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# 150656158

October 7, 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 by the City of Iqaluit – Final Written Submission

Dear Mr. Dwyer,

Thank you for the September 11, 2026, invitation to provide final written submissions in respect of the above-referenced Type A Water Licence Renewal and Amendment Application and supporting documentation by the City of Iqaluit for Water Licence No: 3AM-IQA1626.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) assessed the application pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. Please find CIRNAC's Final Submission for the Nunavut Water Board's (NWB) consideration in the attached memorandum.

Note: a notice of updated contact information will be sent out following the devolution transition of responsibilities from the Government of Canada to the Government of Nunavut. Documents referencing this contact information will need to be updated accordingly.

For 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,

Michelle Blade,
Permafrost Scientist

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

Final Written Submission

Date: October 7, 2026

To: Richard Dwyer, Manager of Licensing, NWB

From: Michelle Blade, Permafrost Scientist, CIRNAC

Subject: **Crown-Indigenous Relations and Northern Affairs Canada's review of the City of Iqaluit Water Licence No: 3AM-IQA1626 Type A, City of Iqaluit; Renewal and Amendment Application**

Region: ☐ Kitikmeot ☐Kivalliq ☒Qikiqtani

EXECUTIVE SUMMARY

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) has participated in the review of the City of Iqaluit's application to renew and amend Type "A" Water Licence No. 3AM-IQA1626. CIRNAC assessed the application pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. The application includes continued municipal water use and waste disposal activities and proposed plans for a Long-Term Water Project. The Long-Term Water Project includes a new raw-water reservoir adjacent to Lake Geraldine, new and temporary water-intake and conveyance infrastructure, and withdrawals from the Niaqunguk River and Lake Qikiqtalik.

During the technical review, the following topics were raised:

- water use and water supply;
- construction water management and surface water quality;
- blasting and contaminated soil management;
- dam safety, dam breach and cascading failure;
- permafrost and seepage;
- water balance modelling and climate change;
- wastewater and solid waste management;
- management plans and spill contingency planning;
- monitoring and reporting; and
- compliance and closure planning.

CIRNAC submitted technical review comments on June 30, 2026 and participated in the Technical Meeting and Pre-Hearing Conference held in person on August 11 - 12, 2026. The City subsequently provided a draft construction water management plan, a preliminary dam breach analysis, an updated compliance assessment, a proposed draft water licence framework, and committed to additional deliverables to be included as terms and conditions of the water licence. These submissions clarified many concerns, resolved CIRNAC

comments, or partially resolved CIRNAC comments with follow-up through updated water licence terms and conditions required.

The City's proposed draft licence framework addresses several matters, including future construction plans, operation and maintenance documentation, a dam breach analysis, updated spill plans, and revised monitoring stations. However, the following aspects of the framework do not fully address CIRNAC's remaining concerns of:

- deleting the existing water-balance modelling requirement rather than expanding it to the integrated water-supply system;
- incomplete operating rules for withdrawals from Lake Qikiqtalik;
- does not yet establish monitoring and QA/QC consistent comparison criteria, action thresholds, follow-up procedures, or document hierarchy;
- does not establish a planning trigger for wastewater treatment capacity; and
- does not require seasonal baseline water-quality information for new source waters.

CIRNAC does not object to the NWB advancing the application to a decision, provided that a renewed water licence includes clear and enforceable terms and conditions addressing these matters. The recommendations in this final written submission are therefore consolidated into eight issue areas and a single set of proposed water licence conditions. Resolved comments and detailed technical history are not repeated except where needed to explain a remaining recommendation.

CIRNAC's principal recommendations are that a renewed water licence require the following:

- approved construction environmental management plans before the applicable construction activities begin;
- final design documentation, a final dam breach and inundation analysis addressing cascading failure before the new reservoir is filled or placed into service;
- an updated and periodically verified water balance model for the integrated municipal water-supply system;
- approved Lake Qikiqtalik operating rules and source-water monitoring linked to adaptive management;
- seasonal baseline water-quality information, or a technical rationale demonstrating that existing information is adequate;
- a governing monitoring and QA/QC framework that identifies comparison criteria, action thresholds, follow-up procedures, and document hierarchy;
- annual wastewater capacity reporting and a capacity-management trigger; and
- annual tracking of dam-safety recommendations, plans and manuals, Board and Inspector directions, and outstanding compliance actions.

A. INTRODUCTION

CIRNAC has participated in the review of the City of Iqaluit's application to renew and amend Type "A" Water Licence No. 3AM-IQA1626.

The City filed the application on December 23, 2025. CIRNAC submitted a completeness assessment on February 6, 2026, comments on the City's responses to information requests on May 15, 2026, and technical review comments on June 30, 2026. CIRNAC then participated in the Technical Meeting and Pre-Hearing Conference held in Iqaluit on August 11 and 12, 2026.

Following the Technical Meeting and Pre-Hearing Conference, commitments were assigned to the City and CIRNAC. CIRNAC's commitments included providing information on what can be incorporated into future water balance model updates and an outline of expectations for an Erosion and Sediment Control Plan. CIRNAC provided these to the NWB in accordance with the agreed-upon timeline. The City committed to provide or update information concerning monitoring, wastewater treatment capacity, the Apex River catchment, the draft water licence framework, environmental protection, erosion and sediment control, dam breach analysis, operation and maintenance documentation, and spill contingency planning.

The City subsequently filed the following additional material (see Table 1):

- an updated compliance assessment;
- a draft Construction Water Management and Monitoring Plan;
- a preliminary Dam Breach and Inundation Analysis;
- responses to commitments from the Technical Meeting and Pre-Hearing Conference;
- a proposed draft water licence framework; and
- design drawings for replacement of the Lake Geraldine intake valve.

Table 1: Documents Reviewed

Document Title	Author, File No., Rev., Date
260810-3AM-IQA1626-Updated-Compliance-Assessment-IMLE	City of Iqaluit, August 10, 2026
260810-3AM-IQA1626-LTWP-Construction-Water-Management-Plan-IMLE	Arcadis, SC001318, July 29, 2026
260810-3AM-IQA1626-LTWP-Draft-Dam-Breach-Study-IMLE	Arcadis, 30192375, August 2026
260813 3AM-IQA1626 TM List of Commitments	Unidentified
260911 3AM-IQA1626 City-Response-TM-PHC-Commitments-IMLE	Knight Piésold Ltd., September 11, 2026
260911 3AM-IQA1626 City-Draft-Water-Licence-Framework-IMLE	Unidentified

Document Title	Author, File No., Rev., Date
260904 3AM-IQA1626 247636 - Iqaluit - LAKE GERALDINE INTAKE VALVE REPLACEMENT-IMLE	R.V. Anderson Associates Limited, RVA # 247636, August 2026

The application scope includes continued operation of existing municipal water and waste facilities and construction and operation of a Long-Term Water Project. The Long-Term Water Project includes a new reservoir east of Lake Geraldine, intakes and pumphouses at the Niaqunguk River and Lake Qikiqtalik, pipelines, and related infrastructure. The City's proposed draft licence also includes temporary pumping systems and continued use of Imiqtarviviniq for dust suppression.

CIRNAC's final written comments are structured as issues, supported by observations made during review, and followed by recommendations to the Board. The NWB's list of issues for the Public Hearing should be used as the final organizing framework if it differs from the headings below.

B. TECHNICAL COMMENTS

Exchanges with the City during the technical review, Technical Meeting and Pre-Hearing Conference, and subsequent commitment period have resolved or clarified many of CIRNAC's concerns. Some CIRNAC comments remain dependent on future design information or management plans. CIRNAC considers these comments partially resolved if they are addressed through terms and conditions requiring submission, review by interested parties where appropriate, and written Board approval before the related construction or operational activity begins.

CIRNAC comments are organized by subject. Some comments relate to more than one subject and could reasonably be placed under more than one heading.

1. Water Use and Water Supply

The City is requesting authorization to withdraw up to:

- 3,500,000 m³ annually from Lake Geraldine Reservoir;
- 1,600,000 m³ annually from the Niaqunguk River;
- 1,300,000 m³ annually from Lake Qikiqtalik; and
- 2,500 m³ annually from Imiqtarviviniq.

The proposed licence framework would authorize transfers from the Niaqunguk River and Lake Qikiqtalik to Lake Geraldine and/or the new reservoir. The Lake Qikiqtalik recommended withdrawal water licence terms and conditions remain identified as yet to be finalized following discussion with Fisheries and Oceans Canada.

Table 2: Status of comments pertaining to water use and water supply

Recommendation Number / Technical Comment Number	Subject	Status
TR-07	Lake Geraldine and integrated water-supply water balance	Partially resolved; follow-up through licence condition required.
TR-08	Lake Qikiqtalik hydrologic methodology and source-volume clarification	Partially resolved; follow-up through licence condition required.
TR-09	Climate projection horizon	Partially resolved; follow-up through licence condition required.
TM-03	Population forecasts and wastewater treatment plant capacity	Partially resolved; follow-up through licence condition required.

Lake Geraldine and integrated water-supply water balance: TR-07

CIRNAC requested updated water-balance information for Lake Geraldine and the proposed municipal water-supply system. The City explained that it currently uses an Excel-based tool to estimate annual supplementation requirements and that the GoldSim water balance model was developed for longer-term planning.

The City's draft licence framework proposes deleting the current requirement to submit an updated Lake Geraldine Water Balance Model before annual withdrawals from the Niaqunguk River. The City's rationale is that the existing model is no longer required as a planning tool and that annual pumping requirements can be assessed using its internal Excel-based water balance.

CIRNAC does not support removing the requirement for water-balance modelling. The City currently holds a calibrated GoldSim water balance model. Updates and recalibration completed in 2025 included:

- review of the full available period of daily climate, water-level, consumption, and supplementation data;
- use of an updated Lake Geraldine stage-storage relationship based on the 2024 bathymetric survey; and
- updates to the snowmelt component to improve representation of snow-cover sublimation and melt processes.

The existing model therefore provides an established basis for evaluating the proposed integrated water-supply system. To support forecasting under the amended licence, the model should be updated to incorporate:

- the additional storage provided by the new reservoir;
- the proposed pumping systems;
- the stage-storage relationship for the new reservoir;
- supplemental withdrawals from Lake Qikiqtalik;
- supplemental withdrawals from the Niaqunguk River; and
- the results of further evaluation of potential ice-related effects on water-level measurements during ice-covered periods.

The purpose of the updated model would not be to determine the City's day-to-day pumping schedule. Rather, it would provide a long-term planning and regulatory tool to evaluate whether the combined municipal water-supply system remains sustainable under variable meteorological conditions, rates of water consumption, source-water conditions, and infrastructure configurations.

Long-term model results should be compared with observed system performance. Monitoring observations should then be used to verify and periodically recalibrate the model so that its assumptions and predictions continue to represent actual operating conditions.

CIRNAC recommends that the renewed licence require the City to update the existing calibrated GoldSim water balance model to incorporate the Long-Term Water Project infrastructure and proposed supplemental water sources. The initial update should be completed following confirmation of the final new-reservoir configuration and before regular operation of the integrated water-supply system.

CIRNAC further recommends that the model be reviewed against actual operating information on a regular basis and updated or recalibrated when monitoring demonstrates that its assumptions, inputs, or predictions are no longer representative. A fixed five-year update interval may be used as a maximum review interval, but recalibration should occur sooner where monitoring identifies a material change or deviation.

CIRNAC considers this comment partially resolved. Follow-up through enforceable water licence terms and conditions is required.

Lake Qikiqtalik volume and withdrawal guidance values: TR-08

The City clarified the hydrologic methodology, treatment of Water Survey of Canada data, sensitivity analysis, under-ice lake volume, and distinction between hydrologic yield, planning assumptions, and engineering design capacity. CIRNAC considers those aspects of the comment resolved.

The City is requesting an annual licensed withdrawal limit of 1,300,000 m³ from Lake Qikiqtalik. However, the draft licence framework does not contain completed withdrawal rules. CIRNAC recommends that annual withdrawal decisions continue to be supported by lake level monitoring and adaptive management measures to ensure withdrawals remain protective during low-water conditions.

CIRNAC recommends that withdrawals from Lake Qikiqtalik not begin until the Board has approved operating rules addressing:

- annual and seasonal withdrawal limits;
- water-level or flow thresholds;
- environmental flow requirements, where applicable;
- monitoring and reporting;
- low-water contingencies; and
- adaptive management.

CIRNAC considers this comment partially resolved. Follow-up through enforceable water licence terms and conditions is required.

Climate projection horizon: TR-09

The Long-Term Water Project is intended to operate beyond the temporal horizon used in the Climate Lens Assessment. The City indicated that extending climate projections farther into the future would be subject to increasing uncertainty.

CIRNAC accepts that a precise projection through the full operating life may not be technically reliable. However, uncertainty does not remove the need to manage long-term climate risk.

CIRNAC recommends that the licence require periodic climate-risk reassessment as part of the water balance updates. Reassessment should occur at intervals not exceeding five years or sooner if updated projections or monitoring indicate that existing assumptions are no longer representative.

CIRNAC considers this comment partially resolved. Follow-up through enforceable water licence terms and conditions is required.

Population forecasts and wastewater treatment plant capacity: TM-03

The City explained that the wastewater treatment plant could reach its design capacity in 2041 under a low-growth scenario or in 2036 under a medium-growth scenario. The City stated that the 2026 census results would help recalibrate its planning.

CIRNAC recommends annual reporting of wastewater flows and updated population information, when available, with comparison to the wastewater treatment plant design basis. If updated projections indicate that effective treatment capacity may be exceeded during the licence term, the City should be required to submit to the NWB a capacity management and infrastructure implementation plan with the following year's annual report for review by interested parties.

CIRNAC considers this comment partially resolved. Follow-up through enforceable water licence terms and conditions is required.

2. Construction Water Management and Surface Water Quality

Construction of the Long-Term Water Project will require pond dewatering, management of construction contact water, erosion and sediment controls, blasting, excavation, and handling of potentially contaminated material.

The City provided a draft Construction Water Management and Monitoring Plan and committed to provide an updated Environmental Protection Plan, site-specific Erosion and Sediment Control Plan, construction Spill Contingency Plan, and updated operational Spill Contingency Plan.

Table 3: Status of comments pertaining to construction water management

Recommendation Number / Technical Comment Number	Subject	Status
TR-01	Surface water quality and pond dewatering	Partially resolved; follow-up through licence condition required.
TR-02	Blasting-related effects on water quality	Partially resolved; follow-up through licence condition required.
TR-03	Lead-impacted soil at shooting range	Resolved, subject to commitments.
TR-13	Construction monitoring	Partially resolved; follow-up through licence condition required.
TR-15	Temporary storage of construction waste	Resolved.
TR-20	Environmental investigation requirements	Partially resolved; follow-up through licence condition required.
TM-08	Updated Environmental Protection Plan	Partially resolved; follow-up through licence condition required.
TM-09	Site-specific Erosion and Sediment Control Plan	Partially resolved; follow-up through licence condition required.

Surface water quality and pond dewatering: TR-01

The draft Construction Water Management and Monitoring Plan identifies five ponds requiring dewatering. Water from Ponds A and B would be directed to existing drainage channels, with Discharge Point 1 identified as the preferred location because it follows the existing drainage direction toward Lake Geraldine. Water from Ponds C, D, and E would discharge to an existing drainage channel that ultimately drains toward the Apex River.

The draft plan requires water quality testing before discharge and proposes criteria of:

- pH between 6 and 9;
- total suspended solids below 30 mg/L; and
- ammonia-nitrogen below 4.0 mg/L.

The plan also proposes a site-specific turbidity to total suspended solids relationship for operational monitoring. Discharge points would be set back at least 30 m from receiving waters, use a diffuser, and incorporate erosion and sediment controls. Construction contact water would be directed away from Lake Geraldine.

CIRNAC considers that the draft plan represents significant progress. However, the final plan should more clearly establish:

- monitoring and inspection frequencies;
- action levels and stop-discharge thresholds;
- corrective actions and response timelines;
- downstream verification monitoring, where appropriate;
- procedures for suspected contamination;
- reporting requirements;
- blasting-related contaminant management;
- contingencies where treatment or controls are ineffective; and
- the responsibilities of the City, contractor, Engineer, and environmental monitor.

CIRNAC recommends that the final Construction Water Management and Monitoring Plan be submitted to the NWB at least 60 days before the relevant pond dewatering activities are proposed to begin, and that those activities not proceed until interested parties have reviewed the plan and the plan has received Board approval.

CIRNAC considers this comment partially resolved. Follow-up through enforceable water licence terms and conditions is required.

Blasting-related effects on water quality: TR-02

The City indicated that nitrogen-based explosives, including ammonium nitrate fuel oil or emulsion-based explosives, may be used. It acknowledged that ammonia monitoring of runoff from blasting areas would be required and stated that the matter would be addressed in the Construction Water Management and Monitoring Plan.

CIRNAC recommends that the final plan identify:

- explosives anticipated for use;
- pathways by which residues could enter runoff, seepage, or dewatering water;
- measures to minimize losses of explosives and blasting residues;
- ammonia and other appropriate monitoring;
- discharge criteria and action thresholds; and
- contingency measures for elevated results.

CIRNAC recommends that the final Construction Water Management and Monitoring Plan be submitted to the NWB at least 60 days before the relevant blasting-related activities are proposed to begin, and that those activities not proceed until interested parties have reviewed the plan and the plan has received Board approval.

CIRNAC considers this comment partially resolved. Follow-up through enforceable water licence terms and conditions is required.

Lead-impacted soil at the shooting range: TR-03

The City acknowledged that lead-contaminated soil may be present in the shooting-range berms and immediate area. It was committed by the City not to use soil exceeding the Government of Nunavut Tier 1 Residential/Parkland criterion for construction of the reservoir. The City also stated that soil exceeding the Industrial criterion would not be used for ancillary infrastructure.

CIRNAC considers this comment resolved, subject to the soil not being reused unless suitable characterization and a receiving-site assessment demonstrate that reuse is appropriate.

Construction monitoring: TR-13

The City proposed construction runoff monitoring for pH, total suspended solids, and ammonia where blasting is involved. It also indicated that monitoring would be event-based and occur during periods of flow or discharge and before discharge from sumps or containment structures.

CIRNAC considers the proposed parameters and discharge criteria generally acceptable. CIRNAC recommends the final Construction Water Management and Monitoring Plan specify locations, qualifying events, field and laboratory methods, sampling and inspection frequencies, response timelines, corrective actions, documentation, and reporting. The plan should be submitted to the NWB at least 60 days before the relevant construction activities are proposed to begin, and that those activities not proceed until interested parties have reviewed the plan and the plan has received Board approval.

CIRNAC considers this comment partially resolved. Follow-up through enforceable water licence terms and conditions is required.

Temporary storage of construction waste: TR-15

The City stated that temporary waste-disposal sites would not be established for Long-Term Water Project construction and that contractors would be required to dispose of waste at the City's landfill as it is generated.

CIRNAC considers this comment resolved.

Environmental investigation requirements: TR-20

The City stated that the Environmental Monitoring Program and QA/QC Plan would govern environmental monitoring, the updated Environmental Protection Plan would govern construction, and the construction-phase plan would address water management. It also stated that the geotechnical work plan would not govern during construction.

CIRNAC recommends that each plan clearly identify:

- the activities and project phase to which it applies;
- where it is in effect;
- which document governs where requirements overlap; and
- how analytical results will be evaluated against applicable criteria or benchmarks.

Where investigative results identify exceedances, adverse trends, or previously unidentified contamination, CIRNAC recommends the plan(s) action assessing the cause and identify additional investigation, monitoring, mitigation, or remediation steps.

CIRNAC recommends the plans be submitted to the NWB at least 60 days before the relevant construction activities are proposed to begin, and that those activities not proceed until interested parties have reviewed the plan and the plan has received Board approval.

CIRNAC considers this comment partially resolved. Follow-up through enforceable water licence terms and conditions is required.

Environmental Protection and Erosion and Sediment Control Plans: TM-08 and TM-09

The City committed to submit an updated Environmental Protection Plan, a site-specific Erosion and Sediment Control Plan, a Construction Spill Contingency Plan, and an updated operational Spill Contingency Plan to the NWB at least 60 days before the applicable construction activities begin, and that those activities should not proceed until the Board has approved the applicable plans.

CIRNAC considers TM-08 and TM-09 partially resolved, subject to fulfilment of these commitments and inclusion of corresponding licence conditions.

3. Dam Safety, Permafrost and Infrastructure Design

The proposed new reservoir includes one principal dam and seven associated dyke structures. The preliminary dam breach analysis identifies Dam 1 as the largest proposed structure and classifies it as an Extreme consequence structure based on the potential population at risk and effects on critical infrastructure.

Table 4: Status of comments pertaining to dam safety and infrastructure

Recommendation Number / Technical Comment Number	Subject	Status
TR-04	Cascading effects of upstream dam failure	Partially resolved; follow-up through licence condition required.
TR-05	Lake Geraldine dam safety deficiencies	Partially resolved; follow-up through licence condition required.
TR-06	Permafrost, seepage and monitoring	Partially resolved; follow-up through licence condition required.
TR-14	Operation and maintenance plans for water works	Partially resolved; follow-up through licence condition required.
TM-11	Dam breach analysis considering cascading effects	Partially resolved; follow-up through licence condition required.
TM-12	Water-supply operation and maintenance documentation	Partially resolved; follow-up through licence condition required.

Cascading effects and final dam breach analysis: TR-04 and TM-11

The City provided a preliminary Dam Breach and Inundation Analysis based on the 50 percent design. The analysis evaluates a rainy-day complete breach of Dam 1 and identifies potential flood pathways toward populated areas and critical infrastructure.

The report expressly states that it is a draft and partial submission. It does not address cascading failure of the Lake Geraldine Dam. The report states that the future complete analysis is expected to assess additional sunny-day and rainy-day scenarios for Dam 1,

Dyke 2, Dyke 6, and Dyke 8 and evaluate potential cascading effects once the design is more advanced.

CIRNAC considers the preliminary report useful for identifying potential flow paths but insufficient for final regulatory and emergency-planning purposes.

CIRNAC recommends that, before water is transferred into the new reservoir, the City submit a final dam breach and inundation analysis based on the final design. The analysis should evaluate:

- appropriate sunny-day and rainy-day scenarios;
- failure of the principal dam and relevant dyke structures;
- cascading effects on the Lake Geraldine Dam;
- downstream flood routing and inundation;
- consequences to people, infrastructure, access, water treatment and power supply;
- environmental consequences; and
- implications for emergency preparedness and response.

CIRNAC considers TR-04 and TM-11 partially resolved, subject to the City submitting a final Dam Breach and Inundation Analysis that addresses cascading failure to the NWB for comment by intervenors at least 60 days before proposed filling of the new reservoir, and that the analysis receives Board approval before the new reservoir is filled.

Lake Geraldine dam safety deficiencies: TR-05

The City provided design information for replacement of the Lake Geraldine intake valve and stated that the work was expected to be completed during 2026.

The updated compliance assessment states that a Dam Safety Review was completed in 2024 but that a Dam Safety Inspection was not completed in 2025. The City indicated that a Dam Safety Inspection was planned for fall 2026.

CIRNAC considers the intake-valve design issue addressed, subject to completion of the work and reporting in accordance with the licence.

CIRNAC recommends a term and condition is added to the water licence specifying the Annual Report include the status of all Dam Safety Inspection and Dam Safety Review recommendations, required actions, target dates, completed work, and remaining deficiencies.

CIRNAC considers this comment partially resolved. Follow-up through enforceable water licence terms and conditions is required.

Permafrost, seepage and monitoring: TR-06

The City indicated that water-retaining structures would be founded on prepared competent bedrock and that the liner would be keyed into competent rock. They also stated that instrumentation would be installed to monitor permafrost, seepage, pore pressure, and movement and that an Operations, Maintenance and Surveillance Plan would be prepared.

CIRNAC recommends that final design documentation and the Operations, Maintenance and Surveillance Plan include:

- design assumptions related to permafrost and talik development;
- seepage performance criteria;
- instrumentation locations and review requirements;
- pore-pressure, thermal, settlement, deformation, erosion, and seepage monitoring;
- performance indicators and action thresholds;
- response and contingency measures;
- inspection and reporting requirements;
- data management and responsibilities; and
- periodic reassessment of climate-related risks.

CIRNAC recommends the Operations, Maintenance and Surveillance Plan be submitted to the NWB at least 60 days before pumping into the new reservoir, and that those water transfer activities not proceed until interested parties have reviewed the plan and the plan has received Board approval. CIRNAC recommends the monitoring as specified in the Operations, Maintenance and Surveillance Plan is reported as a term and condition of the Annual Report.

CIRNAC considers this comment partially resolved. Follow-up through enforceable water licence terms and conditions is required.

Operation and maintenance plans for water works: TR-14 and TM-12

The City provided an operation and maintenance manual for the existing Water Treatment Plant. It committed to submit updated operation and maintenance documentation for new water-supply facilities before pumping into the new reservoir.

CIRNAC recommends that the licence require updated documentation for the integrated water-supply system at least 60 days before water is transferred from the Long-Term Water Project facilities. The documentation should include:

- Lake Geraldine Reservoir and associated intake;
- the Water Treatment Plant;
- the new reservoir;
- source-water intakes and pumphouses;
- pipelines and conveyance works;
- operational procedures;
- inspection, maintenance, and monitoring;
- emergency response and contingency measures; and

- roles, responsibilities, and reporting.

Water transfer should not begin until the Board has approved the documentation.

Final design and Operations and Maintenance Manual

The City's draft framework requires operation and maintenance documentation and a dam breach analysis before pumping into the new reservoir but does not expressly require a comprehensive Operations, Maintenance and Surveillance Plan.

CIRNAC recommends that final dam and water-retaining structure designs be prepared and stamped by a professional Engineer registered to practise in Nunavut and demonstrate compliance with current applicable Canadian Dam Association guidance.

CIRNAC further recommends that the new reservoir not be filled or placed into service until the Board has approved the final design documentation, final dam breach analysis, and operations and maintenance plans.

4. Water Balance and Climate Change

Water-balance and climate matters overlap with water supply, dam safety, infrastructure design, and monitoring. Three CIRNAC comments remain partially resolved subject to follow-up.

Table 5: Status of comments pertaining to water balance and climate change

Recommendation Number / Technical Comment Number	Subject	Status
TR-07	Integrated water balance modelling	Partially resolved; follow-up through licence condition required.
TR-08	Water-balance model verification and adaptive management	Partially resolved; follow-up through licence condition required.
TR-09	Long-term climate risk	Partially resolved; follow-up through licence condition required.

Integrated water balance modelling: TR-07

The City currently holds a calibrated GoldSim model for Lake Geraldine. The model was updated and recalibrated in 2025 using daily climate, water-level, consumption, and

supplementation data; an updated Lake Geraldine stage-storage relationship based on the 2024 bathymetric survey; and refinements to snow-cover sublimation and melt processes.

The model has not yet been updated to represent the complete future water-supply system. CIRNAC recommends that it be expanded to include:

- the new reservoir and its stage-storage relationship;
- the proposed pumping and transfer infrastructure;
- withdrawals from Lake Qikiqtalik;
- withdrawals from the Niaqunguk River;
- transfers to the new reservoir and Lake Geraldine;
- climate change projections; and,
- updated water-consumption information.

CIRNAC recommends the results of long-term modelling be compared to observed system operations as a term and condition of the Annual reporting requirements. The comparison is used to determine whether the model remains representative and whether recalibration is required.

The City's annual Excel-based water balance and the GoldSim model serve different purposes. The Excel-based tool may be used for short-term operational planning, while the GoldSim model provides a means of evaluating long-term water-supply sustainability under variable meteorological, water-demand, and source-water conditions.

CIRNAC recommends that the renewed licence require the City to update the existing calibrated GoldSim water balance model to represent the integrated municipal water-supply system, including Lake Geraldine Reservoir, the new reservoir, withdrawals from Lake Qikiqtalik and the Niaqunguk River, and the associated pumping and transfer infrastructure. The updated model should incorporate the final stage-storage relationship for the new reservoir and the results of the evaluation of potential ice-related effects on water-level measurements during ice-covered periods.

CIRNAC further recommends that the licence require the City to compare modelled results with observed system performance and use the monitoring results to verify and periodically recalibrate the model. The model should be reviewed at intervals not exceeding five years and updated or recalibrated sooner where monitoring indicates that its assumptions, inputs, calibration, or predictions are no longer representative of actual conditions.

CIRNAC recommends that the initial model update be submitted to the Board for review 60 days before operation of the integrated Long-Term Water Project water-supply system.

Water-balance model verification and adaptive management: TR-08

Ongoing verification and recalibration of the water balance model will require monitoring information representing climate, source-water levels, river flows, supplemental withdrawals, transfers, storage, and municipal water use. This monitoring is intended to

support water-supply planning, model verification, and adaptive management of the integrated municipal water-supply system.

The technical memorandum identifies the following information:

- climate data from the Environment and Climate Change Canada weather station;
- Lake Geraldine water levels from Water Survey of Canada gauge 10UH013;
- Niaqunguk River flows from Water Survey of Canada gauge 10UH015;
- supplemental flow rates from the Niaqunguk River and Lake Qikiqtalik;
- municipal water-supply rates recorded by the supervisory control and data acquisition system;
- water levels in the new reservoir; and
- water levels in Lake Qikiqtalik, where those levels cannot be reliably derived from available extraction-flow and stage-discharge information.

Instrumentation will therefore be required to monitor water levels in the new reservoir. Direct instrumentation should also be provided at Lake Qikiqtalik unless the City demonstrates that water levels can be reliably determined using the final extraction infrastructure and an appropriate stage-discharge or stage-storage relationship.

CIRNAC recommends that the monitoring program identify:

- each required monitoring location;
- the parameter to be measured;
- the measurement method;
- measurement and reporting frequency;
- data-quality requirements;
- responsibility for data collection and validation;
- procedures for addressing missing or unreliable records; and
- how the data will be used to verify and recalibrate the water balance model.

CIRNAC recommends the monitoring requirements supporting verification of the Water Balance Model be incorporated into the integrated municipal water-supply Operations and Maintenance Manual and submitted to the NWB for intervenor review and Board approval prior to operation of the Long-Term Water Project. CIRNAC recommends the corresponding Board approved monitoring requirements are added to the water licence.

CIRNAC recommends the Annual Report compare observed system performance with the applicable model results and describe any resulting model updates, operational changes, or adaptive management measures.

Long-term climate risk: TR-09

CIRNAC recommends the climate variability and climate change be addressed through periodic reassessment (every five years or sooner) rather than reliance on a single assessment prepared at the design stage. Reassessment should inform water-balance

modelling, reservoir operations, dam safety, monitoring, contingency planning, and adaptive management. CIRNAC recommends a summary of the climate variability and climate change updates made, and the corresponding impacts to water-balance modelling, reservoir operations, dam safety, monitoring, contingency planning, and adaptive management be reported as a term and condition of the water licence in the corresponding year's Annual Report.

5. Wastewater and Solid Waste Management

The City's existing waste-management facilities include the wastewater treatment plant, sewage lagoon, West 40 Landfill, North 40 Landfill, and Waste Transfer Station.

Table 6: Status of comments pertaining to wastewater and solid waste management

Recommendation Number / Technical Comment Number	Subject	Status
TR-11	Role of sewage lagoon	Resolved, subject to inclusion in renewed licence.
TR-16	Wastewater treatment plant capacity	Partially resolved; follow-up through licence condition required.
TR-18	Wastewater effluent monitoring	Partially resolved; follow-up through licence condition required.
TR-19	Monitoring at waste facilities	Partially resolved; follow-up through licence condition required.
IR-21	Solid Waste Management Plan	Partially resolved; follow-up through licence condition required.

Role of sewage lagoon: TR-11

The City confirmed that the sewage lagoon will remain available for storage of untreated sewage and sewage sludge during wastewater treatment plant upset conditions or when repairs are required. The City's draft licence framework includes corresponding authorization.

CIRNAC considers this comment resolved, subject to inclusion of appropriate wording and monitoring requirements in the renewed licence.

Wastewater treatment plant capacity: TR-16

The City clarified that 151 L/s represents the hydraulic peak-hour flow and not the sustained effective treatment capacity. It identified an average annual design flow of approximately 4,348 m³/day and described the flow bases used for individual treatment processes.

The City later stated that the plant could reach capacity by 2036 under the medium-growth scenario or by 2041 under the low-growth scenario.

CIRNAC considers the distinction between hydraulic and treatment capacity resolved. However, ongoing reporting and infrastructure planning remain necessary.

CIRNAC recommends that annual reports compare observed wastewater flows and treatment performance against the applicable design basis. If updated population and flow projections indicate that the plant may exceed its effective treatment capacity during the licence term, the City should be required to submit a capacity-management and infrastructure implementation plan with the following year's Annual Report.

Wastewater effluent monitoring: TR-18

CIRNAC reviewed the wastewater effluent monitoring program and considers monthly analysis of a full inductively coupled plasma metals scan (IC-PMS) is more frequent than necessary for routine monitoring of a predominantly domestic municipal wastewater system.

CIRNAC recommends reducing the full metals-scan frequency from monthly to quarterly. The Board and Inspector should retain the ability to require increased monitoring if results, influent characteristics, treatment performance, or environmental conditions warrant.

Monitoring at waste facilities: TR-19

The City identified the Environmental Monitoring Program and QA/QC Plan as the primary monitoring document. It also clarified its proposed groundwater sampling method for shallow active-layer wells.

CIRNAC recommends the monitoring plan clearly identify the criteria used to assess monitoring results at the Waste Transfer Station and North 40 Landfill. It should also identify triggers for:

- increased monitoring;
- additional investigation;
- operational modification;
- corrective action;
- containment or treatment; and
- remediation.

The framework should address groundwater, surface water, leachate, seepage, and soil results and establish how findings will be reported and followed up. CIRNAC recommends the updated monitoring plan for the Waste Transfer Station and North 40 Landfill, addressing the aforementioned list of triggers, is submitted with the 2026 Annual Report for review and comment on by intervenors.

Solid waste management planning: IR-21

The City proposes removing the existing requirement for a Solid Waste Management Plan on the basis that the North 40 facilities are now constructed and governed by facility-specific plans and manuals.

CIRNAC recommends the water licence ensures that all solid-waste activities remain covered by approved and current plans, whether through a consolidated Solid Waste Management Plan or clearly identified facility-specific plans. The licence should avoid a gap in requirements caused by deleting the existing condition before confirming that the approved replacement documents collectively address waste acceptance, diversion, hazardous waste, capacity, tracking, operations, and closure planning, and have been uploaded to the NWB public registry.

6. Management Plans and Spill Contingency Planning

Management plans describe how environmental protection, water management, spill prevention, monitoring, and operational requirements will be implemented.

Table 7: Status of comments pertaining to management plans

Recommendation Number / Technical Comment Number	Subject	Status
TR-01 and TR-13	Construction Water Management and Monitoring Plan	Resolved, subject to commitments and licence conditions.
TR-17	Spill contingency and emergency response plans	Partially resolved; follow-up through licence condition required.
TR-19	Governing monitoring document	Partially resolved; follow-up through licence condition required.
TR-20	Document hierarchy	Partially resolved; follow-up through licence condition required.

Recommendation Number / Technical Comment Number	Subject	Status
TM-08 to TM-14	Post-hearing plans and studies	Resolved, subject to commitments and licence conditions.

Construction environmental management plans: TR-01, TR-13, TM-08, and TM-09

The City committed to provide an updated Environmental Protection Plan, a site-specific Erosion and Sediment Control Plan, a Construction Water Management and Monitoring Plan, a Construction Spill Contingency Plan, and an updated operational Spill Contingency Plan with associated timelines captured in the post-technical meeting list of commitments. CIRNAC considers the associated comments resolved, subject to inclusion of the plans and their corresponding commitment timelines as terms and conditions of the water licence. The related activity should not begin until the updated applicable plan has been circulated for intervenor comment and approved by the Board.

Spill contingency and emergency response plans: TR-17, TM-13, and TM-14

The City stated it is appropriate to maintain separate construction and long-term operational spill plans because construction plans require temporary and site-specific information. CIRNAC agrees that separate plans can be appropriate. However, each plan should clearly identify:

- the facilities and activities to which it applies;
- where it is in effect;
- the project phase covered;
- which plan governs where requirements overlap;
- fuel, chemicals, hazardous materials, and waste streams covered;
- chemical-specific handling and response measures;
- sewage spill detection and response;
- safety data sheets;
- notification and reporting; and
- review and updating procedures.

CIRNAC recommends the updated operational Spill Contingency Plan and Spill Contingency Plan for Construction Phase both clearly identify the listed items above.

Document hierarchy: TR-19 and TR-20

CIRNAC recommends Part B of the water licence require every plan or manual to identify its geographic, operational, and temporal application and to state which plan governs where requirements overlap.

7. Monitoring and Reporting

Monitoring is necessary to verify compliance, assess the effectiveness of mitigation, identify changing conditions, and support adaptive management.

Table 8: Status of comments pertaining to monitoring and reporting

Recommendation Number / Technical Comment Number	Subject	Status
TR-10	Annual reporting and comparison criteria	Partially resolved; follow-up through licence condition required.
TR-12	Seasonal baseline water quality	Unresolved; follow-up through licence condition required.
TR-13	Construction monitoring	Resolved, subject to commitments and licence conditions.
TR-18	Wastewater metals monitoring	Partially resolved; follow-up through licence condition required.
TR-19	Consolidated monitoring program	Partially resolved; follow-up through licence condition required.
IR-23 to IR-24	QA/QC and sampling responsibilities	Resolved, subject to commitments.

Annual reporting and comparison criteria: TR-10

The City indicated that quantitative water-quality impact predictions were not developed and that public-health drinking-water standards are outside the purpose of environmental effects monitoring.

CIRNAC agrees that drinking-water standards should not be used as a substitute for environmental criteria. However, environmental results should be interpreted against relevant licence criteria, environmental quality guidelines, baseline or reference conditions, approved predictions, or other technically appropriate benchmarks.

CIRNAC recommends the Annual Report:

- compare results with applicable criteria or benchmarks;
- identify exceedances and adverse trends;
- discuss potential causes;
- assess mitigation effectiveness;
- identify corrective or adaptive management actions; and
- report the status of follow-up work.

Seasonal baseline water quality: TR-12

The available material does not provide a complete seasonal water-quality baseline for all proposed source waters. The City stated that existing sampling was adequate to establish suitability as a water-supply source and that it did not intend to conduct additional sampling.

CIRNAC's concern is not limited to drinking-water suitability. Seasonal baseline information is needed to characterize natural variability and provide a basis for interpreting future monitoring.

CIRNAC recommends that, before regular withdrawal from Lake Qikiqtalik or operation of other new source-water facilities, the City provide baseline information sufficient to characterize seasonal conditions. Alternatively, the City should provide a technical rationale demonstrating that the existing information adequately characterizes natural variability and supports future effects monitoring.

Environmental Monitoring Program and QA/QC Plan: TR-10, TR-19, IR-23 and IR-24

The updated compliance assessment acknowledges that some parameters required by Schedule I were not analyzed because the City did not have the necessary equipment and staff were not aware of all sampling requirements. The City states that equipment has been procured and that staff are being trained.

CIRNAC considers IR-23 and IR-24 resolved, subject to completion of the City's commitments and incorporation of the applicable sampling and QA/QC requirements into the governing monitoring document. TR-10 and TR-19 remain partially resolved because the monitoring framework must also establish consistent comparison criteria, reporting requirements, follow-up procedures, and adaptive management responses.

CIRNAC recommends the Environmental Monitoring Program and QA/QC Plan be clearly identified as the governing monitoring document. It should include:

- responsible positions and contact information;
- sampling methods and frequencies;

- field and laboratory procedures;
- calibration and maintenance;
- field, trip, and equipment blanks, as applicable;
- laboratory information and accreditation;
- data validation;
- comparison criteria;
- reporting;
- follow-up procedures; and
- a current letter of acceptance from an Analyst at the accredited laboratory.

8. Compliance and Closure Planning

The updated compliance assessment identifies several current or historical non-compliance matters relating to signage, dam safety inspections, plan submission deadlines, landfill operation, and monitoring requirements.

Table 9: Status of comments pertaining to compliance and closure planning

Recommendation Number / Technical Comment Number	Subject	Status
IR-10	Compliance assessment and corrective actions	Partially resolved; follow-up through licence condition required.

Compliance assessment and corrective actions: IR-10

The City's updated compliance assessment provides a condition-by-condition review. For some non-compliance matters, it identifies corrective actions and schedules.

Examples include:

- installation of monitoring-station signage;
- completion of Dam Safety Inspections;
- landfill fencing and windblown-waste management;
- containment of hazardous materials;
- staff training and acquisition of sampling equipment; and
- updating or submission of plans and manuals.

The assessment does not demonstrate that every corrective action has been completed.

CIRNAC recommends that each Annual Report include a consolidated compliance table identifying:

- the applicable licence condition, Board direction, Inspector direction, or dam-safety recommendation;
- the deficiency or required action;
- the responsible party;
- the target date;
- current status;
- evidence of completion; and
- any revised completion date and rationale.

9. Draft Water Licence Framework

The City submitted a track-changes draft licence framework following the Technical Meeting and Pre-Hearing Conference. CIRNAC appreciates the City's effort to identify proposed amendments and incorporate commitments.

CIRNAC recommends that the Board revise the framework before issuance.

Table 10: Status of comments pertaining to compliance and closure planning

Subject	CIRNAC Position
Water balance requirement proposed for deletion	Retain and expand as a periodic system-wide requirement
Lake Qikiqtalik withdrawal rules left blank	Complete through an approved operating framework before withdrawal
Preliminary dam breach analysis	Require final analysis addressing cascading failure
Construction runoff criteria	Reconcile conflicting TSS criteria
"Review" versus "approval"	Require approval where work should not proceed without an accepted plan
Plan hierarchy	Require plans to state where they apply and which plan governs
Annual reporting	Add water-balance comparison, adaptive management, plan status, compliance tracking, and dam-safety recommendation status

Water balance requirement

The City proposes deleting the existing requirement to submit an updated Lake Geraldine Water Balance Model before supplemental withdrawals. CIRNAC does not support the proposed deletion.

The City currently holds a calibrated GoldSim model that was updated and recalibrated in 2025. Rather than removing the modelling requirement, the licence should require the existing model to be updated to incorporate the new reservoir, Lake Qikiqtalik, the Niaqunguk River, associated pumping and transfer infrastructure, and current municipal water demand. The licence should also require comparison of model results with observed system performance and periodic model verification and recalibration.

Dam breach and dam safety submissions

The City proposes submission 60 days before pumping into the new reservoir. CIRNAC recommends that final design information required to establish the acceptability of the water-retaining structures be provided before construction. Final dam breach, emergency preparedness, and operational documentation should be approved before reservoir filling or water transfer.

Construction runoff criteria

The draft framework retains existing total suspended solids criteria of 50 mg/L maximum average concentration and 100 mg/L maximum grab concentration while the draft Construction Water Management and Monitoring Plan proposes 30 mg/L.

CIRNAC recommends a single, internally consistent and enforceable criterion. Based on the City's proposed construction plan and CIRNAC's technical review, CIRNAC supports a maximum total suspended solids concentration of 30 mg/L for construction contact water before discharge.

Approval of plans

Where a plan contains essential controls for dam safety, water management, spill prevention, or environmental protection, the condition should require Board approval and should state that the associated activity may not begin until approval is issued.

Monitoring schedule

The proposed Schedule I should be reviewed for:

- legacy stations no longer applicable;
- duplicated station identifiers;
- revised station numbers;
- proposed pond-dewatering stations;
- monitoring at the North 40 Landfill and Waste Transfer Station;

- parameters and frequency; and
- consistency with the Environmental Monitoring Program and QA/QC Plan.

Licence term

CIRNAC recommends that the licence term reflect the anticipated activities, the status of Long-Term Water Project design and construction, the City's compliance history, the need to reassess wastewater capacity, and the timing of major closure and infrastructure decisions. CIRNAC therefore recommends a water licence term of 10 years.

C. PROPOSED LICENCE CONDITIONS

CIRNAC recommends that the renewed and amended licence include the changes to conditions summarized below. The proposed changes to the conditions consolidate CIRNAC's outstanding recommendations arising from the technical review, Technical Meeting and Pre-Hearing Conference, the City's responses to commitments, and CIRNAC's review of the proposed draft water licence framework.

Suggested wording is underlined below and is intended to assist the Board in translating the outstanding matters into clear and enforceable licence requirements. Final numbering and placement should be adjusted to align with the structure of the licence issued by the Board.

PART B: GENERAL CONDITIONS

Revise Part B, Item 10

The Licensee shall review the Plans referred to in this Licence annually and as required by changes in operation and/or technology, infrastructure, monitoring requirements, legislation, guidance, or environmental conditions, and modify the Plans accordingly. Each Plan shall identify where it applies and which Plan takes precedence where requirements overlap. Revisions to any Plan shall be submitted in the form of an addendum to be included within the Annual Report required under Part B, Item 1, complete with the lists of revisions detailing where significant content changes are made.

PART D: CONDITIONS APPLYING TO THE USE OF WATERS AND WATER MANAGEMENT PLANS

Revise the Long Term Water Project operation and maintenance condition

The Licensee shall submit to the Board for approval, at least sixty days prior to initiating Water transfer from the Long-Term Water Project facilities, updated operation and

maintenance manual(s) for the integrated municipal Water supply system, including the Lake Geraldine Reservoir, Water Treatment Plant, New Reservoir, source-Water intakes and pumphouses, pipelines, dams, dykes, Water-retaining structures, and related infrastructure. The documentation shall address operation, inspection, maintenance, monitoring, emergency response, contingency measures, reporting, and roles and responsibilities. The Licensee shall review the Plan at intervals not exceeding five years and revise it sooner where monitoring, inspections, updated climate information, or changes in operation indicate that an update is required. Water transfer from the Long-Term Water Project facilities shall not commence until the Board has approved the documentation.

Add the following new item respecting the Water Balance Model

The Licensee shall update the existing calibrated Water Balance Model to incorporate the New Reservoir, withdrawals from the Niaqunguk River and Lake Qikiqtalik, associated pumping and transfer infrastructure, current municipal Water demand, and the most current climate, hydrologic, Water-level, and Water-use information. The updated Water Balance Model shall evaluate Water supply conditions under normal, dry, and extreme low-Water scenarios and identify assumptions, limitations, operational thresholds, and contingency measures.

The Licensee shall submit the initial updated Water Balance Model to the Board for review at least sixty days prior to regular operation of the integrated Long Term Water Project Water supply system. The Licensee shall compare model predictions with observed system performance and review the model at intervals not exceeding five years. The model shall be updated or recalibrated sooner where monitoring indicates that its assumptions, inputs, or predictions are no longer representative of actual conditions.

The review shall consider whether updated climate information or observed hydrologic conditions require changes to the model, operating procedures, monitoring, or contingency measures.

Add the following new item respecting Water supply monitoring

The Licensee shall monitor Water levels, flows, withdrawals, transfers, storage, and municipal Water use for the integrated municipal Water supply system in accordance with the Monitoring Program approved under Part I. Monitoring results shall be compared annually with the most current Water Balance Model. Where monitoring identifies a material deviation from model predictions, the Licensee shall assess the cause and identify any required model update, additional monitoring, operational change, contingency measure, or adaptive management action.

Revise the proposed dam breach condition

The Licensee shall submit to the Board for approval, prior to filling the New Reservoir, a final Dam Breach and Inundation Analysis based on the final design. The analysis shall evaluate appropriate sunny-day and rainy-day breach scenarios, failure of the principal

dam and relevant dyke structures, cascading effects on the Lake Geraldine Dam, downstream inundation, consequences to people, infrastructure and the environment, and implications for emergency preparedness and response. The New Reservoir shall not be filled until the Board has approved the final Dam Breach and Inundation Analysis.

Revise and consolidate the Long-Term Water Project plan conditions

The Licensee shall submit to the Board for approval, at least sixty days prior to commencement of the applicable construction activities associated with the Long-Term Water Project:

- an updated Environmental Protection Plan;
- a Site-Specific Erosion and Sediment Control Plan;
- a final Construction Water Management and Monitoring Plan;
- a Construction Spill Contingency Plan; and
- a Hazardous Materials Management Plan.

The Plans shall identify the activities, areas, and project phases to which they apply and which Plan governs where requirements overlap. The Plans shall address, as applicable, erosion and sediment control, drainage, dewatering, construction contact Water, blasting, fuel and hazardous materials, contaminated soil and Water, monitoring, inspection, action levels, corrective actions, response timelines, contingency measures, and reporting. The applicable construction activity shall not commence until the Board has approved the Plan governing that activity. Where an approved Plan or Manual does not address a required activity, the Licensee shall submit an updated document to the Board for approval within a timeframe established by the Board.

Add the following new item respecting Lake Qikiqtalik operating rules

The Licensee shall submit to the Board for approval, prior to commencing withdrawals from Lake Qikiqtalik, operating rules addressing seasonal withdrawal limits, Water-level or flow thresholds, monitoring, low-Water contingencies, adaptive management, and applicable Fisheries and Oceans Canada requirements.

PART E: CONDITIONS APPLYING TO THE DEPOSIT OF WASTE

Add the following new item respecting solid-waste management planning

Within one year of the Effective Date of the Licence, the Licensee shall submit to the Board a summary identifying the approved Plans and Manuals governing waste acceptance, diversion, hazardous waste, waste tracking, facility operations, leachate and runoff, landfill capacity, monitoring, and closure planning for the Solid Waste Disposal Facilities.

Add the following new item respecting wastewater treatment capacity

Where updated population, flow, or operational projections indicate that the effective treatment capacity of the Wastewater Treatment Plant may be exceeded during the term of this Licence, the Licensee shall submit to the Board, for review and approval, a Wastewater Treatment Capacity Management and Infrastructure Implementation Plan within a timeframe established by the Board.

PART I: CONDITIONS APPLYING TO MONITORING

Add the following new item respecting seasonal baseline Water quality

Prior to regular withdrawal from Lake Qikiqtalik, the Licensee shall submit to the Board baseline Water-quality information sufficient to characterize relevant seasonal conditions, or a technical rationale demonstrating that the available information adequately characterizes seasonal variability.

Regular withdrawal shall not commence until the Board has accepted the submitted information.

Add the following new item respecting Water quality monitoring

The Licensee shall evaluate environmental monitoring results against applicable licence criteria, environmental quality guidelines, baseline conditions, approved predictions, or other Board-approved benchmarks. Exceedances, adverse trends, or unexpected results shall be investigated and appropriate follow-up actions identified.

SCHEDULE B: ANNUAL REPORTING REQUIREMENTS

Add the following items

The Annual Report referred to in Part B, Item 1 shall also include:

- a comparison of observed Water supply conditions with the predictions of the most current Water Balance Model;
- identification of material deviations from model predictions;
- the status of any required model update or recalibration;
- the status of all Dam Safety Inspection and Dam Safety Review recommendations;
- status of all plans and manuals required under the licence including review dates and revisions completed;
- the status of outstanding Board and Inspector directions and non-compliance matters.

D. CONCLUSION

CIRNAC acknowledges the substantial additional information provided by the City and the progress made through the technical review, Technical Meeting and Pre-Hearing Conference, and commitment process.

Several matters have been resolved. Other matters remain dependent upon final design, monitoring, or management documentation. CIRNAC considers that these matters can be addressed through clear, enforceable licence conditions that establish:

- the required submission;
- the submission deadline;
- opportunities for review by interested parties where appropriate;
- Board approval;
- restrictions on proceeding before approval;
- measurable performance criteria;
- monitoring and reporting; and
- corrective action and adaptive management.

CIRNAC does not object to the NWB advancing the application to a decision, provided that the renewed licence addresses:

- final construction environmental management plans;
- final dam design and dam safety documentation;
- a final dam breach and inundation analysis addressing cascading failure;
- updated Operations and Maintenance Manual(s);
- periodic water balance modelling;
- source-water monitoring and adaptive management;
- Lake Qikiqtalik withdrawal rules;
- seasonal baseline water quality;
- wastewater treatment capacity reporting;
- monitoring governance and QA/QC;
- spill contingency planning; and
- outstanding compliance actions.

CIRNAC thanks the NWB, the City of Iqaluit, interveners, and participants for their contributions to the review.