

# **Appendix F**

## **Landfill Monitoring - Tier II Disposal Facility**

The Collection of Landfill Monitoring Data at the CAM-M  
Cambridge Bay Site – 2005 Report

APPENDIX F Tier II Disposal Facility

### **3.6F.1 Tier II Disposal Facility**

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#### **3.6.1F.1.1 Landfill Summary**

The Tier II Disposal Facility is located approximately 2 km northwest of the Station Area. This landfill was constructed to contain contaminated soils. The landfill configuration is shown on Figure F-1.

#### **3.6.2F.1.2 Visual Monitoring**

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Based on the visual inspection, the DCC Tier II Soil Disposal area appears to be in good condition with no visible signs of settlement or frost action. There are erosion rills on the slopes along the margins of the landfill, which appear unchanged from the previous inspection. The change in ground colour noted on the east side of the landfill in 2004 was not detected. However, minor cracks were detected intermittently along this slope, at the locations shown on Figure F-1. These cracks are a few millimetres in width, with little or no differential displacement, and located at approximately mid-slope. No evidence of instability or other deformation was observed on the slope. All other slopes and surfaces appear in good condition. A minor crack was observed, as shown in photographs for location TII – 7. This is a localised feature 5 m in length and well outside the landfill, and may be the result of gradual drying of fine grained soil. It is not relevant to the landfill performance. Vegetation cover is sparse and scattered with minimal ground cover. The site inspection record is appended at the end of this section. The overall performance of the landfill is considered to be acceptable.

#### **3.6.3F.1.3 Soil Sampling**

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Soil samples were collected at the designated locations of MW 10, MW 11, MW12 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 Facility.

Low concentrations of Total Petroleum Hydrocarbons (TPH) (C10-32) were detected in the shallow samples from soil sample MW 13. The concentrations noted are not considered to be of 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.

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**3.6.4F.1.4 Groundwater**

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Groundwater measurements and monitor condition records were documented for observation wells MW 10, MW 11, MW 12 and MW 13. These records are appended as attachments at the end of this section. Generally the observation wells were in good condition. J-plugs were installed at each well except MW 10 due to insufficient clearance between the top of the pipe and the casing lid. In each well, the bentonite grout seal had heaved up inside of the protective casing to an elevation parallel or just below the top of the monitor pipe. To install the caps we removed some of the grout around the monitor pipe. Pondered water was observed inside of the casing.

All observation monitors MW 10, MW 11, MW 12 and MW 13 had an insufficient amount of water to permit groundwater sampling. Therefore no groundwater samples were submitted to the laboratory for analysis.

**3.6.5F.1.5 Thermal Monitoring**

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The manual readings taken from each thermistor from the DCC Tier II Soil Disposal Facility are provided in Tables F-2 through F-5. The data from the thermistors is appended to this section. The graphs for the 2003 data for these thermistors are shown in Graphs 10 through 13 and are also appended to this section. The graphs for the previous years are also provided at the end of this section.

All thermistors were downloaded, reset and had their batteries replaced. Data loggers with one string attached have an anticipated memory capacity to January 2011. A full download of the thermistor data loggers should be completed the summer of 2007.

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**Figure F-1 DCC Tier II Soil Disposal Area**

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**Table F-1 CAM–M Cambridge Bay, Soil Excavation Location and Depths – DCC Tier II  
Landfill**

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**Table F-2 Thermistor String TA1 CAM-M**

Thermistor No.	Ohms	°C
1	10140	9.7
2	11730	6.7
3	13920	3.3
4	16400	0.0
5	17580	-1.4
6	18930	-2.9
7	20600	-4.6

*Note: 0.68 m stick-up.*

**Table F-3 Thermistor String TA2 CAM-M**

Thermistor No.	Ohms	°C
1	9700	10.5
2	12370	5.7
3	14230	2.8
4	16290	0.1
5	17680	-1.5
6	18920	-2.9
7	20300	-4.3

*Note: 0.16 m stick-up.*

**Table F-4 Thermistor String TA3 CAM-M**

Thermistor No.	Ohms	°C
1	8913	12.2
2	12320	5.7
3	14080	3.1
4	16620	-0.3
5	17910	-1.8
6	19290	-3.3
7	20720	-4.7

*Note: 0.09 m stick-up.*

**Table F-5 Thermistor String TA4 CAM-M**

Thermistor No.	Ohms	°C
1	8731	12.7
2	11980	6.3
3	13600	3.8
4	16260	0.2
5	17580	-1.4
6	18770	-2.7
7	19960	-4.0

# **Appendix F Attachments**

- F1 Site Condition/Visual Inspection Records**
- F2 Geotechnical Inspection Photographic Records**
- F3 Soil Testpit Photographic Records**
- F4 Monitoring Well Development Records**
- F5 Thermistor Data Tables 2005**
- F6 Thermistor Graphs 2005**
- F7 Thermistor Graphs 2004**
- F8 Thermistor Graphs 2003**
- F9 Thermistor Graphs 2002**
- F10 Thermistor Graphs 2001**
- F11 Field Notes**

# **Appendix F1**

## **Site Condition/Visual Inspection Records**



## **Appendix F2**

### **Geotechnical Inspection Photographic Records**

## **Appendix F3**

### **Soil Testpit Photographic Records**

## **Appendix F4**

### **Monitoring Well Development Records**

# Appendix F5

## Thermistor Data Tables 2005

# Appendix F6

## Thermistor Graphs 2005

# Appendix F7

## Thermistor Graphs 2004

# Appendix F8

## Thermistor Graphs 2003

# Appendix F9

## Thermistor Graphs 2002



# Appendix F10

## Thermistor Graphs 2001

