

## Technical Report of the Environmental Facilities in Arctic Bay

Arctic Bay, also called Ikapiarjuk (the pocket), is located 73°02'N and 83°05'W on the Borden Peninsula of Baffin Island of Nunavut. This is a mid size community of the population of about 916 in 2010. The annual consumption of water in 2009 was 20,983 cubic meters; whereas the permit was given to the community was 45,000 cubic meters annually under the water Licence # **3BM-ARC0810**.

The community has a Sewage Lagoon which is located 2.5km west of the community. This lagoon sewage discharge slopes southwards for 400m (17:1) towards Arctic Bay. More specifically, the area of the present Lagoon is dominated by sedges, cotton grasses and willows. This lagoon is located directly adjacent to several ephemeral water courses that provide seasonal drainage to the surrounding topography. This facility is too old and under capacity. The design for the abandonment and restoration of this facility was approved by the NWB. This will be decommissioned once the new facility is built and commissioned.

Trow Associates Inc. is the consultant for this project. They have identified a new location, conducted studies on geotechnical investigation, geothermal modeling, hydrology, wetland modeling and topographical surveys and finally using these information they designed the new wastewater treatment facility, which is again a Sewage Lagoon with a large wetland treatment area. This new facility needs an access road of about 1km long from the existing lagoon. The construction of the road was started in 2009. The new Lagoon and the access road are scheduled to complete construction in 2010. The concept is to decommission the existing Lagoon once the new lagoon is commissioned. The new facility will not be operational until after the 2010/2011 winter to allow the berms to refreeze. The O&M manual will be upgraded once the new lagoon is constructed and the as built drawings are prepared prior to commission.

Water supply and waste management facilities are also under the current Water Licence regulations. Water Truck fill station is hooked up with the power line and the generator is also kept standby at the site for emergency. Water quality is monitored, managed and maintained satisfying the drinking water regulations. Heat trace of the intake pipe has been upgraded. The hamlet is still using the existing O&M manual to operate this facility.

The community domestic and metal wastes sites are located next to the existing sewage Lagoon. This is a non engineered facility. Hamlet is dealing with the community government services to address this non compliance issue in order to bring the community under compliance.