

Chesterfield Inlet
Operation and Maintenance Manual
Sewage Facility

The operation and maintenance of the sewage 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.

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 Hamlet currently obtains its drinking water from First Lake located approximately 4 Km west of the Hamlet. The water is piped to a rock blasted reservoir located 1.0 Km west of town. The water is treated with chlorine then distributed to the community via Hamlet owned water trucks. Water requirements for 2003 were reported as 11,379m³.

The current sewage treatment facility is located approximately 2.4 kilometers west of the Hamlet. The majority of the households in the community rely on sewage holding tanks. A sewage truck hauls the raw sewage to the existing truck discharge point located on the west side of the access road. The sewage flows overland to a pond (Pond-1). The outlet of Pond-1 directs the sewage to a large wetland treatment area. The final discharge point of the treated sewage is finger bay located approximately 1 Kilometer away.

Daily Operation

- Pump out household and commercial sewage holding tanks and haul waste to the sewage disposal facility.
- Discharge waste to flume.
- Record daily and monthly waste volumes and trips.

Periodic Seasonal Maintenance

- Inspect ditches and drainage channels for erosion (once per month). Repair as necessary.
- Inspect discharge flume for damage or displacement each spring and fall.

- Maintain roadway and truck pad with snow clearing in the winter and grading in the summer.
- Remove floatables from the discharge pit to landfill area in the spring and fall or as required.

If the system has been upgraded to include storage or lagoon cells:

- Inspect storage cell or lagoon berm for erosion and settlement in the spring and fall. Repair as necessary.
- Inspect the outflow control feature for defects of blockages.

The above work is to be completed by Hamelt 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-4** during the months on May to August inclusive. It is suggested that the testing program be conducted to include testing for the following parameters:

- BOD5
- Total Suspended Solids
- Total Coliforms
- Fecal Coliforms
- Phosphorus
- Nitrogen
 - Ammonia Nitrogen
 - Total Kjeldahl Nitrogen

Additional analytical parameters are identified in the water license.

A monitoring station will be established at the raw sewage offload point identified as **CHE-3**. Monthly and annual quantities of raw sewage offloaded will be measured and recorded in an official log book.

As the data is collected and analyzed, modifications can then be made to improve the operation of the facility.

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 that an accident/ spill has occurred:

- Your supervisor.
- Hamlet SAO.
- 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.

M.M. Dillon Limited, Sewage disposal Improvements, Design and Operation Concept, Chesterfield Inlet, N.W.T, May 1994.