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ECCC File: 6200 000 006/005  
6200 000 006/006  
NWB File: 3BM-RUT1520/ 3AM-RUT ----



March 16, 2020

via email at: [licensing@nwb-oen.ca](mailto:licensing@nwb-oen.ca)

Richard Dwyer  
Manager Licensing  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU X0B 1J0

Dear Richard Dwyer:

**RE: 3BM-RUT1520/3AM-RUT---- – Municipality of Resolute Bay – Type B/Type A Water Licence Renewal – Amendment Application**

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned Water License renewal-amendment application. You will find our comments included in this letter.

ECCC's specialist advice is based on our mandate pursuant to the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act*.

The following comments are provided:

**1. Airport Sewage Lagoon**

Reference(s)

- Emails between NWB and GN (February 2020) – Resolute Bay Utilidor System
- Executive Summary for Resolute Bay Water Licence 3BM-RUT1520

Comment

The executive summary provided by the Municipality of Resolute Bay (the Proponent) indicates that the airport sewage lagoon operates under a separate licence. However, in further emails provided in the submission, the NWB stated that the sewage lagoon is included in the same 3BM-RUT1520 licence that is currently up for renewal becoming 3AM-RUT----. The current application does not provide details on the airport sewage lagoon operations, monitoring, and overall management.



### ECCC Recommendation(s)

ECCC recommends the Proponent provide additional clarification on whether the airport sewage lagoon is included in the application, and if this lagoon is captured under the licence 3BM-RUT1520/3AM-RUT ----. Additionally, ECCC recommends that the Proponent provide details regarding the operations, monitoring, and overall management of the lagoon for the renewal application if the airport sewage lagoon is captured under the Water Licence.

## **2. Overflow from Airport Sewage Lagoon**

### Reference(s)

- Resolute Bay Wastewater Treatment Facility Site Selection Memo, January 20, 2020, EXP. Services.
- Annual Report for the Hamlet of Resolute Bay Utilidor 2019

### Comment

The site visit memo provided by the Proponent as part of the wastewater facility memo indicates that the wastewater lagoon at the airport has overflowed in the past, and is expected to overflow again in the future. The memo states that the lagoon is currently not meeting treatment requirements has overflowed/overtopped, and has been allowed to drain slowly over the land. This flow and drainage have formed puddles, and have eventually migrated 3 km to the sea.

The 2019 Annual Report makes no mention of overtopping, and Section v states that there were no unauthorized discharges during the year. There is no information provided in the 2019 Annual Report on monitoring of effluent quality from the overtopping lagoon, on monitoring of the quality or impacts to the receiving environment or on potential interim measures to prevent the lagoon from overtopping, even though the overtopping is acknowledged in the memo.

### ECCC Recommendation(s)

ECCC recommends

- The Proponent provide information on monitoring of effluent quality from the overtopping the airport lagoon, as well as on monitoring downstream of unintended discharges, in order to evaluate impacts to the receiving environment
- The Proponent Identify contingency measures to prevent the airport sewage lagoon from overtopping
- The Proponent include any overtopping from the airport sewage lagoon as unauthorized discharges, including identification of actions taken.

### 3. Wastewater Treatment Plan

#### Reference(s)

- Resolute Bay Wastewater Treatment Facility Schedule Update, January 2020
- Resolute Bay Wastewater Treatment Facility Site Selection Memo, January 20, 2020, EXP. Services.

#### Comment

The Water Licence Renewal Application indicates that construction of the new wastewater treatment facility will begin in 2021, with operation commencing in 2022. The various documents provided by the Proponent state that the utilidor system uses a large amount of bleed water prevent the system from freezing, with an estimated water to wastewater ratio of 20:1. In the site selection memo it was noted by the consultant that the large amount of flow through the system would be a challenge for any wastewater treatment plant. It is not clear how the Proponent intends to address potential issues associated with high flow. Overall, the renewal application did not provide any details on the proposed future wastewater treatment system, on the anticipated level of treatment, or on how they may reduce the need for bleed water such that the treatment system is able to function as intended.

#### ECCC Recommendation(s)

ECCC recommends:

- The Proponent provide details on the proposed wastewater treatment system, and that the final treatment design (including performance targets) should be submitted to the Board for approval
- The Proponent provide a discussion of potential measures that could be implemented to reduce overall volumes of bleed water required for operation of the Utilidor system.

### 4. Quality Control Samples

#### Reference(s)

- Quality Assurance/ Quality Control Plan (QA/QC) Hamlet of Resolute Bay Utilidor System, Resolute Bay, Nunavut, 2020

#### Comment

The updated QA/QC plan includes both field blanks and blind duplicates as QA/QC measures. These measures provide information on potential contamination during sample collection (field blank), and assesses sampling precision (duplicates). In order to create a robust QA/QC program, a trip blank should also still be included, in order to assess potential contamination of samples and improve overall QA/QC.

#### ECCC Recommendation(s)

ECCC recommends that trip blanks be included as part of the QA/QC program, in addition to the already proposed field blanks and duplicates

## 5. Fecal Coliforms

### Reference(s)

- Plan for Compliance Licence No. 3BM-RUT1012 (Utilidor System) March 4, 2020

### Comment

The existing licence, expiring March 2020, did not establish criteria for fecal coliforms. Instead, it required that the Proponent complete a site-specific study to determine a fecal coliform limit for the sewage disposal facility. The Proponent did not provide this study as part of the review package for the renewal application, and no recommended effluent quality criteria for fecal coliforms were proposed. This information will be required for the selection of an appropriate treatment system, and should be identified ahead of the wastewater treatment selection and planning process.

### ECCC Recommendation(s)

ECCC recommends that the Proponent provide a site-specific study on fecal coliforms for review as part of the water licence renewal.

## 6. Effluent Quality

### Reference(s)

- Executive Summary for Resolute Bay Water Licence 3BM-RUT1520
- Resolute Bay Wastewater Treatment Facility Site Selection Memo, January 20, 2020, EXP. Services
- Annual Report for the Hamlet of Resolute Bay Utilidor 2019

### Comment

The effluent quality at the point of release of the wastewater treatment system should be such that it complies with Section 36(3) of the *Fisheries Act*. Recognizing that the Proponent is working towards commissioning a water treatment plant, all effluent discharges must meet the *Fisheries Act* requirement that any deposits to waters frequented by fish be non-deleterious. ECCC acknowledges that the *Wastewater Systems Effluent Regulations* (WSER) are not in force in the North. However, ECCC note that they represent a standard of due diligence and guidance for best practice, until Northern regulations, currently under development, are completed and come into force.

### ECCC Recommendation(s)

ECCC recommends that the proponent should strive to meet or exceed the *Wastewater Systems Effluent Regulations* (WSER) for effluent quality at the end of the treatment system.

Specifically;

- Average carbonaceous biochemical oxygen demand (CBOD) due to the quantity of CBOD matter be less than or equal to 25 mg/L;
- Average concentration of suspended solids be less than or equal to 25 mg/L;

- Average concentration of total residual chlorine of less than or equal to 0.02 mg/L;
- Maximum concentration of un-ionized ammonia of less than 1.25 mg/L expressed as nitrogen (N), at 15°C ± 1°C; and
- Be non-acutely lethal effluent

ECCC recommends monitoring and sampling be aligned with the requirements of the WSER, even though the *Wastewater Systems Effluent Regulations* do not currently apply to the North.

## 7. Spill Contingency Plan and QA/QC Plan Errata

### Reference(s)

- Spill Contingency Plan
- Quality Assurance and Quality Control Plan (QA/QC)

### Comment

Both the Spill Contingency Plan and QA/QC Plan appear to have been adapted from the Pangnirtung plans. They still contain references relevant to Pangnirtung instead of to Resolute Bay.

### ECCC Recommendation(s)

ECCC recommends the proponent review the Spill Contingency Plan and QA/QC Plan to ensure that the plans include details relevant to Resolute Bay, and ensure that all Pangnirtung-specific details are removed.

If you need more information, please contact Eva Walker at (867) 669-4744 or [Eva.Walker@Canada.ca](mailto:Eva.Walker@Canada.ca).

Sincerely,

*[original signed by]*

Eva Walker  
Environmental Assessment Coordinator

Attachment(s):

cc: John Olyslager, Acting Head, Environmental Assessment North (NT and NU)