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March 28, <sup>2003</sup> ~~2002~~ *HP*

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## Grise Fiord Water Licence Application

On behalf of Indian and Northern Affairs Canada (INAC), I am pleased to submit the following comments on the water licence application for the Municipality of Grise Fiord.

### 1. Introduction

This submission, on the application for a municipal water licence by the Municipality of Grise Fiord, is submitted on behalf of the Water Resources division of INAC.

This submission will be based on the water licence application received by the Nunavut Water Board (NWB) on February 25, 2003. Past inspection reports have also been taken into consideration.

### 2. Conditions Applying to Water Use

The Municipality currently receives its water from glacial runoff. The glacial melt is collect in a small runoff pond, from which it is then gravity-fed into the three municipal water storage tanks. The municipal storage tanks have a cumulative capacity of 10,000 m<sup>3</sup>. The tanks are filled during the summer months.

The municipal storage tanks have a pump house that pumps the water into the water trucks. The water is treated with chlorine and trucked to the households of the community. Current water consumption is approximately 5,658 m<sup>3</sup>/year. It is expected to reach 5,925 m<sup>3</sup>/year in 2008, and 6,147 m<sup>3</sup>/year in 2012.

Assuming a 5 year water licence (2003 to 2008), as requested by the Municipality, INAC therefore recommends that the annual volume of water pumped from the glacial runoff

pond should not exceed 6,000 m<sup>3</sup>/year for the term of the licence.

SNP station 1 should be designated as "raw water supply from runoff pond." It should be used to measure the monthly quantity of water pumped from the glacial runoff pond.

### 3. Conditions Applying to Waste Disposal

Sewage is collected by truck and brought to a sewage lagoon approximately 1.4 km west of the Municipality. The lagoon was constructed in 1998 with the intent of having a 365-days retention period.

The Municipality's application indicates that the lagoon will meet the needs of the community for the next five years. However, in the section in the application on community concerns, there seems to be a concern that the lagoon will overflow. Likewise, the 2001 Inspection Report indicates that there was minimal freeboard remaining just prior to discharge of the lagoon; this would indicate that perhaps there is indeed insufficient volume to accommodate the expected additional 300 m<sup>3</sup>/year of sewage that will be generated in 2008 (using the volume of anticipated water use as the equivalent to the volume of anticipated sewage to be generated). The only reference to the capacity of the lagoon is a verbal quotation of 500 m<sup>3</sup>. INAC recommends that the municipality provide a more adequate volume capacity of the lagoon, or otherwise provide assurances that the lagoon will meet the needs of the community.

INAC recommends that SNP station 2 be designated as "raw sewage from the discharge point." Station 2 should be used for the monthly measurement of sewage generated by the Municipality.

Also, SNP station 3 should read as "runoff from sewage lagoon prior to discharge into marine waters." This should include sampling of the sewage effluent after traversing the wetlands but prior to reaching marine waters. The sewage effluent at SNP station 3 should be sampled monthly during periods of flow for the following parameters and limitations:

|                               |                   |
|-------------------------------|-------------------|
| <b>Total Suspended Solids</b> | 180 mg/L          |
| <b>BOD</b>                    | 120 mg/L          |
| <b>Fecal Coliform</b>         | 10,000 CFU/100 mL |
| <b>pH</b>                     | 6 to 9            |
| <b>Oil and Grease</b>         | no visible sheen  |
| <b>Ammonia</b>                | monitor only      |

Warning signs should be posted along the flow path of the sewage effluent.

The solid waste disposal site is located approximately 1.4 kilometers west of the Municipality. The waste is burned twice per week, while compaction and covering of the site

is done on an annual basis. The site is not fenced. One section of the solid waste site is reserved for bulky wastes and hazardous waste such as paint and batteries.

INAC recommends that SNP station 4 read as "runoff below the solid waste disposal area and prior to discharge into marine waters." Monitoring should take place at station 4 on a monthly basis during periods of flow. The parameters to be monitored should not be too onerous for the Municipality.

INAC also recommends that an adequate fence be installed around the perimeter of the solid waste disposal area to prevent windblown debris from leaving the site.

Finally, there are roughly 150 barrels of unknown content within or near the solid waste disposal area. The Municipality states that it plans on shipping the barrels south for proper identification of contents and disposal.

#### **4. Conditions Applying to Abandonment and Restoration**

The old sewage lagoon has recently been partially reclaimed. Some of it has been backfilled, while other sections have been converted into the bulky waste site. The community plans on backfilling more of the lagoon in the near future. INAC recommends that the Municipality provide plans on their proposed work that would indicate the ultimate outcome of their restoration activities. It should also be noted that the NWB has the final approval as to what is deemed an acceptable restoration plan for waste disposal facilities.

#### **5. Conditions Applying to Operation and Maintenance**

INAC recommends a requirement for an Operation and Maintenance (O&M) Plan for the waste disposal facilities be submitted to the NWB for approval within a reasonable time frame from the issuance of the licence. This O&M Plan should include - but not be limited to - provisions for the segregation and storage/disposal of hazardous waste such as petroleum or batteries, as well as options for the disposal of sewage sludge should it become an issue in the lagoon.

#### **6. Recommended Terms of Licence**

The application form requests a water licence for a 5 year period. INAC also recommends a 5 year term to allow enough time for the Municipality to establish a consistent compliance record.

Finally, INAC recommends allowing all interested parties to review and comment on the draft licence prior to it being issued. This will allow the Municipality of Grise Fiord to

express any reservations they may have at this point. Hopefully, any reservations can be resolved early in the process and minimize any non-compliance issues in the future.

If you have any concerns or questions, please feel free to contact me.

Sincerely,

***Original Signed By: Michael Roy***

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