

Chesterfield Inlet
Operation and Maintenance Manual
Solid Waste Facility

The operation and maintenance of a solid waste disposal facility requires various components to operate efficiently. The waste must be collected and transported to the landfill site and appropriately sorted compacted and covered. The segregation of waste into bulky waste (white metal), hazardous material (used oil), animal carcasses, and domestic waste should all be completed within the fenced landfill boundaries.

Site Background

The hamlet of Chesterfield Inlet is located along the western shore of Hudson Bay at 63° 20' latitude and 90° 42' longitude. The local terrain is low rolling hills with granite outcrops and numerous lakes. The average annual precipitation is 14.6cm of rain and 112cm of snowfall. The mean high temperature in July is 13.1°C with a mean low of 4.6°C. In January the mean high is -27.8°C and a mean low of -35.2.

The current landfill is located approximately 2.5 kilometers west of the community. Waste is collected on a regular basis by the Hamlet owned garbage truck and transported to the waste disposal facility. The existing facility is secured on three sides by a 2.4m high chain link fence. Access to the waste disposal facility is unmanned and public sorting/ scavenging of the waste is allowed.

Daily Operation

The operation and maintenance of the solid waste disposal facility will be used in conjunction with normal operating procedures. The following is a list of tasks for the operation and maintenance of the facility.

- Collect solid waste on a regular basis with the hamlet owned garbage truck.
- Transport the waste to dump facility.
- Sort materials according to waste;
 - Bulky material
 - Hazardous waste
 - Combustible material
 - Animal carcasses
- Record daily and monthly waste volumes and trips.

Weekly Operation

On a regular basis the waste should be burned to reduce the volume of material to be compacted and covered. Burning of the waste should only take place under favorable conditions. The operator will monitor the fire over the course of the day and extinguish any areas of open flame before leaving the site un-manned.

Compaction of the waste can significantly reduce the volumes of materials in the landfill. The steps involved in properly compacting and covering the waste is as follows:

- Allow the waste to accumulate.
- Spread the waste for compaction.
- Work the material back up-slope a little at a time to form compacted layers of waste.
- Cover and compact a layer of fill over the exposed waste as seen in Figure 1.

Cover material in Chesterfield Inlet is limited and somewhat hard to find. For the purpose of the landfill, sand, gravel and cobbles are appropriate cover material. Operations can be made easier by stock piling material close to the disposal facility.

After the garbage has been compacted a layer of cover fill approximately 0.2m should be placed upon the compacted garbage. The cover material should be placed over the entire pile and then compacted again to prevent erosion.

Hazardous Waste

The following factors must be considered when storing hazardous waste:

- Compatibility- different types of hazardous waste react differently with there environment and storage containers. The site operator should review the WHMIS for each hazardous material handled.
- Segregation- future use and disposal should be considered when storing waste.
- Ventilation- hazardous waste should be stored in a well ventilated area. The accumulation of volatile substances can cause serious health hazard and every precaution should be taken prior to entering a confined area (i.e. Sealift containers).
- Climate- if hazardous material is stored outside, containers should be covered by a tarpaulin, and preferably placed on a impermeable base. This prevents contact of rainwater and soil, blocks direct sunlight, and makes clean-up of any spills or leaks easier. The area should be curbed or diked to collect spills, leaks and precipitation. The containment area should be capable of holding 100% of the total volume stored.
- Handling- WHMIS guidelines should be followed when handling hazardous material. Al site operators should be adequately trained.

- Record keeping- records must be kept with regards to all hazardous waste stored on-site. The record keeping should include, material stored, quantity, and dates received.

Periodic Seasonal Maintenance

- Inspect the fencing for damage each spring and fall.
- Maintain roadway with snow clearing in the winter and grading in the summer.
- Remove fugitive garbage from the fencing on a regular basis.
- Complete annual spring clean ups to collect waste and litter that has escaped outside the fencing.
- Inspect ditches and drainage channels for erosion (once per month). Repair as necessary

The above work is to be completed by Hamlet staff and the activities of the work are to be reported on an annual basis in compliance with the Hamlet's Water License.

Monitoring Program

As outlined in the Water License, regular monitoring of the treatment facility is required. The monitoring program is to include water samples from the Surveillance Network Point (SNP) identified as **CHE-2** during the months on May to August inclusive. It is suggested that the testing program be conducted to include testing for the parameters outlined in the Hamlets Water License.

Reporting

Results of analytical testing and monitoring are to be recorded on a regular basis by the staff. Copies of the analytical certificates and Chain of Custody forms are to be kept for future reference to determine the effectiveness of the treatment facility.

Accident Reporting

In the event of a spill the following procedures are to be followed:

- Be alert. Consider your safety first.
- Identify the product/ cause of the accident.
- Assess the fire and safety hazards.
- Warn people to vacate the area if it is hazardous.
- Ensure that all sources of ignition have been eliminated. **NO SMOKING!**
- Attend to any injured people.
- Secure the area of the accident or spill.

- Notify appropriate support personnel.
- Ensure that the spill is properly contained with public safety in mind.
- Remain at the incident for safety precautions and to ensure that there is no public thoroughfare. Wait for the arrival of Hamlet staff.

The following personnel must be notified immediately following an accident/ spill:

- Your supervisor.
- Hamlet SAO.
- 24-hour Spill Report Line (867-920-8130)
- Local Sustainable Development Officer.
- Local RCMP.
- Local Fire Department if there is a fire hazard.
- Local nursing station in the event of injuries.

In the event of a fire the following procedures are to be followed:

- Be alert. Consider your safety first.
- Locate the fire extinguisher.
- Stay up wind of the fire and smoke
- Secure the area for public safety.
- Notify the Fire Department and appropriate support personnel.
- Remain at the incident for safety precautions and to ensure that there is no public thoroughfare.

The following personnel must be notified immediately in the event the event of a fire:

- Fire Department
- Your supervisor
- Hamlet SAO

References

Municipal and Community Affairs Community Development, Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories.

UMA Engineering Ltd. Town of Iqaluit, Landfill Operation and Maintenance Manual, for Site 3 in west 40.

Nunavut Water Board, Hamlet of Chesterfield Inlet, License Number: NWB3CHEO308.