Environment Canada **Environnement Canada**

Environment Canada
Prairie and Northern Region
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August 29th, 2008

Your File: 3BM-ARC0810
Our File: 4782 029

Richard Dwyer
Licensing Administrator
Nunavut Water Board
PO Box 119
Gjoa Haven NU X0B 1J0

Re: Hamlet of Arctic Bay – Amendment – Type "B" Water Licence 3BM-ARC0810

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 for the enforcement of the *Canadian Environmental Protection Act*, Section 36(3) of the *Fisheries Act*, the *Migratory Birds Convention Act,* and the *Species at Risk Act*.

The Hamlet of Arctic Bay is applying to amend their current water license to allow for the construction and operation of a new sewage lagoon and decommissioning of the old sewage lagoon. The current system, which consists of a primary cell that discharges into a limited wetland, is no longer adequate and unable to meet water licence effluent criteria. A site inspection by Trow and Associates found that the Hamlet is not using the current lagoon and is discharging into the icepack area. Three new sites were presented by CGS representatives and the proposed site was chosen due to its large wetland and natural topography that can be used to build the lagoon within. The proposed sewage lagoon consists of a single cell as the primary treatment system and an 11.2 hectare wetland as the secondary treatment. The final discharge point would be into Victor Bay. It is proposed that the system be decanted manually once a year in mid-August for approximately 30 days.

The decommissioning of the current lagoon will occur after the new lagoon is operational. Decommissioning would include filling and grading of both the current lagoon and ice-pack areas.

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.
- The community's current water licence expires at the end of October, 2012, and by that time data will be available to indicate system performance. EC recommends that at the time of renewal, the treatment system be re-evaluated and should any changes be

required, such as effluent limits, monitoring or operational issues, they can be addressed during the renewal process.

- The Proponent is to ensure that all construction and blasting activities on the existing sewage lagoon and future lagoon site do not result in sedimentation of any surrounding water bodies. Preventative measures, such as the use of silt curtains/fences should be used to help mitigate any potential impacts.
- Any stockpiled material should be stored above the high water mark of any water body and in such a manner as to prevent sedimentation of surrounding water bodies.
- 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 new facility should be submitted for approval as a condition of the water licence for the new sewage lagoon.

Monitoring

- EC would like to see effluent quality standards applied to this license 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 as suggested in the design brief. Predicted effluent concentrations were provided in the design brief submitted with the application for the effluent from the lagoon and from the wetland. The efficiency of the wetland should be monitored in order to determine the performance of the wetland as a secondary treatment system.
- Monitoring frequency 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 BOD5, residual chlorine and 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.

Fuel Storage and Spill Contingency

- The proponent should produce a Spill Contingency Plan for approval as a condition of the water licence for the new facility. 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 Sludge Disposal

- Environment Canada recognizes that it is important to get a water licence in place as soon as possible and will not be requesting a Sewage Sludge Management Plan at this stage, given that sludge will most likely not be an issue over the first 5 years of operation. However, upon renewal of the licence, EC recommends that a Plan be submitted for approval. EC recommends the following on sewage sludge disposal:
    - Maintenance should include 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 composite.

If there are any changes in the proposed activities, EC should be notified, as further review may be necessary. Please do not hesitate to contact me with any questions or comments with regards to the foregoing at (867) 669-4772 or by email at savanna.levenson@ec.gc.ca

Yours truly,

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c.c: Carey Ogilvie, Head EA North, Environment Canada
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