Environment Canada **Environnement Canada**

Environment Canada
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Your File: 3BM-IGL 0308
Our file: 4782 027

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RE: NWB 3BM-IGL0308 – Hamlet of Igloolik – "Type B" Water License Renewal

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*.

The Hamlet of Igloolik is applying to renew their water license to allow for the municipal use of water and the deposit of waste. The current sewage treatment system consists of a four cell exfiltration lagoon; effluent that exfiltrates from the lagoons flows downstream through an undefined wetland to the ocean. Concerns have been raised by regulatory agencies regarding the seepage and erosion of the lagoons, presently there are signs of catastrophic failure along the berms facing the ocean. The current solid waste facility is also inadequate, with no waste segregation, fencing, or an Operational and Maintenance Manual. A consultant has been hired to plan and design improvements to the solid and liquid waste management facilities.

Environment Canada 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.
- An Operations and Maintenance Manual should be submitted for approval as a condition of the water licence. Generally the plan should include:
    - A description of how facilities are operated and maintained;
    - How often these tasks are performed; and
    - Who is responsible for their completion.
- A Closure and Reclamation Plan for the existing solid waste and sewage treatment facilities should be submitted for approval as a condition of the water licence, no later than 9 months prior to closure of the facilities.
- The submission of an annual report as a condition of the license, including monitoring results and updates to plans.

Fuel Storage and Spill Contingency

- The proponent should produce a Spill Contingency Plan for approval as a condition of the water licence for the existing facilities. The plan should facilitate response to spills which might occur

during construction and operation and decommissioning of the project. The plan should include a list of available spill response equipment and the names of trained personnel who will be on-site and available in the case of a spill.

- 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).
- Transfer operations should be attended by trained personnel at all times.
- Please note that any spill of fuel or hazards materials, adjacent to or into a water body, **regardless of quantity**, shall be reported immediately to the NWT 24-hour Spill Line, **(867) 920-8130**.
- Environment Canada operates a 24 hour emergency spill line that is monitored by Emergency and Enforcement Officers. The number to be called to contact the Duty Officer is **(867) 766-3737**.

Sewage Treatment Facility

- EC has grave concerns with the potential for failure of the sewage lagoon, as identified by the Hamlet in their application. Addressing the system deficiencies must be a priority.
- EC recommends effluent quality standards be applied to this license that are at least equivalent to those outlined in the document 'Guidelines for the discharge of treated municipal wastewater in the Northwest Territories'; these standards are BOD_5 120 mg/L and TSS 180 mg/L. These limits should be set at the last point of control, this being the discharge structure from the lagoon, not the end of the wetlands. However, the quality of effluent leaving the wetland should still be monitored in order to determine the performance of the wetland as a secondary treatment system.
- Monitoring frequency 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.
- The Hamlet should be aware of the work being done to develop a Canada-wide Strategy for the Management of Municipal Wastewater Effluents, under the aegis of the Canadian Council of Ministers of the Environment (CCME). The latest draft of the Canada-wide Strategy, which addresses specific parameters and governance, was released in October 2007 (http://www.ccme.ca/assets/pdf/mwwe_cda_wide_strategy_consultation_e.pdf). As part of the federal government's implementation of the CCME Canada-wide Strategy, it is EC's stated intention to develop a regulation under the *Fisheries Act*. The Canada-wide Strategy will more clearly define regulatory requirements related to the release or discharge of wastewater into surface waters. Environment Canada's goal is to ensure that effluents from wastewater systems are treated before being discharged to the receiving environment so that effluents do not pose unacceptable risks to ecosystem and human health, or to fisheries resources.
    - The focus is on setting maximum allowable limits for carbonaceous biological oxygen demand ($cBOD_5$), residual chlorine and total suspended solids (TSS) in municipal wastewater effluent. There will be a period of up to five years during which northern issues are examined and practical limits put forth for wastewater quality. For the Hamlet, this may eventually impact the BOD and TSS discharge criteria.
    - EC recommends that cBOD be measured in effluent as well as BOD.
- A minimum 1 m of freeboard should be maintained within the sewage lagoon at all times, or as specified by a geotechnical engineer.

Solid Waste Disposal Facility

- Waste segregation practices should be identified and used to ensure removal of salvageable items and hazardous materials from the general wastes. Dedicated locations should be identified for hazardous wastes, including batteries and waste oil, honey bags, animal caresses, and contaminated soil. Signage indicating the location of the various disposal cells for each waste type in the solid waste disposal facilities should be erected.

- The open burning of waste oil is discouraged by EC as waste oil may contain metals and other contaminants. Appropriately designed waste oil burners can be used, provided the waste oil is of appropriate quality (it would need to be tested and meet standards such as in the *NWT Used Oil and Waste Fuel Management Regulations*). Waste oil furnaces or other options to re-use the waste oil for heating or other such uses should be explored. EC recommends that waste oil and/or fuel barrels should be stored in a lined and bermed area.
- All hazardous materials should be neutralized 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*.
- Drainage management will be needed to minimize leachate generation from the solid waste facility. As part of the O&M plan, the Hamlet should identify testing and disposal of any collected leachate. These issues should be addressed prior to any discharge to ensure the requirements of the *Fisheries Act* will be met.
- Fencing of the solid waste site should be done to facilitate control of access to the landfill and to prevent the spread of debris.
- 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.

If there are any changes in the proposed activities, EC should be notified, as further review may be necessary. Please contact me with any questions or comments with regards to the foregoing at (867) 669-4746 or by email at jane.fitzgerald@ec.gc.ca

Yours truly,

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