

Project Proposal for Hamlet of Cape Dorset Environmental facilities under Water Licence # 3BM-CAP 0810-Type B.

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Hamlet of Cape Dorset is situated on Dorset Island off the South coast of Baffin Island and located at 64°13'N and 76°31'W. The population in 2016 of the community is 1520. The community's water Licence, # 3BM-CAP 0810 –Type B, expired in 2010. Under this Licence, the community has a permit to withdraw 7000 cubic meters of water annually from the Tee Lake which is their designated potable water source. Water supply, Waste management and Wastewater treatment are the Environmental facilities under the Water Licence. This project proposal is for a water license renewal of License # 3BM-CAP 0810.

Water Supply: Tee Lake is the designated potable water source of the Hamlet of Cape Dorset. From the bathymetric surveys conducted by NRCan under climate change program in 2007, it shows that this lake is a sustainable source for the community. This lake is 1 km away from the Community.

Water Pipe Line and Truck-Fill Station (TFS): Water is transported from Tee Lake to the TFS by water transmission pipeline which is approximately one kilometer in length and was installed in 2002. It is a 75mm pre-insulated stainless steel pipe and is equipped with an internal electric heat tracing system. The water line includes submersible pump in the lake and a heater house with immersion heaters to warm the water prior to transmission to the storage tank located at the TFS. The existing truck-fill station with the adjacent storage tank of capacity 535 cubic meters was constructed in 1992. The facilities have largely remained unchanged during its service life.

Waste Management: The Community of Cape Dorset currently operates two solid waste disposal facilities-a bulky waste site and a municipal landfill. The bulky waste site has been in operation for about 30 years. Currently segregation of different types of wastes is being managed by the community.

The municipal landfill is a relatively small facility that has reportedly been in operation since the mid 1990's. The community recently fenced this site and is managing segregation well. They are burning light woods, paper etc. and covering with imported soil.

Wastewater Treatment: The community is treating their wastewater in the 3 cell lagoon located about 1 km southwest from the community. It was constructed in the mid 1990's and is located in a natural valley with drainage to the Telik Inlet of the Arctic Ocean. The lagoon cells are constructed in a terraced formation with sewage flowing from one cell to the next. Although designed to exfiltrate, culverts have since been installed within the upper portion of each berm to accommodate overflow conditions and reduce the risk of berm failure. A culvert was also installed last year in the lower berm to control overflow.

At the current time, the rate of inflow to the lagoon system (sewage and natural run-off) exceeds the rate of exfiltration. Due to the location of the lagoon system, natural run-off further exasperates the issue of volumetric capacity required for the purposes of sewage treatment.

Prior to the construction of these 3 cell lagoon, a single cell lagoon located about 600m south west from the community was used for the sewage treatment. Discharge from this lagoon is also to the Arctic Ocean. The former sewage lagoon has a smaller capacity than that of the 3 cell lagoon. This lagoon has not been decommissioned because it is used in case of an emergency.

The berm failures and the winter overflows from the 3-cell lagoon were recurring problems which permitted sewage to enter Telik Inlet with a very little retention time. The Water Licence #NWB 3-CAP 0207 was granted to the Hamlet in September 2002 and this licence set out criteria for the performance of the 3 cell lagoon.

Following the EC's inspector directive under fisheries Act in March 2002, the P-lake sewage lagoon was initiated, expedited and finally built in 2007 and was licensed under Water Licence # 3BM-CAP0810 in 2008. The berm of this facility started leaking soon after this facility was planned to be commissioned. There are also safety concerns with the access road. Therefore this facility has not been used since it was built.

GN has hired Stantec consultant Inc. and is working towards an effective solution to address the access road concerns and the berm in order to commission the 2007 built P lake sewage Lagoon at the earliest possible time.

At this time, the 2007 built P-lake sewage Lagoon is excluded in the Water Licence renewal application.