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NWB File: 3BM-BAK9904
Our file: 4782 015

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Via Email: licensing@nunavutwaterboard.org

Re: Application for a Type “B” Water License – Renewal of Type “B” 3BM-BAK9904

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 EC’s responsibilities under the *Canadian Environmental Protection Act*, and Section 36(3) of the *Fisheries Act*.

The Hamlet of Baker Lake (Hamlet) is applying to renew their water licence to allow for the municipal use of water and the deposit of waste. The Hamlet’s water supply comes from pumped water from Baker Lake, and is distributed by water trucks to the community. The sewage treatment system consists of a small holding cell with a permeable berm which is discharged into a wetland area which flows approximately 200 m to Lagoon Lake. The water flows from Lagoon Lake into Finger Lake and Airplane Lake before entering into Baker Lake. Solid waste is collected by the Hamlet and deposited in the Solid Waste Management Facility located southeast of the sewage holding cell north of the Hamlet. Bulky waste is segregated from the solid waste and stored in a fenced area located northwest of the refuse disposal area. Hazardous wastes are stored in a sealift container within the bulky waste area.

The Hamlet has proposed several improvements to the sewage treatment facility, with construction planned to begin in 2009. Proposed improvements include: increasing the size of the existing holding cell; construction of a second holding cell; installation of attenuation berms in the wetland area between Lagoon Lake and Finger Lake, and between the landfill and Finger Lake; and, install fencing around the wetland area and the holding cells. Environment Canada supports the Hamlet in its efforts to improve facilities and requests that the Hamlet provide a schedule of when these items will be completed.

Environment Canada recommends that the following conditions be applied throughout the duration of the licence:

General

- All mitigation measures identified by the Hamlet, and the additional measures suggested herein, should be strictly adhered to in conducting project activities. This will require awareness on the part of the Hamlet’s representatives (including contractors) conducting operations in the field. EC recommends that all field operations staff be made aware of

the Hamlet's commitments to these mitigation measures and provided with appropriate advice / training on how to implement these measures.

- 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.
- In the 1999 Water License Renewal for Baker Lake, the NWB requested that "the Hamlet prepare a report which identifies all abandoned facilities within municipal boundaries." To EC's knowledge this report has not yet been prepared. EC requests that an Abandonment and Reclamation plan be provided to the NWB for all abandoned facilities within the municipality.
- The Hamlet should provide an updated Operations and Maintenance (O&M) manual to the NWB for review; updates should include any improvements made to the sewage treatment facility.
- Environment Canada recommends that proper signage is in place indicating the locations of the water supply, sewage lagoon, wetland treatment areas, and solid waste disposal facility.

Sewage Treatment Facility

- The Hamlet has not submitted an Annual Report since 2005. EC requests that the Hamlet provide the Nunavut Water Board (NWB) with copies of the missing Annual Reports for review.
- The retention time in the primary cell is currently only three days (supplementary questionnaire page 19) which may allow for some settling of solids but does not provide enough time for further treatment. EC strongly encourages the Hamlet to expedite the planned system upgrades, and to plan for sufficient retention time in the holding cells to attain some treatment.
- Environment Canada recommends that a Sludge Management Plan be submitted for approval. 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 de-sludging occurring, the proponent submit for approval a Sewage Sludge Management Plan that clearly outlines the chemical composition.
- 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's track record over the next five years.

Monitoring

- In the *Report of the Environmental Study and Evaluation of the Water and Sewage System, Qamani'tuaq, Nunavut*, prepared by Nunami Jacques Whitford Limited, October 15, 2007, has provided some monitoring results. However, the Hamlet has not provided any monitoring results for 2008. EC requests that the Hamlet provide the Board with the results from all of the Monitoring Program Stations for 2008.

Solid Waste Disposal Facility

- In Section 4.5.4 of the *Baker Lake Sewage & Solid Waste Disposal O&M Manual*, prepared by Dillon Consulting Limited, states that waste oils are disposed of in an unlined pit located south of the general disposal area. As per the Supplementary Questionnaire, dated September 8, 2008, it is noted that waste oil is currently stored in a lined waste oil cell. EC recommends that the Hamlet update the O&M manual accordingly as well as provide information how the previous waste oil pit was reclaimed.
- The INAC 2009 Inspection Report noted batteries and waste oil barrels located in the municipal waste area and “over 1000 drums of waste oil and other unknown fluids” are located in the bulk metals waste area. EC recommends that the Hamlet properly store all hazardous wastes in the hazardous waste area to contain any leaks or spills.
- The proponent shall ensure that all hazardous wastes, including waste oil, receive proper treatment and disposal at an approved facility.
- When any contaminated and/or hazardous materials are to be removed from the site, EC recommends that the proponent document information regarding disposal and transportation methods for inclusion in the Annual Report. EC notes that personnel dealing with these materials should all have Workplace Hazardous Materials Information System and Transportation of Dangerous Goods training.
- Open burning of municipal waste is strongly discouraged by EC, as this results in the formation and spread of some extremely toxic compounds, as well as the generation of fine particulate matter, due to incomplete combustion of plastics and other household materials.

Fuel Storage and Spill Contingency

- The Hamlet should provide an updated copy of the Emergency Response Plan to the NWB for review. This update should include any improvements to facilities.
- Secondary containment or surface liners (drip pans, fold a tanks, etc.) should be placed under all containers and 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).
- EC recommends that the appropriate spill response equipment and clean-up materials (absorbents, containment devices, etc.) be on hand during any transfer of fuel or hazardous substances and at vehicle maintenance areas.
- The Spill Contingency Plan should include locations of all hazardous materials, spill response equipment and clean up materials.

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.

Yours truly,

Original signed by

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cc: Carey Ogilvie (Head, EA-North, Environment Canada, Yellowknife, NT)
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