



Final Submission regarding the Government of Nunavut - Community and Government Services water licence application for the Hamlet of Resolute Bay 3AM-RUT----

**Crown-Indigenous Relations and Northern Affairs
Canada**

Final Submission to the Nunavut Water Board

September 24, 2020



EXECUTIVE SUMMARY

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) has participated in the ongoing review of the Government of Nunavut – Community and Government Services’ application to renew and amend its Nunavut Water Board water licence 3AM-RUT---- for the utilidor in the Hamlet of Resolute Bay. This project is situated in Resolute Bay in Nunavut’s Qikiqtani region.

During the technical review, issues covered four major topics:

- **Water supply** – how much water will be taken from Char Lake
- **Infrastructure** – designs for the pump house, wastewater treatment plant, and reclaiming the lagoon, as well as addressing leaks in utilidor laterals
- **Manuals and plans** – operation & maintenance manuals for infrastructure, and the Spill Contingency and Quality Assurance/Quality Control plans
- **Monitoring** – water quality sampling frequency at the macerator outlet

The issues identified have been resolved through discussions at the technical meeting and updated materials submitted by the applicant. CIRNAC appreciates the efforts made to provide information and supports Government of Nunavut – Community and Government Services’ application.

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INTRODUCTION

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) has participated in the ongoing review of the Government of Nunavut Community and Government Services' (GN-CGS) water licence renewal application for their type B water licence 3BM-RUT1520 for the use of water and deposit of waste by utilidor in the hamlet of Resolute Bay. The increase in water quantity means a type A water licence would be required, identified as 3AM-RUT---- by the Nunavut Water Board.

The utilidor system in Resolute Bay includes a pump station at Char Lake, intake pipes, water treatment plant at Signal Hill, water distribution and sewer lines, fire hydrants, access vaults and a macerator unit. The entire system is undergoing renovation: in 2016 the buried utilities were replaced, a new pump station and water treatment plant are scheduled for construction in 2020, and a wastewater treatment plant is planned for 2024.

On March 26, 2020 CIRNAC submitted Information Requests. CIRNAC also submitted technical review comments and recommendations for the application on June 12, 2020. CIRNAC then participated in a Technical Meeting on July 14, 2020 which occurred via teleconference. A Pre-Hearing Conference was also held on July 14, 2020, following which the Nunavut Water Board distributed the Pre-Hearing Conference Decision Report on July 27, 2020 inviting interested parties to submit final written submissions.

The NWB has provided a list of topics for discussion at the public hearing. The topics have been used as headings in this document to organize the comments we made.

Comments in this submission are made in the context of CIRNAC policy and mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*. Comments are structured as issues supported by observations made during the course of the application review and recommendations are made directly to the Nunavut Water Board.



TECHNICAL COMMENTS

CIRNAC submitted eight Information requests (IRs) and nine Technical Review Comments (TCs). Exchanges and discussions with GN-CGS at the technical meeting have provided the opportunity for CIRNAC to clarify the concerns identified regarding the proposed project.

Different comments submitted by CIRNAC have been assigned to one of the topics in the NWB's list; however several comments could be assigned to more than one heading.

1. Scope of the licence

CIRNAC agrees with the changes to the scope of licence described in the Pre-hearing Conference Decision Report list of issues. It covers the new infrastructure elements to be added to the licence and retains those which have not yet been decommissioned.

2. Term of licence

During the technical meeting, there were discussions on the possibility of GN-CGS requesting a licence term longer than 10 years. On August 4, 2020, the applicant submitted an updated renewal application requesting a 20 year licence term.

CIRNAC supports this request. We understand that during these 20 years there will likely be amendments, including the potential incorporation of facilities currently licensed under 3BM-RES2025.

3. Compliance

The recently expired licence for the Resolute Bay utilidor, 3BM-RUT1520, had several conditions which were not realized during the term of the licence. However, CIRNAC is of the opinion they are being addressed during this renewal application process, as detailed below:

Licence condition	Proposed solution
Part B, Item 4; Part H, Item 4; Part H, Item 5	In a June 29, 2020 submission, the applicant committed to installing a flow meter at the new pump station on Char Lake and a meter measure flow in the macerator building.
Part C, Item 3	The applicant is requesting authorization to abstract a volume of water sufficient for their needs.
Part C, Item 4	The applicant provided this study on September 2, 2020.
Part F, Item 1; Part H, Item 9	Several updated plans were submitted with this application and timelines tied to commissioning of new infrastructure was developed for outstanding plans

4. Water supply



The hamlet's water source is Char Lake. A pump house on the lake shore is used to abstract water which is piped to Signal Hill, where there is a 4 000 m³ storage tank and a water treatment plant. Water is distributed through a utilidor system built in 1978 on which upgrades were started in 2016. Water delivery to the airport sector is through trucked services.

Table 1 Status of comments pertaining to water supply

Comment #	Issue	Status
IR1, TC1	Quantity of water requested	Resolved
IR2, TC2	Plans for Char Lake pump house	Resolved
IR3	Status of water treatment plant	Resolved
IR6, TC6	Leaks in utilidor	Resolved

Quantity of water requested (IR1, TC1): The updated application requests authorization to withdraw 593.23 m³/day or 216 528 m³ annually. The volume requested has been the subject of several exchanges and CIRNAC's understanding at the end of the technical meeting was that it would be 188 192 m³ annually.

Determining the authorized water abstraction volume should take into account both the communities need and the water source's replenishment capacity. According to EXP's 2014 Hydrology Study, the watershed yield net of lake evaporation is 338 000 m³/year at climate normals and the 20-year return low yield is 200 000m³/year. The Centre for Water Resources Studies' Desktop Review on the Sustainability of Nunavut's Drinking Water Sources states that in Resolute Bay, precipitation shows an increasing trend and evaporation is constant. Therefore CIRNAC is of the opinion the requested water volume abstraction rate is sustainable and supports the request.

Plans for Char Lake pump house (IR2, TC2): The pump house and water intake at Char Lake was being upgraded this summer and CIRNAC had three recommendations for the work. They have been resolved, as detailed below:

- i) An Environmental Management Plan addressing concerns about potential environmental impacts including mobilization of total suspended solids and hydrocarbon impacted soils into Char Lake was provided on August 12, 2020.
- ii) In their June 29, 2020 response, the applicant committed to providing a Decommissioning and Remediation Plan for the old pump house 60 days prior to decommissioning work.
- iii) The applicant also committed to considering construction designs that would ensure the integrity of the water intake pipe insulation when building the pump house.

Status of water treatment plant (IR3): Plans for upgrades to the water treatment plant were made available and resolved this information request.

Leaks in utilidor (IR6, TC6): The mains of the utilidor system were replaced in 2016 and have no leaks, but there have been some leaks reported from the laterals



connecting homes and buildings. Occupants did not know who to contact to get the leaks fixed. The laterals are not the responsibility of the service contract of the utilidor.

GN-CGS has clarified the organizations that community members could contact to raise concerns or ask for help. At the technical meeting, Steve Piercy from the hamlet indicated he would make a public service announcement to share the information with the community.

5. Waste Management

CIRNAC has no comments on waste management, as our understanding is that the hamlet's solid waste is managed under licence 3BM-RES2025 issued to the hamlet of Resolute Bay.

6. Wastewater treatment

Currently the wastewater collected by the utilidor passes through a macerator to remove the solids before being discharged into the ocean. A wastewater treatment plant is planned for 2024. The new plant would have the capacity to treat the sewage from town as well as that generated in the airport sector, which is currently sent to a sewage lagoon covered by water licence 3BM-YRB1621.

Table 2 Status of comments pertaining to wastewater treatment

Comment #	Issue	Status
IR4, TC3	Plans for wastewater treatment plant	Resolved

Plans for wastewater treatment plant (IR4, TRC3): CIRNAC had comments regarding the plans for the new wastewater treatment plant which is at the pre-design stage. Treatment targets for the plant were discussed at the technical meeting. CIRNAC's first two comments were about collecting accurate sewage volume measurements for both the macerator and sewage lagoon to allow for proper design of the new plant. Commitments to install a flow meter in the macerator unit and to use the water truck delivery volume for volume of sewage from the airport sector satisfy these concerns.

CIRNAC's third and fourth recommendations related to sharing information on plant design and plans. The applicant committed to submitting a detailed design brief and plans at least 60 days prior to construction, which would satisfy CIRNAC's concerns. CIRNAC recommends that the Nunavut Water Board consider including this as a condition in a new licence.

7. Management plans and reports

Management plans and Operations and maintenance (O&M) manuals describe how concepts and strategies will be implemented. Their review allows us to understand what actions will be taken on the ground to ensure desired outcomes.



Table 3 Status of comments pertaining to management plans and reports

Comment #	Issue	Status
TC4	Operations and maintenance manuals	Resolved
IR7, TC9	Spill Contingency Plan	Resolved
IR8, TC8	Quality Assurance and Quality Control Plan	Resolved

Operations and maintenance manuals (TC4): There were no O&M manuals relevant to the infrastructure covered by the water licence application, in part because the system is undergoing upgrades. CIRNAC recommended plans be provided and is satisfied with the timelines discussed, as summarized below:

- The applicant committed to providing an O&M manual for the water treatment plant after the plant rehabilitation is complete. CIRNAC recommends the Nunavut Water Board consider including this as a condition in a new licence, specifying a timeline.
- The applicant committed to providing an O&M manual for the utilidor once the upgrades were completed, including the 500 m outfall line into the ocean. CIRNAC recommends the Nunavut Water Board consider including this as a condition in a new licence, specifying a timeline.
- On August 4, 2020, the applicant provided the Resolute Bay Sewage Macerator Facility Operations and Maintenance Procedures. These address the risks identified in the macerator building and satisfy the concerns by CIRNAC.

Spill Contingency Plan (IR7, TC9): The Spill Contingency Plan included with the application material had certain sections which did not seem to be adapted for Resolute Bay. The applicant addressed these in an updated plan submitted on June 29, 2020.

Quality Assurance and Quality Control Plan (IR8, TC8): Some deficiencies were noted in the Quality Assurance and Quality Control Plan submitted with the application. These were corrected to CIRNAC's satisfaction in an updated version submitted on June 29, 2020.

During the technical meeting there was further discussion on the requirement to do toxicity tests on the wastewater treatment plant effluent. CIRNAC's understanding is that though they will not be part of the yearly monitoring, and a test would be required after commissioning the new wastewater treatment plant.

8. Monitoring program

Monitoring is an important part of operations that allows CIRNAC the opportunity to evaluate the performance of management measures.

Table 4 Status of comments pertaining to monitoring program

Comment #	Issue	Status
TC7	Monitoring	Resolved



Monitoring (TC7): The recently expired licence requires monthly samples at station RUT-2, the sewage outfall to the ocean. Several years of data are available and indicate the quality is not very variable and it is possible to identify outliers. Quarterly sampling might be sufficient to flag any significant change and would facilitate compliance with licence terms. The applicant agrees to the change, so CIRNAC is asking the Nunavut Water Board to consider modifying sampling requirements at RUT-2 until a water treatment plant is built.

9. Closure and reclamation planning

With the planned upgrades of all the buildings associated with the water distribution and treatment system in Resolute Bay, it is important to plan for reclamation of the old infrastructure.

Table 5 Status of comments pertaining to closure and reclamation planning

Comment #	Issue	Status
IR5, TC5	Reclamation plans	Resolved

Reclamation plans (IR5, TC5): CIRNAC agrees with the list of infrastructure requiring decommissioning and reclamation included in the Pre-hearing Conference Decision Report list of issues: macerator building and blue building beside it, old pump station, old intake line, and old outfall line. The applicant has committed to providing these plans, should the requirement be in a renewed water licence. CIRNAC therefore asks the Nunavut Water Board to consider including this as a condition in a new licence.