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**NWB3KIM**

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July 2, 2002

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### **Kimmirut Water Licence Renewal Application**

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

#### **1. Introduction**

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

This submission will be based on the updated water licence renewal application received by the Nunavut Water Board on May 24, 2002, which was submitted after a request for more information from the original water licence renewal application submitted on May 17, 2001. Past inspection reports and annual reports have also been taken into consideration.

#### **2. Conditions Applying to Water Use**

The Municipality currently gets raw water from Lake Fundo, which is located approximately 2 km south-west of the community. There is a pumphouse at the intake. The water is chlorinated, then trucked to the community. Water consumption was approximately 15,000 m<sup>3</sup>/year in 2000. The expected water consumption in 2007 is not available in our files, but the expected sewage generation in 2007 after taking into account the population growth is 20,800 m<sup>3</sup>/year (according to the *Sewage and Solid Waste Site Selection, Kimmirut* report prepared by Dillon Consulting). Water consumption will therefore likely be approximately the same.

INAC recommends that the annual volume of water pumped from Lake Fundo should

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not exceed 30,000 m<sup>3</sup>/year for the term of the licence. The estimated storage volume of Lake Fundo is 6,783,000 m<sup>3</sup>, therefore the suggested draw-down rate should not cause any long-term effects.

The intake hose should also be equipped with a mesh size sufficient to ensure no entrainment of fish.

SNP Station 1441-1 - Raw water supply from Lake Fundo - should continue to be used to measure the volume of intake from Lake Fundo.

### 3. Conditions Applying to Waste Disposal

The current sewage discharge area consists of a small depression located just off the access road. There is a short retention time before the sewage travels over 300 m into the ocean. There is no discharge control structures. The current sewage discharge area has reached its volume capacity and the Municipality has completed some preliminary work relating to the selection of an alternative site.

INAC recommends that the current sewage lagoon effluent continue to be sampled monthly during period of flow at SNP station 1441-4 - Run-off from sewage disposal area on beach, prior to discharge to the ocean - during periods of flow for as long as the lagoon remains in use. Note that, with the creation of a new sewage lagoon, INAC suggests that SNP station 1441-4 be redefined as “Run-off from *old* sewage disposal area on beach, prior to discharge to the ocean,” while SNP 1441-3 be redefined as “Run-off directly below the *old* sewage disposal area.” Note that an alternative to old, such as existing or previous, is equally acceptable.

A new sewage lagoon is planned for the future, and will include 850 m of wetland for secondary treatment of the effluent. This new sewage lagoon is expected to meet the demands of the population for the next 20 years.

INAC recommends that two new SNP station be created for this sewage lagoon. The first, SNP 1441-6 should be defined as “run-off directly below the *new* sewage disposal area”, while SNP 1441-7 should be defined as “run-off from the *new* sewage disposal area after secondary wetland treatment.” Ideally, SNP 1441-7 should be sampled on a monthly basis during periods of flow. However, the ease of access to that area is unknown to INAC, and it may be more practical to sample from 1441-6 on a monthly basis instead.

INAC recommends that the sewage lagoon effluent be sampled for the following parameters and limitations:

<b>Total Suspended Solids</b>	180 mg/L
<b>BOD</b>	120 mg/L
<b>Feacal Coliform</b>	1,000,000 CFU
<b>pH</b>	6 - 9

**Oil and Grease**  
**Ammonia**

No visible sheen  
Monitor only

The Municipality of Kimmirut has an existing waste disposal site, however there are also plans for the construction of a new one. A SNP sample site may be appropriate at the new solid waste disposal site to monitor monthly runoff and determine potential impacts at the new site, but the parameters should not be too onerous on the Municipality.

INAC suggests that a condition requiring the submission of “as-built designs” of the new facilities be included in the water licence.

INAC also recommends the placement of warning signs at the new waste disposal facilities. Warning signs should remain at the old facilities until the abandonment and restoration is completed in a manner that is satisfactory to the Nunavut Water Board.

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

The proponent has clearly indicated the intentions of creating a new sewage lagoon and waste disposal area. In fact, the construction of the new sewage lagoon is mostly completed. Abandonment and Restoration plans are therefore required for both of the old facilities. The Municipality has already submitted the *Sanitary Site Environmental Health Risk Assessment and Closure Plan* (prepared by Dillon Consulting) which is a conceptual design for the abandonment and restoration of the solid waste disposal area. A plan is still required for the old sewage lagoon. Both plans should require the Board’s approval.

With respect to the above-mentioned closure plan of the waste disposal site, INAC has the following comments to make. First, there is mention of 0.6 metres of cover over the consolidated waste mass, however there is no mention of how this value was derived. INAC would suggest encapsulating the waste site in permafrost and would like to see a report indicating an acceptable thickness. Second, there is mention that the area may become a recreational area in the future. The cover design parameters should therefore take into consideration possible activities on the surface of the cover, which have the potential to damage the cover. If such activities are determined to be a risk to the cover, one possible solution is to increase the thickness of the cover to greater than actually required. Another possibility is to enlarge the fenced area around the scrap metal dump to also enclose the covered waste area, thereby preventing potentially damaging activities on the cover.

INAC recommends that the restored solid waste disposal site be monitored for at least the following 5 years to determine if the restoration was successful. This may require the creation of another new SNP station for monitoring.

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

INAC recommends a requirement for an Operation and Maintenance Plan for the new

waste disposal facilities be submitted to the Board for approval within 6 months of the issuance of the licence.

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

INAC recommends a five year licence term to allow enough time for the Municipality to establish a consistent compliance record with the new waste disposal facilities. This should also give them time to properly abandon their old sewage and waste disposal facilities.

The role of the government of Nunavut in designing, funding, maintaining and/or conducting studies on the waste treatment facilities will play an important part in the ability of the Municipality to remain in compliance with their water licence. INAC would therefore like the Nunavut Water Board to take into consideration issues of ownership and funding as it relates to terms and conditions within the water licence.

Finally, INAC recommends allowing the Municipality and ourselves to review and comment on the draft licence prior to it being issued. This will allow the Municipality 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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