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October 7, 2002

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Sent by email to:
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Comments on proposed Sewage Treatment Plant in Pangnirtung

On behalf of Indian and Northern Affairs Canada (INAC), I am pleased to present the following comments on the proposed sewage treatment plant for the Municipality of Pangnirtung. This letter should be considered as a follow-up to our letter dated August 2, 2002, concerning comments on the water licence application for the Municipality of Pangnirtung.

Since the original application for a water licence on July 5, 2002, the Municipality of Pangnirtung has provided additional details on their proposed mechanical sewage treatment facility. The facility will be a rotating biological contactor (RBC) with an equalization tank volume of approximately 175 cubic metres. The anticipated sludge production is about 71 kg of sludge dry solids per day. The plant specifications state that the effluent is expected to meet 45 mg/L BOD, 45 mg/L of total suspended solids, 1×10^5 fecal coliforms, and a pH of 6.5 to 8.5.

With respect to the choice of a RBC as the mechanical sewage treatment facility, INAC has no objections. However, INAC would like to take to opportunity to remind the Municipality of Pangnirtung that the effectiveness of a RBC, which is biological in nature, relies on warm or heated sewage. With the cold winters in Pangnirtung, combined with the time the sewage trucks will be spending outside collecting sewage and trucking it to the facility, it is likely that the sewage will have cooled down significantly. This may reduce the effectiveness of the treatment significantly. The facility will therefore have to be well heated, and there is the possibility of having to retain the sewage longer within the facility to allow it time to warm up. The following should be taken into consideration when designing the Operation and Maintenance Plan for the facility, as well as for planning the expected operational costs of the facility.

INAC notes that the plant will improve the effluent quality with respect to total suspended solids and BOD compared to the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories* (1992). However, fecal coliform levels do not appear to be improved. Since the Municipality will have a mechanical sewage treatment facility, is there the possibility of an easy, practical and affordable method or process that can be included with the treatment to improve the treatment with respect to fecal coliform in the RBC? A chlorination/dechlorination process, or the use of UV treatment, are just two potential options that could be looked into. Please note that the inclusion of this topic is intended to see if there are practical options to include with the facility and/or

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process as currently designed; INAC does not expect the Municipality to redesign the entire treatment facility or to significantly increase their costs just to reduce the fecal coliform levels as they are currently expected to meet the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories*. However, if the discharge levels of fecal coliform can easily and affordably be lowered as well, the Municipality should consider it.

As for licence conditions, at this point in time the Municipality of Pangnirtung apparently does not have any plans for the proper disposal of the sludge generated by the RBC facility. INAC therefore recommends that the sludge be disposed of in the Municipality's current honeybag pit as a temporary measure until a proper solution is determined and approved. The creation of an Operation and Maintenance Plan that includes an acceptable method of sludge disposal should be a priority for the Municipality of Pangnirtung, and should also be included as a condition of their water licence. The Operation and Maintenance Plan should be submitted within 6 months of the completion of the RBC sewage treatment facility.

Although the specifications of the RBC do give the expected effluent quality, due to the cold temperature in Pangnirtung and the subsequent cooling of the sewage, INAC remains somewhat doubtful as to the actual optimal effectiveness of the treatment. Instead of enforcing regulated limits immediately based on the expected effluent quality given by the specifications, the effluent of the RBC facility should be monitored monthly for the first year of operation. Once the monitoring results are reviewed and analyzed, proper limits reflecting the actual effectiveness of the plant can be determined. Until these more stringent limitations are put into place, the sewage treatment facility should at least still meet the limits recommended by the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories*.

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

Sincerely,

Original Signed By: Michael Roy

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