Crown-Indigenous Relations and Northern Affairs Canada
Relations Couronne-Autochtones et Affaires du Nord Canada

Water Resources Division
Resource Management Directorate
Nunavut Regional Office
918 Nunavut Drive
Iqaluit, NU, X0A 3H0

Your file - Votre référence
3AM-IQA1626
Our file - Notre référence
GCDocs# 149515623

August 24 2026, 2026

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
sent via e-mail: licensing@nwb-oen.ca

Re: Water Licence No: 3AM-IQA1626 Type A, City of Iqaluit; Renewal and Amendment Application Comments on Commitment TM-05

Dear Mr. Dwyer,

Thank you for the opportunity to provide this supplementary information on the City of Iqaluit's commitment to Recommendation Tm-05, with respect to the Type A Water Licence Renewal and Amendment Application and supporting documentation by the City of Iqaluit for Water Licence No: 3AM-IQA1626.

Please find CIRNAC's supplementary information on the requirement to prepare a water balance for the proposed system and update the water balance on a regular basis for the Nunavut Water Board's consideration in the attached memorandum.

This review is based on the information submitted by the City of Iqaluit. Identified gaps in the information required to assess potential effects and proposed management measures have limited the scope of the review

Fo any questions or concerns, please contact Michelle Blade at michelle.blade@rcaanc-cirnac.gc.ca or Andrew Keim at andrew.keim@rcaanc-cirnac.gc.ca.

Sincerely,

Andrew Keim , For…
Michelle Blade,
Regulatory and Science Advisor

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Technical Review Memorandum

Date: August 24, 2026

To: Richard Dwyer, Manager of Licensing, Nunavut Water Board

From: Michelle Blade, Regulatory and Science Advisor, CIRNAC

Subject: **Water Licence No: 3AM-IQA1626 Type A, City of Iqaluit; Renewal and Amendment Application Comments on Commitment TM-05**

Region: ☐ Kitikmeot ☐Kivalliq ☒Qikiqtani

It is recommended that the terms of the water licence renewal for the City of Iqaluit contain a requirement to prepare a water balance for the proposed system and update the water balance on a regular basis in order to evaluate the water supply sustainability in the long term under variable meteorological or water consumption conditions.

The City of Iqaluit currently holds a calibrated GoldSim water balance model, and updates and recalibration were recently completed by WSP in 2025. The update involved:

- Review of full period of record of daily climatic, water level, consumption and supplementation data
- Use of an updated stage-storage curve of Lake Geraldine developed from the 2024 bathymetric survey
- Updates to the snowmelt model to improve snow cover sublimation and melt processes for the entire period of record

To provide forecasting using the proposed infrastructure, the model should be updated to reflect the additional reservoir storage and proposed supplemental takings from Lake Qikiqtalik and the Apex River. Since the model is currently calibrated, an update of the model to incorporate the new infrastructure would involve addition of the proposed pump systems and a stage-storage relationship for the new reservoir. The results of verification of the potential impact of ice pressures on water level measurements during the lakes' ice-covered period should be included in the revised model as identified as recommended in the previous update report.

It is recommended that the results of the long-term simulation from the water balance model are compared against the real-world operations of the system and the observations are then used to re-calibrate the model on a regular basis as required under the licence terms. The data that should be collected for monitoring and re-calibration include:

- Climate Data (ECCC Weather Station)

- Levels in Lake Geraldine (provided by Water Survey of Canada Gauge 10UH013)
- Levels in Lake Qikiqtalik (can potentially be extrapolated from extraction flows from Lake Qikiqtalik and the stage-discharge curve developed in the Qikiqtalik Lake Water Balance for Withdrawals Final Report (Tetra Tech, 2025), depending on extraction infrastructure)
- Levels in the new reservoir (instrumentation to be installed)
- Flows in the Apex River (provided by Water Survey of Canada gauge 10UH015)
- Supplementary flow rates from Apex River and Lake Qikiqtalik (as required under licence)
- Water Supply Rates (as recorded by the SCADA system)

Ongoing calibration of the water balance model will therefore require additional instrumentation to record:

- Lake Qikiqtalik water levels (if extrapolation using stage-discharge curves cannot be achieved)
- New reservoir water levels