	B	16	18	22	29	1
Calcium	Ca	112000	39100	42200	33700	1
Iron	Fe	5620	9300	10000	16700	2
Magnesium	Mg	74000	26900	25200	23500	1
Manganese	Mn	269	227	271	261	1
Phosphorus	P	355	587	761	510	20
Potassium	K	468	1920	1100	4850	10
Sodium	Na	199	120	158	141	5
Strontium	Sr	23	17	20	22	1
Titanium	Ti	52	117	142	86	1
Zirconium	Zr	<	7	3	12	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-11-1	CM-11-2	CM-12-1	CM-12-2	
DATE SAMPLED:		Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:		708220627	708220628	708220630	708220631	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	1.8	1.6	4.5	5.5	0.1
Barium	Ba	35	35	34	23	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	8	12	17	13	2
Cobalt	Co	2	7	8	11	1
Copper	Cu	9	10	15	15	1
Lead	Pb	3.9	4.8	10.6	10.8	0.2
Mercury	Hg	0.05	<	0.02	0.01	0.01
Molybdenum	Mo	0.5	0.2	0.8	1.2	0.1
Nickel	Ni	6	11	16	17	2
Selenium	Se	0.5	0.3	0.4	0.5	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	0.1	0.1	0.1	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	11	12	23	20	1
Zinc	Zn	10	14	23	11	1
Aluminum	Al	2180	5140	5350	2880	10
Boron	B	19	23	23	18	1
Calcium	Ca	32600	32700	43200	73300	1
Iron	Fe	8610	10100	15800	14900	2
Magnesium	Mg	10900	21700	27400	46100	1
Manganese	Mn	362	240	310	441	1
Phosphorus	P	840	523	806	709	20
Potassium	K	519	2480	1510	1290	10
Sodium	Na	88	92	128	99	5
Strontium	Sr	22	16	20	25	1
Titanium	Ti	65	89	136	52	1
Zirconium	Zr	2	7	2	2	1

Results expressed as micrograms per gram, on a dry weight basis. ($\mu g/g$)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-13-1	CM-13-2	CM-14-1	CM-14-2	
DATE SAMPLED:		Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:		708220632	708220633	708220634	708220635	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	2.4	1.8	2.7	3.0	0.1
Barium	Ba	69	15	42	36	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	11	5	17	15	2
Cobalt	Co	4	2	7	6	1
Copper	Cu	12	5	13	11	1
Lead	Pb	5.7	3.3	6.0	5.2	0.2
Mercury	Hg	0.07	<	<	<	0.01
Molybdenum	Mo	0.5	0.4	0.5	0.5	0.1
Nickel	Ni	11	6	15	13	2
Selenium	Se	0.6	0.5	0.3	0.4	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	0.1	<	0.2	0.1	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	16	9	22	19	1
Zinc	Zn	31	5	22	22	1
Aluminum	Al	4370	1150	6480	4650	10
Boron	B	31	14	14	12	1
Calcium	Ca	31300	109000	58700	64000	1
Iron	Fe	9740	8320	11600	11000	2
Magnesium	Mg	12800	70500	44400	51400	1
Manganese	Mn	274	418	236	307	1
Phosphorus	P	1000	529	608	641	20
Potassium	K	1110	463	2140	1530	10
Sodium	Na	132	87	217	146	5
Strontium	Sr	21	23	21	22	1
Titanium	Ti	122	29	281	173	1
Zirconium	Zr	4	2	6	4	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-15-1	CM-15-2	CM-16-1	CM-17-1	
DATE SAMPLED:		Aug 17/07	Aug 17/07	Aug 17/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:		708220636	708220638	708220639	708220640	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	1.6	1.6	4.3	3.5	0.1
Barium	Ba	45	36	22	64	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	8	8	13	12	2
Cobalt	Co	3	3	10	6	1
Copper	Cu	7	6	17	11	1
Lead	Pb	3.5	3.5	10.8	6.0	0.2
Mercury	Hg	<	<	0.01	0.01	0.01
Molybdenum	Mo	0.3	0.3	0.9	0.5	0.1
Nickel	Ni	6	6	19	12	2
Selenium	Se	0.4	0.4	0.4	0.4	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	<	<	<	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	11	12	16	17	1
Zinc	Zn	9	9	11	13	1
Aluminum	Al	2590	2600	3160	3920	10
Boron	B	11	11	15	21	1
Calcium	Ca	77900	73100	50400	80200	1
Iron	Fe	6970	7070	12900	11100	2
Magnesium	Mg	56100	53700	32000	60400	1
Manganese	Mn	256	246	276	331	1
Phosphorus	P	372	412	600	445	20
Potassium	K	1010	996	1320	1820	10
Sodium	Na	198	184	80	878	5
Strontium	Sr	29	28	20	27	1
Titanium	Ti	107	113	26	161	1
Zirconium	Zr	2	2	3	6	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-17-2	
DATE SAMPLED:		Aug 18/07	DETECTION LIMIT
CANTEST ID:		708220641	
Antimony	Sb	<	0.1
Arsenic	As	2.8	0.1
Barium	Ba	53	1
Beryllium	Be	<	1
Cadmium	Cd	<	0.2
Chromium	Cr	11	2
Cobalt	Co	4	1
Copper	Cu	11	1
Lead	Pb	6.6	0.2
Mercury	Hg	0.01	0.01
Molybdenum	Mo	0.7	0.1
Nickel	Ni	11	2
Selenium	Se	0.4	0.2
Silver	Ag	<	0.1
Thallium	Tl	<	0.1
Tin	Sn	<	5
Vanadium	V	14	1
Zinc	Zn	18	1
Aluminum	Al	3030	10
Boron	B	16	1
Calcium	Ca	72200	1
Iron	Fe	9820	2
Magnesium	Mg	54600	1
Manganese	Mn	299	1
Phosphorus	P	496	20
Potassium	K	1390	10
Sodium	Na	324	5
Strontium	Sr	25	1
Titanium	Ti	102	1
Zirconium	Zr	5	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-1-1	CM-1-2	CM-2-1	CM-2-2	
DATE SAMPLED:	Aug 15/07	Aug 15/07	Aug 15/07	Aug 15/07	DETECTION LIMIT
CANTEST ID:	708220594	708220595	708220596	708220597	
Benzene	<	<	<	<	0.03
Ethylbenzene	<	<	<	<	0.03
Toluene	<	<	<	<	0.03
Xylenes	<	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	108	99	102	101	-
Bromofluorobenzene	88	89	85	86	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-3-1	CM-4-1	CM-3-2	CM-4-2	
DATE SAMPLED:	Aug 15/07	Aug 15/07	Aug 15/07	Aug 15/07	DETECTION LIMIT
CANTEST ID:	708220598	708220600	708220601	708220602	
Benzene	<	<	<	<	0.03
Ethylbenzene	<	<	<	<	0.03
Toluene	<	<	<	<	0.03
Xylenes	<	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	104	104	100	101	-
Bromofluorobenzene	89	85	82	85	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-5-1	CM-5-2	CM-6-1	CM-6-2	
DATE SAMPLED:	Aug 15/07	Aug 15/07	Aug 15/07	Aug 15/07	DETECTION LIMIT
CANTEST ID:	708220603	708220604	708220606	708220607	
Benzene	<	<	< 0.05	< 0.05	0.03
Ethylbenzene	<	<	< 0.05	< 0.05	0.03
Toluene	<	<	< 0.05	< 0.05	0.03
Xylenes	<	<	< 0.05	< 0.05	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	100	103	99	101	-
Bromofluorobenzene	85	88	90	92	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-7-1	CM-7-2	CM-8-1	CM-8-2	
DATE SAMPLED:	Aug 15/07	Aug 15/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220608	708220609	708220611	708220612	
Benzene	<	<	<	<	0.03
Ethylbenzene	<	<	<	<	0.03
Toluene	<	<	<	<	0.03
Xylenes	<	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	102	99	103	104	-
Bromofluorobenzene	82	84	85	85	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-9-1	CM-9-2	CM-10-1	CM-10-2	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220613	708220614	708220616	708220617	
Benzene	<	<	< 0.05	<	0.03
Ethylbenzene	<	<	< 0.05	<	0.03
Toluene	<	<	< 0.05	<	0.03
Xylenes	<	<	< 0.05	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	101	101	100	102	-
Bromofluorobenzene	88	86	88	88	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-11-1	CM-11-2	CM-12-1	CM-12-2	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220627	708220628	708220630	708220631	
Benzene	< 0.05	<	<	<	0.03
Ethylbenzene	< 0.05	<	<	<	0.03
Toluene	< 0.05	<	<	<	0.03
Xylenes	< 0.05	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	100	101	102	100	-
Bromofluorobenzene	82	89	86	89	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-13-1	CM-13-2	CM-14-1	CM-14-2	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220632	708220633	708220634	708220635	
Benzene	< 0.05	<	<	<	0.03
Ethylbenzene	< 0.05	<	<	<	0.03
Toluene	< 0.05	<	<	<	0.03
Xylenes	< 0.05	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	102	98	101	104	-
Bromofluorobenzene	88	88	85	85	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-15-1	CM-15-2	CM-16-1	CM-17-1	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 17/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220636	708220638	708220639	708220640	
Benzene	<	<	<	<	0.03
Ethylbenzene	<	<	<	<	0.03
Toluene	<	<	<	<	0.03
Xylenes	<	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	102	101	103	100	-
Bromofluorobenzene	86	86	86	88	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-17-2	
DATE SAMPLED:	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220641	
Benzene	<	0.03
Ethylbenzene	<	0.03
Toluene	<	0.03
Xylenes	<	0.03
Volatile Hydrocarbons	<	2
Surrogate Recovery		
Toluene-d8	102	-
Bromofluorobenzene	88	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for CCME Petroleum Hydrocarbons in Soil (QC# 98352)

Parameter	Blank (ug/g)	Blank Limits	Diesel (/Oil) Spike (% Recovery)	Diesel (/Oil) Spike Limits	Duplicate (R.P.D.) 708220600	Duplicate Limits
F2 uncorrected (C10-C16)	< 80	80	95	75 - 125	NC	20
F3 uncorrected (C16-C34)	< 250	250	-	-	NC	20

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for Polychlorinated Biphenyls in Soil (QC# 97944)

Parameter	Blank (ug/g)	Blank Limits	Duplicate (R.P.D.) 708220594	Duplicate Limits	Spike (% Recovery)	Spike Limits
Arochlor 1242	< 0.03	0.03	NC	25	104	75 - 125
Arochlor 1248	< 0.03	0.03	NC	25	-	-
Arochlor 1254	< 0.03	0.03	NC	25	-	-
Arochlor 1260	< 0.03	0.03	NC	25	-	-
Total PCB	< 0.03	0.03	NC	20	-	-

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for Polychlorinated Biphenyls in Soil (QC# 97948)

Parameter	Blank (ug/g)	Blank Limits	Duplicate (R.P.D.) 708220614	Duplicate Limits	Spike (% Recovery)	Spike Limits
Arochlor 1242	< 0.03	0.03	NC	25	104	75 - 125
Arochlor 1248	< 0.03	0.03	NC	25	-	-
Arochlor 1254	< 0.03	0.03	NC	25	-	-
Arochlor 1260	< 0.03	0.03	NC	25	-	-
Total PCB	< 0.03	0.03	NC	20	-	-

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

Instrument Quality Control for the GC#HP5 w/ FID(TEH) or ECD(PCB) (QC# 191629)

QC Type: Calibration Verification

Parameter	% Recovery	Limits
Arochlor 1242	0	75 - 120
Arochlor 1248	0	75 - 120
Arochlor 1254	99	75 - 120
Arochlor 1260	99	75 - 120

Instrument Quality Control for the GC#HP5 w/ FID(TEH) or ECD(PCB) (QC# 191630)

QC Type: Calibration Verification

Parameter	% Recovery	Limits
Arochlor 1242	99	75 - 120
Arochlor 1248	99	75 - 120
Arochlor 1254	99	75 - 120
Arochlor 1260	99	75 - 120

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Blank (ug/g)	Blank Limits	CAN MET Till-1 (% Recovery)	CAN MET Till-1 Limits	Duplicate (R.P.D.) 708220348	Duplicate Limits
Antimony	Sb	< 0.1	10	-	-	-	-
Barium	Ba	< 1	1	88	74 - 120	-	-
Beryllium	Be	< 1	1	20	10.4 - 30.4	-	-
Cadmium	Cd	< 0.2	0.2	61	3 - 197	-	-
Chromium	Cr	< 2	0.2	80	73 - 113	-	-
Cobalt	Co	< 1	1	100	70 - 142	-	-
Copper	Cu	< 1	0.2	92	75 - 113	-	-
Lead	Pb	< 0.2	5	116	65 - 171	-	-
Mercury	Hg	-	-	86	33 - 174	6.5	30
Molybdenum	Mo	< 0.1	4	25	5 - 90	-	-
Nickel	Ni	< 2	2	89	49 - 149	-	-
Selenium	Se	< 0.2	0.2	-	-	-	-
Thallium	Tl	< 0.1	0.001	-	-	-	-
Tin	Sn	< 5	5	-	-	-	-
Vanadium	V	< 1	1	100	69 - 152	-	-
Zinc	Zn	< 1	1	87	79 - 114	-	-
Aluminum	Al	< 10	10	-	-	-	-
Boron	B	< 1	1	-	-	-	-
Calcium	Ca	< 1	1	63	51 - 106	-	-
Iron	Fe	< 2	2	-	-	-	-
Magnesium	Mg	< 1	1	-	-	-	-
Manganese	Mn	< 1	1	-	-	-	-
Phosphorus	P	< 20	20	-	-	-	-
Potassium	K	< 10	10	-	-	-	-
Sodium	Na	< 5	5	-	-	-	-
Strontium	Sr	< 1	1	-	-	-	-
Titanium	Ti	< 1	1	-	-	-	-
Zirconium	Zr	< 1	1	-	-	-	-

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter	Duplicate (R.P.D.) 708220358	Duplicate Limits	Duplicate (R.P.D.) 708220371	Duplicate Limits	Duplicate (R.P.D.) 708220382	Duplicate Limits
Mercury Hg	0	30	0	30	0	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Duplicate (R.P.D.) 708220437	Duplicate Limits	Duplicate (R.P.D.) 708220452	Duplicate Limits	Duplicate (R.P.D.) 708220460	Duplicate Limits
Arsenic	As	-	-	-	-	1.4	30
Barium	Ba	-	-	-	-	4.7	30
Beryllium	Be	-	-	-	-	NC	30
Cadmium	Cd	-	-	-	-	PASS	30
Chromium	Cr	-	-	-	-	4.9	30
Cobalt	Co	-	-	-	-	0	30
Copper	Cu	-	-	-	-	8	30
Lead	Pb	-	-	-	-	25	30
Mercury	Hg	1	30	3	30	0	30
Nickel	Ni	-	-	-	-	4.3	30
Selenium	Se	-	-	-	-	PASS	30
Silver	Ag	-	-	-	-	PASS	30
Thallium	Tl	-	-	-	-	PASS	30
Tin	Sn	-	-	-	-	NC	30
Vanadium	V	-	-	-	-	3.6	30
Zinc	Zn	-	-	-	-	0	30
Aluminum	Al	-	-	-	-	6.5	30
Boron	B	-	-	-	-	NC	30
Calcium	Ca	-	-	-	-	0.7	30
Iron	Fe	-	-	-	-	4	30
Magnesium	Mg	-	-	-	-	8.1	30
Manganese	Mn	-	-	-	-	19.2	30
Phosphorus	P	-	-	-	-	0	30
Potassium	K	-	-	-	-	4.7	30
Sodium	Na	-	-	-	-	6.6	30
Strontium	Sr	-	-	-	-	6.1	30
Titanium	Ti	-	-	-	-	3.1	30
Zirconium	Zr	-	-	-	-	0	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter	Duplicate (R.P.D.) 708220474	Duplicate Limits	Duplicate (R.P.D.) 708220484	Duplicate Limits	Duplicate (R.P.D.) 708220516	Duplicate Limits
Mercury Hg	5.4	30	0	30	0	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Duplicate (R.P.D.) 708220528	Duplicate Limits	Duplicate (R.P.D.) 708220538	Duplicate Limits	Duplicate (R.P.D.) 708220594	Duplicate Limits
Arsenic	As	-	-	-	-	0	30
Barium	Ba	-	-	-	-	3.1	30
Beryllium	Be	-	-	-	-	NC	30
Cadmium	Cd	-	-	-	-	NC	30
Chromium	Cr	-	-	-	-	0	30
Cobalt	Co	-	-	-	-	PASS	30
Copper	Cu	-	-	-	-	20	30
Lead	Pb	-	-	-	-	9.2	30
Mercury	Hg	0	30	0	30	-	-
Nickel	Ni	-	-	-	-	9.5	30
Selenium	Se	-	-	-	-	PASS	30
Silver	Ag	-	-	-	-	NC	30
Thallium	Tl	-	-	-	-	NC	30
Tin	Sn	-	-	-	-	NC	30
Vanadium	V	-	-	-	-	6.9	30
Zinc	Zn	-	-	-	-	7.4	30
Aluminum	Al	-	-	-	-	6.7	30
Boron	B	-	-	-	-	11.1	30
Calcium	Ca	-	-	-	-	0.1	30
Iron	Fe	-	-	-	-	3.2	30
Magnesium	Mg	-	-	-	-	5.5	30
Manganese	Mn	-	-	-	-	3.1	30
Phosphorus	P	-	-	-	-	16.6	30
Potassium	K	-	-	-	-	6.7	30
Sodium	Na	-	-	-	-	9.2	30
Strontium	Sr	-	-	-	-	4.1	30
Titanium	Ti	-	-	-	-	5.9	30
Zirconium	Zr	-	-	-	-	0	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Duplicate (R.P.D.) 708220606	Duplicate Limits	Duplicate (R.P.D.) 708220627	Duplicate Limits	Duplicate (R.P.D.) 708220639	Duplicate Limits
Arsenic	As	0	30	5.7	30	0	30
Barium	Ba	0.8	30	14.1	30	9.1	30
Beryllium	Be	NC	30	NC	30	NC	30
Cadmium	Cd	NC	30	NC	30	NC	30
Chromium	Cr	0	30	PASS	30	0	30
Cobalt	Co	PASS	30	PASS	30	10.5	30
Copper	Cu	0	30	10.5	30	6.1	30
Lead	Pb	0	30	15.4	30	6.5	30
Mercury	Hg	0	30	0	30	0	30
Nickel	Ni	0	30	PASS	30	5.4	30
Selenium	Se	PASS	30	PASS	30	PASS	30
Silver	Ag	NC	30	NC	30	NC	30
Thallium	Tl	NC	30	NC	30	NC	30
Tin	Sn	NC	30	NC	30	NC	30
Vanadium	V	0	30	8.7	30	6.5	30
Zinc	Zn	0	30	20	30	0	30
Aluminum	Al	0.8	30	16.5	30	1.6	30
Boron	B	3.1	30	16.2	30	6.5	30
Calcium	Ca	1.3	30	0.6	30	1.4	30
Iron	Fe	0.2	30	9.1	30	1.6	30
Magnesium	Mg	3.4	30	13.7	30	1.6	30
Manganese	Mn	5.4	30	11.6	30	6.5	30
Phosphorus	P	0	30	27.6	30	5.5	30
Potassium	K	1	30	14.6	30	1.5	30
Sodium	Na	2.8	30	11.4	30	3.8	30
Strontium	Sr	0	30	13.3	30	0	30
Titanium	Ti	7	30	7.8	30	11.8	30
Zirconium	Zr	PASS	30	PASS	30	PASS	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Duplicate (R.P.D.) 708220665	Duplicate Limits	Duplicate (R.P.D.) 708220680	Duplicate Limits	Duplicate (R.P.D.) 708220693	Duplicate Limits
Arsenic	As	3.4	30	0	30	6.5	30
Barium	Ba	5.1	30	1.6	30	5.1	30
Beryllium	Be	NC	30	NC	30	NC	30
Cadmium	Cd	NC	30	NC	30	NC	30
Chromium	Cr	17.1	30	0	30	PASS	30
Cobalt	Co	0	30	10.5	30	PASS	30
Copper	Cu	8.7	30	0	30	0	30
Lead	Pb	1.9	30	0	30	0	30
Mercury	Hg	NC	30	NC	30	NC	30
Nickel	Ni	6.5	30	4.7	30	PASS	30
Selenium	Se	PASS	30	PASS	30	PASS	30
Silver	Ag	NC	30	NC	30	NC	30
Thallium	Tl	PASS	30	PASS	30	NC	30
Tin	Sn	NC	30	NC	30	NC	30
Vanadium	V	4.9	30	2.9	30	0	30
Zinc	Zn	5.1	30	0	30	0	30
Aluminum	Al	3.9	30	1.8	30	1.2	30
Boron	B	14.3	30	6.9	30	0	30
Calcium	Ca	4.6	30	8.8	30	10.5	30
Iron	Fe	2.7	30	2.3	30	1.7	30
Magnesium	Mg	0.9	30	6.5	30	8.2	30
Manganese	Mn	9.4	30	3.9	30	6.5	30
Phosphorus	P	1.6	30	3.1	30	7.4	30
Potassium	K	0	30	2.5	30	1.9	30
Sodium	Na	7.7	30	1	30	1.5	30
Strontium	Sr	0	30	0	30	3.5	30
Titanium	Ti	10.2	30	1.9	30	4.3	30
Zirconium	Zr	PASS	30	11.8	30	PASS	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822128

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Duplicate (R.P.D.) 708220719	Duplicate Limits
Mercury	Hg	0	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference

Batch Quality Control Frequency Summary

SALM in Soil Digestion (Batch# 97897)

QC Type	No. Samples
CAN MET Till-1	1
Blank	3
Duplicate	20

PCB Soil/Solid/Swab Prep (Batch# 97944)

QC Type	No. Samples
Blank	1
Duplicate	1
Spike	1

PCB Soil/Solid/Swab Prep (Batch# 97948)

QC Type	No. Samples
Blank	1
Duplicate	1
Spike	1

Volatiles Analysis (Batch# 98026)

QC Type	No. Samples
Volatiles Soil Spike	1

CCME HCs - SOIL PREP (Batch# 98352)

QC Type	No. Samples
Blank	1
Diesel (/Oil) Spike	1
Duplicate	1

(Continued on next page)

Batch Quality Control Frequency Summary

SALM Metals in Soil Sieve (Batch# 97894)

QC Type	No. Samples
Batch Size	216

SALM in Soil Digestion (Batch# 97897)

QC Type	No. Samples
Batch Size	216

PCB Soil/Solid/Swab Prep (Batch# 97944)

QC Type	No. Samples
Batch Size	17

PCB Soil/Solid/Swab Prep (Batch# 97948)

QC Type	No. Samples
Batch Size	16

TEH Soil/Solid Preparation (Batch# 97993)

QC Type	No. Samples
Batch Size	18

TEH Soil/Solid Preparation (Batch# 97995)

QC Type	No. Samples
Batch Size	18

(Continued on next page)

Batch Quality Control Frequency Summary

Volatiles Analysis (Batch# 98026)

QC Type	No. Samples
Batch Size	34

TEH Soil/Solid Preparation (Batch# 98093)

QC Type	No. Samples
Batch Size	18

CCME HCs - SOIL PREP (Batch# 98352)

QC Type	No. Samples
Batch Size	16

CHROMATOGRAM COVER SHEET

CANTEST

CONTACT	COMPANY NAME	
KEN BOLOT	GARTNER LEE LIMITED	
FAX NUMBER	**DATE**	**PGS INCL. COVER**
1-905-477-1456	AUGUST 29, 2007	5
FROM	**RETURN FAX**	**TELEPHONE**
CANTEST LTD	604 731 2386	604 734 7276

SUBJECT

Chromatogram(s).

Please find the attached chromatograms associated with:

CANTEST Group # 808 22134

Your Project Name ..... CAM-M

Your Project Number 70517

Sample Matrix ..... SOIL

The originals will follow with the report.

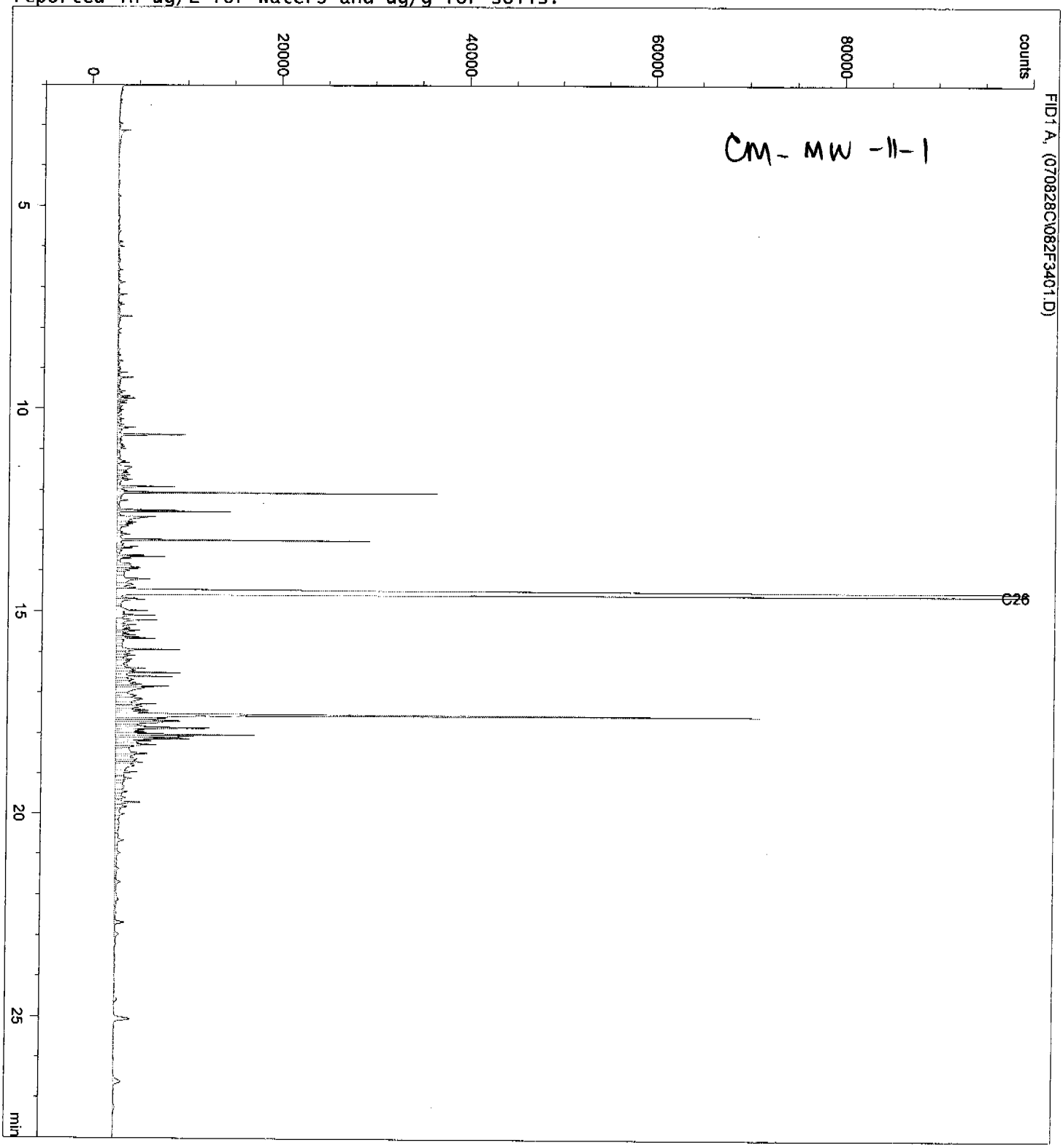
Data File C:\HPCHEM\1\DATA\070828C\082F3401.D Sample Name: 708220694

Injection Date	: 8/29/07 8:05:36 AM	Seq. Line :	34
Sample Name	: 708220694	Vial :	82
Acq. Operator	: pcn	Inj :	1
		Inj Volume :	2 µl
Acq. Method	: C:\HPCHEM\1\METHODS\!EPH.M		
Last changed	: 5/25/07 11:01:41 AM by ry		
Analysis Method	: C:\HPCHEM\1\METHODS\!TEH_BNP.M		
Last changed	: 8/29/07 7:34:09 AM by pcn (modified after loading)		

8082134

GAR005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



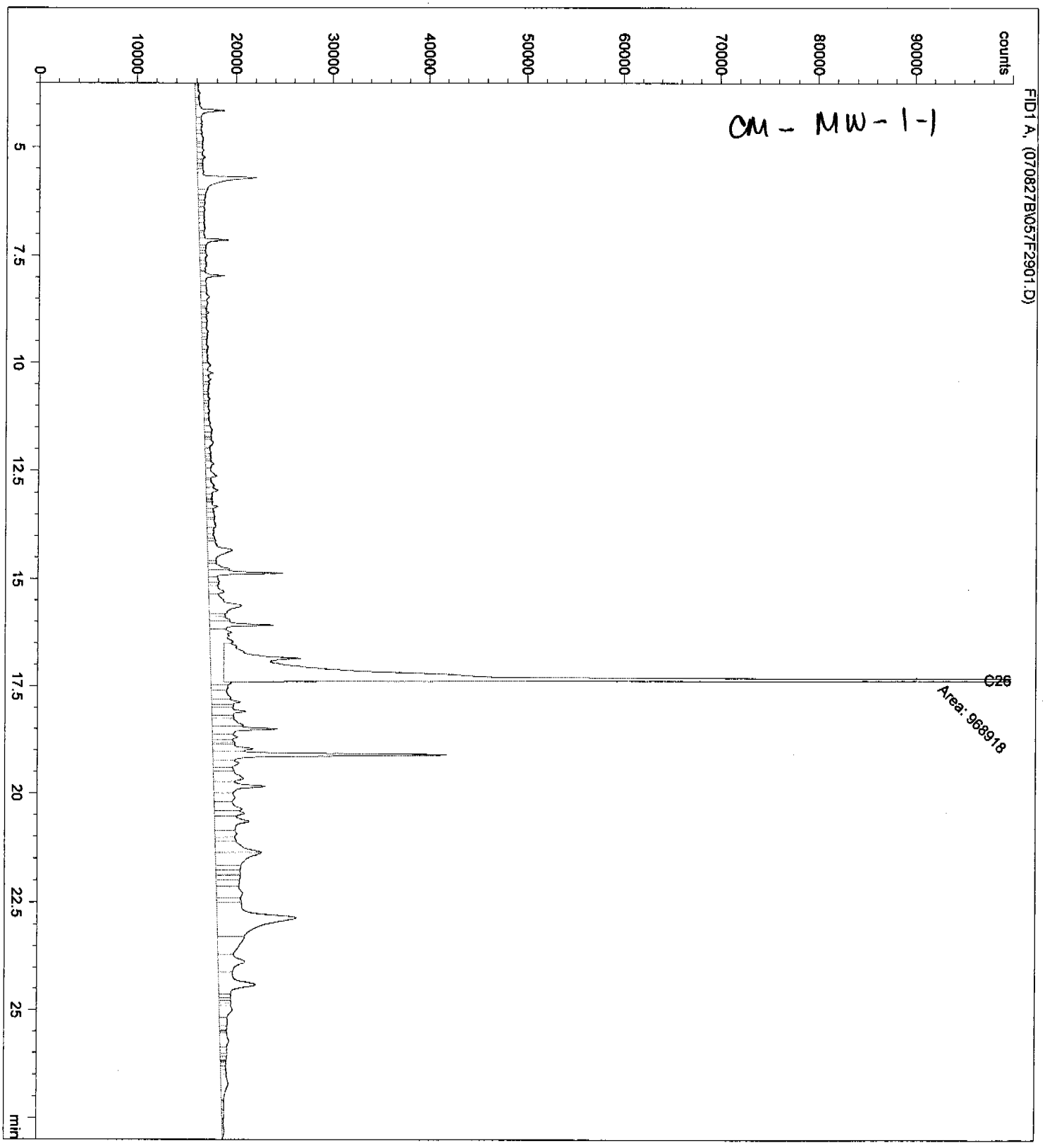
FID 8/29/07 9:18:11 AM pcn

Data File D:\HPCHEM\1\DATA\070827B\057F2901.D Sample Name: 708220655

Injection Date : 8/28/07 1:49:44 AM Seq. Line : 29
Sample Name : 708220655 Vial : 57
Acq. Operator : pcn Inj : 1
Inj Volume : 2 µl

Acq. Method : D:\HPCHEM~1\1\METHODS\!EPH.M
Last changed : 8/28/07 1:43:44 AM by pcn
Analysis Method : D:\HPCHEM~1\1\METHODS\!TEH_NAP.M
Last changed : 8/29/07 6:24:53 AM by pcn
Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.

GAR005-



FID_ETD_A 8/29/07 6:30:29 AM pcn

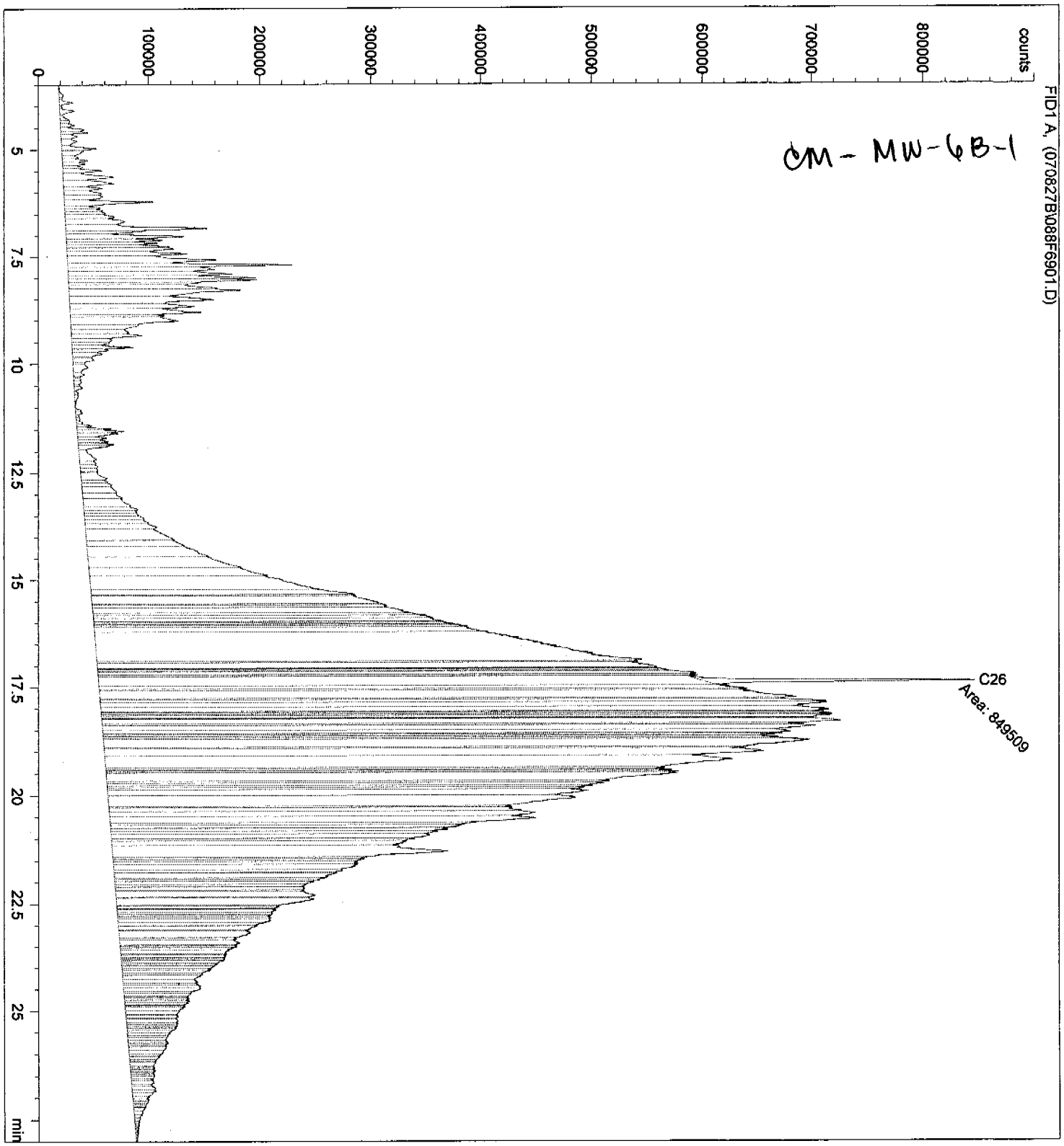
Injection Date : 8/29/07 2:05:56 AM
Sample Name : 708220671
Acq. Operator : pcn

Seq. Line : 69
Vial : 88
Inj : 1
Inj Volume : 2 µl

Acq. Method : D:\HPCHEM~1\1\METHODS\!EPH.M
Last changed : 8/29/07 12:46:59 AM by pcn
Analysis Method : D:\HPCHEM~1\1\METHODS\!TEH_NAP.M
Last changed : 8/29/07 6:42:13 AM by pcn
(modified after loading)

GATROS

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



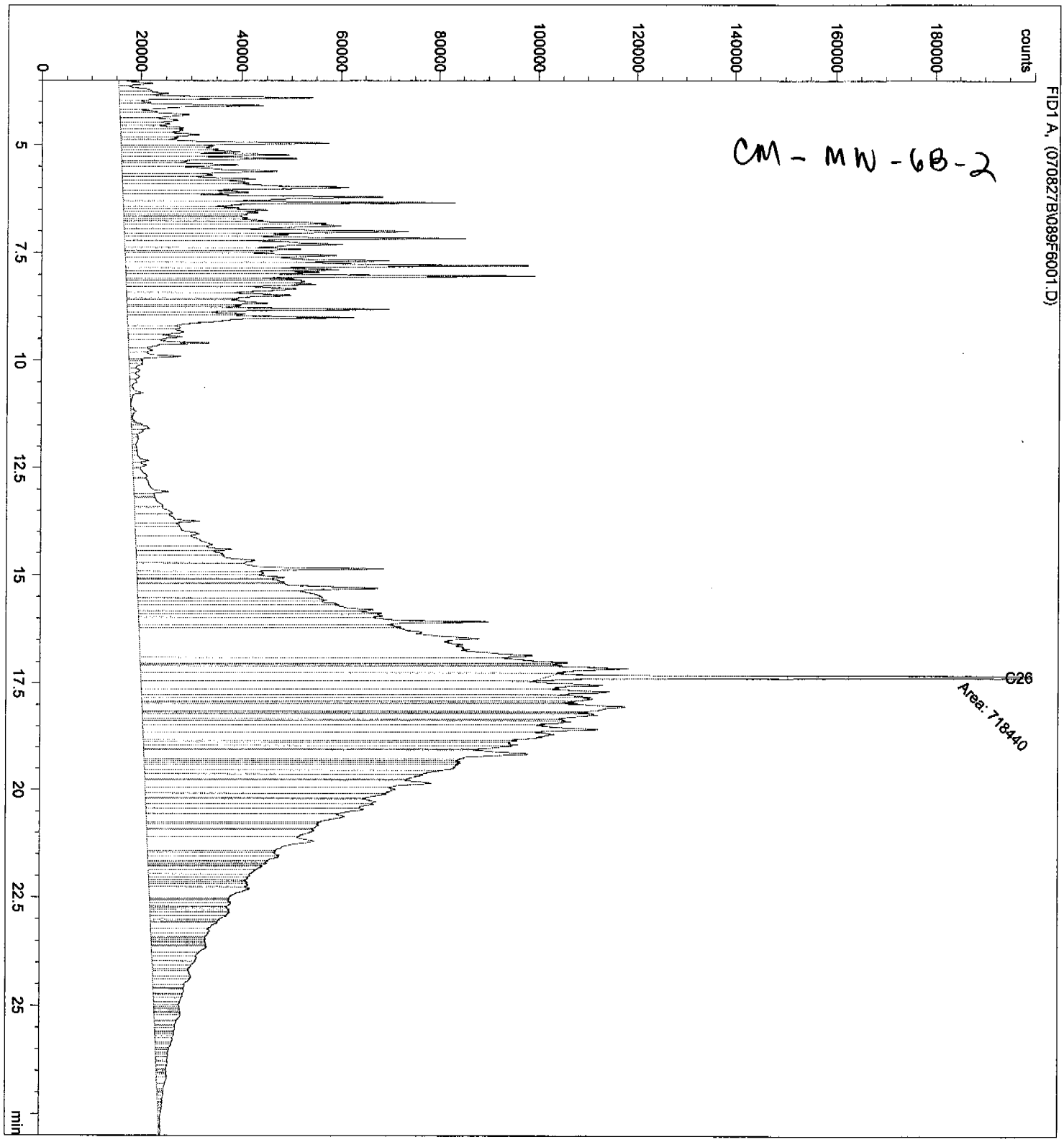
Data File D:\HPCHEM\1\DATA\070827B\089F6001.D Sample Name: 708220673

Injection Date : 8/28/07 8:38:13 PM Seq. Line : 60
Sample Name : 708220673 Vial : 89
Acq. Operator : pcn Inj : 1
Inj Volume : 2 µl

Acq. Method : D:\HPCHEM~1\1\METHODS\!EPH.M
Last changed : 8/28/07 5:29:38 PM by pcn
Analysis Method : D:\HPCHEM~1\1\METHODS\!TEH_NAP.M
Last changed : 8/29/07 6:42:48 AM by pcn
(modified after loading)

GAR005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



CHROMATOGRAM COVER SHEET

CANTEST

CONTACT	COMPANY NAME
KEN BOLDT	GARTNER LEE LTD.
FAX NUMBER	DATE / PGS INCL. COVER
	SEPTEMBER 5/07 — 3
FROM	RETURN FAX / TELEPHONE
CANTEST LTD	604 731 2386 / 604 734 7276

SUBJECT

Chromatogram(s).

Please find the attached chromatograms associated with:

CANTEST Group # 8082284

Your Project Name ..... CAM-M

Your Project Number 70517

Sample Matrix ..... SOIL

The originals will follow with the report.

==========

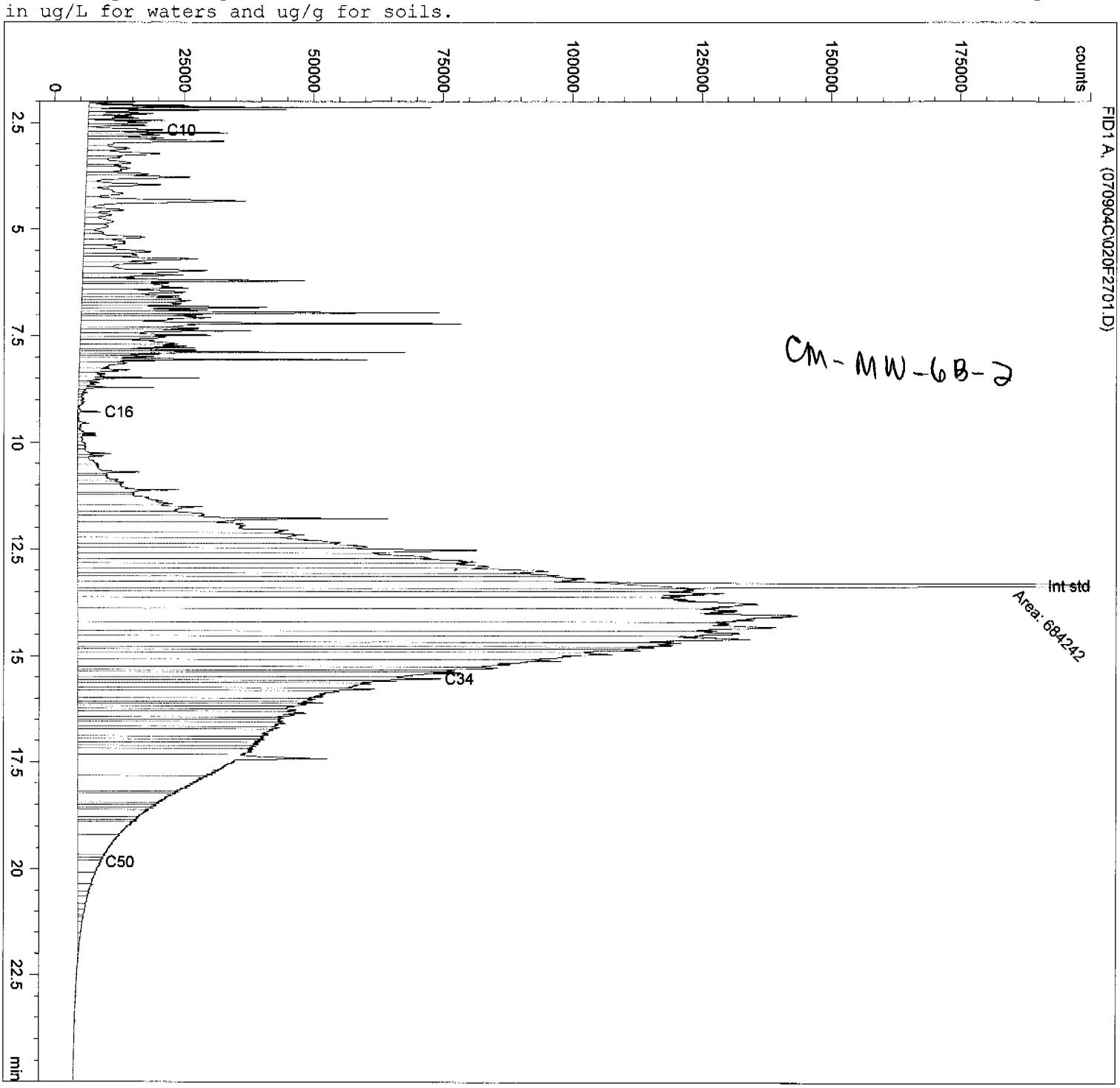
Injection Date : 9/5/07 12:34:05 AM Seq. Line : 27
Sample Name : 708220673 Vial : 20
Acq. Operator : pcn Inj : 1
Inj Volume : 2 µl

Acq. Method : C:\HPCHEM\1\METHODS\CCMEHT.M
Last changed : 5/11/07 3:22:08 PM by ry
Analysis Method : C:\HPCHEM\1\METHODS\CCMEHTP.M
Last changed : 9/5/07 9:31:17 AM by pcn
(modified after loading)

8082213A

GAR005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



Injection Date : 9/4/07 11:19:21 PM
Sample Name : 708220671
Acq. Operator : pcn

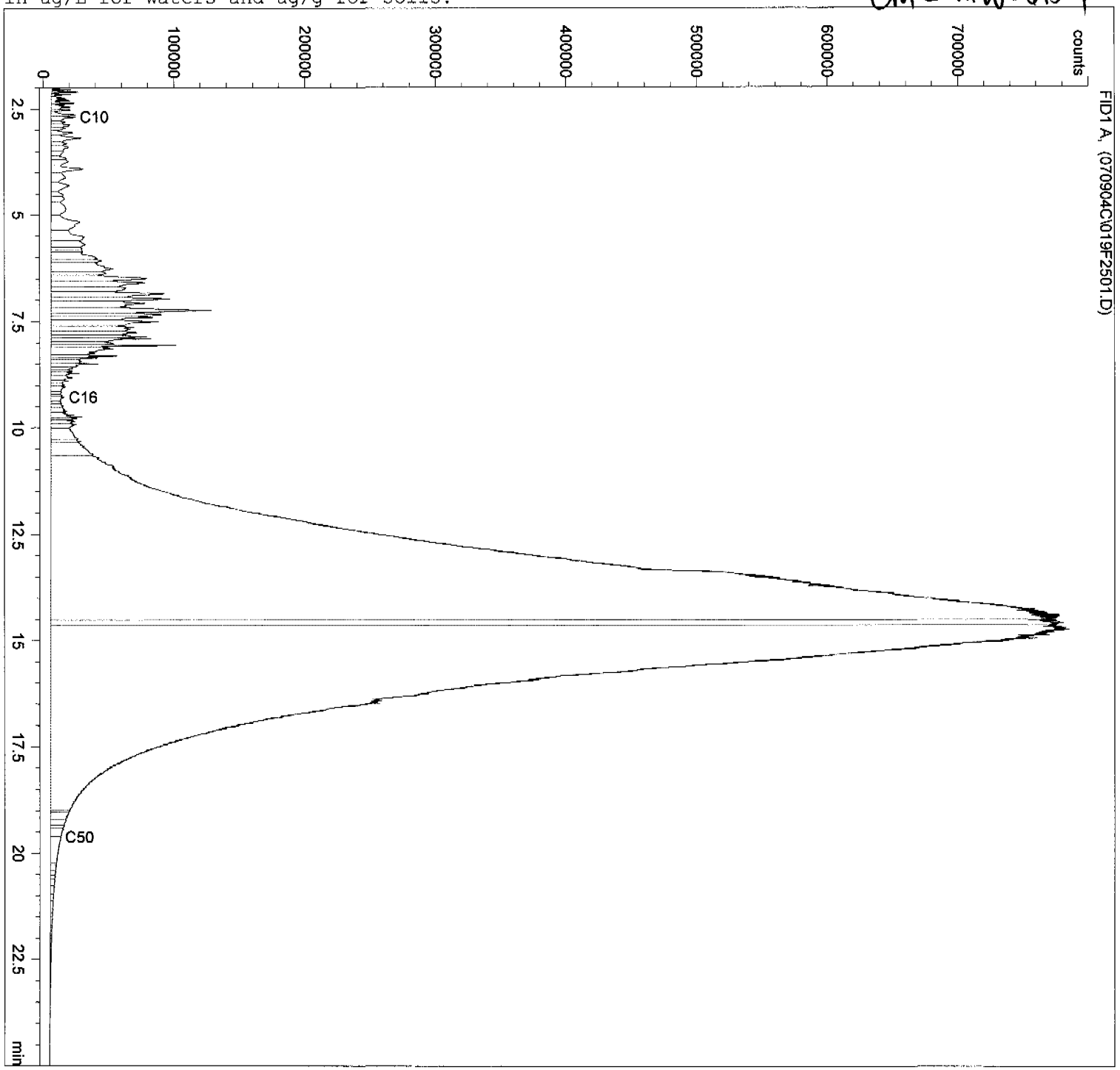
Seq. Line : 25
Vial : 19
Inj : 1
Inj Volume : 2 µl

Acq. Method : C:\HPCHEM\1\METHODS\CCMEHT.M
Last changed : 5/11/07 3:22:08 PM by ry
Analysis Method : C:\HPCHEM\1\METHODS\CCMEHTP.M
Last changed : 9/5/07 9:50:50 AM by pcn
(modified after loading)

GAR OUT

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.

CM - MW-GB-1



Analysis Report

CANTEST

REPORT ON: Analysis of Soil Samples

REPORTED TO: Gartner Lee Limited
Suite 300
300 Town Centre Boulevard
Markham, ON
L3R 5Z6

Att'n: Ken Boldt

CHAIN OF CUSTODY: 2090859, 2090860, 2090861, 2090862
PROJECT NAME: CAM-M
PROJECT NUMBER: 70517

NUMBER OF SAMPLES: 36

REPORT DATE: September 5, 2007

DATE SUBMITTED: August 22, 2007

GROUP NUMBER: 80822134

SAMPLE TYPE: Soil

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Aromatic Volatile Organic Compounds in Water and Soil - analysis was performed using procedures based on U.S. EPA Methods 624/8240, involving sparging/collection with a Purge and Trap apparatus and analysis using GC/MS.

Volatile Hydrocarbons - analysis was performed by sparging/collection with a Purge and Trap apparatus, followed by analysis using GC/FID. The components present in the boiling range of C5 to C10 were quantified with m & p-xylenes.

CCME Petroleum Hydrocarbons in Soil - analysis was performed using Canadian Council of Ministers of the Environment (CCME) "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil" approved December 2000. The method involves extraction of the different hydrocarbon fractions and analysis by gas chromatography with flame ionization detection (GC/FID).

Canada-Wide Standard for Petroleum Hydrocarbons in Soil (F1 Fraction) - The F1 Fraction (nC6 to nC10) was analyzed based on the CCME Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method (2001). Analysis involves methanol extraction and quantitation using GasChromatography with Flame Ionization Detector (GC-FID). The F1 Fraction is reported with the BTEX compounds (benzene, toluene, ethylbenzene, and ortho, meta and para-xylenes) subtracted (e.g. corrected). These BTEX compounds analyzed by GCMS may be included in this report on request by the customer.

Moisture in Soil - analysis was performed gravimetrically by heating a separate sample portion at 105 C

(Continued)

CANTEST LTD.

Anna Becalska, PhD
Coordinator, Trace Metals

4606 Canada Way, Burnaby, BC V5G 1K5
Tel: 604 734 7276 Fax: 604 731 2386

Moisture in Soil

and measuring the weight loss.

pH in Soil or Solid - analysis was performed based on procedures described in the Manual on Soil Sampling and Methods of Analysis, published by the Canadian Society of Soil Science,1993. The test was performed using a deionized water leach with measurement by pH meter.

Polychlorinated Biphenyls - analysis was performed using procedures based upon U.S. EPA Methods 608/8080, involving extraction, clean-up steps, and analysis using GC/ECD. Arochlors 1242, 1248, 1254 and 1260 were included.

Silver in Soil - analysis was performed using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Arsenic in Soil - analysis was performed using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Cadmium in Soil - analysis was performed using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Mercury in Soil - analysis was performed using Cold Vapour Atomic Fluorescence.

Molybdenum in Soil - analysis was performed using an acid digestion followed by determination using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Strong Acid Leachable Metals in Soil - analysis was performed using B.C. MOELP Method "Strong Acid Leachable Metals in Soil, Version 1.0". The method involves drying the sample at 60 C, sieving using a 2 mm (10 mesh) sieve and digestion using a mixture of hydrochloric and nitric acids. Analysis was performed using Inductively Coupled Argon Plasma Spectroscopy (ICAP) or by specific techniques as described.

Selenium in Soil - analysis was using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Thallium in Soil - analysis was performed using Inductively Coupled Plasma Mass Spectrometry (ICP/MS).

Semi-Volatile Hydrocarbons - analysis was performed using procedures based on U.S. EPA Method 8015, involving dichloromethane extraction and analysis using GC/FID. Components in the C10 to C30 range are included, using an alkane standard for quantitation.

Total Petroleum Hydrocarbons - analysis was performed using procedures based on Alberta Environment Site Investigation requirements, involving summation of the total volatile (purgeable) and semi-volatile (extractable) hydrocarbons.

TEST RESULTS:

(See following pages)

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Conventional Parameters in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Moisture	pH
CM-MW-1-1	Aug 18/07	708220655	62.5	6.8
CM-MW-1-2	Aug 18/07	708220659	5.8	7.6
CM-MW-2-1	Aug 18/07	708220660	71.9	7.3
CM-MW-2-2	Aug 18/07	708220661	11.4	7.8
CM-MW-3-1	Aug 18/07	708220662	70.6	7.5
CM-MW-3-2	Aug 18/07	708220663	10.2	8.3
CM-MW-4-1	Aug 18/07	708220664	10.1	8.3
CM-MW-4-2	Aug 18/07	708220665	8.7	8.3
CM-MW-5-1	Aug 18/07	708220666	11.4	8.9
CM-MW-5-2	Aug 18/07	708220667	8.4	8.1
CM-MW-6A-1	Aug 16/07	708220668	16.2	8.1
CM-MW-6A-2	Aug 16/07	708220669	13.8	8.4
CM-MW-6B-1	Aug 16/07	708220671	65.8	6.7
CM-MW-6B-2	Aug 16/07	708220673	11.5	7.8
CM-MW-6C-1	Aug 18/07	708220674	12.1	8.3
CM-MW-6C-2	Aug 18/07	708220676	13.2	8.2
CM-MW-6D-1	Aug 18/07	708220678	10.1	8.1
CM-MW-6D-2	Aug 18/07	708220680	14.1	8.0
CM-MW-6E-1	Aug 18/07	708220682	62.5	7.4
CM-MW-6E-2	Aug 18/07	708220683	13.3	8.0
CM-MW-7-1	Aug 16/07	708220684	14.1	7.9
CM-MW-7-2	Aug 16/07	708220686	12.5	7.9
CM-MW-8-1	Aug 16/07	708220688	8.6	8.5
CM-MW-8-2	Aug 16/07	708220689	10.3	8.0
CM-MW-9-1	Aug 18/07	708220690	65.5	7.3
CM-MW-9-2	Aug 18/07	708220691	9.4	7.9
CM-MW-10-1	Aug 17/07	708220692	5.2	8.1
CM-MW-10-2	Aug 17/07	708220693	5.3	8.1
CM-MW-11-1	Aug 17/07	708220694	65.8	6.9
CM-MW-11-2	Aug 17/07	708220696	4.7	7.7
CM-MW-12-1	Aug 17/07	708220697	7.0	8.1
CM-MW-12-2	Aug 17/07	708220698	27.2	7.5
CM-MW-13-1	Aug 17/07	708220699	19.9	7.7
CM-MW-13-2	Aug 17/07	708220700	8.7	7.9
CM-MW-14-1	Aug 18/07	708220701	10.0	8.0
CM-MW-14-2	Aug 18/07	708220702	8.5	8.0
DETECTION LIMIT			0.1	0.1
UNITS			%	pH units

% = percent

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-1-1	CM-MW-1-2	CM-MW-2-1	CM-MW-2-2	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220655	708220659	708220660	708220661	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	94	104	97	103	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-3-1	CM-MW-3-2	CM-MW-4-1	CM-MW-4-2	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220662	708220663	708220664	708220665	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	102	101	101	103	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-5-1	CM-MW-5-2	CM-MW-6A-1	CM-MW-6A-2	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 16/07	Aug 16/07	DETECTION LIMIT
CANTEST ID:	708220666	708220667	708220668	708220669	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	108	106	105	107	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-6B-1	CM-MW-6B-2	CM-MW-6C-1	CM-MW-6C-2	
DATE SAMPLED:	Aug 16/07	Aug 16/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220671	708220673	708220674	708220676	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	0.07	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	0.07	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	95	102	103	96	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-6D-1	CM-MW-6D-2	CM-MW-6E-1	CM-MW-6E-2	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220678	708220680	708220682	708220683	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	91	96	58	108	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-7-1	CM-MW-7-2	CM-MW-8-1	CM-MW-8-2	
DATE SAMPLED:	Aug 16/07	Aug 16/07	Aug 16/07	Aug 16/07	DETECTION LIMIT
CANTEST ID:	708220684	708220686	708220688	708220689	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	78	100	65	56	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-9-1	CM-MW-9-2	CM-MW-10-1	CM-MW-10-2	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220690	708220691	708220692	708220693	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	66	85	72	82	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-11-1	CM-MW-11-2	CM-MW-12-1	CM-MW-12-2	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220694	708220696	708220697	708220698	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	68	87	70	60	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Polychlorinated Biphenyls in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-13-1	CM-MW-13-2	CM-MW-14-1	CM-MW-14-2	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220699	708220700	708220701	708220702	
Arochlor 1242	<	<	<	<	0.03
Arochlor 1248	<	<	<	<	0.03
Arochlor 1254	<	<	<	<	0.03
Arochlor 1260	<	<	<	<	0.03
Total PCB	<	<	<	<	0.03
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	59	67	107	95	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

CANTEST

Semi-Volatile Hydrocarbons in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Total Extractable Hydrocarbons
CM-MW-1-1	Aug 18/07	708220655	200
CM-MW-1-2	Aug 18/07	708220659	<
CM-MW-2-1	Aug 18/07	708220660	< 80
CM-MW-2-2	Aug 18/07	708220661	<
CM-MW-3-1	Aug 18/07	708220662	< 80
CM-MW-3-2	Aug 18/07	708220663	<
CM-MW-4-1	Aug 18/07	708220664	<
CM-MW-4-2	Aug 18/07	708220665	<
CM-MW-5-1	Aug 18/07	708220666	<
CM-MW-5-2	Aug 18/07	708220667	<
CM-MW-6A-1	Aug 16/07	708220668	<
CM-MW-6A-2	Aug 16/07	708220669	<
CM-MW-6B-1	Aug 16/07	708220671	33000
CM-MW-6B-2	Aug 16/07	708220673	1100
CM-MW-6C-1	Aug 18/07	708220674	<
CM-MW-6C-2	Aug 18/07	708220676	<
CM-MW-6D-1	Aug 18/07	708220678	<
CM-MW-6D-2	Aug 18/07	708220680	<
CM-MW-6E-1	Aug 18/07	708220682	<
CM-MW-6E-2	Aug 18/07	708220683	<
CM-MW-7-1	Aug 16/07	708220684	<
CM-MW-7-2	Aug 16/07	708220686	<
CM-MW-8-1	Aug 16/07	708220688	<
CM-MW-8-2	Aug 16/07	708220689	<
CM-MW-9-1	Aug 18/07	708220690	<
CM-MW-9-2	Aug 18/07	708220691	<
CM-MW-10-1	Aug 17/07	708220692	<
CM-MW-10-2	Aug 17/07	708220693	<
CM-MW-11-1	Aug 17/07	708220694	88
CM-MW-11-2	Aug 17/07	708220696	<
CM-MW-12-1	Aug 17/07	708220697	<
CM-MW-12-2	Aug 17/07	708220698	<
CM-MW-13-1	Aug 17/07	708220699	<
CM-MW-13-2	Aug 17/07	708220700	<
CM-MW-14-1	Aug 18/07	708220701	<
CM-MW-14-2	Aug 18/07	708220702	<
DETECTION LIMIT			20
UNITS			µg/g

µg/g = micrograms per gram, on a dry weight basis.
< = Less than detection limit

CANTEST

Total Petroleum Hydrocarbons in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Total Petroleum Hydrocarbons
CM-MW-1-1	Aug 18/07	708220655	200
CM-MW-1-2	Aug 18/07	708220659	<
CM-MW-2-1	Aug 18/07	708220660	< 80
CM-MW-2-2	Aug 18/07	708220661	<
CM-MW-3-1	Aug 18/07	708220662	< 80
CM-MW-3-2	Aug 18/07	708220663	<
CM-MW-4-1	Aug 18/07	708220664	<
CM-MW-4-2	Aug 18/07	708220665	<
CM-MW-5-1	Aug 18/07	708220666	<
CM-MW-5-2	Aug 18/07	708220667	<
CM-MW-6A-1	Aug 16/07	708220668	<
CM-MW-6A-2	Aug 16/07	708220669	<
CM-MW-6B-1	Aug 16/07	708220671	33000
CM-MW-6B-2	Aug 16/07	708220673	1300
CM-MW-6C-1	Aug 18/07	708220674	<
CM-MW-6C-2	Aug 18/07	708220676	<
CM-MW-6D-1	Aug 18/07	708220678	<
CM-MW-6D-2	Aug 18/07	708220680	<
CM-MW-6E-1	Aug 18/07	708220682	<
CM-MW-6E-2	Aug 18/07	708220683	<
CM-MW-7-1	Aug 16/07	708220684	<
CM-MW-7-2	Aug 16/07	708220686	<
CM-MW-8-1	Aug 16/07	708220688	<
CM-MW-8-2	Aug 16/07	708220689	<
CM-MW-9-1	Aug 18/07	708220690	<
CM-MW-9-2	Aug 18/07	708220691	<
CM-MW-10-1	Aug 17/07	708220692	<
CM-MW-10-2	Aug 17/07	708220693	<
CM-MW-11-1	Aug 17/07	708220694	88
CM-MW-11-2	Aug 17/07	708220696	<
CM-MW-12-1	Aug 17/07	708220697	<
CM-MW-12-2	Aug 17/07	708220698	<
CM-MW-13-1	Aug 17/07	708220699	<
CM-MW-13-2	Aug 17/07	708220700	<
CM-MW-14-1	Aug 18/07	708220701	<
CM-MW-14-2	Aug 18/07	708220702	<
DETECTION LIMIT			20
UNITS			µg/g

µg/g = micrograms per gram, on a dry weight basis.
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

CCME Petroleum Hydrocarbons in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	F2 uncorrected (C10-C16)	F3 uncorrected (C16-C34)
CM-MW-1-1	Aug 18/07	708220655	<	<
CM-MW-2-1	Aug 18/07	708220660	<	<
CM-MW-3-1	Aug 18/07	708220662	<	<
CM-MW-6B-1	Aug 16/07	708220671	2800	38000
CM-MW-6B-2	Aug 16/07	708220673	200	1000
CM-MW-11-1	Aug 17/07	708220694	<	<
DETECTION LIMIT			80	250
UNITS			µg/g	µg/g

µg/g = micrograms per gram, on a dry weight basis.
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

CCME Petroleum Hydrocarbons in Soil

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	F1 (C6-C10) uncorrected
CM-MW-1-1	Aug 18/07	708220655	<
CM-MW-2-1	Aug 18/07	708220660	<
CM-MW-3-1	Aug 18/07	708220662	<
CM-MW-6B-1	Aug 16/07	708220671	260
CM-MW-6B-2	Aug 16/07	708220673	140
CM-MW-11-1	Aug 17/07	708220694	<
DETECTION LIMIT			5
UNITS			µg/g

µg/g = micrograms per gram, on a dry weight basis.
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-MW-1-1	CM-MW-1-2	CM-MW-2-1	CM-MW-2-2	
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:		708220655	708220659	708220660	708220661	
Antimony	Sb	<	<	1.0	<	0.1
Arsenic	As	1.4	2.0	1.0	1.9	0.1
Barium	Ba	37	23	22	21	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	7	10	9	7	2
Cobalt	Co	2	4	1	2	1
Copper	Cu	12	7	14	3	1
Lead	Pb	3.8	5.0	2.7	2.7	0.2
Mercury	Hg	0.05	0.03	<	<	0.01
Molybdenum	Mo	0.7	0.3	0.4	0.2	0.1
Nickel	Ni	8	8	8	4	2
Selenium	Se	0.5	0.4	0.9	0.2	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	0.1	<	<	<	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	9	16	6	11	1
Zinc	Zn	35	12	16	8	1
Aluminum	Al	2240	3270	2040	2150	10
Boron	B	30	13	26	8	1
Calcium	Ca	31800	59300	14800	50600	1
Iron	Fe	6410	10300	4220	6150	2
Magnesium	Mg	8560	44800	4420	34300	1
Manganese	Mn	255	307	44	219	1
Phosphorus	P	1200	385	560	410	20
Potassium	K	826	1310	536	878	10
Sodium	Na	253	113	328	116	5
Strontium	Sr	20	20	20	17	1
Titanium	Ti	61	159	50	108	1
Zirconium	Zr	2	2	2	2	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-MW-3-1	CM-MW-3-2	CM-MW-4-1	CM-MW-4-2	
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:		708220662	708220663	708220664	708220665	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	0.8	2.8	2.8	3.0	0.1
Barium	Ba	31	47	44	39	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	3	18	19	17	2
Cobalt	Co	<	9	8	7	1
Copper	Cu	7	13	12	11	1
Lead	Pb	1.0	6.9	6.2	5.3	0.2
Mercury	Hg	0.03	<	<	<	0.01
Molybdenum	Mo	0.5	0.3	0.5	0.5	0.1
Nickel	Ni	4	16	16	15	2
Selenium	Se	0.4	0.4	0.4	0.4	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	0.2	0.2	0.1	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	3	21	24	20	1
Zinc	Zn	13	21	26	20	1
Aluminum	Al	662	6460	6980	5700	10
Boron	B	38	16	15	14	1
Calcium	Ca	25600	64500	58400	58500	1
Iron	Fe	1370	13300	12900	11200	2
Magnesium	Mg	7060	47000	44200	43800	1
Manganese	Mn	42	305	249	266	1
Phosphorus	P	569	590	620	623	20
Potassium	K	306	2310	2320	1770	10
Sodium	Na	138	207	213	170	5
Strontium	Sr	19	23	21	21	1
Titanium	Ti	25	239	315	245	1
Zirconium	Zr	<	7	7	5	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-MW-5-1	CM-MW-5-2	CM-MW-6A-1	CM-MW-6A-2	
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 16/07	Aug 16/07	DETECTION LIMIT
CANTEST ID:		708220666	708220667	708220668	708220669	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	4.5	3.3	4.3	2.0	0.1
Barium	Ba	35	51	58	49	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	10	22	24	10	2
Cobalt	Co	5	7	9	6	1
Copper	Cu	12	17	14	17	1
Lead	Pb	6.9	6.8	7.1	7.0	0.2
Mercury	Hg	<	<	<	<	0.01
Molybdenum	Mo	0.4	1.0	0.6	0.4	0.1
Nickel	Ni	11	17	19	11	2
Selenium	Se	0.6	0.4	0.4	0.4	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	0.2	0.2	<	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	16	28	31	13	1
Zinc	Zn	9	28	29	8	1
Aluminum	Al	2540	8210	8800	2800	10
Boron	B	20	15	16	17	1
Calcium	Ca	91900	45900	37600	84300	1
Iron	Fe	10900	14000	14100	10900	2
Magnesium	Mg	65000	36500	29400	57600	1
Manganese	Mn	385	228	250	332	1
Phosphorus	P	598	587	613	468	20
Potassium	K	1470	2690	2610	1660	10
Sodium	Na	263	530	411	134	5
Strontium	Sr	33	20	20	27	1
Titanium	Ti	62	376	430	73	1
Zirconium	Zr	1	8	8	5	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-MW-6B-1	CM-MW-6B-2	CM-MW-6C-1	CM-MW-6C-2	
DATE SAMPLED:		Aug 16/07	Aug 16/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:		708220671	708220673	708220674	708220676	
Antimony	Sb	2.0	<	<	<	0.1
Arsenic	As	1.5	2.5	3.8	3.7	0.1
Barium	Ba	69	30	54	54	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	0.3	<	<	<	0.2
Chromium	Cr	8	15	23	25	2
Cobalt	Co	4	4	9	8	1
Copper	Cu	11	10	15	17	1
Lead	Pb	10.6	4.9	6.7	7.0	0.2
Mercury	Hg	0.02	<	<	<	0.01
Molybdenum	Mo	2.8	0.7	0.6	1.0	0.1
Nickel	Ni	11	12	19	19	2
Selenium	Se	0.5	0.4	0.4	0.4	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	0.1	0.2	0.2	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	7	20	29	31	1
Zinc	Zn	149	20	29	32	1
Aluminum	Al	1560	4940	8410	8980	10
Boron	B	33	13	15	17	1
Calcium	Ca	11500	43700	46700	43200	1
Iron	Fe	4450	9150	14500	15200	2
Magnesium	Mg	3930	32200	34100	34400	1
Manganese	Mn	36	172	269	228	1
Phosphorus	P	463	575	613	616	20
Potassium	K	469	1720	2780	3030	10
Sodium	Na	569	266	572	600	5
Strontium	Sr	27	18	20	20	1
Titanium	Ti	55	254	433	435	1
Zirconium	Zr	2	6	8	8	1

Results expressed as micrograms per gram, on a dry weight basis. (µg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-MW-6D-1	CM-MW-6D-2	CM-MW-6E-1	CM-MW-6E-2	
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:		708220678	708220680	708220682	708220683	
Antimony	Sb	<	<	1.3	<	0.1
Arsenic	As	3.8	3.9	2.8	2.8	0.1
Barium	Ba	30	65	44	52	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	0.2	<	0.2
Chromium	Cr	12	27	20	23	2
Cobalt	Co	5	10	7	8	1
Copper	Cu	12	18	18	14	1
Lead	Pb	5.5	7.4	5.7	6.7	0.2
Mercury	Hg	<	<	0.08	<	0.01
Molybdenum	Mo	0.5	0.7	0.8	0.7	0.1
Nickel	Ni	11	21	22	18	2
Selenium	Se	0.5	0.4	0.9	0.3	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	0.2	0.1	0.2	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	18	35	15	28	1
Zinc	Zn	13	34	40	28	1
Aluminum	Al	3780	9790	3040	8620	10
Boron	B	13	15	46	17	1
Calcium	Ca	68900	29700	22800	47500	1
Iron	Fe	9750	17200	9300	14900	2
Magnesium	Mg	47900	24700	10600	38500	1
Manganese	Mn	270	233	376	282	1
Phosphorus	P	501	685	780	639	20
Potassium	K	1580	3220	1160	2810	10
Sodium	Na	279	604	822	651	5
Strontium	Sr	23	19	24	20	1
Titanium	Ti	168	514	67	397	1
Zirconium	Zr	5	9	3	8	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-MW-7-1	CM-MW-7-2	CM-MW-8-1	CM-MW-8-2	
DATE SAMPLED:		Aug 16/07	Aug 16/07	Aug 16/07	Aug 16/07	DETECTION LIMIT
CANTEST ID:		708220684	708220686	708220688	708220689	
Antimony	Sb	<	<	0.7	<	0.1
Arsenic	As	1.8	7.9	2.8	3.0	0.1
Barium	Ba	17	43	55	38	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	8	17	13	10	2
Cobalt	Co	2	5	6	4	1
Copper	Cu	4	9	12	9	1
Lead	Pb	2.3	5.4	7.4	5.6	0.2
Mercury	Hg	<	<	<	<	0.01
Molybdenum	Mo	0.3	2.1	0.4	0.4	0.1
Nickel	Ni	5	13	11	9	2
Selenium	Se	0.5	0.4	0.4	0.5	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	0.1	0.1	<	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	11	25	16	15	1
Zinc	Zn	7	19	17	11	1
Aluminum	Al	2310	5830	4240	2800	10
Boron	B	10	14	21	16	1
Calcium	Ca	69000	41300	66600	84100	1
Iron	Fe	5030	11000	10500	9490	2
Magnesium	Mg	48900	30800	45700	57200	1
Manganese	Mn	184	195	300	334	1
Phosphorus	P	489	580	584	530	20
Potassium	K	826	2100	1880	1150	10
Sodium	Na	791	981	682	351	5
Strontium	Sr	21	20	24	25	1
Titanium	Ti	107	275	125	94	1
Zirconium	Zr	2	6	4	2	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-MW-9-1	CM-MW-9-2	CM-MW-10-1	CM-MW-10-2	
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:		708220690	708220691	708220692	708220693	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	0.8	1.8	1.6	1.6	0.1
Barium	Ba	32	29	33	39	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	0.2	<	<	<	0.2
Chromium	Cr	5	11	7	8	2
Cobalt	Co	2	4	3	3	1
Copper	Cu	14	9	7	6	1
Lead	Pb	3.1	5.2	3.3	3.4	0.2
Mercury	Hg	0.05	<	<	<	0.01
Molybdenum	Mo	0.7	0.3	0.2	0.3	0.1
Nickel	Ni	10	9	6	7	2
Selenium	Se	0.7	0.3	0.4	0.4	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	0.1	<	<	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	6	13	11	12	1
Zinc	Zn	37	12	9	9	1
Aluminum	Al	1480	4430	2360	2430	10
Boron	B	40	18	11	12	1
Calcium	Ca	30500	38000	79900	82600	1
Iron	Fe	3710	9080	6880	7590	2
Magnesium	Mg	11600	26600	54200	53400	1
Manganese	Mn	83	219	262	291	1
Phosphorus	P	884	584	437	421	20
Potassium	K	584	2050	896	950	10
Sodium	Na	1100	196	203	201	5
Strontium	Sr	24	18	28	29	1
Titanium	Ti	36	120	91	92	1
Zirconium	Zr	1	6	2	2	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-MW-11-1	CM-MW-11-2	CM-MW-12-1	CM-MW-12-2	
DATE SAMPLED:		Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:		708220694	708220696	708220697	708220698	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	0.5	1.0	1.3	1.8	0.1
Barium	Ba	51	23	43	58	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	3	7	8	9	2
Cobalt	Co	3	2	5	3	1
Copper	Cu	8	3	10	12	1
Lead	Pb	1.8	2.9	4.2	4.5	0.2
Mercury	Hg	<	<	<	<	0.01
Molybdenum	Mo	0.4	0.2	0.2	0.4	0.1
Nickel	Ni	4	4	9	10	2
Selenium	Se	0.3	0.2	0.3	0.5	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	<	<	0.1	<	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	9	8	11	14	1
Zinc	Zn	13	5	11	10	1
Aluminum	Al	1810	1350	3430	2430	10
Boron	B	20	6	20	21	1
Calcium	Ca	20000	58400	49500	64200	1
Iron	Fe	5440	6260	8050	10300	2
Magnesium	Mg	5370	39500	33700	41300	1
Manganese	Mn	128	278	254	462	1
Phosphorus	P	665	267	493	641	20
Potassium	K	274	369	1700	729	10
Sodium	Na	185	76	171	437	5
Strontium	Sr	14	15	21	21	1
Titanium	Ti	141	46	76	76	1
Zirconium	Zr	<	<	4	1	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Strong Acid Soluble Metals in Soil

CLIENT SAMPLE IDENTIFICATION:		CM-MW-13-1	CM-MW-13-2	CM-MW-14-1	CM-MW-14-2	
DATE SAMPLED:		Aug 17/07	Aug 17/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:		708220699	708220700	708220701	708220702	
Antimony	Sb	<	<	<	<	0.1
Arsenic	As	1.6	1.8	3.6	3.0	0.1
Barium	Ba	86	42	57	59	1
Beryllium	Be	<	<	<	<	1
Cadmium	Cd	<	<	<	<	0.2
Chromium	Cr	5	6	16	13	2
Cobalt	Co	2	2	7	5	1
Copper	Cu	7	4	13	12	1
Lead	Pb	4.3	3.9	6.1	7.4	0.2
Mercury	Hg	0.04	0.02	<	<	0.01
Molybdenum	Mo	0.4	0.3	0.7	0.7	0.1
Nickel	Ni	5	4	15	12	2
Selenium	Se	0.6	0.4	0.4	0.5	0.2
Silver	Ag	<	<	<	<	0.1
Thallium	Tl	0.1	<	0.1	<	0.1
Tin	Sn	<	<	<	<	5
Vanadium	V	10	10	20	16	1
Zinc	Zn	21	9	19	15	1
Aluminum	Al	1870	1660	5200	3410	10
Boron	B	24	12	15	18	1
Calcium	Ca	95100	107000	61600	87200	1
Iron	Fe	6460	6910	11800	11400	2
Magnesium	Mg	57500	71600	45200	60600	1
Manganese	Mn	342	341	291	360	1
Phosphorus	P	849	399	523	504	20
Potassium	K	424	401	2010	1580	10
Sodium	Na	123	174	705	245	5
Strontium	Sr	27	26	22	28	1
Titanium	Ti	50	56	195	118	1
Zirconium	Zr	1	<	7	6	1

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-1-1	CM-MW-1-2	CM-MW-2-1	CM-MW-2-2	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220655	708220659	708220660	708220661	
Benzene	< 0.05	<	< 0.05	<	0.03
Ethylbenzene	< 0.05	<	< 0.05	<	0.03
Toluene	< 0.05	<	< 0.05	<	0.03
Xylenes	< 0.05	<	< 0.05	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	99	103	98	100	-
Bromofluorobenzene	85	88	88	82	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-3-1	CM-MW-3-2	CM-MW-4-1	CM-MW-4-2	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220662	708220663	708220664	708220665	
Benzene	< 0.05	<	<	<	0.03
Ethylbenzene	< 0.05	<	<	<	0.03
Toluene	< 0.05	<	<	<	0.03
Xylenes	< 0.05	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	103	103	104	103	-
Bromofluorobenzene	88	82	88	85	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-5-1	CM-MW-5-2	CM-MW-6A-1	CM-MW-6A-2	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 16/07	Aug 16/07	DETECTION LIMIT
CANTEST ID:	708220666	708220667	708220668	708220669	
Benzene	<	<	<	<	0.03
Ethylbenzene	<	<	<	<	0.03
Toluene	<	<	<	<	0.03
Xylenes	<	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	104	101	103	102	-
Bromofluorobenzene	86	89	88	82	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-6B-1	CM-MW-6B-2	CM-MW-6C-1	CM-MW-6C-2	
DATE SAMPLED:	Aug 16/07	Aug 16/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220671	708220673	708220674	708220676	
Benzene	< 0.05	<	<	<	0.03
Ethylbenzene	< 0.05	<	<	<	0.03
Toluene	< 0.05	<	<	<	0.03
Xylenes	< 0.05	<	<	<	0.03
Volatile Hydrocarbons	280	150	<	<	2
Surrogate Recovery					
Toluene-d8	111	103	95	96	-
Bromofluorobenzene	85	91	83	86	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-6D-1	CM-MW-6D-2	CM-MW-6E-1	CM-MW-6E-2	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220678	708220680	708220682	708220683	
Benzene	<	<	< 0.05	<	0.03
Ethylbenzene	<	<	< 0.05	<	0.03
Toluene	<	<	< 0.05	<	0.03
Xylenes	<	<	< 0.05	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	96	95	97	99	-
Bromofluorobenzene	85	88	88	88	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-7-1	CM-MW-7-2	CM-MW-8-1	CM-MW-8-2	
DATE SAMPLED:	Aug 16/07	Aug 16/07	Aug 16/07	Aug 16/07	DETECTION LIMIT
CANTEST ID:	708220684	708220686	708220688	708220689	
Benzene	<	<	<	<	0.03
Ethylbenzene	<	<	<	<	0.03
Toluene	<	<	<	<	0.03
Xylenes	<	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	96	100	100	101	-
Bromofluorobenzene	82	88	85	82	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-9-1	CM-MW-9-2	CM-MW-10-1	CM-MW-10-2	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220690	708220691	708220692	708220693	
Benzene	< 0.05	<	<	<	0.03
Ethylbenzene	< 0.05	<	<	<	0.03
Toluene	< 0.05	<	<	<	0.03
Xylenes	< 0.05	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	97	98	96	104	-
Bromofluorobenzene	86	82	84	86	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-11-1	CM-MW-11-2	CM-MW-12-1	CM-MW-12-2	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220694	708220696	708220697	708220698	
Benzene	<	<	<	<	0.03
Ethylbenzene	<	<	<	<	0.03
Toluene	<	<	<	<	0.03
Xylenes	<	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	99	104	102	104	-
Bromofluorobenzene	85	86	86	86	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Aromatic Volatile Organic Compounds in Soil

CLIENT SAMPLE IDENTIFICATION:	CM-MW-13-1	CM-MW-13-2	CM-MW-14-1	CM-MW-14-2	
DATE SAMPLED:	Aug 17/07	Aug 17/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220699	708220700	708220701	708220702	
Benzene	<	<	<	<	0.03
Ethylbenzene	<	<	<	<	0.03
Toluene	<	<	<	<	0.03
Xylenes	<	<	<	<	0.03
Volatile Hydrocarbons	<	<	<	<	2
Surrogate Recovery					
Toluene-d8	103	108	110	106	-
Bromofluorobenzene	88	86	86	88	-

Results expressed as micrograms per gram, on a dry weight basis. (μg/g)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for CCME Petroleum Hydrocarbons in Soil (QC# 98352)

Parameter	Blank (ug/g)	Blank Limits	Diesel (/Oil) Spike (% Recovery)	Diesel (/Oil) Spike Limits	Duplicate (R.P.D.) 708220600	Duplicate Limits
F2 uncorrected (C10-C16)	< 80	80	95	75 - 125	NC	20
F3 uncorrected (C16-C34)	< 250	250	-	-	NC	20

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for Polychlorinated Biphenyls in Soil (QC# 97967)

Parameter	Blank (ug/g)	Blank Limits	Duplicate (R.P.D.) 708220655	Duplicate Limits	Spike (% Recovery)	Spike Limits
Arochlor 1242	< 0.03	0.03	NC	25	-	-
Arochlor 1248	< 0.03	0.03	NC	25	-	-
Arochlor 1254	< 0.03	0.03	NC	25	-	-
Arochlor 1260	< 0.03	0.03	NC	25	105	75 - 125
Total PCB	< 0.03	0.03	NC	20	-	-

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for Polychlorinated Biphenyls in Soil (QC# 97985)

Parameter	Blank (ug/g)	Blank Limits	Duplicate (R.P.D.) 708220684	Duplicate Limits	Spike (% Recovery)	Spike Limits
Arochlor 1242	< 0.03	0.03	NC	25	-	-
Arochlor 1248	< 0.03	0.03	NC	25	-	-
Arochlor 1254	< 0.03	0.03	NC	25	93	75 - 125
Arochlor 1260	< 0.03	0.03	NC	25	-	-
Total PCB	< 0.03	0.03	NC	20	-	-

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

Instrument Quality Control for the GC#HP5 w/ FID(TEH) or ECD(PCB) (QC# 191650)

QC Type: Calibration Verification

Parameter	% Recovery	Limits
Arochlor 1242	0	75 - 120
Arochlor 1248	0	75 - 120
Arochlor 1254	0	75 - 120
Arochlor 1260	92	75 - 120

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Instrument Quality Control for the GC#HP5 w/ FID(TEH) or ECD(PCB) (QC# 191657)

QC Type: Calibration Verification

Parameter	% Recovery	Limits
Arochlor 1242	92	75 - 120
Arochlor 1248	92	75 - 120
Arochlor 1254	92	75 - 120
Arochlor 1260	92	75 - 120

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Blank (ug/g)	Blank Limits	CAN MET Till-1 (% Recovery)	CAN MET Till-1 Limits	Duplicate (R.P.D.) 708220348	Duplicate Limits
Antimony	Sb	< 0.1	10	-	-	-	-
Barium	Ba	< 1	1	88	74 - 120	-	-
Beryllium	Be	< 1	1	20	10.4 - 30.4	-	-
Cadmium	Cd	< 0.2	0.2	61	3 - 197	-	-
Chromium	Cr	< 2	0.2	80	73 - 113	-	-
Cobalt	Co	< 1	1	100	70 - 142	-	-
Copper	Cu	< 1	0.2	92	75 - 113	-	-
Lead	Pb	< 0.2	5	116	65 - 171	-	-
Mercury	Hg	-	-	86	33 - 174	6.5	30
Molybdenum	Mo	< 0.1	4	25	5 - 90	-	-
Nickel	Ni	< 2	2	89	49 - 149	-	-
Selenium	Se	< 0.2	0.2	-	-	-	-
Thallium	Tl	< 0.1	0.001	-	-	-	-
Tin	Sn	< 5	5	-	-	-	-
Vanadium	V	< 1	1	100	69 - 152	-	-
Zinc	Zn	< 1	1	87	79 - 114	-	-
Aluminum	Al	< 10	10	-	-	-	-
Boron	B	< 1	1	-	-	-	-
Calcium	Ca	< 1	1	63	51 - 106	-	-
Iron	Fe	< 2	2	-	-	-	-
Magnesium	Mg	< 1	1	-	-	-	-
Manganese	Mn	< 1	1	-	-	-	-
Phosphorus	P	< 20	20	-	-	-	-
Potassium	K	< 10	10	-	-	-	-
Sodium	Na	< 5	5	-	-	-	-
Strontium	Sr	< 1	1	-	-	-	-
Titanium	Ti	< 1	1	-	-	-	-
Zirconium	Zr	< 1	1	-	-	-	-

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter	Duplicate (R.P.D.) 708220358	Duplicate Limits	Duplicate (R.P.D.) 708220371	Duplicate Limits	Duplicate (R.P.D.) 708220382	Duplicate Limits
Mercury Hg	0	30	0	30	0	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Duplicate (R.P.D.) 708220437	Duplicate Limits	Duplicate (R.P.D.) 708220452	Duplicate Limits	Duplicate (R.P.D.) 708220460	Duplicate Limits
Arsenic	As	-	-	-	-	1.4	30
Barium	Ba	-	-	-	-	4.7	30
Beryllium	Be	-	-	-	-	NC	30
Cadmium	Cd	-	-	-	-	PASS	30
Chromium	Cr	-	-	-	-	4.9	30
Cobalt	Co	-	-	-	-	0	30
Copper	Cu	-	-	-	-	8	30
Lead	Pb	-	-	-	-	25	30
Mercury	Hg	1	30	3	30	0	30
Nickel	Ni	-	-	-	-	4.3	30
Selenium	Se	-	-	-	-	PASS	30
Silver	Ag	-	-	-	-	PASS	30
Thallium	Tl	-	-	-	-	PASS	30
Tin	Sn	-	-	-	-	NC	30
Vanadium	V	-	-	-	-	3.6	30
Zinc	Zn	-	-	-	-	0	30
Aluminum	Al	-	-	-	-	6.5	30
Boron	B	-	-	-	-	NC	30
Calcium	Ca	-	-	-	-	0.7	30
Iron	Fe	-	-	-	-	4	30
Magnesium	Mg	-	-	-	-	8.1	30
Manganese	Mn	-	-	-	-	19.2	30
Phosphorus	P	-	-	-	-	0	30
Potassium	K	-	-	-	-	4.7	30
Sodium	Na	-	-	-	-	6.6	30
Strontium	Sr	-	-	-	-	6.1	30
Titanium	Ti	-	-	-	-	3.1	30
Zirconium	Zr	-	-	-	-	0	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Duplicate (R.P.D.) 708220474	Duplicate Limits	Duplicate (R.P.D.) 708220484	Duplicate Limits	Duplicate (R.P.D.) 708220516	Duplicate Limits
Mercury	Hg	5.4	30	0	30	0	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Duplicate (R.P.D.) 708220528	Duplicate Limits	Duplicate (R.P.D.) 708220538	Duplicate Limits	Duplicate (R.P.D.) 708220594	Duplicate Limits
Arsenic	As	-	-	-	-	0	30
Barium	Ba	-	-	-	-	3.1	30
Beryllium	Be	-	-	-	-	NC	30
Cadmium	Cd	-	-	-	-	NC	30
Chromium	Cr	-	-	-	-	0	30
Cobalt	Co	-	-	-	-	PASS	30
Copper	Cu	-	-	-	-	20	30
Lead	Pb	-	-	-	-	9.2	30
Mercury	Hg	0	30	0	30	-	-
Nickel	Ni	-	-	-	-	9.5	30
Selenium	Se	-	-	-	-	PASS	30
Silver	Ag	-	-	-	-	NC	30
Thallium	Tl	-	-	-	-	NC	30
Tin	Sn	-	-	-	-	NC	30
Vanadium	V	-	-	-	-	6.9	30
Zinc	Zn	-	-	-	-	7.4	30
Aluminum	Al	-	-	-	-	6.7	30
Boron	B	-	-	-	-	11.1	30
Calcium	Ca	-	-	-	-	0.1	30
Iron	Fe	-	-	-	-	3.2	30
Magnesium	Mg	-	-	-	-	5.5	30
Manganese	Mn	-	-	-	-	3.1	30
Phosphorus	P	-	-	-	-	16.6	30
Potassium	K	-	-	-	-	6.7	30
Sodium	Na	-	-	-	-	9.2	30
Strontium	Sr	-	-	-	-	4.1	30
Titanium	Ti	-	-	-	-	5.9	30
Zirconium	Zr	-	-	-	-	0	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Duplicate (R.P.D.) 708220606	Duplicate Limits	Duplicate (R.P.D.) 708220627	Duplicate Limits	Duplicate (R.P.D.) 708220639	Duplicate Limits
Arsenic	As	0	30	5.7	30	0	30
Barium	Ba	0.8	30	14.1	30	9.1	30
Beryllium	Be	NC	30	NC	30	NC	30
Cadmium	Cd	NC	30	NC	30	NC	30
Chromium	Cr	0	30	PASS	30	0	30
Cobalt	Co	PASS	30	PASS	30	10.5	30
Copper	Cu	0	30	10.5	30	6.1	30
Lead	Pb	0	30	15.4	30	6.5	30
Mercury	Hg	0	30	0	30	0	30
Nickel	Ni	0	30	PASS	30	5.4	30
Selenium	Se	PASS	30	PASS	30	PASS	30
Silver	Ag	NC	30	NC	30	NC	30
Thallium	Tl	NC	30	NC	30	NC	30
Tin	Sn	NC	30	NC	30	NC	30
Vanadium	V	0	30	8.7	30	6.5	30
Zinc	Zn	0	30	20	30	0	30
Aluminum	Al	0.8	30	16.5	30	1.6	30
Boron	B	3.1	30	16.2	30	6.5	30
Calcium	Ca	1.3	30	0.6	30	1.4	30
Iron	Fe	0.2	30	9.1	30	1.6	30
Magnesium	Mg	3.4	30	13.7	30	1.6	30
Manganese	Mn	5.4	30	11.6	30	6.5	30
Phosphorus	P	0	30	27.6	30	5.5	30
Potassium	K	1	30	14.6	30	1.5	30
Sodium	Na	2.8	30	11.4	30	3.8	30
Strontium	Sr	0	30	13.3	30	0	30
Titanium	Ti	7	30	7.8	30	11.8	30
Zirconium	Zr	PASS	30	PASS	30	PASS	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter		Duplicate (R.P.D.) 708220665	Duplicate Limits	Duplicate (R.P.D.) 708220680	Duplicate Limits	Duplicate (R.P.D.) 708220693	Duplicate Limits
Arsenic	As	3.4	30	0	30	6.5	30
Barium	Ba	5.1	30	1.6	30	5.1	30
Beryllium	Be	NC	30	NC	30	NC	30
Cadmium	Cd	NC	30	NC	30	NC	30
Chromium	Cr	17.1	30	0	30	PASS	30
Cobalt	Co	0	30	10.5	30	PASS	30
Copper	Cu	8.7	30	0	30	0	30
Lead	Pb	1.9	30	0	30	0	30
Mercury	Hg	NC	30	NC	30	NC	30
Nickel	Ni	6.5	30	4.7	30	PASS	30
Selenium	Se	PASS	30	PASS	30	PASS	30
Silver	Ag	NC	30	NC	30	NC	30
Thallium	Tl	PASS	30	PASS	30	NC	30
Tin	Sn	NC	30	NC	30	NC	30
Vanadium	V	4.9	30	2.9	30	0	30
Zinc	Zn	5.1	30	0	30	0	30
Aluminum	Al	3.9	30	1.8	30	1.2	30
Boron	B	14.3	30	6.9	30	0	30
Calcium	Ca	4.6	30	8.8	30	10.5	30
Iron	Fe	2.7	30	2.3	30	1.7	30
Magnesium	Mg	0.9	30	6.5	30	8.2	30
Manganese	Mn	9.4	30	3.9	30	6.5	30
Phosphorus	P	1.6	30	3.1	30	7.4	30
Potassium	K	0	30	2.5	30	1.9	30
Sodium	Na	7.7	30	1	30	1.5	30
Strontium	Sr	0	30	0	30	3.5	30
Titanium	Ti	10.2	30	1.9	30	4.3	30
Zirconium	Zr	PASS	30	11.8	30	PASS	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822134

CANTEST

Batch Quality Control for Strong Acid Soluble Metals in Soil (QC# 97897)

Parameter	Duplicate (R.P.D.) 708220719	Duplicate Limits
Mercury Hg	0	30

ug/g = micrograms per gram
R.P.D. = Relative Percent Difference

Batch Quality Control Frequency Summary

SALM in Soil Digestion (Batch# 97897)

QC Type	No. Samples
CAN MET Till-1	1
Blank	3
Duplicate	20

PCB Soil/Solid/Swab Prep (Batch# 97967)

QC Type	No. Samples
Blank	1
Duplicate	1
Spike	1

PCB Soil/Solid/Swab Prep (Batch# 97985)

QC Type	No. Samples
Blank	1
Duplicate	1
Spike	1

CCME HCs - SOIL PREP (Batch# 98352)

QC Type	No. Samples
Blank	1
Diesel (/Oil) Spike	1
Duplicate	1

SALM Metals in Soil Sieve (Batch# 97894)

QC Type	No. Samples
Batch Size	216

(Continued on next page)

Batch Quality Control Frequency Summary

SALM in Soil Digestion (Batch# 97897)

QC Type	No. Samples
Batch Size	216

PCB Soil/Solid/Swab Prep (Batch# 97967)

QC Type	No. Samples
Batch Size	18

PCB Soil/Solid/Swab Prep (Batch# 97985)

QC Type	No. Samples
Batch Size	20

TEH Soil/Solid Preparation (Batch# 97993)

QC Type	No. Samples
Batch Size	18

TEH Soil/Solid Preparation (Batch# 98093)

QC Type	No. Samples
Batch Size	18

Volatiles Analysis (Batch# 98096)

QC Type	No. Samples
Batch Size	36

(Continued on next page)

Batch Quality Control Frequency Summary

TEH Soil/Solid Preparation (Batch# 98098)

QC Type	No. Samples
Batch Size	15

CCME HCs - SOIL PREP (Batch# 98352)

QC Type	No. Samples
Batch Size	16

Analysis Report

CANTEST

REPORT ON: Analysis of Water Samples

REPORTED TO: Gartner Lee Limited
Suite 300
300 Town Centre Boulevard
Markham, ON
L3R 5Z6

Att'n: Ken Boldt

CHAIN OF CUSTODY: 2090866
PROJECT NAME: CAM-M
PROJECT NUMBER: 70517

NUMBER OF SAMPLES: 3

REPORT DATE: August 30, 2007

DATE SUBMITTED: August 22, 2007

GROUP NUMBER: 80822146

SAMPLE TYPE: Water

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Conventional Parameters - analyses were performed using procedures based on those described in the most current editions of "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials", (2005 edition) Province of British Columbia and "Standard Methods for the Examination of Water and Wastewater" (21st Edition), published by the American Public Health Association.

Mercury in Water - analysis was performed using procedures based on U. S. EPA Method 245.7, oxidative digestion using bromination, and analysis using Cold Vapour Atomic Fluorescence Spectroscopy.

Metals in Water - analysis was performed using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP), Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS).

Dissolved Metals in Water - Samples were filtered in the laboratory and quantitatively determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP) and/or Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS).

Polychlorinated Biphenyls - analysis was performed using procedures based upon U.S. EPA Methods 608/8080, involving extraction, clean-up steps, and analysis using GC/ECD. Arochlors 1242, 1248, 1254 and 1260 were included.

Semi-Volatile Hydrocarbons - analysis was performed using procedures based on U.S. EPA Method 8015, involving dichloromethane extraction and analysis using GC/FID. Components in the C10 to C30 range are included,

(Continued)

CANTEST LTD.

Richard S. Jornitz
Supervisor, Inorganic Testing

4606 Canada Way, Burnaby, BC V5G 1K5
Tel: 604 734 7276 Fax: 604 731 2386

Semi-Volatile Hydrocarbons

using an alkane standard for quantitation.

TEST RESULTS:

(See following pages)

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822146

CANTEST

Conventional Parameters in Water

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Hardness CaCO3	Hardness (Total) CaCO3
CM-MW-1	Aug 18/07	708220733	1150	1280
CM-MW-2	Aug 18/07	708220738	1030	1038
CM-MW-3	Aug 18/07	708220745	2040	2100
DETECTION LIMIT			0.2	0.2
UNITS			mg/L	mg/L

mg/L = milligrams per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822146

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-1	CM-MW-1	CM-MW-2	CM-MW-2	DETECTION LIMIT	UNITS
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07		
CANTEST ID:		708220733	708220733	708220738	708220738		
Aluminum	Al	0.40	0.002	0.27	0.001	0.001	mg/L
Antimony	Sb	<	<	0.0008	0.0007	0.0002	mg/L
Arsenic	As	0.0012	0.0008	0.0011	0.0008	0.0002	mg/L
Barium	Ba	0.022	0.018	0.031	0.027	0.0002	mg/L
Beryllium	Be	<	<	<	<	0.0002	mg/L
Bismuth	Bi	<	<	<	<	0.0002	mg/L
Boron	B	0.24	0.23	0.16	0.16	0.01	mg/L
Cadmium	Cd	0.00009	0.00007	0.00014	0.00014	0.00004	mg/L
Calcium	Ca	224	200	150	150	0.01	mg/L
Chromium	Cr	0.020	0.0005	0.040	0.0008	0.0002	mg/L
Cobalt	Co	0.0039	0.0032	0.0023	0.0015	0.0002	mg/L
Copper	Cu	0.0081	0.0045	0.0070	0.0047	0.0002	mg/L
Iron	Fe	2.15	0.05	1.27	0.07	0.01	mg/L
Lead	Pb	0.0005	<	0.0013	<	0.0002	mg/L
Lithium	Li	0.035	0.033	0.047	0.045	0.001	mg/L
Magnesium	Mg	175	157	161	159	0.01	mg/L
Manganese	Mn	0.164	0.143	0.229	0.205	0.0002	mg/L
Mercury	Hg	<	<	<	<	0.02	µg/L
Molybdenum	Mo	0.010	0.0095	0.014	0.012	0.0001	mg/L
Nickel	Ni	0.067	0.046	0.060	0.030	0.0002	mg/L
Phosphorus	P	0.04	<	<	<	0.03	mg/L
Potassium	K	23.5	22.1	26.3	26.0	0.02	mg/L
Selenium	Se	0.0009	0.0008	0.0009	0.0008	0.0002	mg/L
Silicon	Si	7.85	6.48	4.23	3.67	0.05	mg/L
Silver	Ag	<	<	<	<	0.00005	mg/L
Sodium	Na	397	360	391	382	0.01	mg/L
Strontium	Sr	0.537	0.512	1.23	1.16	0.0002	mg/L
Tellurium	Te	<	<	<	<	0.0002	mg/L
Thallium	Tl	0.00002	<	0.00016	0.00014	0.00002	mg/L
Thorium	Th	0.0004	<	0.0007	<	0.0001	mg/L
Tin	Sn	<	<	0.0002	<	0.0002	mg/L

(Continued on next page)

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822146

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-1	CM-MW-1	CM-MW-2	CM-MW-2	DETECTION LIMIT	UNITS
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07		
CANTEST ID:		708220733	708220733	708220738	708220738		
Titanium	Ti	0.029	0.0006	0.018	0.0004	0.0002	mg/L
Uranium	U	0.010	0.0095	0.025	0.023	0.0001	mg/L
Vanadium	V	0.0009	<	0.0005	0.0002	0.0002	mg/L
Zinc	Zn	0.15	0.097	2.91	2.64	0.001	mg/L
Zirconium	Zr	<	<	<	<	0.002	mg/L

mg/L = milligrams per liter
< = Less than detection limit

µg/L = micrograms per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822146

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-3	CM-MW-3		
SAMPLE PREPARATION:		TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 18/07	Aug 18/07		
CANTEST ID:		708220745	708220745	DETECTION LIMIT	UNITS
Aluminum	Al	0.008	0.001	0.001	mg/L
Antimony	Sb	<	<	0.0002	mg/L
Arsenic	As	0.0008	0.0008	0.0002	mg/L
Barium	Ba	0.0088	0.0084	0.0002	mg/L
Beryllium	Be	<	<	0.0002	mg/L
Bismuth	Bi	<	<	0.0002	mg/L
Boron	B	0.47	0.46	0.01	mg/L
Cadmium	Cd	<	<	0.00004	mg/L
Calcium	Ca	387	372	0.01	mg/L
Chromium	Cr	0.024	0.0008	0.0002	mg/L
Cobalt	Co	0.032	0.030	0.0002	mg/L
Copper	Cu	0.0043	0.0029	0.0002	mg/L
Iron	Fe	0.47	0.09	0.01	mg/L
Lead	Pb	<	<	0.0002	mg/L
Lithium	Li	0.061	0.059	0.001	mg/L
Magnesium	Mg	276	269	0.01	mg/L
Manganese	Mn	0.365	0.346	0.0002	mg/L
Mercury	Hg	<	<	0.02	µg/L
Molybdenum	Mo	0.0019	0.0014	0.0001	mg/L
Nickel	Ni	0.153	0.117	0.0002	mg/L
Phosphorus	P	<	<	0.03	mg/L
Potassium	K	36.9	36.0	0.02	mg/L
Selenium	Se	0.0012	0.0011	0.0002	mg/L
Silicon	Si	1.56	1.54	0.05	mg/L
Silver	Ag	<	<	0.00005	mg/L
Sodium	Na	511	490	0.01	mg/L
Strontium	Sr	0.677	0.647	0.0002	mg/L
Tellurium	Te	<	<	0.0002	mg/L
Thallium	Tl	0.00011	0.00010	0.00002	mg/L
Thorium	Th	<	<	0.0001	mg/L
Tin	Sn	<	<	0.0002	mg/L

(Continued on next page)

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822146

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-3	CM-MW-3		
SAMPLE PREPARATION:		TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 18/07	Aug 18/07		
CANTEST ID:		708220745	708220745	DETECTION LIMIT	UNITS
Titanium	Ti	0.0009	0.0005	0.0002	mg/L
Uranium	U	0.012	0.012	0.0001	mg/L
Vanadium	V	<	<	0.0002	mg/L
Zinc	Zn	0.018	0.016	0.001	mg/L
Zirconium	Zr	<	<	0.002	mg/L

mg/L = milligrams per liter
< = Less than detection limit

µg/L = micrograms per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822146

CANTEST

Polychlorinated Biphenyls in Water

CLIENT SAMPLE IDENTIFICATION:	CM-MW-1	CM-MW-2	CM-MW-3	
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 18/07	DETECTION LIMIT
CANTEST ID:	708220733	708220738	708220745	
Arochlor 1242	<	<	<	0.1
Arochlor 1248	<	<	<	0.1
Arochlor 1254	<	<	<	0.1
Arochlor 1260	<	<	<	0.1
Total PCB	<	<	<	0.4
Surrogate Recovery				
2,2',4,4',6,6'-hexabromobiphenyl	109	111	112	-

Results expressed as micrograms per liter (μg/L)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822146

CANTEST

Semi-Volatile Hydrocarbons in Water

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Total Extractable Hydrocarbons
CM-MW-1	Aug 18/07	708220733	<
CM-MW-2	Aug 18/07	708220738	<
CM-MW-3	Aug 18/07	708220745	<
DETECTION LIMIT			100
UNITS			µg/L

µg/L = micrograms per liter
< = Less than detection limit

Analysis Report

REPORT ON: Analysis of Water Samples

REPORTED TO: Gartner Lee Limited
Suite 300
300 Town Centre Boulevard
Markham, ON
L3R 5Z6

Att'n: Ken Boldt

CHAIN OF CUSTODY: 2090863
PROJECT NAME: CAM-M
PROJECT NUMBER: 70517

NUMBER OF SAMPLES: 4

REPORT DATE: August 30, 2007

DATE SUBMITTED: August 22, 2007

GROUP NUMBER: 80822147

SAMPLE TYPE: Water

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Conventional Parameters - analyses were performed using procedures based on those described in the most current editions of "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials", (2005 edition) Province of British Columbia and "Standard Methods for the Examination of Water and Wastewater" (21st Edition), published by the American Public Health Association.

Mercury in Water - analysis was performed using procedures based on U. S. EPA Method 245.7, oxidative digestion using bromination, and analysis using Cold Vapour Atomic Fluorescence Spectroscopy.

Metals in Water - analysis was performed using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP), Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS).

Dissolved Metals in Water - Samples were filtered in the laboratory and quantitatively determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP) and/or Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS).

Polychlorinated Biphenyls - analysis was performed using procedures based upon U.S. EPA Methods 608/8080, involving extraction, clean-up steps, and analysis using GC/ECD. Arochlors 1242, 1248, 1254 and 1260 were included.

Semi-Volatile Hydrocarbons - analysis was performed using procedures based on U.S. EPA Method 8015, involving dichloromethane extraction and analysis using GC/FID. Components in the C10 to C30 range are included,

(Continued)

CANTEST LTD.

Richard S. Jornitz
Supervisor, Inorganic Testing

4606 Canada Way, Burnaby, BC V5G 1K5
Tel: 604 734 7276 Fax: 604 731 2386

Semi-Volatile Hydrocarbons

using an alkane standard for quantitation.

TEST RESULTS:

(See following pages)

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822147

CANTEST

Conventional Parameters in Water

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Hardness CaCO3	Hardness (Total) CaCO3
CM-MW-8	Aug 16/07	708220736	1960	1990
CM-MW-10	Aug 17/07	708220739	1400	1460
CM-MW-11	Aug 17/07	708220748	1170	1360
CM-MW-12	Aug 17/07	708220749	1380	1420
DETECTION LIMIT			0.2	0.2
UNITS			mg/L	mg/L

mg/L = milligrams per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822147

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-8	CM-MW-8	CM-MW-10	CM-MW-10		
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 16/07	Aug 16/07	Aug 17/07	Aug 17/07		
CANTEST ID:		708220736	708220736	708220739	708220739	DETECTION LIMIT	UNITS
Aluminum	Al	0.005	0.001	0.037	<	0.001	mg/L
Antimony	Sb	<	<	<	<	0.0002	mg/L
Arsenic	As	0.0008	0.0008	0.0007	0.0007	0.0002	mg/L
Barium	Ba	0.017	0.016	0.021	0.019	0.0002	mg/L
Beryllium	Be	<	<	<	<	0.0002	mg/L
Bismuth	Bi	<	<	<	<	0.0002	mg/L
Boron	B	1.32	1.24	0.46	0.43	0.01	mg/L
Cadmium	Cd	<	<	0.00005	0.00005	0.00004	mg/L
Calcium	Ca	356	353	273	263	0.01	mg/L
Chromium	Cr	0.0009	0.0006	0.036	0.0006	0.0002	mg/L
Cobalt	Co	0.010	0.0097	0.022	0.020	0.0002	mg/L
Copper	Cu	0.0035	0.0033	0.0057	0.0040	0.0002	mg/L
Iron	Fe	0.11	0.09	0.63	0.08	0.01	mg/L
Lead	Pb	<	<	<	<	0.0002	mg/L
Lithium	Li	0.071	0.066	0.048	0.045	0.001	mg/L
Magnesium	Mg	266	263	188	179	0.01	mg/L
Manganese	Mn	0.113	0.107	0.271	0.252	0.0002	mg/L
Mercury	Hg	<	<	<	<	0.02	µg/L
Molybdenum	Mo	0.0031	0.0029	0.0047	0.0038	0.0001	mg/L
Nickel	Ni	0.068	0.066	0.124	0.090	0.0002	mg/L
Phosphorus	P	<	<	<	<	0.03	mg/L
Potassium	K	57.4	57.2	39.4	38.0	0.02	mg/L
Selenium	Se	0.0012	0.0011	0.0016	0.0016	0.0002	mg/L
Silicon	Si	3.42	3.19	3.06	2.84	0.05	mg/L
Silver	Ag	<	<	<	<	0.00005	mg/L
Sodium	Na	321	315	464	431	0.01	mg/L
Strontium	Sr	1.28	1.19	0.875	0.822	0.0002	mg/L
Tellurium	Te	<	<	<	<	0.0002	mg/L
Thallium	Tl	0.00007	0.00007	0.00017	0.00015	0.00002	mg/L
Thorium	Th	<	<	<	<	0.0001	mg/L
Tin	Sn	<	<	<	<	0.0002	mg/L

(Continued on next page)

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822147

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-8	CM-MW-8	CM-MW-10	CM-MW-10	DETECTION LIMIT	UNITS
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 16/07	Aug 16/07	Aug 17/07	Aug 17/07		
CANTEST ID:		708220736	708220736	708220739	708220739		
Titanium	Ti	0.0008	0.0005	0.0035	0.0004	0.0002	mg/L
Uranium	U	0.018	0.017	0.033	0.029	0.0001	mg/L
Vanadium	V	0.0003	0.0002	0.0003	<	0.0002	mg/L
Zinc	Zn	0.016	0.016	0.017	0.012	0.001	mg/L
Zirconium	Zr	<	<	<	<	0.002	mg/L

mg/L = milligrams per liter
μg/L = micrograms per liter
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822147

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-11	CM-MW-11	CM-MW-12	CM-MW-12	DETECTION LIMIT	UNITS
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07		
CANTEST ID:		708220748	708220748	708220749	708220749		
Aluminum	Al	0.007	0.001	0.032	<	0.001	mg/L
Antimony	Sb	<	<	<	<	0.0002	mg/L
Arsenic	As	0.0009	0.0008	0.0011	0.0009	0.0002	mg/L
Barium	Ba	0.038	0.035	0.063	0.058	0.0002	mg/L
Beryllium	Be	<	<	<	<	0.0002	mg/L
Bismuth	Bi	<	<	<	<	0.0002	mg/L
Boron	B	0.10	0.09	0.22	0.20	0.01	mg/L
Cadmium	Cd	<	<	0.00015	0.00010	0.00004	mg/L
Calcium	Ca	246	209	260	254	0.01	mg/L
Chromium	Cr	0.0061	0.0007	0.190	0.0020	0.0002	mg/L
Cobalt	Co	0.0016	0.0014	0.0075	0.0068	0.0002	mg/L
Copper	Cu	0.0052	0.0042	0.0062	0.0039	0.0002	mg/L
Iron	Fe	0.64	0.10	1.39	0.10	0.01	mg/L
Lead	Pb	<	<	0.0003	<	0.0002	mg/L
Lithium	Li	0.015	0.014	0.027	0.024	0.001	mg/L
Magnesium	Mg	180	157	186	181	0.01	mg/L
Manganese	Mn	0.117	0.113	0.215	0.207	0.0002	mg/L
Mercury	Hg	<	<	<	<	0.02	µg/L
Molybdenum	Mo	0.0010	0.0006	0.0033	0.0020	0.0001	mg/L
Nickel	Ni	0.028	0.017	0.269	0.238	0.0002	mg/L
Phosphorus	P	<	<	<	<	0.03	mg/L
Potassium	K	11.5	11.2	22.0	21.3	0.02	mg/L
Selenium	Se	0.0008	0.0007	0.0009	0.0008	0.0002	mg/L
Silicon	Si	2.99	2.83	4.60	4.36	0.05	mg/L
Silver	Ag	<	<	<	<	0.00005	mg/L
Sodium	Na	292	250	171	162	0.01	mg/L
Strontium	Sr	0.258	0.245	0.569	0.528	0.0002	mg/L
Tellurium	Te	<	<	<	<	0.0002	mg/L
Thallium	Tl	<	<	0.00006	0.00006	0.00002	mg/L
Thorium	Th	<	<	0.0001	<	0.0001	mg/L
Tin	Sn	<	<	<	<	0.0002	mg/L

(Continued on next page)

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822147

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-11	CM-MW-11	CM-MW-12	CM-MW-12	DETECTION LIMIT	UNITS
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 17/07	Aug 17/07	Aug 17/07	Aug 17/07		
CANTEST ID:		708220748	708220748	708220749	708220749		
Titanium	Ti	0.0005	0.0003	0.0012	0.0004	0.0002	mg/L
Uranium	U	0.0067	0.0066	0.020	0.018	0.0001	mg/L
Vanadium	V	0.0002	<	0.0006	0.0005	0.0002	mg/L
Zinc	Zn	0.003	0.002	0.10	0.073	0.001	mg/L
Zirconium	Zr	<	<	<	<	0.002	mg/L

mg/L = milligrams per liter
< = Less than detection limit

μg/L = micrograms per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822147

CANTEST

Polychlorinated Biphenyls in Water

CLIENT SAMPLE IDENTIFICATION:	CM-MW-8	CM-MW-10	CM-MW-11	CM-MW-12	
DATE SAMPLED:	Aug 16/07	Aug 17/07	Aug 17/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220736	708220739	708220748	708220749	
Arochlor 1242	<	<	<	<	0.1
Arochlor 1248	<	<	<	<	0.1
Arochlor 1254	<	<	<	<	0.1
Arochlor 1260	<	<	<	<	0.1
Total PCB	<	<	<	<	0.4
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	108	85	NONE	96	-

Results expressed as micrograms per liter (μg/L)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: August 30, 2007

GROUP NUMBER: 80822147

CANTEST

Semi-Volatile Hydrocarbons in Water

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Total Extractable Hydrocarbons
CM-MW-8	Aug 16/07	708220736	<
CM-MW-10	Aug 17/07	708220739	<
CM-MW-11	Aug 17/07	708220748	<
CM-MW-12	Aug 17/07	708220749	<
DETECTION LIMIT			100
UNITS			µg/L

µg/L = micrograms per liter
< = Less than detection limit

Analysis Report

CANTEST

REPORT ON: Analysis of Water Samples

REPORTED TO: Gartner Lee Limited
Suite 300
300 Town Centre Boulevard
Markham, ON
L3R 5Z6

Att'n: Ken Boldt

CHAIN OF CUSTODY: 2090865
PROJECT NAME: CAM-M
PROJECT NUMBER: 70517

NUMBER OF SAMPLES: 3

REPORT DATE: September 5, 2007

DATE SUBMITTED: August 22, 2007

GROUP NUMBER: 80822150

SAMPLE TYPE: Water

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Conventional Parameters - analyses were performed using procedures based on those described in the most current editions of "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials", (2005 edition) Province of British Columbia and "Standard Methods for the Examination of Water and Wastewater" (21st Edition), published by the American Public Health Association.

Petroleum Hydrocarbons (C10-16 and C16-C34) in Water - analysis was performed by extraction, silica gel clean-up and analysis by Gas Chromatography with flame ionization detection (GC/FID).

Petroleum Hydrocarbons (C34-50) in Water - analysis was performed by extraction, silica gel clean-up and analysis by Gas Chromatography with flame ionization detection (GC/FID).

Mercury in Water - analysis was performed using procedures based on U. S. EPA Method 245.7, oxidative digestion using bromination, and analysis using Cold Vapour Atomic Fluorescence Spectroscopy.

Metals in Water - analysis was performed using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP), Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS).

Dissolved Metals in Water - Samples were filtered in the laboratory and quantitatively determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP) and/or Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS).

(Continued)

CANTEST LTD.

Anna Becalska, PhD
Coordinator, Trace Metals

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Tel: 604 734 7276 Fax: 604 731 2386

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

Polychlorinated Biphenyls - analysis was performed using procedures based upon U.S. EPA Methods 608/8080, involving extraction, clean-up steps, and analysis using GC/ECD. Arochlors 1242, 1248, 1254 and 1260 were included.

Semi-Volatile Hydrocarbons - analysis was performed using procedures based on U.S. EPA Method 8015, involving dichloromethane extraction and analysis using GC/FID. Components in the C10 to C30 range are included, using an alkane standard for quantitation.

TEST RESULTS:

(See following pages)

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Conventional Parameters in Water

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Hardness CaCO3	Hardness (Total) CaCO3
CM-MW-9	Aug 18/07	708220751	1060	1150
CM-MW-14	Aug 18/07	708220754	1890	1900
CM-MW-16	Aug 18/07	708220755	1150	1160
DETECTION LIMIT			0.2	0.2
UNITS			mg/L	mg/L

mg/L = milligrams per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-9	CM-MW-9	CM-MW-14	CM-MW-14	DETECTION LIMIT	UNITS
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07		
CANTEST ID:		708220751	708220751	708220754	708220754		
Aluminum	Al	0.019	<	0.58	0.002	0.001	mg/L
Antimony	Sb	<	<	0.0005	0.0005	0.0002	mg/L
Arsenic	As	0.0005	0.0004	0.0041	0.0035	0.0002	mg/L
Barium	Ba	0.048	0.046	0.029	0.016	0.0002	mg/L
Beryllium	Be	<	<	<	<	0.0002	mg/L
Bismuth	Bi	<	<	<	<	0.0002	mg/L
Boron	B	0.09	0.08	0.65	0.62	0.01	mg/L
Cadmium	Cd	0.00090	0.00066	0.00021	0.00016	0.00004	mg/L
Calcium	Ca	195	181	394	393	0.01	mg/L
Chromium	Cr	0.0071	0.0006	0.0066	0.0007	0.0002	mg/L
Cobalt	Co	0.011	0.0099	0.0018	0.0013	0.0002	mg/L
Copper	Cu	0.0083	0.0067	0.0049	0.0038	0.0002	mg/L
Iron	Fe	0.63	0.07	0.79	0.08	0.01	mg/L
Lead	Pb	<	<	0.0014	<	0.0002	mg/L
Lithium	Li	0.021	0.020	0.059	0.055	0.001	mg/L
Magnesium	Mg	160	148	223	220	0.01	mg/L
Manganese	Mn	0.274	0.248	0.668	0.627	0.0002	mg/L
Mercury	Hg	<	<	<	<	0.02	µg/L
Molybdenum	Mo	0.011	0.0099	0.0077	0.0072	0.0001	mg/L
Nickel	Ni	0.233	0.199	0.029	0.026	0.0002	mg/L
Phosphorus	P	<	<	2.29	2.06	0.03	mg/L
Potassium	K	10.8	10.1	28.6	28.0	0.02	mg/L
Selenium	Se	0.0010	0.0007	0.0014	0.0011	0.0002	mg/L
Silicon	Si	4.04	3.69	6.56	5.96	0.05	mg/L
Silver	Ag	<	<	<	<	0.00005	mg/L
Sodium	Na	214	203	340	332	0.01	mg/L
Strontium	Sr	0.309	0.288	1.70	1.60	0.0002	mg/L
Tellurium	Te	<	<	<	<	0.0002	mg/L
Thallium	Tl	0.00005	0.00004	0.00015	0.00013	0.00002	mg/L
Thorium	Th	<	<	0.0007	<	0.0001	mg/L
Tin	Sn	<	<	0.0007	<	0.0002	mg/L

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REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-9	CM-MW-9	CM-MW-14	CM-MW-14	DETECTION LIMIT	UNITS
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 18/07	Aug 18/07		
CANTEST ID:		708220751	708220751	708220754	708220754		
Titanium	Ti	0.0011	0.0004	0.032	0.0015	0.0002	mg/L
Uranium	U	0.026	0.025	0.022	0.019	0.0001	mg/L
Vanadium	V	<	<	0.0026	0.0016	0.0002	mg/L
Zinc	Zn	0.86	0.71	0.007	0.006	0.001	mg/L
Zirconium	Zr	<	<	<	<	0.002	mg/L

mg/L = milligrams per liter
< = Less than detection limit

µg/L = micrograms per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-16	CM-MW-16		
SAMPLE PREPARATION:		TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 18/07	Aug 18/07	DETECTION LIMIT	UNITS
CANTEST ID:		708220755	708220755		
Aluminum	Al	0.078	0.001	0.001	mg/L
Antimony	Sb	<	<	0.0002	mg/L
Arsenic	As	0.0011	0.0008	0.0002	mg/L
Barium	Ba	0.021	0.019	0.0002	mg/L
Beryllium	Be	<	<	0.0002	mg/L
Bismuth	Bi	<	<	0.0002	mg/L
Boron	B	0.24	0.24	0.01	mg/L
Cadmium	Cd	<	<	0.00004	mg/L
Calcium	Ca	206	205	0.01	mg/L
Chromium	Cr	0.0084	0.0005	0.0002	mg/L
Cobalt	Co	0.0027	0.0025	0.0002	mg/L
Copper	Cu	0.0037	0.0028	0.0002	mg/L
Iron	Fe	0.90	0.07	0.01	mg/L
Lead	Pb	<	<	0.0002	mg/L
Lithium	Li	0.034	0.033	0.001	mg/L
Magnesium	Mg	158	155	0.01	mg/L
Manganese	Mn	0.138	0.131	0.0002	mg/L
Mercury	Hg	<	<	0.02	µg/L
Molybdenum	Mo	0.0093	0.0089	0.0001	mg/L
Nickel	Ni	0.044	0.035	0.0002	mg/L
Phosphorus	P	<	<	0.03	mg/L
Potassium	K	21.9	21.8	0.02	mg/L
Selenium	Se	0.0007	0.0006	0.0002	mg/L
Silicon	Si	6.37	6.06	0.05	mg/L
Silver	Ag	<	<	0.00005	mg/L
Sodium	Na	375	370	0.01	mg/L
Strontium	Sr	0.585	0.569	0.0002	mg/L
Tellurium	Te	<	<	0.0002	mg/L
Thallium	Tl	0.00002	0.00002	0.00002	mg/L
Thorium	Th	0.0001	<	0.0001	mg/L
Tin	Sn	<	<	0.0002	mg/L

(Continued on next page)

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-16	CM-MW-16	DETECTION LIMIT	UNITS
SAMPLE PREPARATION:		TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 18/07	Aug 18/07		
CANTEST ID:		708220755	708220755		
Titanium	Ti	0.0065	0.0005	0.0002	mg/L
Uranium	U	0.010	0.0099	0.0001	mg/L
Vanadium	V	0.0003	<	0.0002	mg/L
Zinc	Zn	0.044	0.029	0.001	mg/L
Zirconium	Zr	<	<	0.002	mg/L

mg/L = milligrams per liter
μg/L = micrograms per liter
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Polychlorinated Biphenyls in Water

CLIENT SAMPLE IDENTIFICATION:	CM-MW-9	CM-MW-14	CM-MW-16	DETECTION LIMIT
DATE SAMPLED:	Aug 18/07	Aug 18/07	Aug 18/07	
CANTEST ID:	708220751	708220754	708220755	
Arochlor 1242	<	<	<	0.1
Arochlor 1248	<	<	<	0.1
Arochlor 1254	<	<	<	0.1
Arochlor 1260	<	<	<	0.1
Total PCB	<	<	<	0.4
Surrogate Recovery				
2,2',4,4',6,6'-hexabromobiphenyl	96	104	95	-

Results expressed as micrograms per liter (μg/L)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Semi-Volatile Hydrocarbons in Water

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Total Extractable Hydrocarbons
CM-MW-9	Aug 18/07	708220751	<
CM-MW-14	Aug 18/07	708220754	120
CM-MW-16	Aug 18/07	708220755	<
DETECTION LIMIT			100
UNITS			µg/L

µg/L = micrograms per liter
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Extractable Petroleum Hydrocarbons - Silica-gel Cleanup in Water

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Petroleum Hydrocarbons C10-16	Petroleum Hydrocarbons C16-34	Petroleum Hydrocarbons C34-50
CM-MW-14	Aug 18/07	708220754	<	<	<
DETECTION LIMIT			100	250	250
UNITS			µg/L	µg/L	µg/L

µg/L = micrograms per liter
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Batch Quality Control for Dissolved Metals Analysis in Water (QC# 97902)

Parameter		Dissolved Blank (mg/L)	Dissolved Blank Limits	Duplicate (R.P.D.) 708220271	Duplicate Limits	Duplicate (R.P.D.) 708220438	Duplicate Limits
Aluminum	Al	< 0.001	0.015	-	-	NC	20
Antimony	Sb	< 0.0002	0.001	-	-	NC	20
Arsenic	As	< 0.0002	0.001	-	-	NC	20
Barium	Ba	< 0.0002	0.001	-	-	-	-
Beryllium	Be	< 0.0002	0.001	-	-	-	-
Cadmium	Cd	< 0.00004	0.001	-	-	NC	20
Calcium	Ca	-	-	0.3	20	0.6	20
Chromium	Cr	< 0.0002	0.001	-	-	NC	20
Cobalt	Co	< 0.0002	0.001	-	-	NC	20
Copper	Cu	< 0.0002	0.001	-	-	NC	20
Lead	Pb	< 0.0002	0.001	-	-	NC	20
Magnesium	Mg	-	-	0.7	20	2.5	20
Manganese	Mn	< 0.0002	0.001	-	-	-	-
Mercury	Hg	< 0.02	0.05	-	-	-	-
Molybdenum	Mo	< 0.0001	0.001	-	-	PASS	20
Nickel	Ni	< 0.0002	0.001	-	-	PASS	20
Potassium	K	< 0.02	0.05	0	20	0	20
Silver	Ag	< 0.00005	0.001	-	-	NC	20
Sodium	Na	-	-	0.3	20	3.3	20
Strontium	Sr	< 0.0002	0.001	-	-	-	-
Thallium	Tl	< 0.00002	0.001	-	-	NC	20
Thorium	Th	< 0.0001	0.0005	-	-	NC	20
Tin	Sn	< 0.0002	0.005	-	-	NC	20
Titanium	Ti	< 0.0002	0.001	-	-	-	-
Uranium	U	< 0.0001	0.0005	-	-	PASS	20
Vanadium	V	< 0.0002	0.001	-	-	-	-
Zinc	Zn	< 0.001	0.01	-	-	NC	20
Zirconium	Zr	< 0.002	0.01	-	-	-	-

mg/L = milligrams per liter
Mercury Hg expressed as: ug/L (micrograms per liter)
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Batch Quality Control for Dissolved Metals Analysis in Water (QC# 97902)

Parameter		Duplicate (R.P.D.) 708220755	Duplicate Limits
Aluminum	Al	NC	20
Antimony	Sb	NC	20
Arsenic	As	PASS	20
Cadmium	Cd	NC	20
Calcium	Ca	0.5	20
Chromium	Cr	PASS	20
Cobalt	Co	0	20
Copper	Cu	7.1	20
Lead	Pb	NC	20
Magnesium	Mg	0.6	20
Mercury	Hg	NC	20
Molybdenum	Mo	2.2	20
Nickel	Ni	0	20
Potassium	K	4.1	20
Silver	Ag	NC	20
Sodium	Na	0.3	20
Thallium	Tl	NC	20
Thorium	Th	NC	20
Tin	Sn	NC	20
Uranium	U	2	20
Zinc	Zn	3.5	20

mg/L = milligrams per liter
Mercury Hg expressed as: ug/L (micrograms per liter)
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Batch Quality Control for Total Metals Analysis in Water (QC# 97898)

Parameter	Duplicate (R.P.D.) 708200302	Duplicate Limits	Duplicate (R.P.D.) 708220427	Duplicate Limits	Duplicate (R.P.D.) 708220755	Duplicate Limits
Mercury Hg	NC	20	NC	20	NC	20

ug/L = micrograms per liter
R.P.D. = Relative Percent Difference
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Batch Quality Control for Total Metals Analysis in Water (QC# 97898)

Parameter	Spike (% Recovery) 708200302	Spike Limits	Spike (% Recovery) 708220427	Spike Limits	Spike (% Recovery) 708220755	Spike Limits
Mercury Hg	98	70 - 128	98	70 - 128	100	70 - 128

ug/L = micrograms per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Batch Quality Control for Total Metals Analysis in Water (QC# 97901)

Parameter		Duplicate (R.P.D.) 708220736	Duplicate Limits	ICPMS Spike (% Recovery) 708220426	ICPMS Spike Limits	ICPMS Lab Fortified Blank (% Recovery)	ICPMS Lab Fortified Blank Limits
Aluminum	Al	PASS	20	-	-	100	78 - 122
Antimony	Sb	NC	20	100	78 - 118	90	75 - 117
Arsenic	As	PASS	20	98	80 - 118	80	72 - 114
Barium	Ba	-	-	-	-	100	81 - 119
Beryllium	Be	-	-	87	79 - 123	80	73 - 115
Boron	B	-	-	-	-	100	92 - 110
Cadmium	Cd	NC	20	98	74 - 124	87	78 - 116
Calcium	Ca	11.5	20	-	-	-	-
Chromium	Cr	PASS	20	84	70 - 130	95	83 - 119
Cobalt	Co	0	20	84	76 - 126	95	85 - 119
Copper	Cu	2.9	20	84	77 - 125	95	85 - 120
Lead	Pb	NC	20	110	77 - 124	95	80 - 116
Magnesium	Mg	10.1	20	-	-	-	-
Manganese	Mn	-	-	84	69 - 131	95	82 - 120
Molybdenum	Mo	0	20	99	68 - 118	95	82 - 114
Nickel	Ni	2.9	20	86	77 - 123	100	78 - 118
Potassium	K	9.4	20	-	-	-	-
Selenium	Se	-	-	-	-	65	58 - 120
Silver	Ag	NC	20	-	-	96	85 - 117
Sodium	Na	7.2	20	-	-	-	-
Strontium	Sr	-	-	-	-	95	83 - 115
Thallium	Tl	PASS	20	105	73 - 123	95	86 - 118
Thorium	Th	NC	20	-	-	-	-
Tin	Sn	NC	20	-	-	-	-
Titanium	Ti	-	-	93	70 - 130	100	79 - 119
Uranium	U	11.1	20	119	65 - 133	95	75 - 121
Vanadium	V	-	-	87	75 - 123	90	76 - 118
Zinc	Zn	0	20	-	-	75	64 - 126

mg/L = milligrams per liter
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

Batch Quality Control for Total Metals Analysis in Water (QC# 97901)

Parameter		Total Blank (mg/L)	Total Blank Limits
Aluminum	Al	0.001	0.015
Antimony	Sb	< 0.0002	0.001
Arsenic	As	< 0.0002	0.001
Barium	Ba	< 0.0002	0.001
Beryllium	Be	< 0.0002	0.001
Cadmium	Cd	< 0.00004	0.001
Chromium	Cr	< 0.0002	0.001
Cobalt	Co	< 0.0002	0.001
Copper	Cu	< 0.0002	0.001
Lead	Pb	< 0.0002	0.001
Manganese	Mn	< 0.0002	0.001
Molybdenum	Mo	< 0.0001	0.001
Nickel	Ni	< 0.0002	0.001
Potassium	K	< 0.02	0.05
Silver	Ag	< 0.00005	0.001
Strontium	Sr	< 0.0002	0.001
Thallium	Tl	< 0.00002	0.001
Thorium	Th	< 0.0001	0.0005
Tin	Sn	< 0.0002	0.005
Titanium	Ti	< 0.0002	0.001
Uranium	U	< 0.0001	0.0005
Vanadium	V	< 0.0002	0.001
Zinc	Zn	< 0.001	0.01
Zirconium	Zr	< 0.002	0.01

mg/L = milligrams per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Instrument Quality Control for the PSA Mercury Analyzer-AF (QC# 191269)

QC Type: Calibration Verification

Parameter		% Recovery	Limits
Mercury	Hg	102	90 - 110

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 5, 2007

GROUP NUMBER: 80822150

CANTEST

Batch Quality Control for Polychlorinated Biphenyls in Water (QC# 98059)

Parameter	Blank (ug/L)	Blank Limits	Spike (% Recovery)	Spike Limits
Arochlor 1242	< 0.1	0.4	-	-
Arochlor 1248	< 0.1	0.2	-	-
Arochlor 1254	< 0.1	0.4	90	75 - 125
Arochlor 1260	< 0.1	0.1	-	-

ug/L = micrograms per liter

Instrument Quality Control for the GC#HP5 w/ FID(TEH) or ECD(PCB) (QC# 191661)

QC Type: Calibration Verification

Parameter	% Recovery	Limits
Arochlor 1242	0	75 - 120
Arochlor 1248	0	75 - 120
Arochlor 1254	99	75 - 120
Arochlor 1260	99	75 - 120

Batch Quality Control Frequency Summary

Mercury Water Bromination Prep (Batch# 97898)

QC Type	No. Samples
Duplicate	3
Spike	3

Total Metals Preparation (Batch# 97901)

QC Type	No. Samples
ICPMS Spike	1
ICP Spike Vista ICAP	1
Potassium/Silicon Spike Vista	1
ICPMS Lab Fortified Blank	1
Duplicate	2
Total Blank	2

Dissolved Metals Preparation (Batch# 97902)

QC Type	No. Samples
Dissolved Blank	1
Duplicate	3

TEH/EPH Water Preparation (Batch# 97942)

QC Type	No. Samples
Blank	1
Method Performance Check Spike	1

TEH/EPH Water Preparation (Batch# 97997)

QC Type	No. Samples
Blank	1
Method Performance Check Spike	1

(Continued on next page)

Batch Quality Control Frequency Summary

PCB's in Water/Liquid Prep (Batch# 98059)

QC Type	No. Samples
Blank	1
Spike	1

Mercury Water Bromination Prep (Batch# 97898)

QC Type	No. Samples
Batch Size	30

Total Metals Preparation (Batch# 97901)

QC Type	No. Samples
Batch Size	58

Dissolved Metals Preparation (Batch# 97902)

QC Type	No. Samples
Batch Size	31

TEH/EPH Water Preparation (Batch# 97942)

QC Type	No. Samples
Batch Size	18

TEH/EPH Water Preparation (Batch# 97997)

QC Type	No. Samples
Batch Size	16

(Continued on next page)

Batch Quality Control Frequency Summary

PCB's in Water/Liquid Prep (Batch# 98059)

QC Type	No. Samples
Batch Size	18

CHROMATOGRAM COVER SHEET

CANTEST

CONTACT	COMPANY NAME	
KEN BOLDT	GARTNER LEE LTD.	
FAX NUMBER	**DATE**	**PGS INCL. COVER**
1-905-477-1456	AUGUST 29, 2007	3
FROM	**RETURN FAX**	**TELEPHONE**
CANTEST LTD	604 731 2386	604 734 7276

SUBJECT

Chromatogram(s).

Please find the attached chromatograms associated with:

CANTEST Group # 80822157

Your Project Name ..... CAM-M

Your Project Number 70517

Sample Matrix ..... WATER

The originals will follow with the report.

Data File D:\HPCHEM\1\DATA\070824B\099FA901.D Sample Name: 708220754

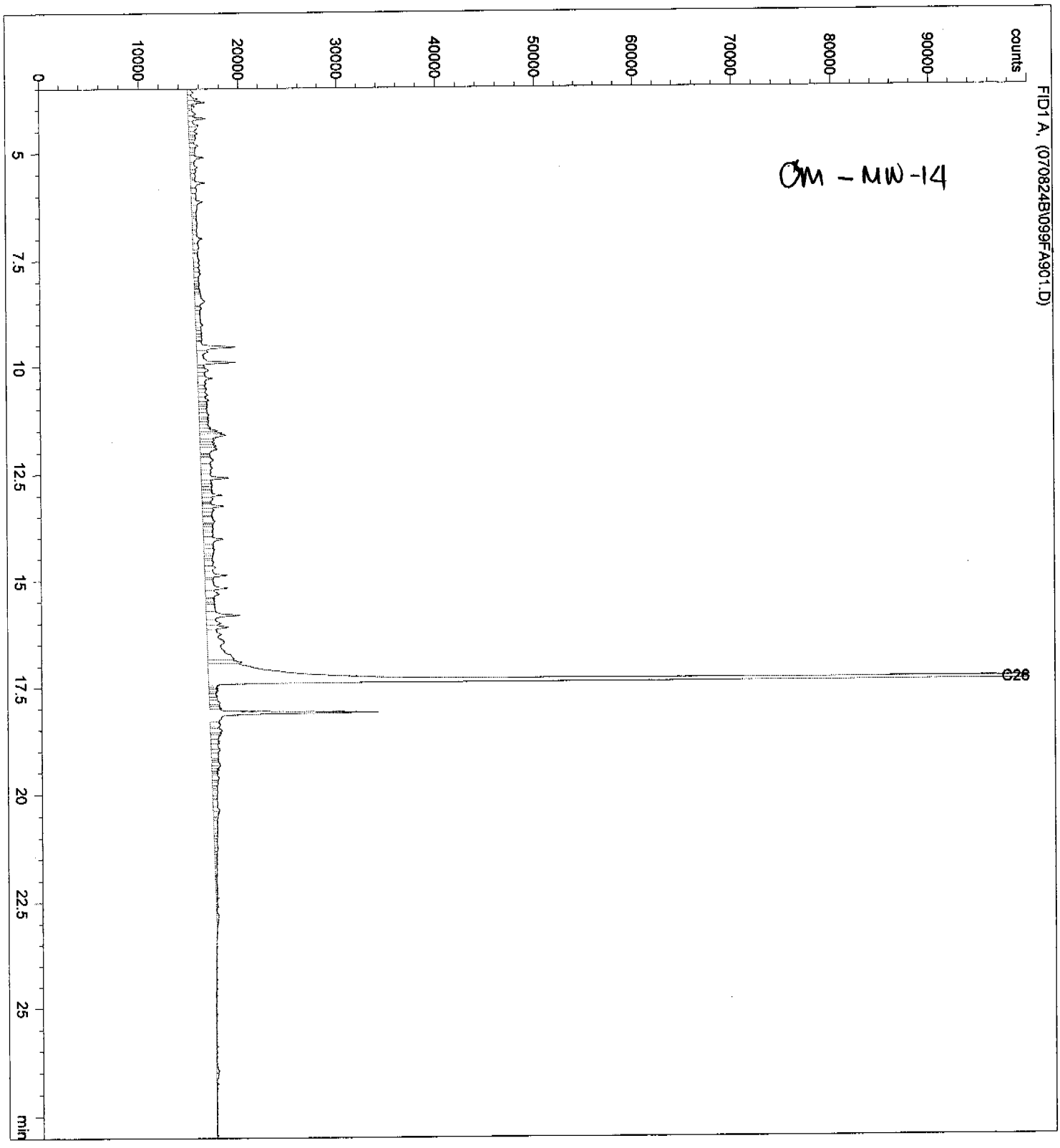
Injection Date : 8/27/07 4:22:37 AM
Sample Name : 708220754
Acq. Operator : pcn

Seq. Line : 109
Vial : 99
Inj : 1
Inj Volume : 2 µl

Acq. Method : D:\HPCHEM~1\1\METHODS\!EPH.M
Last changed : 8/26/07 11:24:53 PM by pcn
Analysis Method : D:\HPCHEM~1\1\METHODS\!TEH_NAP.M
Last changed : 8/29/07 6:43:10 AM by pcn
(modified after loading)

8082150
GAR005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



Data File D:\HPCHEM\1\DATA\070824B\076F9601.D Sample Name: 708220756

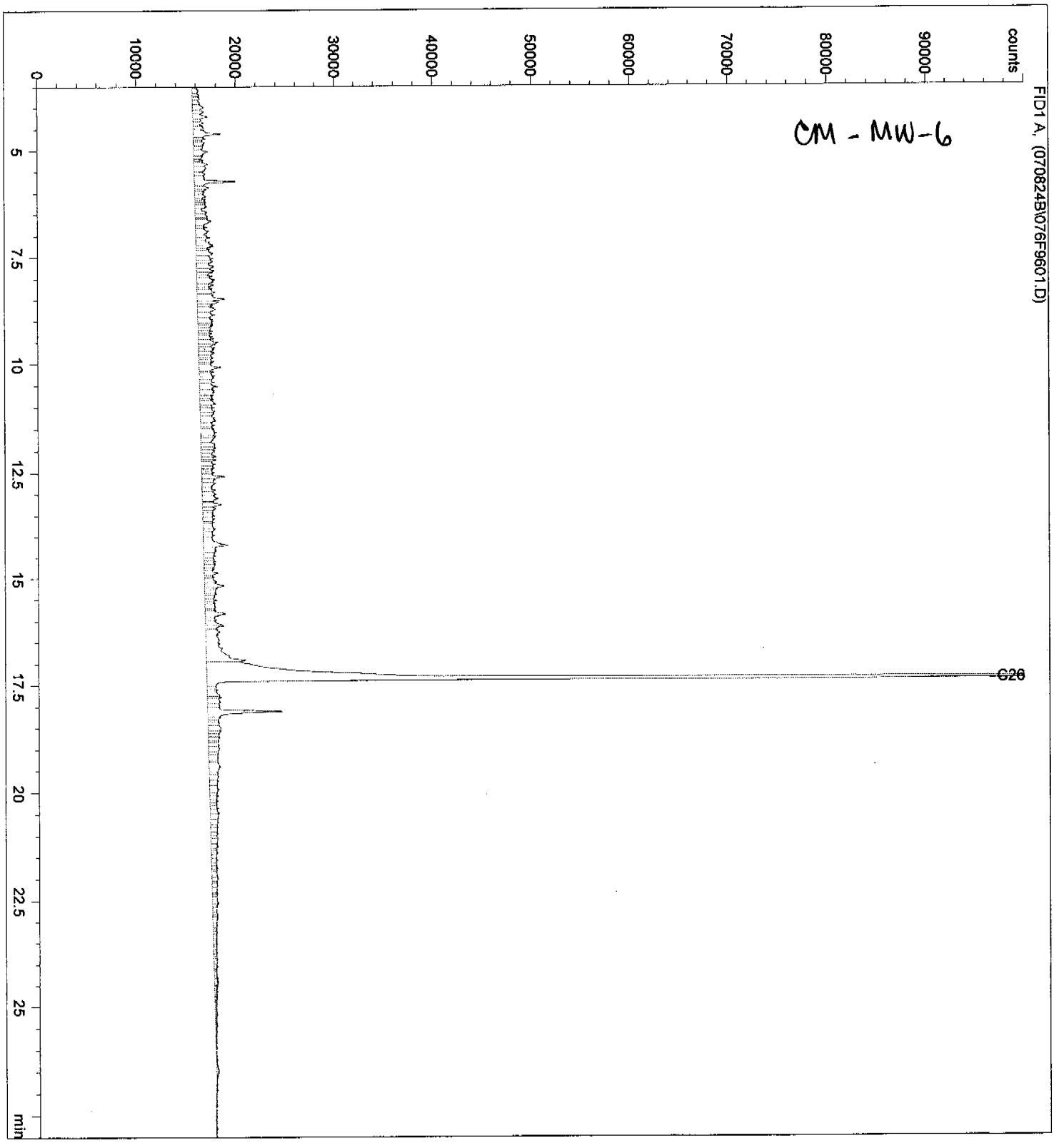
Injection Date : 8/26/07 8:28:41 PM
Sample Name : 708220756
Acq. Operator : pcn

Seq. Line : 96
Vial : 76
Inj : 1
Inj Volume : 2 µl

Acq. Method : D:\HPCHEM~1\1\METHODS\!EPH.M
Last changed : 8/26/07 5:19:38 PM by pcn
Analysis Method : D:\HPCHEM~1\1\METHODS\!TEH_NAP.M
Last changed : 8/29/07 6:43:10 AM by pcn
(modified after loading)

GAR005

Total Extractable Hydrocarbons. Soils and Waters are extracted using methylene chloride and then analyzed using an HPGC-FID. Calculations are based on an internal standard and reported in ug/L for waters and ug/g for soils.



Analysis Report

CANTEST

REPORT ON: Amended Report - Analysis of Water Samples

REPORTED TO: Gartner Lee Limited
Suite 300
300 Town Centre Boulevard
Markham, ON
L3R 5Z6

Att'n: Ken Boldt

CHAIN OF CUSTODY: 2090864
PROJECT NAME: CAM-M
PROJECT NUMBER: 70517

NUMBER OF SAMPLES: 5

REPORT DATE: September 26, 2007

DATE SUBMITTED: August 22, 2007

GROUP NUMBER: 80822151

SAMPLE TYPE: Water

NOTE: Results contained in this report refer only to the testing of samples as submitted. Other information is available on request.

TEST METHODS:

Conventional Parameters - analyses were performed using procedures based on those described in the most current editions of "British Columbia Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials", (2005 edition) Province of British Columbia and "Standard Methods for the Examination of Water and Wastewater" (21st Edition), published by the American Public Health Association.

Petroleum Hydrocarbons (C10-16 and C16-C34) in Water - analysis was performed by extraction, silica gel clean-up and analysis by Gas Chromatography with flame ionization detection (GC/FID).

Petroleum Hydrocarbons (C34-50) in Water - analysis was performed by extraction, silica gel clean-up and analysis by Gas Chromatography with flame ionization detection (GC/FID).

Mercury in Water - analysis was performed using procedures based on U. S. EPA Method 245.7, oxidative digestion using bromination, and analysis using Cold Vapour Atomic Fluorescence Spectroscopy.

Metals in Water - analysis was performed using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP), Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS).

Dissolved Metals in Water - Samples were filtered in the laboratory and quantitatively determined using Inductively Coupled Plasma Optical Emission Spectroscopy (ICP) and/or Inductively Coupled Plasma-Mass Spectroscopy (ICP/MS).

(Continued)

CANTEST LTD.

Anna Becalska, PhD
Coordinator, Trace Metals

4606 Canada Way, Burnaby, BC V5G 1K5
Tel: 604 734 7276 Fax: 604 731 2386

Polychlorinated Biphenyls - analysis was performed using procedures based upon U.S. EPA Methods 608/8080, involving extraction, clean-up steps, and analysis using GC/ECD. Arochlors 1242, 1248, 1254 and 1260 were included.

Semi-Volatile Hydrocarbons - analysis was performed using procedures based on U.S. EPA Method 8015, involving dichloromethane extraction and analysis using GC/FID. Components in the C10 to C30 range are included, using an alkane standard for quantitation.

COMMENTS:

Amended Report - Result for sample 708220753 have had some corrections for elements Na and Mg.

TEST RESULTS:

(See following pages)

CANTEST

Conventional Parameters in Water

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Hardness CaCO3	Hardness (Total) CaCO3
CM-MW-5	Aug 18/07	708220753	974	3330
CM-MW-6	Aug 16/07	708220756	2560	2610
CM-MW-7	Aug 16/07	708220757	3350	3720
CM-MW-13	Aug 17/07	708220759	681	736
CM-MW-15	Aug 17/07	708220760	1230	1320
DETECTION LIMIT			0.2	0.2
UNITS			mg/L	mg/L

mg/L = milligrams per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 26, 2007

GROUP NUMBER: 80822151

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-5	CM-MW-5	CM-MW-6	CM-MW-6	DETECTION LIMIT	UNITS
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 16/07	Aug 16/07		
CANTEST ID:		708220753	708220753	708220756	708220756		
Aluminum	Al	0.021	<	0.017	<	0.001	mg/L
Antimony	Sb	<	<	0.0003	0.0003	0.0002	mg/L
Arsenic	As	0.0010	0.0009	0.0045	0.0022	0.0002	mg/L
Barium	Ba	0.014	0.014	0.018	0.016	0.0002	mg/L
Beryllium	Be	<	<	<	<	0.0002	mg/L
Bismuth	Bi	<	<	<	<	0.0002	mg/L
Boron	B	0.97	0.92	0.29	0.28	0.01	mg/L
Cadmium	Cd	0.00025	0.00021	0.00022	0.00022	0.00004	mg/L
Calcium	Ca	492	389	436	428	0.01	mg/L
Chromium	Cr	0.0054	0.0005	0.0078	0.0009	0.0002	mg/L
Cobalt	Co	0.042	0.040	0.0093	0.0090	0.0002	mg/L
Copper	Cu	0.0051	0.0040	0.0044	0.0042	0.0002	mg/L
Iron	Fe	0.34	0.08	2.47	0.08	0.01	mg/L
Lead	Pb	<	<	<	<	0.0002	mg/L
Lithium	Li	0.13	0.12	0.11	0.10	0.001	mg/L
Magnesium	Mg	509	405	369	361	0.01	mg/L
Manganese	Mn	0.733	0.690	0.332	0.319	0.0002	mg/L
Mercury	Hg	<	<	<	<	0.02	µg/L
Molybdenum	Mo	0.0088	0.0079	0.012	0.011	0.0001	mg/L
Nickel	Ni	0.831	0.789	0.061	0.059	0.0002	mg/L
Phosphorus	P	<	<	<	<	0.03	mg/L
Potassium	K	89.4	72.1	40.3	38.2	0.02	mg/L
Selenium	Se	0.0016	0.0016	0.0014	0.0007	0.0002	mg/L
Silicon	Si	3.21	3.01	8.58	8.00	0.05	mg/L
Silver	Ag	<	<	<	<	0.00005	mg/L
Sodium	Na	846	685	778	761	0.01	mg/L
Strontium	Sr	1.57	1.46	1.31	1.25	0.0002	mg/L
Tellurium	Te	<	<	<	<	0.0002	mg/L
Thallium	Tl	0.00031	0.00028	0.00011	0.00009	0.00002	mg/L
Thorium	Th	<	<	<	<	0.0001	mg/L
Tin	Sn	<	<	<	<	0.0002	mg/L

(Continued on next page)

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 26, 2007

GROUP NUMBER: 80822151

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-5	CM-MW-5	CM-MW-6	CM-MW-6		
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 18/07	Aug 18/07	Aug 16/07	Aug 16/07	DETECTION LIMIT	UNITS
CANTEST ID:		708220753	708220753	708220756	708220756		
Titanium	Ti	0.0014	0.0006	0.0017	0.0008	0.0002	mg/L
Uranium	U	0.037	0.033	0.057	0.053	0.0001	mg/L
Vanadium	V	<	<	0.0003	0.0003	0.0002	mg/L
Zinc	Zn	0.16	0.15	0.083	0.071	0.001	mg/L
Zirconium	Zr	<	<	0.003	<	0.002	mg/L

mg/L = milligrams per liter
< = Less than detection limit

μg/L = micrograms per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 26, 2007

GROUP NUMBER: 80822151

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-7	CM-MW-7	CM-MW-13	CM-MW-13		
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 16/07	Aug 16/07	Aug 17/07	Aug 17/07		
CANTEST ID:		708220757	708220757	708220759	708220759	DETECTION LIMIT	UNITS
Aluminum	Al	0.018	0.005	0.18	0.002	0.001	mg/L
Antimony	Sb	0.0003	0.0003	<	<	0.0002	mg/L
Arsenic	As	0.0035	0.0034	0.0007	0.0004	0.0002	mg/L
Barium	Ba	0.012	0.012	0.039	0.033	0.0002	mg/L
Beryllium	Be	<	<	<	<	0.0002	mg/L
Bismuth	Bi	<	<	<	<	0.0002	mg/L
Boron	B	1.39	1.38	0.24	0.24	0.01	mg/L
Cadmium	Cd	0.00014	0.00013	0.00011	<	0.00004	mg/L
Calcium	Ca	524	481	138	125	0.01	mg/L
Chromium	Cr	0.0056	0.0009	0.019	0.0003	0.0002	mg/L
Cobalt	Co	0.0020	0.0019	0.0022	0.0016	0.0002	mg/L
Copper	Cu	0.0053	0.0053	0.0052	0.0021	0.0002	mg/L
Iron	Fe	0.13	0.09	3.17	0.08	0.01	mg/L
Lead	Pb	0.0002	<	0.0014	<	0.0002	mg/L
Lithium	Li	0.14	0.13	0.023	0.022	0.001	mg/L
Magnesium	Mg	584	521	95.0	89.5	0.01	mg/L
Manganese	Mn	0.121	0.117	0.061	0.045	0.0002	mg/L
Mercury	Hg	<	<	<	<	0.02	µg/L
Molybdenum	Mo	0.0052	0.0050	0.0051	0.0041	0.0001	mg/L
Nickel	Ni	0.060	0.055	0.106	0.070	0.0002	mg/L
Phosphorus	P	<	<	<	<	0.03	mg/L
Potassium	K	113	101	22.4	21.0	0.02	mg/L
Selenium	Se	0.0014	0.0008	0.0008	0.0008	0.0002	mg/L
Silicon	Si	3.53	3.42	3.00	2.69	0.05	mg/L
Silver	Ag	<	<	<	<	0.00005	mg/L
Sodium	Na	1490	1420	138	125	0.01	mg/L
Strontium	Sr	2.25	2.17	0.386	0.366	0.0002	mg/L
Tellurium	Te	<	<	<	<	0.0002	mg/L
Thallium	Tl	0.00027	0.00024	0.00009	0.00007	0.00002	mg/L
Thorium	Th	<	<	0.0012	<	0.0001	mg/L
Tin	Sn	<	<	<	<	0.0002	mg/L

(Continued on next page)

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 26, 2007

GROUP NUMBER: 80822151

CANTEST

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-7	CM-MW-7	CM-MW-13	CM-MW-13	DETECTION LIMIT	UNITS
SAMPLE PREPARATION:		TOTAL	DISSOLVED	TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 16/07	Aug 16/07	Aug 17/07	Aug 17/07		
CANTEST ID:		708220757	708220757	708220759	708220759		
Titanium	Ti	0.0012	0.0008	0.0088	0.0003	0.0002	mg/L
Uranium	U	0.031	0.029	0.012	0.012	0.0001	mg/L
Vanadium	V	0.0002	<	<	<	0.0002	mg/L
Zinc	Zn	0.39	0.36	0.22	0.065	0.001	mg/L
Zirconium	Zr	<	<	<	<	0.002	mg/L

mg/L = milligrams per liter
μg/L = micrograms per liter
< = Less than detection limit

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-15	CM-MW-15		
SAMPLE PREPARATION:		TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 17/07	Aug 17/07		
CANTEST ID:		708220760	708220760	DETECTION LIMIT	UNITS
Aluminum	Al	0.23	0.002	0.001	mg/L
Antimony	Sb	<	<	0.0002	mg/L
Arsenic	As	0.0013	0.0009	0.0002	mg/L
Barium	Ba	0.044	0.038	0.0002	mg/L
Beryllium	Be	<	<	0.0002	mg/L
Bismuth	Bi	<	<	0.0002	mg/L
Boron	B	0.22	0.20	0.01	mg/L
Cadmium	Cd	0.00007	<	0.00004	mg/L
Calcium	Ca	228	216	0.01	mg/L
Chromium	Cr	0.141	0.0008	0.0002	mg/L
Cobalt	Co	0.0050	0.0041	0.0002	mg/L
Copper	Cu	0.0049	0.0026	0.0002	mg/L
Iron	Fe	1.07	0.07	0.01	mg/L
Lead	Pb	0.0031	<	0.0002	mg/L
Lithium	Li	0.028	0.025	0.001	mg/L
Magnesium	Mg	182	168	0.01	mg/L
Manganese	Mn	0.195	0.164	0.0002	mg/L
Mercury	Hg	<	<	0.02	µg/L
Molybdenum	Mo	0.0023	0.0011	0.0001	mg/L
Nickel	Ni	0.079	0.047	0.0002	mg/L
Phosphorus	P	<	<	0.03	mg/L
Potassium	K	23.1	21.6	0.02	mg/L
Selenium	Se	0.0009	0.0009	0.0002	mg/L
Silicon	Si	5.07	4.22	0.05	mg/L
Silver	Ag	<	<	0.00005	mg/L
Sodium	Na	193	181	0.01	mg/L
Strontium	Sr	0.576	0.537	0.0002	mg/L
Tellurium	Te	<	<	0.0002	mg/L
Thallium	Tl	0.00008	0.00004	0.00002	mg/L
Thorium	Th	0.0028	<	0.0001	mg/L
Tin	Sn	0.0003	<	0.0002	mg/L

(Continued on next page)

Metals Analysis in Water

CLIENT SAMPLE IDENTIFICATION:		CM-MW-15	CM-MW-15		
SAMPLE PREPARATION:		TOTAL	DISSOLVED		
DATE SAMPLED:		Aug 17/07	Aug 17/07		
CANTEST ID:		708220760	708220760	DETECTION LIMIT	UNITS
Titanium	Ti	0.0050	0.0004	0.0002	mg/L
Uranium	U	0.024	0.021	0.0001	mg/L
Vanadium	V	0.0006	0.0005	0.0002	mg/L
Zinc	Zn	0.063	0.030	0.001	mg/L
Zirconium	Zr	0.002	<	0.002	mg/L

mg/L = milligrams per liter
< = Less than detection limit

µg/L = micrograms per liter

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 26, 2007

GROUP NUMBER: 80822151

CANTEST

Polychlorinated Biphenyls in Water

CLIENT SAMPLE IDENTIFICATION:	CM-MW-5	CM-MW-6	CM-MW-7	CM-MW-13	
DATE SAMPLED:	Aug 18/07	Aug 16/07	Aug 16/07	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220753	708220756	708220757	708220759	
Arochlor 1242	<	<	<	<	0.1
Arochlor 1248	<	<	<	<	0.1
Arochlor 1254	<	<	<	<	0.1
Arochlor 1260	<	<	<	<	0.1
Total PCB	<	<	<	<	0.4
Surrogate Recovery					
2,2',4,4',6,6'-hexabromobiphenyl	97	NONE	93	NONE	-

Results expressed as micrograms per liter (μg/L)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

Polychlorinated Biphenyls in Water

CLIENT SAMPLE IDENTIFICATION:	CM-MW-15	
DATE SAMPLED:	Aug 17/07	DETECTION LIMIT
CANTEST ID:	708220760	
Arochlor 1242	<	0.1
Arochlor 1248	<	0.1
Arochlor 1254	<	0.1
Arochlor 1260	<	0.1
Total PCB	<	0.4
Surrogate Recovery		
2,2',4,4',6,6'-hexabromobiphenyl	106	-

Results expressed as micrograms per liter (µg/L)
Surrogate recoveries expressed as percent (%)
< = Less than detection limit

Semi-Volatile Hydrocarbons in Water

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Total Extractable Hydrocarbons
CM-MW-5	Aug 18/07	708220753	<
CM-MW-6	Aug 16/07	708220756	170
CM-MW-7	Aug 16/07	708220757	<
CM-MW-13	Aug 17/07	708220759	<
CM-MW-15	Aug 17/07	708220760	<
DETECTION LIMIT			100
UNITS			µg/L

µg/L = micrograms per liter
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 26, 2007

GROUP NUMBER: 80822151

CANTEST

Extractable Petroleum Hydrocarbons - Silica-gel Cleanup in Water

CLIENT SAMPLE IDENTIFICATION:	SAMPLE DATE	CANTEST ID	Petroleum Hydrocarbons C10-16	Petroleum Hydrocarbons C16-34	Petroleum Hydrocarbons C34-50
CM-MW-6	Aug 16/07	708220756	<	<	<
DETECTION LIMIT			100	250	250
UNITS			µg/L	µg/L	µg/L

µg/L = micrograms per liter
< = Less than detection limit

REPORTED TO: Gartner Lee Limited

REPORT DATE: September 26, 2007

GROUP NUMBER: 80822151

CANTEST

Batch Quality Control for Dissolved Metals Analysis in Water (QC# 97902)

Parameter		Dissolved Blank (mg/L)	Dissolved Blank Limits	Duplicate (R.P.D.) 708220271	Duplicate Limits	Duplicate (R.P.D.) 708220438	Duplicate Limits
Aluminum	Al	< 0.001	0.015	-	-	NC	20
Antimony	Sb	< 0.0002	0.001	-	-	NC	20
Arsenic	As	< 0.0002	0.001	-	-	NC	20
Barium	Ba	< 0.0002	0.001	-	-	-	-
Beryllium	Be	< 0.0002	0.001	-	-	-	-
Cadmium	Cd	< 0.00004	0.001	-	-	NC	20
Calcium	Ca	-	-	0.3	20	0.6	20
Chromium	Cr	< 0.0002	0.001	-	-	NC	20
Cobalt	Co	< 0.0002	0.001	-	-	NC	20
Copper	Cu	< 0.0002	0.001	-	-	NC	20
Lead	Pb	< 0.0002	0.001	-	-	NC	20
Magnesium	Mg	-	-	0.7	20	2.5	20
Manganese	Mn	< 0.0002	0.001	-	-	-	-
Mercury	Hg	< 0.02	0.05	-	-	-	-
Molybdenum	Mo	< 0.0001	0.001	-	-	PASS	20
Nickel	Ni	< 0.0002	0.001	-	-	PASS	20
Potassium	K	< 0.02	0.05	0	20	0	20
Silver	Ag	< 0.00005	0.001	-	-	NC	20
Sodium	Na	-	-	0.3	20	3.3	20
Sodium	Na	< 0.1	0.2	-	-	-	-
Strontium	Sr	< 0.0002	0.001	-	-	-	-
Thallium	Tl	< 0.00002	0.001	-	-	NC	20
Thorium	Th	< 0.0001	0.0005	-	-	NC	20
Tin	Sn	< 0.0002	0.005	-	-	NC	20
Titanium	Ti	< 0.0002	0.001	-	-	-	-
Uranium	U	< 0.0001	0.0005	-	-	PASS	20
Vanadium	V	< 0.0002	0.001	-	-	-	-
Zinc	Zn	< 0.001	0.01	-	-	NC	20
Zirconium	Zr	< 0.002	0.01	-	-	-	-

mg/L = milligrams per liter
Mercury Hg expressed as: ug/L (micrograms per liter)
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

Batch Quality Control for Dissolved Metals Analysis in Water (QC# 97902)

Parameter		Duplicate (R.P.D.) 708220755	Duplicate Limits
Aluminum	Al	NC	20
Antimony	Sb	NC	20
Arsenic	As	PASS	20
Cadmium	Cd	NC	20
Calcium	Ca	0.5	20
Chromium	Cr	PASS	20
Cobalt	Co	0	20
Copper	Cu	7.1	20
Lead	Pb	NC	20
Magnesium	Mg	0.6	20
Mercury	Hg	NC	20
Molybdenum	Mo	2.2	20
Nickel	Ni	0	20
Potassium	K	4.1	20
Silver	Ag	NC	20
Sodium	Na	0.3	20
Thallium	Tl	NC	20
Thorium	Th	NC	20
Tin	Sn	NC	20
Uranium	U	2	20
Zinc	Zn	3.5	20

mg/L = milligrams per liter
Mercury Hg expressed as: ug/L (micrograms per liter)
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

CANTEST

Batch Quality Control for Total Metals Analysis in Water (QC# 97901)

Parameter		Duplicate (R.P.D.) 708220672	Duplicate Limits	Duplicate (R.P.D.) 708220736	Duplicate Limits	ICPMS Spike (% Recovery) 708220426	ICPMS Spike Limits
Aluminum	Al	-	-	PASS	20	-	-
Antimony	Sb	-	-	NC	20	100	78 - 118
Arsenic	As	-	-	PASS	20	98	80 - 118
Beryllium	Be	-	-	-	-	87	79 - 123
Cadmium	Cd	-	-	NC	20	98	74 - 124
Calcium	Ca	-	-	11.5	20	-	-
Chromium	Cr	-	-	PASS	20	84	70 - 130
Cobalt	Co	-	-	0	20	84	76 - 126
Copper	Cu	-	-	2.9	20	84	77 - 125
Lead	Pb	-	-	NC	20	110	77 - 124
Magnesium	Mg	-	-	10.1	20	-	-
Manganese	Mn	-	-	-	-	84	69 - 131
Molybdenum	Mo	-	-	0	20	99	68 - 118
Nickel	Ni	-	-	2.9	20	86	77 - 123
Potassium	K	-	-	9.4	20	-	-
Silver	Ag	-	-	NC	20	-	-
Sodium	Na	-	-	7.2	20	-	-
Sodium	Na	0	15	-	-	-	-
Thallium	Tl	-	-	PASS	20	105	73 - 123
Thorium	Th	-	-	NC	20	-	-
Tin	Sn	-	-	NC	20	-	-
Titanium	Ti	-	-	-	-	93	70 - 130
Uranium	U	-	-	11.1	20	119	65 - 133
Vanadium	V	-	-	-	-	87	75 - 123
Zinc	Zn	-	-	0	20	-	-

mg/L = milligrams per liter
R.P.D. = Relative Percent Difference
PASS = Duplicate sample results were in the range of one to five times the detection limit. R.P.D. calculation is not applicable in this range. Acceptance criteria is a maximum difference between the duplicates equivalent to the value of the detection limit.
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

CANTEST

Batch Quality Control for Total Metals Analysis in Water (QC# 97901)

Parameter		ICPMS Lab Fortified Blank (% Recovery)	ICPMS Lab Fortified Blank Limits	Total Blank (mg/L)	Total Blank Limits
Aluminum	Al	100	78 - 122	0.001	0.015
Antimony	Sb	90	75 - 117	< 0.0002	0.001
Arsenic	As	80	72 - 114	< 0.0002	0.001
Barium	Ba	100	81 - 119	< 0.0002	0.001
Beryllium	Be	80	73 - 115	< 0.0002	0.001
Boron	B	100	92 - 110	-	-
Cadmium	Cd	87	78 - 116	< 0.00004	0.001
Chromium	Cr	95	83 - 119	< 0.0002	0.001
Cobalt	Co	95	85 - 119	< 0.0002	0.001
Copper	Cu	95	85 - 120	< 0.0002	0.001
Lead	Pb	95	80 - 116	< 0.0002	0.001
Manganese	Mn	95	82 - 120	< 0.0002	0.001
Molybdenum	Mo	95	82 - 114	< 0.0001	0.001
Nickel	Ni	100	78 - 118	< 0.0002	0.001
Potassium	K	-	-	< 0.02	0.05
Selenium	Se	65	58 - 120	-	-
Silver	Ag	96	85 - 117	< 0.00005	0.001
Sodium	Na	-	-	< 0.1	0.2
Strontium	Sr	95	83 - 115	< 0.0002	0.001
Thallium	Tl	95	86 - 118	< 0.00002	0.001
Thorium	Th	-	-	< 0.0001	0.0005
Tin	Sn	-	-	< 0.0002	0.005
Titanium	Ti	100	79 - 119	< 0.0002	0.001
Uranium	U	95	75 - 121	< 0.0001	0.0005
Vanadium	V	90	76 - 118	< 0.0002	0.001
Zinc	Zn	75	64 - 126	< 0.001	0.01
Zirconium	Zr	-	-	< 0.002	0.01

mg/L = milligrams per liter

Batch Quality Control for Total Metals Analysis in Water (QC# 97917)

Parameter	Duplicate (R.P.D.) 708210488	Duplicate Limits	Duplicate (R.P.D.) 708220036	Duplicate Limits	Duplicate (R.P.D.) 708220756	Duplicate Limits
Mercury Hg	NC	20	NC	20	NC	20

ug/L = micrograms per liter
R.P.D. = Relative Percent Difference
NC = Not Calculated. Duplicate sample results were less than the detection limit. Relative Percent Difference calculation is not defined for analyte levels of less than detection limit.

Batch Quality Control for Total Metals Analysis in Water (QC# 97917)

Parameter	Spike (% Recovery) 708210488	Spike Limits	Spike (% Recovery) 708220036	Spike Limits	Spike (% Recovery) 708220756	Spike Limits
Mercury Hg	(*)	70 - 128	100	70 - 128	85	70 - 128

ug/L = micrograms per liter
(*) = Quality Control results exceeded internally set limits; after review by Quality Assurance Unit, non-conformance overridden and batch sample analysis results released for reporting

CANTEST

Instrument Quality Control for the PSA Mercury Analyzer-AF (QC# 191344)

QC Type: Calibration Verification

Parameter	% Recovery	Limits
Mercury Hg	104	90 - 110

Batch Quality Control for Polychlorinated Biphenyls in Water (QC# 98059)

Parameter	Blank (ug/L)	Blank Limits	Spike (% Recovery)	Spike Limits
Arochlor 1242	< 0.1	0.4	-	-
Arochlor 1248	< 0.1	0.2	-	-
Arochlor 1254	< 0.1	0.4	90	75 - 125
Arochlor 1260	< 0.1	0.1	-	-

ug/L = micrograms per liter

Instrument Quality Control for the GC#HP5 w/ FID(TEH) or ECD(PCB) (QC# 191661)

QC Type: Calibration Verification

Parameter	% Recovery	Limits
Arochlor 1242	0	75 - 120
Arochlor 1248	0	75 - 120
Arochlor 1254	99	75 - 120
Arochlor 1260	99	75 - 120

Batch Quality Control Frequency Summary

Total Metals Preparation (Batch# 97901)

QC Type	No. Samples
ICPMS Spike	1
ICP Spike Vista ICAP	1
Potassium/Silicon Spike Vista	1
ICPMS Lab Fortified Blank	1
Duplicate	2
Total Blank	2

Dissolved Metals Preparation (Batch# 97902)

QC Type	No. Samples
Dissolved Blank	1
Duplicate	3

Mercury Water Bromination Prep (Batch# 97917)

QC Type	No. Samples
Duplicate	3
Spike	3

TEH/EPH Water Preparation (Batch# 97942)

QC Type	No. Samples
Blank	1
Method Performance Check Spike	1

TEH/EPH Water Preparation (Batch# 97997)

QC Type	No. Samples
Blank	1
Method Performance Check Spike	1

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CANTEST

Batch Quality Control Frequency Summary

PCB's in Water/Liquid Prep (Batch# 98059)

QC Type	No. Samples
Blank	1
Spike	1

Total Metals Preparation (Batch# 97901)

QC Type	No. Samples
Batch Size	58

Dissolved Metals Preparation (Batch# 97902)

QC Type	No. Samples
Batch Size	31

Mercury Water Bromination Prep (Batch# 97917)

QC Type	No. Samples
Batch Size	31

TEH/EPH Water Preparation (Batch# 97942)

QC Type	No. Samples
Batch Size	18

TEH/EPH Water Preparation (Batch# 97997)

QC Type	No. Samples
Batch Size	16

(Continued on next page)

Batch Quality Control Frequency Summary

PCB's in Water/Liquid Prep (Batch# 98059)

QC Type	No. Samples
Batch Size	18

ANALYTICAL REPORT

GARTNER LEE LTD.

ATTN: KEN BOLDT

300 TOWN CENTRE BOULVARD
SUITE 300
MARKHAM ON L3R 5Z6

Reported On: 24-SEP-07 10:26 AM
Revision: 2

Lab Work Order #:	**L545880**	**Date Received:**	**22-AUG-07**

Project P.O. #: ALSEQ07-487
Job Reference: 70517
Legal Site Desc: CAM-M
CofC Numbers: A018186

Other Information:

Comments: ADDITIONAL 17-SEP-07 17:56
ADDITIONAL 13-SEP-07 10:51
ADDITIONAL 13-SEP-07 00:03
Please note that certain metals detection limits have been increased for some of the samples due to the interferences encountered during the analysis.

Timothy Guy Crowther
General Manager, Vancouver

For any questions about this report please contact your Account Manager:

NATASHA MARKOVIC-MIROVIC

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L545880-3	L545880-4	L545880-5	L545880-6	L545880-7
	Description					
	Sampled Date	16-AUG-07	16-AUG-07	17-AUG-07	17-AUG-07	17-AUG-07
	Sampled Time					
	Client ID	CM-14-1	CM-14-2	CM-15-1	CM-15-2	CM-16-1
Grouping	**Analyte**					
SOIL						
Physical Tests	% Moisture (%)	11	8.1	6.1	6.0	31
	pH (pH)	8.66	8.70	8.60	8.44	7.93
Metals	Antimony (Sb) (mg/kg)	<10	<10	<10	<10	<10
	Arsenic (As) (mg/kg)	2.61	3.47	1.53	1.59	3.57
		<5.0	<5.0	<5.0	<5.0	<5.0
	Barium (Ba) (mg/kg)	52.8	43.5	40.2	46.4	53.3
	Beryllium (Be) (mg/kg)	<0.50	<0.50	<0.50	<0.50	0.60
	Cadmium (Cd) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Chromium (Cr) (mg/kg)	21.9	18.3	8.5	9.3	22.5
	Cobalt (Co) (mg/kg)	6.4	5.9	2.5	2.7	6.2
	Copper (Cu) (mg/kg)	12.5	11.0	5.7	6.0	13.9
	Lead (Pb) (mg/kg)	<30	<30	<30	<30	<30
	Mercury (Hg) (mg/kg)	0.0717	0.0130	0.0072	0.0106	0.0376
	Molybdenum (Mo) (mg/kg)	<4.0	<4.0	<4.0	<4.0	<4.0
	Nickel (Ni) (mg/kg)	13.9	12.2	5.1	5.4	13.8
	Selenium (Se) (mg/kg)	<4.0	<2.0	<2.0	<2.0	<2.0
	Silver (Ag) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Thallium (Tl) (mg/kg)	<1.0	<1.0	<1.0	<1.0	<1.0
	Tin (Sn) (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
	Vanadium (V) (mg/kg)	28.8	25.1	13.9	14.8	29.4
	Zinc (Zn) (mg/kg)	22.6	18.2	9.4	9.3	29.5
Non-Halogenated Volatiles	Benzene (mg/kg)	<0.040	<0.040	<0.040	<0.040	<0.040
	Ethylbenzene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Methyl t-butyl ether (MTBE) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Styrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Toluene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	meta- & para-Xylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	ortho-Xylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Xylenes (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Volatile Hydrocarbons (VH6-10) (mg/kg)	<100	<100	<100	<100	<100
	VPH (C6-C10) (mg/kg)	<100	<100	<100	<100	<100
	F1-BTEX (mg/kg)	<10	<10	<10	<10	<10
	Surrogate: 4-Bromofluorobenzene (SS) (%)	97	98	97	101	96
	Surrogate: 2,4-Dichlorotoluene (SS) (%)	95	90	96	98	79
	Surrogate: Fluorobenzene (SS) (%)	99	98	92	100	92
Extractable Hydrocarbons	F1 (C6-C10) (mg/kg)	<10	<10	<10	<10	<10
	F2 (C10-C16) (mg/kg)	<5	<5	6	6	<5
	F3 (C16-C34) (mg/kg)	11	27	38	34	28

ALS LABORATORY GROUP ANALYTICAL REPORT

		Sample ID	L545880-8	L545880-9			
		Description					
		Sampled Date	18-AUG-07	18-AUG-07			
		Sampled Time					
		Client ID	CM-17-1	CM-17-2			
Grouping	**Analyte**						
SOIL							
Physical Tests	% Moisture (%)		10	8.7			
	pH (pH)		8.42	8.35			
Metals	Antimony (Sb) (mg/kg)		<10	<10			
	Arsenic (As) (mg/kg)		3.39	3.06			
			<5.0	<5.0			
	Barium (Ba) (mg/kg)		60.4	76.9			
	Beryllium (Be) (mg/kg)		<0.50	<0.50			
	Cadmium (Cd) (mg/kg)		<0.50	<0.50			
	Chromium (Cr) (mg/kg)		16.5	16.2			
	Cobalt (Co) (mg/kg)		4.5	4.4			
	Copper (Cu) (mg/kg)		11.9	12.7			
	Lead (Pb) (mg/kg)		<30	<30			
	Mercury (Hg) (mg/kg)		0.0144	0.0155			
	Molybdenum (Mo) (mg/kg)		<4.0	<4.0			
	Nickel (Ni) (mg/kg)		10.0	9.9			
	Selenium (Se) (mg/kg)		<2.0	<2.0			
	Silver (Ag) (mg/kg)		<2.0	<2.0			
	Thallium (Tl) (mg/kg)		<1.0	<1.0			
	Tin (Sn) (mg/kg)		<5.0	<5.0			
	Vanadium (V) (mg/kg)		21.6	20.7			
	Zinc (Zn) (mg/kg)		13.2	12.5			
Non-Halogenated Volatiles	Benzene (mg/kg)		<0.040	<0.040			
	Ethylbenzene (mg/kg)		<0.050	<0.050			
	Methyl t-butyl ether (MTBE) (mg/kg)		<0.20	<0.20			
	Styrene (mg/kg)		<0.050	<0.050			
	Toluene (mg/kg)		<0.050	<0.050			
	meta- & para-Xylene (mg/kg)		<0.050	<0.050			
	ortho-Xylene (mg/kg)		<0.050	<0.050			
	Xylenes (mg/kg)		<0.10	<0.10			
	Volatile Hydrocarbons (VH6-10) (mg/kg)		<100	<100			
	VPH (C6-C10) (mg/kg)		<100	<100			
	F1-BTEX (mg/kg)		<10	<10			
	Surrogate: 4-Bromofluorobenzene (SS) (%)		99	100			
	Surrogate: 2,4-Dichlorotoluene (SS) (%)		96	87			
	Surrogate: Fluorobenzene (SS) (%)		97	96			
Extractable Hydrocarbons	F1 (C6-C10) (mg/kg)		<10	<10			
	F2 (C10-C16) (mg/kg)		<5	<5			
	F3 (C16-C34) (mg/kg)		45	47			

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L545880-3	L545880-4	L545880-5	L545880-6	L545880-7
	Description					
	Sampled Date	16-AUG-07	16-AUG-07	17-AUG-07	17-AUG-07	17-AUG-07
	Sampled Time					
	Client ID	CM-14-1	CM-14-2	CM-15-1	CM-15-2	CM-16-1
Grouping	**Analyte**					
SOIL						
Extractable Hydrocarbons	F4 (C34-C50) (mg/kg)	<5	9	18	15	72
	Surrogate: 2-Bromobenzotrifluoride (%)	79	100	107	115	109
	Surrogate: Hexatriacontane (%)	103	89	103	101	108
	Chromatogram to baseline at nC50	YES	NO	NO	NO	NO
Polychlorinated Biphenyls	PCB-1016 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1221 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1232 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1242 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1248 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1254 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1260 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1262 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	PCB-1268 (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Total Polychlorinated Biphenyls (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L545880-8	L545880-9			
	Description					
	Sampled Date	18-AUG-07	18-AUG-07			
	Sampled Time					
	Client ID	CM-17-1	CM-17-2			
Grouping	**Analyte**					
SOIL						
Extractable Hydrocarbons	F4 (C34-C50) (mg/kg)	17	20			
	Surrogate: 2-Bromobenzotrifluoride (%)	102	99			
	Surrogate: Hexatriacontane (%)	98	95			
	Chromatogram to baseline at nC50	NO	NO			
Polychlorinated Biphenyls	PCB-1016 (mg/kg)	<0.050	<0.050			
	PCB-1221 (mg/kg)	<0.050	<0.050			
	PCB-1232 (mg/kg)	<0.050	<0.050			
	PCB-1242 (mg/kg)	<0.050	<0.050			
	PCB-1248 (mg/kg)	<0.050	<0.050			
	PCB-1254 (mg/kg)	<0.050	<0.050			
	PCB-1260 (mg/kg)	<0.050	<0.050			
	PCB-1262 (mg/kg)	<0.050	<0.050			
	PCB-1268 (mg/kg)	<0.050	<0.050			
	Total Polychlorinated Biphenyls (mg/kg)	<0.050	<0.050			

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L545880-1	L545880-2			
	Description					
	Sampled Date	18-AUG-07	17-AUG-07			
	Sampled Time	08:50	10:50			
	Client ID	CM-MW-1	CM-MW-15			
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	1120	1300			
Total Metals	Aluminum (Al)-Total (mg/L)	0.259	0.840			
	Antimony (Sb)-Total (mg/L)	<0.0025	<0.0025			
	Arsenic (As)-Total (mg/L)	<0.0025	<0.0030			
	Barium (Ba)-Total (mg/L)	0.021	0.041			
	Beryllium (Be)-Total (mg/L)	<0.0050	<0.0050			
	Boron (B)-Total (mg/L)	0.26	0.23			
	Cadmium (Cd)-Total (mg/L)	<0.000085	<0.000085			
	Calcium (Ca)-Total (mg/L)	190	226			
	Chromium (Cr)-Total (mg/L)	0.0272	0.220			
	Cobalt (Co)-Total (mg/L)	0.0029	0.0074			
	Copper (Cu)-Total (mg/L)	<0.0050	0.0070			
	Iron (Fe)-Total (mg/L)	1.57	1.62			
	Lead (Pb)-Total (mg/L)	<0.0025	0.0036			
	Lithium (Li)-Total (mg/L)	0.038	0.030			
	Magnesium (Mg)-Total (mg/L)	158	179			
	Manganese (Mn)-Total (mg/L)	0.135	0.252			
	Mercury (Hg)-Total (mg/L)	<0.000020	<0.000020			
	Molybdenum (Mo)-Total (mg/L)	0.0084	<0.0050			
	Nickel (Ni)-Total (mg/L)	0.0615	0.175			
	Potassium (K)-Total (mg/L)	24.4	24.5			
	Selenium (Se)-Total (mg/L)	<0.010	<0.0050			
	Silver (Ag)-Total (mg/L)	<0.00010	<0.00010			
	Sodium (Na)-Total (mg/L)	367	175			
	Thallium (Tl)-Total (mg/L)	<0.0010	<0.0010			
	Tin (Sn)-Total (mg/L)	<0.0025	<0.0025			
	Titanium (Ti)-Total (mg/L)	0.012	<0.010			
	Uranium (U)-Total (mg/L)	0.0091	0.0231			
	Vanadium (V)-Total (mg/L)	<0.030	<0.030			
	Zinc (Zn)-Total (mg/L)	0.082	0.088			
Non-Halogenated Volatiles	Benzene (mg/L)	<0.00050	<0.00050			
	Ethylbenzene (mg/L)	<0.00050	<0.00050			
	Methyl t-butyl ether (MTBE) (mg/L)	<0.0010	<0.0010			
	Styrene (mg/L)	<0.00050	<0.00050			
	Toluene (mg/L)	<0.0010	<0.0010			
	meta- & para-Xylene (mg/L)	<0.00050	<0.00050			
	ortho-Xylene (mg/L)	<0.00050	<0.00050			
	Xylenes (mg/L)	<0.0010	<0.0010			
	Volatile Hydrocarbons (VH6-10) (mg/L)	<0.10	<0.10			

ALS LABORATORY GROUP ANALYTICAL REPORT

	Sample ID	L545880-1	L545880-2			
	Description					
	Sampled Date	18-AUG-07	17-AUG-07			
	Sampled Time	08:50	10:50			
	Client ID	CM-MW-1	CM-MW-15			
Grouping	**Analyte**					
WATER						
Non-Halogenated Volatiles	VPH (C6-C10) (mg/L)	<0.10	<0.10			
	Surrogate: 4-Bromofluorobenzene (SS) (%)	98	96			
	Surrogate: 2,4-Dichlorotoluene (SS) (%)	106	107			
	Surrogate: Fluorobenzene (SS) (%)	93	97			
Extractable Hydrocarbons	TEH10-30 (mg/L)	<0.25	<0.25			
Polychlorinated Biphenyls	Total Polychlorinated Biphenyls (mg/L)	<0.0010	<0.0010			

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
RAMB	Result Adjusted For Method Blank

Samples with Qualifiers for Individual Parameters as listed above:

Sample Number	Client Sample ID	Qualifier
L545880-4	CM-14-2	RAMB
L545880-5	CM-15-1	RAMB
L545880-6	CM-15-2	RAMB
L545880-7	CM-16-1	RAMB
L545880-8	CM-17-1	RAMB
L545880-9	CM-17-2	RAMB

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)
AS-CSR-HVAAS-VA	Soil	As in Soil by HVAAS (CSR SALM)	BCMELP CSR SALM Method 8

This analysis is carried out using procedures from CSR Analytical Method 8 "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, Lands and Parks, 26 June 2001, and procedures adapted from "Test Methods for Evaluating Solid Waste", SW-846 Method 3050B United States Environmental Protection Agency (EPA). The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve, and a representative subsample of the dry material is weighed. The sample is then digested at 90 degrees Celsius for 2 hours by block digester using a 1:1 ratio of concentrated nitric and hydrochloric acids. Instrumental analysis is by atomic absorption spectrophotometry (EPA Method 7000 series).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

EPH-SF-FID-VA	Water	EPH in Water by GCFID	BCMOE EPH GCFID

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999). The procedure involves extraction of the entire water sample with dichloromethane. The extract is then solvent exchanged to toluene and analysed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

ETL-TEH-CCME-ED	Soil	CCME Total Extractable Hydrocarbons	CCME CWS-PHC Dec-2000 - Pub# 1310
ETL-TVH,TEH-CCME-ED	Soil	CCME Total Hydrocarbons	CCME CWS-PHC Dec-2000 - Pub# 1310

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F1-BTX-CALC-VA Soil F1-Total BTX CCME CWS PHC TIER 1 (2001)

Petroleum Hydrocarbons in Sediment/Soil (Canada-Wide Standard) This analysis is carried out in accordance with the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." The various extraction fractions are analysed as follows:

CWS Fractions 1 and 1-BTEX:
This procedure involves the extraction of a subsample of the sediment/soil with methanol. Aliquots of the methanol extract are then analysed by capillary column gas chromatography with flame-ionization detection (GC/FID) for CWS Fraction 1, and by capillary column gas chromatography with mass spectrometric detection (GC/MS) for the BTEX compounds.

Reported results may include any or all of the following:
CWS Fraction 1 (C6-10): sum of all petroleum hydrocarbon compounds that elute between nC6 and nC10 obtained by GC/FID analysis CWS Fraction 1-BTEX:CWS Fraction 1 (C6-10), minus BTEX compounds

F1-MET-PT-FID-VA Soil CCME by Purge and Trap with GCMS EPA 8260B & 524.2

Volatile Organic Compounds (VOC) are extracted from sediment or soil with methanol, following a procedure from the British Columbia Ministry of Water Land and Air Protection (BCWLAP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999). Aliquots of the extract are analyzed by direct injection capillary column gas chromatography with mass spectrometric detection (GC/MS), using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8260B, published by the United States Environmental Protection Agency (EPA).

HARDNESS-CALC-VA Water Hardness APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-CCME-CVAFS-VA Soil CVAFS Hg in Soil (CCME) CCME

This analysis is carried out using procedures from CSR Analytical Method 8 "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, Lands and Parks, 26 June 2001, and procedures adapted from "Test Methods for Evaluating Solid Waste", SW-846 Method 3050B United States Environmental Protection Agency (EPA). The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve, and a representative subsample of the dry material is weighed. The sample is then digested at 90 degrees Celsius for 2 hours by block digester using a 1:1 ratio of concentrated nitric and hydrochloric acids. Instrumental analysis is by atomic fluorescence spectrophotometry (EPA Method 7000 series).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

HG-TOT-CCME-CVAFS-VA Water Total Mercury in Water by CVAFS (CCME) EPA 245.7

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

MET-CSR-FULL-ICP-VA Soil Metals in Soil by ICPOES (CSR SALM) BCMELP CSR SALM METHOD 8

This analysis is carried out using procedures from CSR Analytical Method 8 "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, Lands and Parks, 26 June 2001, and procedures adapted from "Test Methods for Evaluating Solid Waste", SW-846 Method 3050B United States Environmental Protection Agency (EPA). The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve, and a representative subsample of the dry material is weighed. The sample is then digested at 90 degrees Celsius for 2 hours by block digester using a 1:1 ratio of concentrated nitric and hydrochloric acids. Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

MET-TOT-CCME-ICP-VA Water Total Metals in Water by ICPOES (CCME) EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-CCME-MS-VA Water Total Metals in Water by ICPMS (CCME) EPA SW-846 3005A/6020A

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

PCB-SE-ECD-VA Soil PCB by Extraction with GCECD EPA 3630/8082 GCECD

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3500, 3620, 3630, 3660, 3665 & 8082, published by the United States Environmental Protection Agency (EPA). The procedure involves a solid-liquid extraction of a subsample of the sediment/soil using a mixture of hexane and acetone. Water is added to the extract and the resulting hexane extract undergoes one or more of the following clean-up procedures (if required): florisil clean-up, silica gel clean-up, sulphur clean-up and/or sulphuric acid clean-up. The final extract is analysed by capillary column gas chromatography with electron capture detection (GC/ECD).

PCB-SF-ECD-VA Water PCB by Extraction with GCECD EPA 3510/8082 Liq-Liq GCECD

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3510, 3620, 3660, 3665 & 8082, published by the United States Environmental Protection Agency (EPA). The procedure involves a liquid-liquid extraction of the entire water sample using dichloromethane. The extract is then solvent exchanged to hexane followed by one or more of the following clean-up procedures (if required): florisil clean-up, sulphur clean-up and/or sulphuric acid clean-up. The final extract is analysed by capillary column gas chromatography with electron capture detection (GC/ECD).

PH-1:2-VA Soil CSR pH by 1:2 Water Leach BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the BC WLAP method: pH, Electrometric, Soil and Sediment. The procedure involves mixing the dried (at <60°C) and seived (10 mesh/2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

PREP-MOISTURE-ED Soil % Moisture Oven dry 105C-Gravimetric

TL-CSR-MS-VA Soil ICPMS Tl in Soil by CSR SALM BCMELP CSR SALM Method 8

This analysis is carried out using procedures from CSR Analytical Method 8 "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, Lands and Parks, 26 June 2001, and procedures adapted from "Test Methods for Evaluating Solid Waste", SW-846 Method 3050B United States Environmental Protection Agency (EPA). The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve, and a representative subsample of the dry material is weighed. The sample is then digested at 90 degrees Celsius for 2 hours by either hotplate or block digester using a 1:1 ratio of concentrated nitric and hydrochloric acids. Instrumental analysis is by inductively coupled plasma - mass spectrometry (EPA Method 6020A).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

VH-MET-DI-FID-VA Soil CSR VH by MeOH with DI GCFID BCMELP CSR Analytical Method 2

This analysis involves the extraction of a subsample of the sediment/soil with methanol. Aliquots of the methanol extract are then analyzed for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The methanol extraction and VH analysis are carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999).

VH-PT-FID-VA Water VH by Purge Trap GCFID EPA 8260b, BCMELP CSR Method

This procedure involves the purge and trap extraction of the sample prior to analysis for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The VH analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Water by GC/FID" (Version 2.1, July 1999).

VOC7-MET-PT-MS-VA Soil BTEX by MeOH with Purge and Trap GCMS EPA 8260B & 524.2

Volatile Organic Compounds (VOC) are extracted from sediment or soil with methanol, following a procedure from the British Columbia Ministry of Water Land and Air Protection (BCWLAP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999). Aliquots of the extract are analyzed by direct injection capillary column gas chromatography with mass spectrometric detection (GC/MS), using

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8260B, published by the United States Environmental Protection Agency (EPA). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation.

VOC7-PT-MS-VA Water BTEX by Purge Trap GCMS EPA 8260b, BCMELP CSR Method

This procedure involves the purge and trap extraction of the sample prior to analysis for specific Volatile Organic Compounds (VOC) by capillary column gas chromatography with mass spectrometric detection (GC/MS). The VOC analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8260, published by the United States Environmental Protection Agency (EPA). Note: For chlorinated waters certain conditions may cause the formation of trihalomethanes after sample collection. Appropriate chemical treatment of chlorinated waters will prevent trihalomethane formation in the samples. Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation.

VPH-CALC-VA Water BC MOE Laboratory Manual (2005) BC MOE LABORATORY MANUAL (2005)

These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Volatile Petroleum Hydrocarbons in Solids or Water" (Version 2.1, July 20, 1999). According to this method, the concentrations of specific Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene, Xylenes and Styrene) are subtracted from the collective concentration of Volatile Hydrocarbons (VH) that elute between n-hexane (nC6) and n-decane (nC10). Analysis of Volatile Hydrocarbons adheres to all prescribed elements of BCMELP method "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

VPH-CALC-VA Soil BC MOE Laboratory Manual (2005) BC MOE LABORATORY MANUAL (2005)

These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Volatile Petroleum Hydrocarbons in Solids or Water" (Version 2.1, July 20, 1999). According to this method, the concentrations of specific Monocyclic Aromatic Hydrocarbons (Benzene, Toluene, Ethylbenzene, Xylenes and Styrene) are subtracted from the collective concentration of Volatile Hydrocarbons (VH) that elute between n-hexane (nC6) and n-decane (nC10). Analysis of Volatile Hydrocarbons adheres to all prescribed elements of BCMELP method "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

XYLENES-CALC-VA Water CSR VOC7 by MeOH with DI GCMS CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

XYLENES-CALC-VA Soil CSR VOC7 by MeOH with DI GCMS EPA 8260B & 524.2

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** Laboratory Methods employed follow in-house procedures, which are generally based on nationally or internationally accepted methodologies.
The last two letters of the above ALS Test Code column indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location	Laboratory Definition Code	Laboratory Location
ED	ALS LABORATORY GROUP - EDMONTON, ALBERTA, CANADA	VA	ALS LABORATORY GROUP - VANCOUVER, BC, CANADA

Reference Information

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Analytical Method Reference(Based On)

GLOSSARY OF REPORT TERMS
Surr - A surrogate is an organic compound that is similar to the target analyte(s) in chemical composition and behavior but not normally detected in enviromental samples. Prior to sample processing, samples are fortified with one or more surrogate compounds.
The reported surrogate recovery value provides a measure of method efficiency.
mg/kg (units) - unit of concentration based on mass, parts per million
mg/L (units) - unit of concentration based on volume, parts per million
N/A - Result not available. Refer to qualifier code and definition for explanation

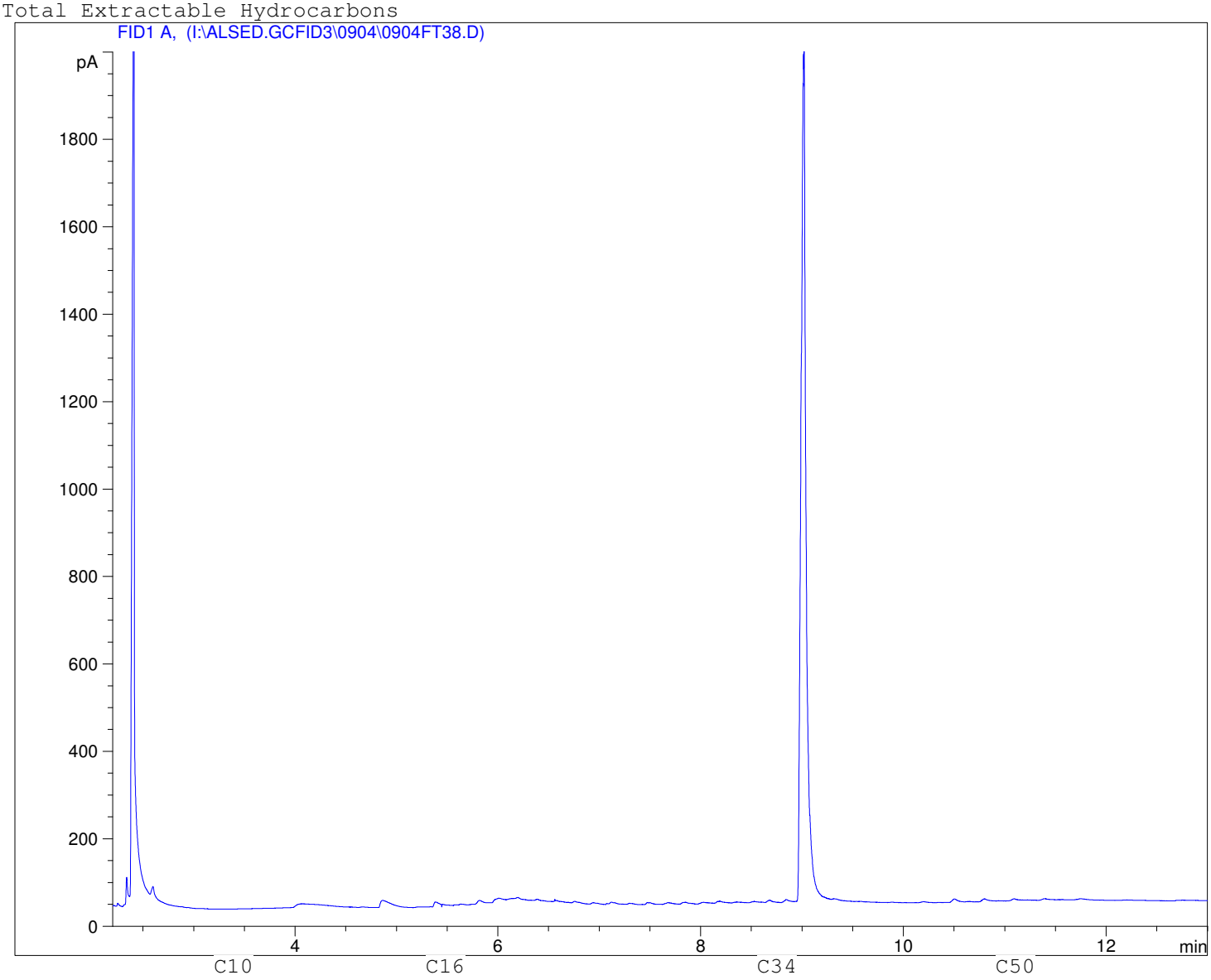
Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Although test results are generated under strict QA/QC protocols, any unsigned test reports, faxes, or emails are considered preliminary.

ALS Laboratory Group has an extensive QA/QC program where all analytical data reported is analyzed using approved referenced procedures followed by checks and reviews by senior managers and quality assurance personnel. However, since the results are obtained from chemical measurements and thus cannot be guaranteed, ALS Laboratory Group assumes no liability for the use or interpretation of the results.

Client ID: CM-14-1

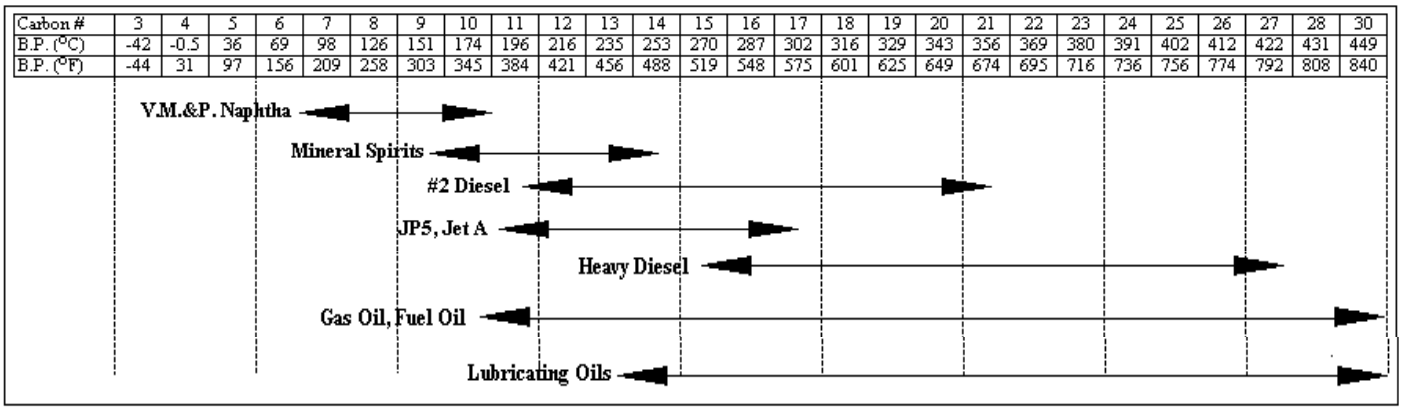
Sample ID: L545880-3 4
Injection Date: 9/5/07 2:12:53 PM
Instrument: 6890

Total Extractable Hydrocarbons



Boiling Point Distribution Range of Petroleum Based Fuel Products

Carbon #	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	30
B.P. (°C)	-42	-0.5	36	69	98	126	151	174	196	216	235	253	270	287	302	316	329	343	356	369	380	391	402	412	422	431	449
B.P. (°F)	-44	31	97	156	209	258	303	345	384	421	456	488	519	548	575	601	625	649	674	695	716	736	756	774	792	808	840



Adapted from: Drews, A.W., ED. Manual on Hydrocarbon Analysis, 4th ed.; American Society for Testing and Materials: Philadelphia, PA., 1989: p XVIII

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L545880

REPORT TO: Ken Boldt	REPORT FORMAT / DISTRIBUTION	SERVICE REQUESTED
COMPANY: Gartner Lee Limited	STANDARD ✓ OTHER	✓ REGULAR SERVICE (DEFAULT)
CONTACT: Ken Boldt	PDF ✓ EXCEL ✓ CUSTOM FAX	RUSH SERVICE (2-3 DAYS)
ADDRESS: 300 Town Centre Blvd. Suite 300	EMAIL 1: kboldt@gartnerlee.com	PRIORITY SERVICE (1 DAY or ASAP)
Markham, ON, L3R 5Z8	EMAIL 2: mherrell@gartnerlee.com	EMERGENCY SERVICE (<1 DAY / WEEKEND) - CONTACT ALS
PHONE: 905-477-8400 X351 FAX: 905-477-1456		ANALYSIS REQUEST
INVOICE TO: SAME AS REPORT ? YES / NO	INDICATE BOTTLES: FILTERED / PRESERVED (F/P) → → →	
COMPANY: Kitnuna Projects Inc.	CLIENT / PROJECT INFORMATION:	
CONTACT: Ed Powell	JOB #: 70517	
ADDRESS: Box 92 Cambridge Bay	PO /AFE:	
Nunavut X0B 0C0	Legal Site Description: CAM-M	
PHONE: 867-983-7500 FAX: 867-983-7501	QUOTE #: ALSEQ07-487	
Lab Work Order # (lab use only)	SAMPLER (Initials): KB	

Sample #	SAMPLE IDENTIFICATION (This description will appear on the report)	DATE	TIME	SAMPLE TYPE	Total Metals - CCME	Total PCB	CCME CWS F1 incl BTEX	CCME CWS F2, F3, F4	BTEX/THM (C6-10 + BTEX)	TEH (C10-32)	Filtration of Dissolved Metals	HAZARDOUS ?	HIGHLY CONTAMINATED ?	NUMBER OF CONTAINERS
	CM-MW-1	Aug 18.07	08:50	Water										
	CM-MW-15	Aug 17, 07	10:50	Water										
	CM-14-1	Aug 16. 07		Soil										2
	CM-14-2	Aug 16. 07		Soil										2
	CM-15-1	Aug 17. 07		Soil										2
	CM-15-2	Aug 17. 07		Soil										2
	CM-16-1	Aug 17. 07		Soil										2
	CM-17-1	Aug 18. 07		Soil										2
	CM-17-2	Aug 18. 07		Soil										2

GUIDELINES / REGULATIONS

SPECIAL INSTRUCTIONS / HAZARDOUS DETAILS

Failure to complete all portions of this form may delay analysis. Please fill in this form *LEGIBLY*.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the reverse page of the white report copy.

RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:
Ken Boldt	Aug 18, 07	Tim Walsh	
RELINQUISHED BY:	DATE & TIME:	RECEIVED BY:	DATE & TIME:
		M B.	08-22-07 11:16 am

SAMPLE CONDITION (lab use only)

TEMPERATURE	SAMPLES RECEIVED IN GOOD CONDITION ? YES / NO (If no provide details)
8°	

Appendix H

QA / QC

Table H1. Soil QA/QC

	Sample Ident.	Sample Location	Depth	Laboratory	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Zinc	Petroleum Hydrocarbons				PCB Total Aroclors
														TPH C6-C34	C6-C10	C10-C16	C16-C34	
			(m)		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
	CM-MW-4-1	MW-4	0.1	Cantest	2.8	< 0.2	19	8	12	6.2	< 0.01	16	26	< 20				< 0.03
	CM-14-1*	MW-4	0.1	Cantest	2.7	< 0.2	17	7	13	6	< 0.01	15	22	< 20	-	-	-	< 0.03
	CM-14-1*	MW-4	0.1	ALS	2.61	< 0.50	21.9	6.4	12.5	< 30	0.0717	13.9	22.6	11	<10	<5	11	< 0.050
Average					2.70	-	19.30	7.13	12.50	-	-	14.97	23.53	-	-	-	-	-
RSD					3.5%	-	12.8%	11.3%	4.0%	-	-	7.0%	9.2%	-	-	-	-	-
	CM-MW-4-2	MW-4	0.5	Cantest	3	< 0.2	17	7	11	5.3	< 0.01	15	20	< 20				< 0.03
	CM-14-2*	MW-4	0.5	Cantest	3	< 0.2	15	6	11	5.2	< 0.01	13	22	< 20	-	-	-	< 0.03
	CM-14-2*	MW-4	0.5	ALS	3.47	< 0.50	18.3	5.9	11	< 30	0.013	12.2	18.2	27	<10	<5	27	< 0.050
Average					3.16	-	16.77	6.30	11.00	-	-	13.40	20.07	-	-	-	-	-
RSD					8.6%	-	9.9%	9.7%	0.0%	-	-	10.8%	9.5%	-	-	-	-	-
	CM-MW-10-1	MW-10	0.1	Cantest	1.6	< 0.2	7	3	7	3.3	< 0.01	6	9	< 20				< 0.03
	CM-15-1*	MW-10	0.1	Cantest	1.6	< 0.2	8	3	7	3.5	< 0.01	6	9	< 20	-	-	-	< 0.03
	CM-15-1*	MW-10	0.1	ALS	1.53	< 0.50	8.5	2.5	5.7	< 30	0.0072	5.1	9.4	44	<10	6	38	< 0.050
Average					1.58	-	7.83	2.83	6.57	-	-	5.70	9.13	-	-	-	-	-
RSD					2.6%	-	9.8%	10.2%	11.4%	-	-	9.1%	2.5%	-	-	-	-	-
	CM-MW-10-2	MW-10	0.5	Cantest	1.6	< 0.2	8	3	6	3.4	< 0.01	7	9	< 20				< 0.03
	CM-15-2*	MW-10	0.5	Cantest	1.6	< 0.2	8	3	6	3.5	< 0.01	6	9	24	< 5	< 80	< 250	< 0.03
	CM-15-2*	MW-10	0.5	ALS	1.59	< 0.50	9.3	2.7	6	< 30	0.0106	5.4	9.3	40	<10	6	34	< 0.050
Average					1.60	-	8.43	2.90	6.00	-	-	6.13	9.10	-	-	-	-	-
RSD					0.4%	-	8.9%	6.0%	0.0%	-	-	13.2%	1.9%	-	-	-	-	-
	CM-12-1	CM-12	0.1	Cantest	4.5	< 0.2	17	8	15	10.6	0.02	16	23	23	< 5	< 80	< 250	< 0.03
	CM-16-1*	CM-12	0.1	Cantest	4.3	< 0.2	13	10	17	10.8	0.01	19	11	< 20	-	-	-	< 0.03
	CM-16-1*	CM-12	0.1	ALS	3.57	< 0.50	22.5	6.2	13.9	< 30	0.0376	13.8	29.5	28	<10	<5	28	< 0.050
Average					4.12	-	17.50	8.07	15.30	-	0.02	16.27	21.17	-	-	-	-	-
RSD					11.9%	-	27.3%	23.6%	10.3%	-	62.0%	16.0%	44.3%	-	-	-	-	-
	CM-MW-14-1	MW-14	0.1	Cantest	3.6	< 0.2	16	7	13	6.1	< 0.01	15	19	< 20				< 0.03
	CM-17-1*	MW-14	0.1	Cantest	3.5	< 0.2	12	6	11	6	0.01	12	13	< 20	-	-	-	< 0.03
	CM-17-1*	MW-14	0.1	ALS	3.39	< 0.50	16.5	4.5	11.9	< 30	0.0144	10	13.2	45	<10	<5	45	< 0.050
Average					3.50	-	14.83	5.83	11.97	-	-	12.33	15.07	-	-	-	-	-
RSD					3.0%	-	16.6%	21.6%	8.4%	-	-	20.4%	22.6%	-	-	-	-	-
	CM-MW-14-2	MW-14	0.5	Cantest	3	< 0.2	13	5	12	7.4	< 0.01	12	15	< 20				< 0.03
	CM-17-2*	MW-14	0.5	Cantest	2.8	< 0.2	11	4	11	6.6	0.01	11	18	< 20	-	-	-	< 0.03
	CM-17-2*	MW-14	0.5	ALS	3.06	< 0.50	16.2	4.4	12.7	< 30	0.0155	9.9	12.5	47	<10	<5	47	< 0.050
Average					2.95	-	13.40	4.47	11.90	-	-	10.97	15.17	-	-	-	-	-
RSD					4.6%	-	19.6%	11.3%	7.2%	-	-	9.6%	18.2%	-	-	-	-	-

Notes: *Relative Standard Deviation (RSDs) calculated by dividing the standard deviation of the comparitive set by the average.*

** Denotes duplicate sample. (Further information located in Table 1 of main report)*

- Denotes "not calcuable"

xx% *Exceeds QA/QC goal of 20% for inorganics or 30% for organics.*

Table H2. Water QA/QC

	Sample Ident.	Sample Location	Laboratory	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Cobalt (mg/L)	Copper (mg/L)	Lead (mg/L)	Mercury (mg/L)	Nickel (mg/L)	Zinc (mg/L)	Petroleum Hydrocarbons				PCB Total Aroclors (mg/L)
													TPH C6-C34 (mg/L)	C6-C10 (mg/L)	C10-C16 (mg/L)	C16-C34 (mg/L)	
	CM-MW-12	MW-12	Cantest	0.0011	0.00015	0.190	0.0075	0.0062	0.0003	< 0.00002	0.269	0.100	< 0.1				< 0.0004
	CM-MW-15*	MW-12	Cantest	0.0013	0.00007	0.141	0.0050	0.0049	0.0031	< 0.00002	0.079	0.063	< 0.1				< 0.0004
	CM-MW-15*	MW-12	ALS	< 0.0030	< 0.000085	0.220	0.0074	0.0070	0.0036	< 0.00002	0.175	0.088	< 0.25				< 0.0010
Average				-	-	0.18367	0.0066	0.006033	0.002333	-	0.1743	0.0837	-	-	-	-	-
RSD				-	-	22%	21%	18%	76%	-	54%	23%	-	-	-	-	-
	CM-MW-1	MW-1	Cantest	0.0012	0.00009	0.02	0.0039	0.0081	0.0005	< 0.00002	0.067	0.15	< 0.1				< 0.0004
	CM-MW-16*	MW-1	Cantest	0.0011	< 0.00004	0.0084	0.0027	0.0037	< 0.0002	< 0.00002	0.044	0.044	< 0.1				< 0.0004
	CM-MW-1*	MW-1	ALS	< 0.0025	< 0.000085	0.0272	0.0029	< 0.0050	< 0.0025	< 0.00002	0.0615	0.082	< 0.25				< 0.0010
Average				-	-	0.01853	0.003167	-	-	-	0.0575	0.092	-	-	-	-	-
RSD				-	-	51%	20%	-	-	-	21%	58%	-	-	-	-	-

Notes: *Relative Standard Deviation (RSDs) calculated by dividing the standard deviation of the comparitive set by the average.*

** Denotes duplicate sample. (Further information located in Table 1 of main report)*

- Denotes "not calcuable"

xx% *Exceeds QA/QC goal of 20% for inorganics or 30% for organics.*