



Water Resources Division  
Resource Management Directorate  
Nunavut Regional Office  
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Your file - Votre référence  
3AM-PAN1828  
Our file - Notre référence  
GCDOCS# 115163619

June 30, 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](mailto:licensing@nwb-oen.ca)

**Re: Crown-Indigenous Relations and Northern Affairs Canada's Review of the 2022 Annual Report for Water Licence 3AM-PAN1828 for the Municipality of Pangnirtung in the Qikiqtani Region of Nunavut**

Dear Mr. Hunter,

Thank you for the April 5, 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 Pangnirtung's Type A Water Licence No. 3AM-PAN1828.

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 H 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](mailto:michelle.blade@rcaanc-cirnac.gc.ca) or Andrew Keim at 305-501-4047 or [Andrew.Keim@canada.ca](mailto:Andrew.Keim@canada.ca).

Sincerely,

Michelle Blade,  
Regional Water Coordinator



## **Technical Review Memorandum**

**Date:** June 30, 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-PAN1828 for the Municipality of Pangnirtung in the Qikiqtani Region of Nunavut**

**Region:**     ☐ Kitikmeot     ☐ Kivalliq     ☒ Qikiqtani

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### **A. BACKGROUND**

The Hamlet of Pangnirtung is located on Baffin Island, in the Qikiqtani Region of Nunavut, with an estimated population of 1,800. The Hamlet operates a potable water treatment and supply facility (including a water storage reservoir), a wastewater treatment plant, and a solid waste management facility. The wastewater treatment plant underwent a major upgrade in 2016. A new truckfill station was constructed then, too. In addition, the Hamlet plans to construct a new landfill by 2024.

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

- the term of the Licence will be 10 years, expiring in 2028, although the Board recognizes that during the Board's consideration of the Application the Hamlet requested a 15 year term, the Board, noting that this is the Hamlet's first Type "A" Licence and also recognizing that various planned activities for the Hamlet's municipal services, including construction of a new solid waste management facility proposed in 2024 will be undertaken during the term of the Licence, the Panel decided that 10 years was a more appropriate term;
- continued management of municipal waste (sewage treatment) and industrial (fish processing plant) waste generated by the relevant facilities operated by the hamlet;
- the allowable withdrawal volumes and the rate of withdrawal from the water source (the Duval River) were increased and these changes are in keeping with the Type "A" water use licensing criteria; and
- a new and more stringent monitoring program, including an extensive monitoring campaign for 2018, is included under the new Type "A" Licence, reflecting both the authorized increases in water use, the current state of the solid waste management facility, and the proposed future construction of a new landfill in 2024.



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**

<b>Recommendation Number</b>	<b>Subject</b>
<b>R-01</b>	<b>Sources of water and quantity used</b>
<b>R-02</b>	<b>Sewage discharge quantity reporting requirements</b>
<b>R-03</b>	<b>Effluent discharge quality reporting requirements</b>
<b>R-04</b>	<b>Sludge removal reporting</b>
<b>R-05</b>	<b>Duval River instantaneous flow and mean annual discharge measurements</b>
<b>R-06</b>	<b>Four updated documents</b>
<b>R-07</b>	<b>Monitoring Program Stations PAN-4, PAN-5 and PAN-6</b>

## **B. DOCUMENTS REVIEWED**

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

**Table 2: Documents Reviewed**

<b>Document Title</b>	<b>Author, File No., Rev., Date</b>
3AM-PAN1828 Updated 2022 Annual Report, including the Hamlet of Pangnirtung – Hydrological Desktop Study	Government of Nunavut, Community and Government Services (GN-CGS) on behalf of the Municipality of Pangnirtung
TYPE “A” WATER LICENCE NO: 3AM-PAN1828	Nunavut Water Board, 04 May 2018
TYPE “A” WATER LICENCE NO: 3AM-PAN1828 Reasons for Decision	Nunavut Water Board, 04 May 2018
Water Licence Inspection Form	CIRNAC, 22 June 2022
Licence No. 3AM-PAN1828 Type “A”; Hamlet of Pangnirtung; 2018 Annual Report Review	Nunavut Water Board, 20 May 2020



## **C. RESULTS OF REVIEW**

### **1. Sources of water and quantity used**

#### **Comment:**

Water licence 3AM-PAN1828 allows for withdrawal of 120,000 cubic metres of water per annum from the Duval River at Monitoring Station No. PAN-1. The Licensee was required, within six (6) months of approval of the water licence, to install the appropriate flow-metering equipment required to accurately record the quantity of Water withdrawn from the Duval River. The Licensee shall limit the withdrawal of Water from the Duval River to the months of July and August. 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, with over 3,887 cubic metres of water withdrawn every month.

#### **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 Duval River at Monitoring Station No. PAN-1 is reported in the 2022 Annual Report. CIRNAC recommends a reason is provided for any withdrawals from Duval River that took place outside of the months of July and August.

### **2. Sewage discharge quantity reporting requirements**

#### **Comment:**

Water licence 3AM-PAN1828 requires reporting of the daily, monthly, and annual quantities in cubic metres of any discharges to and from the Wastewater Treatment Facilities at Monitoring Stations PAN-2 (Raw Sewage from pump-out truck) and PAN-3 (effluent from wastewater treatment plant). The 2022 Annual Report states the water consumption volume is considered equal to the 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 and from the Wastewater Treatment Facilities at Monitoring Stations PAN-2 (Raw Sewage from pump-out truck) and PAN-3 (effluent from wastewater treatment plant).



### **3. Effluent discharge quality reporting requirements**

#### **Comment:**

Water licence 3AM-PAN1828 requires all effluent discharged from the Wastewater Treatment Plant at Monitoring Program Station PAN-3 not exceed the effluent quality limits defined in Part E item 3 of the water licence. The 2022 Annual Report submitted only one analytical result for Monitoring Program Station PAN-3 collected on June 22, 2022. The June 22, 2022 analytical result collected from Monitoring Program Station PAN-2 exceeded the maximum concentration of any grab sample for biochemical oxygen demand, fecal coliforms, total suspended solids, and oil and grease. Between April 5 and May 27, 2022, a spill of 9,434 cubic metres of raw sewage was reported when the hamlet deposited its sewage directly to the receiving environment, due to inoperability of the Wastewater Treatment Plant bypass function. The spill report has been closed

#### **Recommendation:**

(R-03) CIRNAC recommends the Government of Nunavut include all dates of discharge from the Sewage Disposal Facility, and reasoning if Monitoring Program Station PAN-3 analytical results are not available for all discharge dates. CIRNAC recommends the Government of Nunavut provide reasoning for why Monitoring Program Station PAN-2 exceeded the maximum concentration of any grab sample on June 22, 2022.

### **4. Sludge removal reporting**

#### **Comment:**

Water licence 3AM-PAN1828 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-04) CIRNAC recommends the Government of Nunavut include the 2022 sludge removal measurements in the 2022 Annual Report, or provide reason for why this was not done.

### **5. Duval River instantaneous flow and mean annual discharge measurements**

#### **Comment:**

Part D item 6 of water licence 3AM-PAN1828 states water withdrawn from the Duval River shall not exceed a rate of ten per cent (10%) of the instantaneous flow in the river, and all water withdrawal shall cease when the instantaneous flow in the river is below thirty per cent



(30%) of the mean annual discharge. The Hamlet of Pangnirtung – Hydrological Desktop Study, submitted with the 2022 Annual Report, states monitoring and recording of daily discharge for the Duval River last occurred 40 years ago in 1983. The study recommends installation of flow gauges and levels to monitor the Duval River.

**Recommendation:**

(R-05) CIRNAC recommends the Government of Nunavut include the 2018 to 2022 Duval River instantaneous flow and mean annual discharge measurements in the 2022 Annual Report, or provide reason for why this was not done. If there are no flow gauges nor levels to monitor the Duval River installed, CIRNAC recommends the Government of Nunavut provide a timeline for when they will be in compliance with Part D item 6.

**6. Four updated documents**

**Comment:**

The following 4 documents were to be submitted with the 2019 Annual Report:

- an updated Water Reservoir Operations and Maintenance Manual;
- a standalone Drainage / Seepage Monitoring and Management Plan;
- an updated Spill Contingency Plan; and
- an updated Quality Assurance/Quality Control Plan.

CIRNAC is unable to locate the Annual Reports for 2019, 2020, and 2021.

**Recommendation:**

(R-6) CIRNAC recommends the Government of Nunavut submit the 4 updated documents with the 2022 Annual Report, or provide reason for why this has not been done.

**7. Monitoring Program Stations PAN-4, PAN-5 and PAN-6**

**Comment:**

Part H item 3 of water licence 3AM-PAN1828 states the Licensee shall sample monthly at Monitoring Program Stations PAN-4 (run-off from sludge disposal area), PAN-5 (run-off from solid waste disposal facility) and PAN-6 (run-off from metal and hazardous waste storage area). The 2022 Annual Report has analytical results, collected on 14 July 2022 only, at Monitoring Program Stations PAN-4, PAN-5 and PAN-6.



**Recommendation:**

(R-7) CIRNAC recommends the Government of Nunavut submit the dates when flow observed discharge began and ended at each of Monitoring Program Stations PAN-4, PAN-5 and PAN-6, and provide reason for why only one analytical result was submitted for each station in 2022.