



## Memorandum

*Your file – Votre référence*  
3AM-IQA0611/TR/I,4

*Our File – Notre référence*  
File 9545-2-3.3AM.IQAA / CIDMS 243169

Phyllis Beaulieu  
Manager of Licensing  
Nunavut Water Board

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Nunavut Regional Office

**Re. Water License #3AM-IQA0611, City of Iqaluit, Qikiqtani Region, Water License Monitoring Program Review**

### Project Description

On June 27, 2008 the City of Iqaluit submitted a proposed sample monitoring program, for approval, entitled *City of Iqaluit, Water Licence Monitoring Program*, prepared by Earth Tech (Canada) Inc. (Earth Tech), to the Nunavut Water Board (NWB). The submission of this program is required in accordance with Part I, Item 4 of Type A water license #3AM-IQA0611. The document was distributed to the public and agencies for review on July 8, 2008. The submission proposes a sample monitoring program for the Municipal Water Supply, Wastewater Treatment Plant, and the West 40 Landfill Site, including the Sludge Management Facilities. The Program must include, but not be limited to, requirements listed in Schedule C of the license, Conditions Applying to Monitoring.

After completing a review of the material prepared by Earth Tech, the following recommendations are provided for the NWB's consideration in the approval of this document,

### Recommendations

- Reference should be made in the Monitoring Program stating that this document was submitted in accordance with Part I, Item 4 of water license #3AM-IQA0611.

### **Table 3.1.1: Raw Water**

- A review was conducted on Earth Tech's proposal to alter raw water monitoring criteria and frequency. As a result, INAC concurs with the proposed schedule with the exception of turbidity. Understanding the turbidity of raw water is important in determining treatment requirements. Turbidity has a direct relationship with the disinfection of raw and treated water. It is known that turbidity greater than 1 NTU can interfere with the disinfection process. High levels of turbidity can also affect UV reactors. Therefore, INAC recommends that turbidity be measured with a continuous monitor or, otherwise, once per day.
- **Table 3.2: Treated Water in (WTP) Monitoring Parameters and Frequency and Table 3.3: Treated Water (In Distribution Systems) Monitoring Parameters and Frequency**
  - INAC has no direct responsibility with respect to potable water treatment and monitoring criteria and will not comment directly on the proposed treated water sampling schedule. However it is recommended that the City meet with the Government of Nunavut's Department of Health and Social Services and Health Canada to determine an appropriate monitoring schedule.
- **Table 3.4: WWTP Influent Monitoring Parameters and Frequency**
  - INAC concurs with the submitted proposal with the exception of metals analysis. It is important to characterize the influent parameters of wastewater and the level of metals should be analyzed at least on an annual basis (in accordance with the present water license). The main reason for this is to determine whether any unknown metal sources are entering the treatment facility as this could have an effect on sludge management and leachate control (due to metal contamination). It also provides the City important information related to effluent discharged into receiving waters, i.e., is the effluent within CCME guidelines and/or non-toxic to aquatic organisms.
- **Table 3.5: WWTP Effluent Monitoring Parameters and Frequency**
  - INAC is of the opinion that the present sample monitoring frequency required by Schedule C of the water license should be maintained with exceptions noted below. The reason for this is to ensure that proper characterization (i.e., seasonal changes) and treatment of wastewater effluent is achieved. It is also important to determine compliance with effluent requirements.

- Since a secondary treatment facility has not yet been constructed, INAC concurs with Earth Tech's proposal that the sampling of Nitrate nitrogen, Nitrite nitrogen, and Orthophosphate is not necessary. Similarly, INAC accepts the rationale provided by Earth Tech to discontinue the sampling of conductivity.
- **Table 3.6: Landfill Runoff Monitoring Parameters and Frequency**
  - At the present time, INAC is in agreement with the requirements of Part E, Item 17 of water license 3AM-IQA0611. With respect to the monitoring program prepared by Earth Tech, INAC concurs with the recommendation to monitor certain parameters before discharge each year - see Section 3.3.2 Monitoring Parameters in Retention Pond of the proposal. The proposed parameters appear to be sufficient in determining the constituents of the leachate as well as determining protection of the receiving water. INAC also concurs with the Earth Tech recommendation to sample the detention ponds annually, as stated in Table 3.6
- **Table 3.7: Sewage Sludge Monitoring Parameters and Frequency**
  - INAC concurs with the proposal with the exception of the frequency of metals analysis. Metals analysis of sludge should be conducted at least annually to determine the potential impacts of the sludge with respect to the quality of leachate discharging to the landfill retention pond. It is also a means of determining if there are new or increased metal depositions within the raw sewage.
- The submitted monitoring program should only be in place until a secondary treatment facility is constructed and made operational, or for a period of two (2) years. At that time all data should be reviewed and the monitoring program revised if necessary. Earth Tech notes that with its current primary treatment facilities, the City of Iqaluit "is hard-pressed to achieve the limits of discharge quality required by NWB." For this reason, INAC strongly recommends that the City consider constructing the proposed secondary treatment facility as soon as possible to protect human health and the environment.
- Sample monitoring locations as provided in appendices A, B, and C of the Earth Tech submission should be referenced in accordance with Schedule C of the existing water license. The locations identified/proposed by Earth Tech appear to be sufficient.

Should you have any questions regarding the comments provided please feel free to contact me at (867) 975-4555 or by email at [AbernethyD@inac-ainc.gc.ca](mailto:AbernethyD@inac-ainc.gc.ca).

Regards,  
*Original signed by*

David W. Abernethy

Cc. Kevin Buck, Manager of Water Resources