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Canada

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Our file: 4782 062

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Via Email: [licensing@nunavutwaterboard.org](mailto:licensing@nunavutwaterboard.org)

**Re: Renewal Application for Water License 3BM-CHE0308 (NWB3BHE0308)**

On behalf of Environment Canada (EC), I have reviewed the information submitted with the above-mentioned application. The following specialist advice has been provided pursuant to Environment Canada's mandated responsibilities under the *Canadian Environmental Protection Act*, and Section 36(3) of the *Fisheries Act*.

**Background**

The Hamlet of Chesterfield Inlet (Hamlet) is applying to renew their water license to allow for the municipal use of water and the deposit of waste. The Hamlet's water supply comes from First Lake located approximately 3 km from the Hamlet, and held in a reservoir located approximately 1 km from the Hamlet. Sewage is pumped out of sewage holding tanks by Hamlet trucks and transported to the Sewage Treatment Facility. The sewage treatment system consists of a truck discharge station to a natural depression and then flows into a series of wetland areas, with eventual discharge into the Finger Bay (Hudson Bay). Solid waste is collected by the Hamlet and deposited in the Solid Waste Management Facility located approximately 3.1 km from the Hamlet. Bulky waste is segregated from the solid waste and stored approximately 200 m outside the landfill site.

The Hamlet is proposing several upgrades for the Sewage Treatment Facility and the Solid Waste Facility. The Hamlet would like to construct two holding cells to trap suspended solids to reduce the amount of solids flowing into the wetland system. The cells would either have geotex liner or clay (depending on availability and suitability). The cells would have 10 month storage with release in late summer/fall. There are also plans to add in three diversion berms; one to divert solid waste runoff to the top of the wetland system, and two diversion berms to create a compliance point at the end of the wetland. Additionally, there are plans for improvements for the existing discharge point (addition of blocks at edges and a chute to transfer water from truck to holding cell) and the construction of new discharge point located above the second holding cell. Signs are to be erected to identify the wetland area.

EC supports a shorter licence term for this renewal in order for the Hamlet to fulfill license requirements and address compliance issues. Additionally, Environment Canada commends the Hamlet for proposing upgrades to the existing Facilities and recommends that the following conditions be applied throughout the duration of the license:

## **General**

- The Hamlet must ensure that any effluent discharged must be in compliance with Section 36(3) of the *Fisheries Act*. According to the *Fisheries Act*, Section 36(3), the deposition of deleterious substances of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water, is prohibited.
- Operation and Maintenance (O&M) manuals have yet to be submitted for the existing Sewage Treatment Facility and the Solid Waste Facility. Any updates to either of these Facilities should be updated in the O&M manuals.

## **Fuel Storage and Spill Contingency**

- The Hamlet has yet to submit a Spill Contingency Plan. EC recommends that the Board require the submission of a Spill Contingency Plan as a condition of the renewal of the Water License. All spills must be documented and reported to the NWT/NU Spill Line at (867) 920-8130.
- Secondary containment or surface liners (drip pans, fold a tanks, etc.) should be placed under all containers or vehicle fuel tank inlet and outlet points, hose connections and hose ends during fuel or hazardous substance transfers. Secondary containment should be of adequate size and volume to contain and hold fluids for the purpose of preventing spills (the worst-case scenario).

## **Sewage Treatment Facility**

- It is unclear if the new proposed compliance point will have a control structure to impede flow if water quality results are above limits set in the water license. More information regarding the diversion berms is required to properly assess effluent criteria. Appropriate limits should be set at the last point of control, whether this be at the discharge structure at the end of the holding cells, or at the proposed diversion berms at the end of the wetland. Monitoring should include the quality of effluent at various points in the system, in order to determine the performance of the wetland as a secondary treatment system.
- EC notes that the CCME Strategy for the Management of Municipal Wastewater has been signed, and that northern jurisdictions can expect performance standards for BOD5 and TSS to be regulated following a five year period which starts in 2009. We anticipate that the standards for these parameters may be higher than the 25 mg/L for each that is proposed for the southern jurisdictions and the Yukon. Also, it should be noted that carbonaceous Biological Oxygen Demand (cBOD) will be the regulated parameter, and it would be prudent to add this to the list of licence parameters now, in order to gain some idea of the system track record over the next five years.
- Environment Canada recommends that a Sludge Management Plan be submitted for approval for the new holding cells. EC recommends the following on sewage sludge disposal:
  - Maintenance should include periodic removal and disposal of sewage sludge. Estimates should be made of the quantities of sludge likely to be produced, the required frequency of extraction from the lagoons; and operational procedures developed for environmentally sound removal and disposal. These procedures should include characterization to ensure disposal options are appropriate. Environment Canada recommends that prior to desludging occurring, the proponent submit for approval a Sewage Sludge Management Plan that clearly outlines the chemical composition.

- Environment Canada recommends that proper signage is in place indicating the locations of the Sewage Treatment Facility.

### **Solid Waste Disposal Facility**

- EC recommends that waste oil and/or fuel barrels should be stored within secondary containment, such as self-supporting insta-berms, or in a lined and bermed area. Please note that all hazardous materials should be neutralized (if applicable) and stored in sealed and labelled containers. Effluent that has accumulated within the hazardous waste storage containment area should be treated as hazardous waste and decanting of snow or water from the area of the hazardous waste storage area should proceed only if the appropriate chemical analysis has determined the contents meet the requirements of Section 36(3) of the *Fisheries Act*.
- Open burning of municipal waste is strongly discouraged by EC, as this results in the formation and spread of some extremely toxic compounds due to incomplete combustion of plastics and other household materials, as well as the generation of fine particulate matter.
- Fencing of the whole solid waste site (including the bulky materials area and the waste oil depot) should be installed to facilitate control of access to the landfill and to prevent the spread of debris. Existing scattered debris should be collected from surrounding tundra.

### **Monitoring**

- Appropriate signage should be erected identifying all Surveillance Network Program (SNP) stations.
- No Annual Reports or monitoring data have been provided for the Hamlet's Sewage Treatment Facility. EC recommends that the Hamlet provide a Monitoring Plan and Annual Reports to the Board for review.
- Monitoring frequency performed by the Hamlet should be sufficient to inform how the system can best be managed to optimize treatment. For example, timing of discharge will be a factor in how effectively the wetland can take up nutrients and incorporate solids; discharge should occur gradually over the warmer months to ensure that the effluent has enough treatment time in the wetland system.

If there are any changes in the proposed activities, EC should be notified, as further review may be necessary. If you have any questions regarding the foregoing please contact Carrie Spavor at (867) 975-4631 or via email at [carrie.spavor@ec.gc.ca](mailto:carrie.spavor@ec.gc.ca).

Yours truly,

Original signed by

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