



Crown-Indigenous Relations  
and Northern Affairs Canada

Relations Couronne-Autochtones  
et Affaires du Nord Canada

Water Resources Division  
Resource Management Directorate  
Nunavut Regional Office  
P.O. Box 100  
Iqaluit, NU, X0A 0H0

Your file - Votre référence  
3AM-IQA1626  
Our file - Notre référence  
CIDM#1224971

August 10, 2018

Licence Administrator  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU, X0B 1J0  
E-mail: [licensing@nwb-oen.ca](mailto:licensing@nwb-oen.ca)

**Re: Crown-Indigenous Relations and Northern Affairs Canada's comments on  
City of Iqaluit Modification Request, Lagoon Diversion for Upgrade  
Purposes, Iqaluit Wastewater Treatment Plant Upgrade Project, Water  
Licence 3AM-IQA1626**

Dear Ms. Porter,

Thank you for your July 10, 2018 invitation for technical review comments on the above referenced modification request.

The Water Resources Division of Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the modification request and the results of our review are provided in the enclosed memorandum for the Nunavut Water Board's consideration. Comments have been provided pursuant to CIRNAC's mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

CIRNAC appreciates the opportunity to participate in this review. If there are any questions or concerns, please contact either me at [bridget.campbell@canada.ca](mailto:bridget.campbell@canada.ca) or (867) 975-4282 or Sarah Forté at [sarah.forte@canada.ca](mailto:sarah.forte@canada.ca) or (867) 975-3876.

Sincerely,

Bridget Campbell  
Water Resource Coordinator

## **Technical Review Memorandum**

To: Ms. Porter, Licence Administrator, Nunavut Water Board

From: Bridget Campbell, Water Resource Coordinator, Water Resources Division, CIRNAC

Date: August 10, 2018

Re: Modification Request, Lagoon Diversion for Upgrade Purposes, Water Licence 3AM-IQA1626

Applicant: City of Iqaluit  
Project: Municipal Undertaking  
Region: Qikiqtani

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### **A. BACKGROUND**

On July 3, 2018, the City of Iqaluit (City) submitted the above-noted modification request to the Nunavut Water Board (Board) on Water Licence 3AM-IQA1626 to direct flow from the current Primary Treatment at the Waste Water Treatment Plant (WWTP) to the existing sewage lagoon for a period of four (4) months between October 2018 and January 2019. The City stated that this diversion is necessary to allow the replacement of the existing Primary Treatment Headworks (Headworks), in accordance with the upgrades and expansion of the Iqaluit WWTP.

The City conducted a self-assessment of the proposed modification, and found it consistent with the Nunavut Planning Commission Land Use Planning Conformity Determination and Nunavut Impact Review Board Screening Decision. The City concluded that the diversion will provide a similar or higher level of treatment as compared to the current performance of the existing plant.

The details of the proposed modification activities and engineering designs are presented in Attachment 1: Existing Lagoon Action Plan (by Nunami Stantec, 7 June 2018) and Attachment 2: Lagoon Reconstruction and Drainage Improvements Record Drawings (by UMA Engineering Ltd., 30 May 2018).

## B. RESULTS OF REVIEW

The Water Resources Division of Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC) Nunavut Regional Office reviewed the documents associated with the City of Iqaluit's modification request and would like to provide the following comment and recommendation for the Board's consideration.

### 1. Sewage lagoon capacity

#### Reference:

- o Modification Request – Lagoon Diversion for Upgrade Purposes, Iqaluit Wastewater Treatment Plant Upgrade, Water Licence 3AM-IQA1626, City of Iqaluit, July 3, 2018
- o Attachment 1: Existing Lagoon Action Plan, Nunami Stantec, June 7, 2018
- o E-mail correspondence between CIRNAC Water Resources Officer, Joseph Monteith and City of Iqaluit A-Superintendent of Water and Sewer, Maria Karveli, Nunavut Water Board Public Registry, July 7, 2018
- o 2015 Annual Report, City of Iqaluit, March 2016

#### Comment:

In Attachment 1: Existing Lagoon Action Plan, it is stated that the sewage lagoon "... may be undersized for the current quantity of flow..." and that limited information is available regarding the volume of the sewage lagoon. Nunami Stantec provides recommendations for action items to gather more data. These action items have been incorporated into the City's Lagoon Action Plan, but have not been demonstrated as being completed, thus it is not yet certain whether the sewage lagoon can accommodate the expected flow volumes.

On July 7, 2018, CIRNAC Water Resource Officer Joseph Monteith authorized an emergency discharge of the sewage lagoon because it was at risk of overflow. It was noted that the city was producing excessive flows and the sewage lagoon was in critical condition. The City stated, "Should overflow occur, this will result in serious consequences to the surrounding environment and the general public health."

Based on historic effluent flows (approximately 80 000 m<sup>3</sup>/month) and estimated lagoon volume (56 000 m<sup>3</sup> less the sludge volume), CIRNAC estimates that retention time will be 2-3 weeks, which is insufficient for proper treatment. In addition, process efficiency is expected to be reduced due to low microbial activity during cold weather and ice formation, which is typical between the months of October and January.

CIRNAC has concerns that the capacity of the sewage lagoon is insufficient to properly treat the expected flow volumes of raw sewage and that the proposed four month diversion will increase the risk of overflow, leading to the release of un- or undertreated effluent to Koojesse Inlet.

Recommendation:

CIRNAC recommends that the results of the sludge survey, as suggested by Nunami Stantec, be performed and considered and that confirmation is made that the lagoon can handle the expected volume of flow for the four month period prior to diverting flow to the sewage lagoon.