



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

Your file - Votre référence
3AM-IGL2131
Our file - Notre référence
GCDOCS# 118987292

November 22, 2023

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: Crown-Indigenous Relations and Northern Affairs Canada's response to the Government of Nunavut's response, on behalf of the Municipality of Igloolik, to CIRNAC's comments on the 2022 Annual Report for Water Licence 3AM-IGL2131 for the Municipality of Igloolik in the Qikiqtani Region of Nunavut

Dear Mr. Dwyer,

Thank you for the November 14, 2023 invitation to review the Government of Nunavut, Department of Community and Government Services response submitted on behalf of the Licensee to CIRNAC's comments on the 2022 Annual Report. The 2022 Annual Report 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*. CIRNAC has 2 unresolved comments and requests additional information be submitted to the Nunavut Water Board for review by December 11, 2023. CIRNAC comments and recommendations can be found in the attached Technical Memorandum.

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: November 22, 2023

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

From: Michelle Blade, Regional Water Coordinator, CIRNAC

Subject: Crown-Indigenous Relations and Northern Affairs Canada's response to the Government of Nunavut's response, on behalf of the Municipality of Igloolik, to CIRNAC's comments on 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	Status
R-01	Sources of water and quantity used	Unresolved
R-02	Sewage discharge reporting requirements	Unresolved
R-03	Sludge removal reporting	Resolved
R-04	Sewage Disposal Facility discharge	Resolved
R-05	Structural integrity of Sewage Disposal Facility lagoon A	Resolved

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



Document Title	Author, File No., Rev., Date
CIRNAC Review of the 2022 Annual Report for the Hamlet of Igloolik, Type A Water Licence No. 3AM-IGL2131	CIRNAC, 29 June 2022
3AM-IGL2131 – Municipality of Igloolik – Response to ECCC and CIRNAC Reviews of the 2022 Annual Report for Water Licence 3AM-IGL2131	Government of Nunavut, Community and Government Services (GN-CGS) on behalf of the Municipality of Igloolik, 3 November 2023
Igloolik Wastewater Treatment Facility Sewage Lagoon Berm 2022 Dam Safety Inspection	WSP, 18 October 2022

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.

Government of Nunavut response on behalf of the Municipality of Igloolik:

The water source is South Lake, the primary water source of the Municipality of Igloolik. Table 1 is a summary of water usage based on billing records from the municipality. This is water that has been obtained from the engineered reservoir and delivered to residential and commercial properties in the community.



CIRNAC response:

The Licensee has not provided the 2022 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 Licensee has not demonstrated that they did not exceed a maximum rate of 299 cubic metres per day from South Lake and/or Fish Lake to support community needs in 2022. The Licensee is therefore in non-compliance with the 2022 annual reporting requirements as specified in Water licence 3AM-IGL2131. CIRNAC requests this information, in the form of an updated 2022 Annual Report, be provided to the NWB for review by December 11, 2023.

CIRNAC considers comment R-01 unresolved.

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.

Government of Nunavut response on behalf of the Municipality of Igloolik:

Sewage quantities are conservatively measured based on water delivery billing records for all Municipalities with trucked sewage collections. This has been the long established reporting system for all Municipalities across Nunavut with lagoon systems.

CIRNAC response:

The 2022 Annual Report measures sewage quantities based on water delivery billing records. CIRNAC considers water delivery an indirect and inadequate measure of sewage production. Water delivery does not account for releases to the environment and/or wateruse not associated with sewage production. CIRNAC reiterates comment R-02 that the Licensee devise a reporting system for measuring the quantity of any discharges to the Sewage Disposal Facility at Monitoring Station IGL-3 to satisfy Schedule B Part B, Item 1b of Type "A" Water Licence No: 3AM-IGL2131. CIRNAC requests this information, in the form of an updated 2022 Annual Report, be provided to the NWB for review by December 11, 2023.

CIRNAC considers comment R-02 unresolved.



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.

Government of Nunavut response on behalf of the Municipality of Igloolik:

Sludge was not removed. Statement that no sludge removal to report will be added to future Annual Reports.

CIRNAC response:

CIRNAC considers comment R-03 resolved.

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.

Government of Nunavut response on behalf of the Municipality of Igloolik:

Confirmed, cell #2 and cell #3 correspond to lagoon B and C, respectively.



All available monitoring results were included in the 2022 Annual Report. While it is not possible to retroactively provide results from the 2022 monitoring program that were not sampled that year, the Municipality of Igloolik will strive for full compliance in the 2024 monitoring program year, with the continued support of CGS.

CIRNAC response:

The Licensee is in non-compliance with the 2022 annual reporting requirements as specified in Type “A” Water Licence No: 3AM-IGL2131.

CIRNAC considers comment R-04 resolved.

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-05) 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.

Government of Nunavut response on behalf of the Municipality of Igloolik:

The Igloolik Wastewater Treatment Facility – Sewage Lagoon Berm 2022 Dam Safety Inspection (DSI) is provided. There is not yet a timeline for repairs. CGS is pursuing funding and will move forward with this as soon as feasible.

No 2022 daily seepage. Following DSI recommendation, Table 7-1, seepage from cell A is being avoided by maintaining lagoon levels around 150mm below the 1 m freeboard level.

CIRNAC response:

CIRNAC has reviewed Igloolik Wastewater Treatment Facility – Sewage Lagoon Berm 2022 Dam Safety Inspection. Section 4 identifies items in the Operations and Maintenance



manual (EXP, 2021) requiring updating. Table 7-1 lists recommendations from the 2022 inspection including, but not limited to, keeping the water level in Cell A below the triggering level of seepage.

(R-05a) CIRNAC recommends the Operations and Maintenance manual (EXP, 2021) be updated with the items and recommendations from the Igloolik Wastewater Treatment Facility – Sewage Lagoon Berm 2022 Dam Safety Inspection, and the updated plan be submitted to the NWB with the 2023 Annual Report for review.

CIRNAC considers comment R-05 and R-05a resolved for 2022 annual reporting.