

Technical Summary of Solid waste Management Facilities of the Hamlet of Resolute Bay

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The Hamlet of Resolute is Canada's second most northern community, and is located at 74°43'01" N and 94°58'10" W on the western shore of Resolute Bay on the south shore of Cornwallis Island which is part of the Queen Elizabeth Islands. It boasts of a series of low-lying plains and plateaus, which create an almost featureless terrain scattered with rock debris. The population of the community in 2013 is 259. This is a Canadian Military training base. Summer population increases to almost 600 including Defense personnel, scientists, researchers and visitors. The Community has been managing two non-engineered waste management facilities: One is for domestic wastes and second one is for metal wastes.

The current municipal dump site has little to no controls on waste management and no operation and maintenance plan. Industry and commercial operations within the Hamlet complete their own waste collection, transportation and disposal activities. The Hamlet of Resolute Bay provides waste collection and truck transport to the current municipal dump site as a service to the residences. In addition to the current municipal dump site, there exists several areas where bulky waste has been uncontrollably deposited in Resolute Bay.

An Engineering Consulting firm, Arktis Solutions Inc., completed a feasibility study on waste management for Resolute Bay. They have identified a new site about 9km west of the Community and completed the design. They have to upgrade this design to satisfy CGS's current waste management guidelines. The project is on hold. Therefore the Community will be using the existing waste management facilities until the new facilities are built and commissioned.

In the design, Arctic has considered 0.015m³/person/day and uncompacted density 99 kg/m³ of wastes assuming community population growth rate 3%. Therefore the Community is generating wastes in 2013 summer for 600 population is 335,215kgs and winter for 300 population is 162,608kgs. Considering a compaction rate of 3:1, these volumes can be reduced to one third. Whereas the metal volume remains same. The existing sites have capacity issues.

These facilities have not any O&M manuals and as built drawings. No segregation of hazardous waste is taken place. The soil condition and drainage pattern are undefined. However, a signage is installed for leachate sampling in summer at N74°44'and W94°55'.The leachate samples are collected four times a year to satisfy the requirements of the water licence.

Initially Waste management Facility was under the licence of the Utilidor system. In 2010, this facility was deleted from that licence. Hamlet of Resolute Bay is the licensee for the existing waste management facility and the licence is to be renewed.