E1. Lower Site Landfill

E1.1 Landfill Summary

The Lower Site Landfill is located approximately 1.5 kilometres west of the west end of the airstrip. The original landfill consisted of four lobes (north, main, south and east), encompassing an area of approximately 10,000m^2. The location of the landfill is presented in Figure E-1.

A previous evaluation determined the north, main and south lobes drained into an intermittent channel along the toe, ultimately draining into a small lake near the north lobe. No contaminated soil was found downgradient of the landfill, however, a localized stain of Tier I concentration was identified south of the landfill perimeter. The Lower Site Landfill was classified as a moderate potential environmental risk.

Remediation of the Lower Site Landfill included installation of a double synthetic liner system anchored into the permafrost at the toe, regrading and placement of additional granular fill, complete excavation of the north lobe and regrading of the south and east lobes.

Monitoring requirements for the 2008 monitoring year include visual inspection, soil sampling, groundwater sampling and thermal monitoring.

E1.2 Visual Monitoring

No significant erosion, settlement or indications of slope instability were observed at the Lower Site Landfill. Overall landfill performance is assessed as “acceptable”. Appendix E1 presents a summary of the 2008 visual inspection results.

Minor erosion of fines was observed at the southwest end of the west slope (LSL-10 in Appendix E2). The erosion of fines appears to be self-armouring and is not a concern. Seepage was observed from the lower half of the north slope near the thermistors (LSL-7 in Appendix E2). No staining was observed on the slope. No issues of concern that require immediate attention were identified.

E1.3 Soil Sampling

Soil samples were collected at monitoring locations MW-17, MW-18, MW-19 and MW-20. The sampling locations are presented in Figure E-1. Two samples were collected at each monitoring location at depths of approximately 0.15 – 0.20 meters and 0.30 – 0.50 meters below ground surface. The photographs of each monitoring well and test pit location are included in Attachment E3.

No staining or free product was observed during the sampling event at the Lower Site Landfill. No odours were detected during the sampling event at the Lower Site Landfill.

Figure E-1 Lower Site Landfill

No significant concentrations were detected at any of the soil monitoring locations at the Lower Site Landfill.

The analytical results and depths of samples are provided in Table E-1. The Laboratory Certificates of Analysis are provided in Appendix F.

E1.4 Groundwater Sampling

Groundwater measurements and monitoring system condition records were documented for monitoring wells MW-17, MW-18, MW-19 and MW-20. These records are provided in attachment E4.

All groundwater monitoring wells slated for monitoring in 2008 at the Lower Site Landfill contained sufficient volume for sampling. Samples were collected at a flow rate equal to the recharge rate of the monitoring well (and not exceeding 100mL/min). Monitor MW-19 was sampled using a peristaltic pump and disposable LDPE tubing. The rechargeable battery provided with the peristaltic pump from the supplier proved to be faulty following purging and sampling at monitors MW-17 and MW-18. Subsequently, monitors that were accessible by vehicle were sampled with the peristaltic pump running off the vehicle battery. Monitor MW-19 was not accessible by vehicle, therefore were purged and sampled using a disposable bailer.

Groundwater samples were not filtered and not preserved. Samples were analyzed for total concentration of inorganic metals, TPH (C6-C32) and PCB.

TPH (C6-C32) was detected in monitoring wells MW-17, MW-19 and MW-20. The results should be evaluated in the context of the Landfill Monitoring Plan as well as compared with DCC internal standards.

The results are presented in Table E-2. The laboratory Certificates of Analysis are provided in Appendix F.

E1.5 Thermal Monitoring

All thermistors at the Lower Site Landfill were in good condition. Thermistor data was downloaded on August 15, 2008, programming was checked and the data loggers were reset. The data logger clocks were adjusted to local (Standard Time). Battery charge was checked to ensure sufficient remaining charge and batteries were not changed in 2008.

Thermistor Maintenance Records were completed for all thermistors located at the Lower Landfill and are located in Appendix E5. Selected data has been plotted into graphs for each thermistor which are provided as Graphs E-1 through E-4 located in Appendix E6.

Table E-1 Summary of 2008 Soil Analysis – Lower Site Landfill

Table E-2 Summary of 2008 Groundwater Analysis –Landfill