

14.0 Thermal Effects Mitigation

The operational thermal effects mitigation plan shall be based on the results of the waste/soil temperature measurements conducted during bale placement. The measured waste/soil temperatures and predicted trigger temperatures (heat fluxes) will serve as basic data to determine if heating of the waste material occurs as a result of decomposing of the waste material under anaerobic conditions. The detailed mitigation plan is to include the following required steps:

Step 1: A program to monitor methane emission over the active cell(s).

Step 2: A series of geothermal analyses will be carried out and values of the heat flux will be determined for various depths and parts of the active cell(s) impoundment(s).

Step 3: The volume of water at the given temperature will be determined by geothermal analyses to decrease the waste material temperature which will be sufficient to eliminate heat release of decomposing waste material.

Step 4: The number, location, and depth of boreholes with perforated piping, to deliver required volumes of water for various depths and parts of the active cell(s), will be determined based on information collected in Step 3.

Step 5: Complete earth work to provide access for the drill rig to locations of the bore holes (where required) and drill necessary bore holes.

Step 6: A water line will be placed to each hole and water volume determined by the geothermal analyses (Step 3) will be pumped into the holes.

Step 7: To determine cooling trends which should follow the elimination of heat release due to waste decomposing, thermistor cables for bale/soil temperature measurements will be installed in the boreholes and advanced through entire depth of the bales.

Step 8: To speed up the cooling trend, placement of insulation (in summer time) or snow removal (in winter time) may be required over the active cell surface.

Step 9: The details of the steps will be documented in a mitigation plan, which will include access roads for the drill rig and water trucks, casing design, layout of boreholes, thermistor cable requirements, insulation placement, and snow removal, to be developed by a consultant engaged by the City of Iqaluit.