



Water Resources Division  
Resource Management Directorate  
Nunavut Regional Office  
P.O. Box 100  
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Your file - Votre référence  
3BM-YRB1621  
Our file - Notre référence  
GCDocs#98557488

November 4, 2021

Sylvia Ekelik  
Licencing Administrative Assistant  
Nunavut Water Board  
P.O. Box 119  
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E-mail: [licensing@nwb-oen.ca](mailto:licensing@nwb-oen.ca)

**Re: Crown-Indigenous Relations and Northern Affairs Canada's Review of Water  
Licence 3BM-YRB1621 Renewal Application by the Government of Nunavut –  
Department of Economic Development and Transportation for the Airport  
Sewage Lagoon, Resolute Bay**

Dear Ms. Ekelik,

Thank you for your October 5, 2021 invitation to review the above-referenced water licence renewal application.

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.

If there are any questions or concerns, please contact me at [david.zhong@rcaanc-cirnac.gc.ca](mailto:david.zhong@rcaanc-cirnac.gc.ca) or Andrew Keim at [andrew.keim@rcaanc-cirnac.gc.ca](mailto:andrew.keim@rcaanc-cirnac.gc.ca).

Sincerely,

David Zhong,  
Regulatory & Science Advisor



## **Technical Review Memorandum**

**Date:** November 4, 2021

**To:** Sylvia Ekelik, Licencing Administrative Assistant, Nunavut Water Board

**From:** David Zhong, Regulatory & Science Advisor, CIRNAC

**Subject:** Crown-Indigenous Relations and Northern Affairs Canada's Review of Water Licence 3BM-YRB1621 Renewal Application by the Government of Nunavut – Department of Economic Development and Transportation for the Airport Sewage Lagoon, Resolute Bay

**Region:** Qikiqtani

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### **A. BACKGROUND**

The Hamlet of Resolute Bay (Hamlet or Resolute) is located approximately 1,550 km northwest of Iqaluit on the south coast of Cornwallis Island on the Perry Channel, at the geographical coordinates 74° 43' 01" N and 94° 58' 10" W. The Hamlet has evolved into a gateway to the North. The Resolute Bay Airport is an important staging point for High Arctic research, tourism, and military activities.

There are about 22 buildings near the airport. Drinking water is trucked to the airport buildings. Wastewater produced in the buildings is regularly collected by sewage trucks and dumped into a nearby sewage lagoon. The sewage lagoon has an initial capacity of about 600 cubic meters and the total annual sewage production is about 5,500 cubic meters. As a result, this lagoon "overflows in winter and exfiltrates in summer." Sewage flows through a "three kilometer wide wetland prior to reaching the sea."

The Resolute Bay Airport facility has been operated by Government of Nunavut - Department of Economic Development and Transportation (GN-ED&T) under Water Licence 3BM-YRB1621, which will expire on December 15, 2021.

On October 5, 2021, the Nunavut Water Board provided notification of the renewal application of Water Licence 3BM-YRB1621 by GN-ED&T. 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*. A summary of the subjects of CIRNAC's comments and recommendations regarding the renewal application 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 are in Section C.



**Table 1: Summary of Comments and Recommendations**

| Recommendation Number | Subject                                        |
|-----------------------|------------------------------------------------|
| R-01                  | Closure and Reclamation Plan for Sewage Lagoon |
| R-02                  | Quantity of Water Usage and Quantity of Sewage |

## B. DOCUMENTS REVIEWED AND REFERENCED

The following table (Table 2) provides a list of the documents reviewed under the submission and reference during the review.

**Table 2: Documents Reviewed and Referenced**

| Document Title                                                                    | Author, File No., Rev., Date                                                               |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Application Water Licence Renewal                                                 | Bhabesh Roy, Government of Nunavut Community of Government Services, August 16, 2021       |
| Authorization Letter                                                              | Darrin Nichol, Government of Nunavut Department of Economic Development & Transportation   |
| Cover Letter Renewal                                                              | Bhabesh Roy, Government of Nunavut Community of Government Services, August 30, 2021       |
| Plan for Compliance of the Resolute Bay Airport Sewage Lagoon                     | Bhabesh Roy, Government of Nunavut Community of Government Services                        |
| Summary Inuktitut & English                                                       | Unknown                                                                                    |
| RB AP Sewage Lagoon WL                                                            | Bhabesh Roy, Government of Nunavut Community of Government Services, September, 2021       |
| Spill Contingency Plan of Resolute Airport Sewage Lagoon-Revised on Sep.29,2021   | Government of Nunavut Department of Economic Development & Transportation, September, 2021 |
| Resolute Bay Airport Sewage Lagoon Water Licence Renewal 2021 (Revised on Sep.30) | Bhabesh Roy, Government of Nunavut Community of Government Services, September 30, 2021    |
| Water Licence 3AM-RUT2035                                                         | Nunavut Water Board, January 29, 2021                                                      |



## C. RESULTS OF REVIEW

### 1. Closure and Reclamation Plan for Sewage Lagoon

#### **Comment:**

In the renewal application, the licensee indicated that *“No modification or rehabilitation or alteration of this facility was taken place during the current licence lifetime. The licensee is planning to renew this licence for the next 5 years starting from December 16, 2021 to December 15, 2026 on the existing terms of conditions”* and that *“No major rehabilitation has been planned. A new wastewater treatment Plant is under design and anticipated to be built in the town and commissioned around 2024. Once this plant is commissioned, the trucked sewage will be redirected into this plant and this lagoon will then be considered for abandonment and restoration.”*

It is clear that the sewage lagoon will be abandoned and restored once the wastewater treatment plant is commissioned. CIRNAC notes the absence of a closure and reclamation plan for the sewage lagoon in this renewal application.

#### **Recommendation:**

(R-01) CIRNAC recommends that a closure and reclamation plan for the sewage lagoon be submitted for review.

Ans. We are not ready yet to confirm a plan for A&R of this facility. The A&R Plan of this Sewage Lagoon is related to building the new WWTP whose business plan is under way at present. The Design of the new WWTP and A&R plan of the sewage lagoon will be done at the same time under the same RFP which is anticipated in 2022/2023.

### 2. Quantity of Water Usage and Quantity of Sewage

#### **Comment:**

CIRNAC understands that drinking water is trucked to the airport buildings from Char Lake, under Water Licence 3AM-RUT2035. Email exchanges between the representative of the licensee and Nunavut Water Board seem to suggest that *“the potable water will be taken from Char Lake and the quantity requested is 5,717,725 cubic meters annually.”* CIRNAC notes that Item 2 of Part D of Water Licence 3AM-RUT2035 stipulates that *“The annual quantity of Water used for all purposes from Char Lake shall not exceed two hundred and seventeen thousand (217,000) cubic metres per annum or as otherwise approved by the Board in writing”*, which is much less than the quantity of water required to be trucked to the airport buildings.

#### **Recommendation:**

(R-02) CIRNAC recommends that the licensee confirm or clarify the quantity of water to be trucked to the airport buildings annually and consequently, the volume of sewage generated and disposed to the sewage lagoon.



## C. RESULTS OF REVIEW

In 2020, total extraction volume was

Ans. Our record shows that Trucked Water delivered to Airport Buildings 3,866 cubic meters in 2020. Almost the same volume of sewage was collected and dumped into the Sewage Lagoon in 2020