



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

Your file - Votre référence
3AM-IGL2131
Our file - Notre référence
GCDOCS# 115112709

June 29, 2023

Robert Hunter
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
sent via e-mail: licensing@nwb-oen.ca

Re: Crown-Indigenous Relations and Northern Affairs Canada's Review of the 2022 Annual Report for Water Licence 3AM-IGL2131 for the Municipality of Igloolik in the Qikiqtani Region of Nunavut

Dear Mr. Hunter,

Thank you for the March 29, 2023 invitation to review the referenced Annual Report, submitted by the Government of Nunavut, Department of Community and Government Services on behalf of the Licensee. This annual review is for Igloolik's Type A Water Licence No. 3AM-IGL2131.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined 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 comments and recommendations in the attached Technical Memorandum.

It is unclear to CIRNAC which water quality criteria the water quality parameters in Schedule I are being compared to. CIRNAC requests the Nunavut Water Board specify the water quality criteria as a term and condition of the water licence.

If there are any questions or concerns, please contact me at michelle.blade@rcaanc-cirnac.gc.ca or Andrew Keim at 305-501-4047 or Andrew.Keim@canada.ca.

Sincerely,

Michelle Blade,
Regional Water Coordinator



Technical Review Memorandum

Date: June 29, 2023

To: Robert Hunter, Licensing Administrator, Nunavut Water Board

From: Michelle Blade, Regional Water Coordinator, CIRNAC

Subject: Crown-Indigenous Relations and Northern Affairs Canada's Review of the 2022 Annual Report for Water Licence 3AM-IGL2131 for the Municipality of Igloolik in the Qikiqtani Region of Nunavut

Region: ☐ Kitikmeot ☐ Kivalliq ☒ Qikiqtani

A. BACKGROUND

The Municipality of Igloolik is the second largest community in the Baffin Region and is located in the Foxe Basin. The population of the community is 1682 (2016 Census). Water is extracted from South Lake, which is the community's water source, and stored in a reservoir with a capacity of 102,800 cubic metres. Since the water storage capacity exceeds 60,000 cubic metres, a Type "A" Water Licence is required.

Specific terms and conditions of note in the water licence include the following:

- the term of the Licence will be 10 years, expiring in 2031;
- no posting of reclamation security is required, as the Licence is for a Municipal undertaking and the Applicant is a government entity;
- the amount of Water use authorized, and the rate of withdrawal from the water source (South Lake) were increased to 102,800 cubic metres annually; and
- additional terms and conditions have been added to transition the Municipality from the former Type "B" Licence to the new Type "A" Licence; the additional terms and conditions reflect the authorized increases in water use, the current state of the community infrastructure, and the Municipality's proposal to construct a new solid waste disposal facility during the term of the new Type "A" Licence.

Relevant infrastructure for the Water Use and Waste Disposal Facilities include a freshwater intake pump, reservoir, truck fill station, and a three cell sewage exfiltration lagoon system with a wetland, an older fourth sewage cell constructed prior to the three cell lagoon systems, domestic landfill, and metallic waste landfill.

CIRNAC provides the following comments and recommendations pertaining to the 2022 annual report. A summary of the subjects of recommendations can be found in Table 1. Documents reviewed as part of this submission can be found in Table 2 of Section B. Detailed technical review comments can be found in Section C.



Table 1: Summary of Recommendations

Recommendation Number	Subject
R-01	Sources of water and quantity used
R-02	Sewage discharge reporting requirements
R-03	Sludge removal reporting
R-04	Sewage Disposal Facility discharge
R-05	Structural integrity of Sewage Disposal Facility lagoon A

B. DOCUMENTS REVIEWED

The following table (Table 2) provides a summary of the documents reviewed under the submission.

Table 2: Documents Reviewed

Document Title	Author, File No., Rev., Date
3AM-IGL2131 2022 Annual Report	Government of Nunavut, Community and Government Services (GN-CGS) on behalf of the Municipality of Igloolik
TYPE "A" WATER LICENCE NO: 3AM-IGL2131	Nunavut Water Board, 12 January 2021
TYPE "A" WATER LICENCE NO: 3AM-IGL2131 Reasons for Decision	Nunavut Water Board, 26 February 2020
CIRNAC Review of the 2021 Annual Report for the Hamlet of Igloolik, Type A Water Licence No. 3AM-IGL2131	CIRNAC, 16 March 2022
Water Licence Inspection Form	CIRNAC, 26 October 2021

C. RESULTS OF REVIEW

1. Sources of water and quantity used

Comment:

Water licence 3AM-IGL2131 allows for withdrawal of 102,800 cubic metres of water per annum, at a maximum rate of 299 cubic metres per day, from South Lake and/or Fish Lake



to support community needs. Water licence 3AM-IGL2131 requires reporting of the daily, monthly, and annual quantities in cubic metres of freshwater withdrawn from South Lake and Fish Lake at Monitoring Station No: IGL-1 and IGL-1a, respectively. The 2022 Annual Report provides the monthly and annual quantities in cubic metres of freshwater obtained from all sources as reported in the On Tap Water Delivery System. Both the October 26, 2021 Water Licence Inspection Form and the CIRNAC Review of the 2021 Annual Report for the Hamlet of Igloolik reiterate Igloolik in non-compliance with the daily, monthly, and annual fresh water reporting requirements.

Recommendation:

(R-01) CIRNAC recommends the Government of Nunavut provide the name or origin of the undefined sources of water tabulated in the 2022 Annual Report. In compliance with the water licence, CIRNAC recommends the daily, monthly, and annual quantity of freshwater withdrawn from South Lake at Monitoring Station No: IGL-1 is recorded and subsequently reported in the 2022 Annual Report, and specify if any daily rates exceeded 299 cubic metres.

2. Sewage discharge reporting requirements

Comment:

Water licence 3AM-IGL2131 requires reporting of the monthly and annual quantities in cubic metres of any discharges to the Sewage Disposal Facility at Monitoring Station IGL-3. The 2022 Annual Report states the water consumption volume is considered equal to the sewage discharge volume because there is no meter at the end of the discharge pipe.

Recommendation:

(R-02) CIRNAC recommends the Government of Nunavut devise a reporting system for measuring the quantity of any discharges to the Sewage Disposal Facility at Monitoring Station IGL-3.

3. Sludge removal reporting

Comment:

Water licence 3AM-IGL2131 requires reporting of the monthly and annual quantities in cubic metres of sludge removed from the Wastewater Treatment Plant. CIRNAC was unable to locate the sludge removal values in the 2022 Annual Report.



Recommendation:

(R-03) CIRNAC recommends the Government of Nunavut specify where the 2022 sludge removal measurements are reported.

4. Sewage Disposal Facility discharge

Comment:

Water licence 3AM-IGL2131 requires all effluent discharged from the Sewage Disposal Facility at Monitoring Program Stations IGL-4 and IGL-5 meet the following effluent quality standards of Part E item 3 of the water licence. Station IDs IGL-4A, IGL-4B, and IGL-4C correspond to final effluent control points from the Sewage Disposal Facility (Lagoons A, B and C). Station IDs IGL-5A, IGL-5B, and IGL-5C correspond to final effluent control points prior to entering Foxe Basin (Lagoons A, B and C). The 2022 Annual Report provides grab sample analytical results for cell #2 and cell #3 on August 11, 2022. CIRNAC was unable to locate the analytical results for Station IDs IGL-4A, IGL-4B, IGL-4C, IGL-5A, IGL-5B, and IGL-5C in the 2022 Annual Report.

Recommendation:

(R-04) CIRNAC recommends the Government of Nunavut clarify that cell #2 and cell #3 correspond to lagoon B and C, respectively. CIRNAC recommends the Government of Nunavut include the dates of discharge from the Sewage Disposal Facility. CIRNAC recommends the Government of Nunavut include the 2022 analytical results for Station IDs IGL-4A, IGL-4B, IGL-4C, IGL-5A, IGL-5B, and IGL-5C in the 2022 Annual Report to remain in compliance with the water licence terms and conditions or provide an explanation as to why it was not done.

5. Structural integrity of Sewage Disposal Facility lagoon A

Comment:

According to the water licence inspection on October 26, 2021, a newly built sewage lagoon was observed in 2020 with no sign of leaks. On August 28, 2021 an email from officemanager@igloolik.ca indicated a breach of lagoon 1, and the interior walls were shifting. Estimated amount of seeping was 1 cubic metre per day. A request to decant was submitted, with sample results, but the Hamlet of Igloolik didn't provide the right sample analysis. Due to the unauthorized discharge a spill report was required as it was suspected the walls would breach into a greater spill than what was observed. The 2022 Annual Report states "berm safety inspection was completed in Fall of 2022. Inspection identified erosion and leak in cell A. CGS retained an engineering firm to proceed with repair design."



Recommendation:

(R-5) CIRNAC recommends the Government of Nunavut submit the 2022 Engineer's report for the structural integrity of the Sewage Disposal Facility with the 2022 Annual Report. CIRNAC recommends the Government of Nunavut submit a status update on the amount of daily seepage from cell A, the spill containment measures employed, and response to if repairs will be completed prior to the 2023 water licence inspection.