



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

Your file - Votre référence
3BM-YRB2126
Our file - Notre référence
GCDocs#146478375

May 06, 2026

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
E-mail: licensing@nwb-oen.ca

Re: Crown Indigenous Relations and Northern Affairs Canada's Response of Applicant Reply to comments on the Licence Renewal Application for the Resolute Bay Airport Sewage Lagoon, Type B Water Licence No. 3BM-YRB2126

Dear Richard,

Thank you for the April 30, 2026 invitation to review the reply of the referenced licence renewal application, submitted by the Nunavut Airports Division (Government of Nunavut) for Type B Water Licence No. 3BM-YRB2126.

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's technical comments in the attached Technical Review Memorandum.

If there are any questions or concerns, please contact me at (873) 800-5240 or Pauline.Firmin@rcaanc-cirnac.gc.ca or Andrew Keim at (867) 975-4550 or Andrew.Keim@rcaanc-cirnac.gc.ca.

Sincerely,

Pauline Firmin

Pauline Firmin, M. Sc,
Regional Coordinator

Technical Review Memorandum

Date: May 06, 2026

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

From: Pauline Firmin – Regional Coordinator, CIRNAC

Subject: Re: Crown Indigenous Relations and Northern Affairs Canada's Response of Applicant Reply to comments on the Licence Renewal Application for the Resolute Bay Airport Sewage Lagoon, Type B Water Licence No. 3BM-YRB2126

Region: ☐ Kitikmeot ☐ Kivalliq ☒ Qikiqtani

Table 1: Summary of Recommendations

Recommendation Number	Subject	Status
R-01	Over-capacity of the Resolute Bay Airport Sewage Lagoon	Not Resolved
R-02	Water Source Identification and YRB-1(a) Definition	Resolved
R-03	Inconsistent Identification and Location of Monitoring Stations	Not Resolved
R-04	Inconsistent Sampling Frequency	Resolved with Comment
R-05	Missing Effluent Quality Lab Results and Exceedances At Station YRB-3	Resolved with Comment
R-06	Missing results of the Sludge Monitoring Plan	Resolved
R-07	Inconsistent Wastewater Volume Estimates and Missing Waste Quantities	Not Resolved
R-08	Lack of Defined Actions for Spills in Proximity to Water Bodies	Not Resolved
R-09	Lack of Spill Prevention Measures	Resolved with Comment
R-10	Availability of the Material Safety Data Sheets	Not Resolved
R-11	Absence of Closure and Reclamation Plan	Resolved
R-12	Non-Compliance Identified by Applicant for the Disposal of Hazardous Waste, Waste Oil and Non-combustible Waste	Not Resolved
R-13	Inconsistencies About the Number of Lagoon Cells	Resolved

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
260415 3BM-YRB2126 Updated Responses to CIRNAC comments, April 2026-ILAE	Nunavut Airports Division, April 2026
Revised Operation and Maintenance Manual for the Sewage Lagoon of the Resolute Bay Airport	Nunavut Airports Division, Revised April 2026
Hamlet of Resolute Bay Airport Sewage Lagoon Quality Assurance/Quality Control Plan	Nunavut Airports Division, Revised April 2026
Spill Contingency Plan - Resolute Bay Airport Existing Sewage Lagoon	Nunavut Airports Division, Revised April 2026

C. RESULTS OF REVIEW

1. Over-capacity of the Resolute Bay Airport sewage lagoon

Comment:

CIRNAC notes that several documents describe the Resolute Bay Airport Sewage Lagoon as consistently operating at above capacity, with an estimated storage capacity of 600 m³ and an annual sewage volume of approximately 5,500 m³ (Technical Summary; OM Manual, Section 2.1.1). Both overflow events and sewage exfiltration through the berm have been reported (Technical Summary; 2025 Annual Report). Despite these observations, the renewal application indicates that the lagoon will continue operating under the current approach—limited to routine berm maintenance to sustain structural integrity—until the proposed wastewater treatment plant becomes operational around 2031 (Technical Summary; OM Manual).

Given the length of time the lagoon has been over capacity and the extended timeline before the new treatment plant is anticipated to come online, additional measure such as sludge removal, which could affect available storage volume, could be considered.

Recommendation:

(R-01) CIRNAC recommends that the applicant provide information on potential interim measures, including the feasibility of sludge removal, that have been evaluated to support continued lagoon operation until the new wastewater treatment plant becomes operational.

Proponent Response:

The sludge will be kept on the bed of the lagoon. The sewage will be pumped out from the lagoon cell to the land once reaches within the free board (1m) level to maintain the structural integrity of the Lagoon. It is noted that the estimated storage capacity is about 6000 m³. The effluent will be naturally treated in the vegetated sandy wetland about 3 km wide.

The sludge removal in the remote Northern Community is not in practice in Nunavut because it is too costly. We will make sure decanting the lagoon once or even twice in a year to increase capacity as per the item 4 of Part D of the existing WL.

Response to Reply:

CIRNAC acknowledges that the proponent intends to manage the sewage lagoon capacity through periodic decantation, as permitted under the existing water licence, until the wastewater treatment plant becomes operational.

However, CIRNAC remains concerned that exceedances of licensed parameters have been observed at certain monitoring stations, coupled with the limited monitoring data provided. This indicates potential environmental risks of decantation to the wetland that

cannot be fully evaluated. These observations underscore the importance of fully implementing and maintaining monitoring and reporting requirements under the licence to demonstrate that lagoon operations and decanting activities are adequately controlled and protective of the receiving environment during the interim period.

In addition, CIRNAC recommends that the proponent submit a Spill Report in accordance with part F item 5 and 6 in the Water Licence if a decantation of the sewage lagoon lead to an exceedance in parameters indicated in part D item 2 of the Water Licence at monitoring stations YRB-3 and YRB-4 and to continue to advise the inspector at least ten days before decanting as per Part D item 4 of the water licence.

Ans: Advanced planning and logistical preparation are required for de-sludging operations at the lagoon. As the current season is already approaching summer, it is not feasible to undertake de-sludging activities this year. GN-TIN is currently in discussions with the local contractor, ATCO, regarding potential de-sludging operations during the 2027/28 period in order to increase the lagoon's treatment and storage capacity to meet future operational demands.

In the interim, GN-TIN plans to implement annual monitoring of both lagoon sludge quality and sewage effluent quality through laboratory testing. The analytical results will be documented and presented in the 2026 Annual Report.

Furthermore, the lagoon decanting procedure will be carried out in close consultation with the CIRNAC Inspector to ensure compliance with regulatory requirements. Spill reporting procedures will be initiated immediately if any monitored parameter exceeds the allowable regulatory limits.

3. Inconsistent Identification and Location of Monitoring Stations

Comment:

CIRNAC notes multiple inconsistencies regarding the identification and location of monitoring stations YRB-1(b), YRB-2, YRB-3, and YRB-4 across the submitted documents.

- In the QA/QC Plan (Section 2.2.1) and in the Spill Control Plan (Figure 4), stations YRB-1(b), YRB-2, YRB-3, and YRB-4 are described in a manner consistent with Water Licence 3BM-YRB2126, Part H. However, the accompanying table lists these monitoring stations without GPS coordinates and marks them as "TBD," leaving their actual locations undefined.
- In QA/QC Plan Appendix D, the descriptions of YRB-2 and YRB-3 contradict the earlier definitions in the same document and those in the water licence, and

the appendix does not reference YRB-1(b) or YRB-4.

- In the Revised Operation and Maintenance Manual, the descriptions of YRB-2 and YRB-3 in Table 2 differ from the identifications provided in the QA/QC Plan, the Spill Control Plan, and the water licence. The sampling-stations map immediately below the table also contradicts the table's information. The table likewise does not mention YRB-1(b) or YRB-4.

These inconsistencies make it unclear which station is located where for effluent monitoring purposes and what is being tested at each stations.

Recommendation:

(R-03) CIRNAC recommends the applicant provide GPS coordinates and a single, consistent set of definitions for stations YRB-1(b), YRB-2, YRB-3, and YRB-4, and ensure that all monitoring-related documents reference these stations in a uniform manner consistent with the water licence and to insure that all relevant parameters are being tested for at each station.

Proponent Response:

The GPS coordinates are shown in the lab results. Samples are attempted to collect from all the possible stations where sampling signs are established.

The Coordinates of the sampling points are as follows:

Strip lake is still shown in the existing WL. The new source is Char Lake and raw water sampling point1(a) is located at Charlake, Request to correct in the new Licence.

Response to Reply:

CIRNAC recognises and thanks the applicant for the corrections made to re-issued management plans, which ensure clarity and limit confusion. However, CIRNAC has noticed a few errors remaining in the documentation re-submitted:

- Quality Assurance/Quality Control Plan Appendix B and Spill Contingency Plan Figure 4 identifies YRB-1(b) as YRB-1(a).
- Quality Assurance/Quality Control Plan Appendix D identifies YRB-3 as the first point of discharge of sewage and YRB-2 as the point of truck discharge.

CIRNAC recommends that the applicant ensure that all stations are correctly identified in all documentation.

Ans: The above-noted errors in the QA/QC Plan, O&M Plan, and SC Plan have been corrected, and the revised versions are attached for review.

The monitoring station descriptions have been updated as follows:

- **YRB-1(a):** Raw water sampling location at Char Lake.
- **YRB-1(b):** First sewage effluent sampling location within the wetland, immediately downstream of the lagoon discharge point.
- **YRB-2:** Second sewage effluent sampling location within the wetland.

- **YRB-3:** Third sewage effluent sampling location within the wetland.
- **YRB-4:** Fourth and final sewage effluent sampling location within the wetland, located at the final discharge point downstream

4. Inconsistent Sampling frequency

Comment:

CIRNAC notes several inconsistencies in how sampling frequencies are described for the monitoring stations across the submitted documents:

- In the Operation and Maintenance Manual, Section 3.4.4 states that YRB-2 and YRB-3 are sampled three times per summer, with no mention of sampling at YRB-1(a), YRB-1(b), or YRB-4.
- In the QA/QC Plan, Section 2.2.3.1 indicates that YRB-1, YRB-2, and YRB-3 are sampled monthly from May to August, while Appendix D of the same plan refers only to sampling at YRB-2 and YRB-3.
- In the 2025 Annual Report, Section v notes that sampling was conducted at stations 1b, 2, 3, and 4 during the summer and also during winter overflow conditions.

These differing descriptions make it unclear which sampling frequencies reflect the current monitoring program and if sampling during winter overflow is taking place.

Recommendation:

(R-04) CIRNAC recommends that the applicant clarify the current sampling frequencies for each monitoring station and consolidate these into a single, consistent schedule that aligns with the requirements of the water licence part H section 1, to insure that all monitoring and testing stations are in compliance, and is reflected consistently across all documents.

Proponent Response:

Agreed. But due to lab location, weather sensitivity and flight cancellation , flight delays and connectivity with the next flight from Iqaluit to Ottawa, sometimes it is difficult to reach the samples to the lab on schedule and as a result the samples get spoiled. We are expecting a better sampling program established from this summer.

We will try to follow the frequency of sampling as described in item 1 of Part H of the Water licence.

Response to Reply:

CIRNAC considers this comment resolved with comment. CIRNAC understands that several factors bring difficulties in insuring that samples are sent in a timely manner but stresses the importance of following the monitoring frequency and reporting as outlined by the licence. This is especially true considering that the state of the sewage lagoon is at over-capacity (see comment 1) and the planned decantation into the receiving environment to increase capacity.

Ans: GN-TIN has retained a qualified technical professional to oversee the efficient operation of the lagoon system, including monitoring and sampling in accordance with the Water Licence requirements, preparation of annual reports, and overall regulatory compliance activities to ensure the Water Licence remains in good standing..

5. Missing Effluent Quality Lab Results and Exceedances At Station YRB-3

Comment:

The 2025 Annual Report includes analytical results for stations YRB-3 and YRB-4, which have effluent quality limits identified under the previously issued Water Licence 3BM-YRB2126. The September 2025 dataset shows that effluent at monitoring station YRB-3 exceeded effluent quality limits for Total Suspended Solids (TSS), and that not all required parameters, specifically Fecal Coliforms and Oil and Grease were reported for either YRB-3 or YRB-4, limiting the ability to evaluate effluent quality and potential risks. There was also no mention of if a spill report was filed following the exceedance of effluent quality limits at station YRB-3.

CIRNAC also observes that the present submission do not include monitoring results for other sampling events in 2025. According to water licence 3BM-YRB2126 YRB-1(b) and YRB-2 part H-1 YRB-1(b) and YRB-2 should be tested monthly during period of flow. The monitoring results for 2023 and 2024 are indicated as “not available” in the 2023 and 2024 annual reports. All data and information required by the monitoring program should be included in the annual reports, as indicated in the water licence 3BM-YRB2126 part H-10.

Recommendation:

(R-05) CIRNAC recommends that the applicant outline any measures that have been implemented or are planned in response to the effluent exceedances observed at YRB-3, including filling a spill report to the 24-Hour Spill Line and incomplete parameter reporting for YRB-3 and YRB-4.

CIRNAC recommends that any sampling and monitoring data at sampling stations YRB-1(a), YRB-1(b), YRB-2, YRB-3 and YRB-4 not included in the present application or the 2024 and 2023 annual reports be provided and outline whether any steps that have been taken to improve the consistency of annual sampling and reporting.

Proponent Response:

Airport Division of TIN owns this facility, and the third-party contractors ATCO uses the facility without any responsibility. TIN has trained a local guy for sampling purposes and plan to retain an external skilled person for Annual reporting in the coming years. We will be very careful to follow the spill reporting requirement as and when required during the new licence life time.

Response to Reply:

CIRNAC notes that it is still the applicants' responsibility to ensure that monitoring takes place at the required frequency, provide spill reports, and to uphold all other responsibilities under the licence. CIRNAC understands that third party entities may have used the facility; however, it does not absolve the applicant from its responsibilities under the licence. CIRNAC suggests talking with these third party entities and coming up with a plan to ensure compliance with the licence. CIRNAC looks forward to seeing improvements with the sampling requirements thanks to the new local hire and any other steps the applicant feels would aid in ensuring compliance with the licence.

Ans. Thanks. GN-TIN will make every reasonable effort to operate and maintain the lagoon system to a high standard and to ensure compliance with all conditions of the Water Licence. As the Licensee and Client, GN-TIN has retained the local contractor, ATCO, to carry out lagoon maintenance activities and lagoon decanting operations under the supervision and direction of GN-TIN. GN-TIN will also conduct monitoring and sampling in accordance with the Water Licence requirements, undertake spill reporting when required, and prepare and submit annual reports within the prescribed timelines.

7. Inconsistent Wastewater Volume Estimates and Missing Waste Quantities**Comment:**

CIRNAC notes that the Operation and Maintenance Manual (Section 2.2) estimates wastewater production at roughly 5M litres, without indicating a time measure. The 2025 Annual Report (page 1) reports an estimate of 6,427,533 litres of sewage for that year, using an approximation based on the volume of freshwater consumed. As per water licence 3BM-YRB2126, section B-4, the waste produced must be measured using a *“flow meters or other such devices, or implement suitable methods required for the measuring of Waste discharged”*.

CIRNAC also notes that Block 15 of the application does not include sewage or sludge quantities, as is needed for compliance with the current water licence. According to the 3BM-YRB2126, section H-8, *“The Licensee shall measure and record in cubic metres the monthly and annual quantities of Effluent discharged at Monitoring Program Station Number YRB-4 into the receiving environment.”* and section H-9, *“The Licensee shall measure and record in cubic metres, the annual quantities of Sewage solids removed from the Sewage Disposal Facility.”*

Recommendation:

(R-07) CIRNAC recommends that the applicant clarify which wastewater figures represent current operating conditions and report that data in cubic meters in a consistent manner across documentation. CIRNAC recommends that the applicant provide precise quantity of sewage and sludge produced omitted from Block 15, to ensure compliance

with the current water licence.

Proponent Response:

The sewage truck has no meter to measure the discharge volume. Whereas the treated water volume is recorded during distribution to each consumer. The sewage volume is considered equal volume to the volume of distributed water treated by trucks. In 2025, total water consumption /delivered volume was 6,427,533 litres or 6,427.533 cubic meters.

The truck sewage discharged into the lagoon in 2025 is also considered as 6,427,533 litres or 6,427.533 cubic meters.

We do not have any method to measure the sludge volume. The research shows that one Cubic meter of Municipal sewage typically produces about 0.2 to 0.3 kg of dry sludge, Though the total wet sludge is over 99% water with raw sludge usually 2 to 5% solids, comprising organic matter, microorganisms, and inorganic materials.

The wastewater volume depends on the water consumption Volume. It varies from the year to year depending on the population. We collect the monthly water volume recorded by the local contractor ATCO. In average, this volume is roughly 6,500 cubic meters. This procedure will be continued.

Response to Reply:

CIRNAC restate their concern that the applicant need to provide precise quantity of sewage and sludge produced, to ensure compliance with the current water licence and recommends that the proponent implement an approach to measure independently the quantity of sewage waste discharged. Estimate of discharge volume do not account for water releases to the environment and/or water use not associated with sewage production.

Ans: In a mechanical wastewater treatment plant, the volumes of raw wastewater, sludge, and treated effluent are typically measured automatically through an integrated metering system. GN-TIN is currently evaluating the installation of a flow meter on the raw sewage discharge line to accurately measure the daily volume of raw wastewater discharged into the lagoon. In addition, a second flow meter is being considered for installation on the effluent discharge line during lagoon decanting operations to measure the volume of treated wastewater effluent pumped from the lagoon into the wetland.

The overall wastewater balance may be represented by the following relationship:

Total Raw Wastewater Received (X) = Sludge Volume (Y) + Total Effluent Discharged (Z)

Until such metering systems are installed and fully operational, GN-TIN will use the following interim assumption for reporting purposes:

Total Treated Water Distributed = Total Raw Wastewater Received

During this interim period, GN-TIN will provide estimated quantities for raw wastewater volume, sludge volume, and treated effluent volume in the 2026 Annual Report, based on best practices outlined in the CSA standard for the design and operation of northern lagoons, CSA Group CSA W203.

8. Lack of Defined Actions for Spills in Proximity to Water Bodies

Comment:

CIRNAC notes that the Spill Contingency Plan (Section 6.5) provides only a brief statement on how to respond to spills “in close proximity to a water body,” without outlining clear, actionable steps. Instead, the plan references the containment procedures in “Section 4.9.2,” but no such section exists in the document.

Similarly, the Spill Contingency Plan (Section 7.3) and the Operation and Maintenance Manual (Section 5.2) reference section 3 of the Spill Contingency Plan to access the procedures in place to contain spills. Section 3 of the Spill Contingency Plan contains the community environmental policies and not procedure to contain spills.

Recommendation:

(R-08) CIRNAC recommends that the applicant provide explicit, actionable procedures for responding to spills in proximity to waterbodies and insure that the referenced sections correspond to existing sections of the within the documentation.

Proponent Response:

These are the steps:

1. Identify the type of spill
2. Quantify the volume
3. Report on spilling hot line
4. Protect the area from the Public
5. Engage to clean up
6. Monthly report to spill hot line until cleanup is satisfactorily completed.

Yes, will be followed .

Response to Reply:

CIRNAC thanks the applicant for outlining the steps in their response to spills in proximity to waterbodies (section 6.5) and suggests that the SPC plan be corrected to either contain these steps in section 6.5 or correct the reference in section 6.5 to the correct section of the Spill Contingency Plan that contains the appropriate steps. CIRNAC notes that the response needs to include action steps for the cleanup. For example, these steps could include things like digging a trench with a shovel to ensure that the spill is more contained and picking up the spill using absorbent pads, as well as details about where the

contaminated materials will go.

Ans: Sewage overflow is considered an unauthorized discharge and shall be treated as a spill incident. Any overflow effluent would flow over the vegetated sandy surface of the approximately 3 km long wetland, where it would naturally infiltrate and be absorbed into the soil before reaching the seawater.

Due to the remote terrain and sensitive wetland conditions, the use of heavy equipment to excavate containment trenches is neither practical nor environmentally appropriate. However, where necessary, shallow temporary trenches may be excavated manually using shovels to help retain and slow the flow, allowing the effluent to be naturally absorbed into the surrounding soil.

The Spill Contingency Plan (SCP) has been revised to address these concerns, and the updated version is attached for review.

9. Lack of Spill Prevention Measures

Comment:

CIRNAC notes that the Spill Contingency Plan (Section 6.6) states that no formal preventative measures are in place to reduce spill risks.

Recommendation:

(R-09) CIRNAC recommends that the applicant outline any spill-prevention practices currently used on site and incorporate them into the Spill Contingency Plan to better describe how spill risks are proactively managed.

Proponent Response:

TIN has been operating this lagoon for long and is expecting to abandon it as soon as the new WWTP is built and in operation. Therefore, TIN did not plan for a large scale SCP. However, TIN is alert and considers reducing spill risks in any unforeseen Circumstances until this system is in operation.

Response to Reply:

CIRNAC recommends that the next iteration of the Spill Contingency Plan should outline any spill-prevention practices to better describe how spill risks are proactively managed.

Ans: A spill report will be submitted to the Spill Hotline immediately upon identification or suspicion of any spill incident. In the event of a sewage spill, frequent sampling and monitoring will be carried out to assess and track the wastewater quality and potential

environmental impacts. Any fuel or oil spills will be managed in accordance with the procedures outlined in the Spill Contingency Plan (SCP).

Appropriate spill response and cleanup procedures will be implemented based on the nature and type of the spill, and all reporting requirements will be completed accordingly.

To ensure a timely and effective response, local staff has been trained to take immediate action whenever required.

10. Availability of the Material Safety Data Sheet

Comment:

CIRNAC notes that the Spill Contingency Plan does not include Material Safety Data Sheets (MSDS), and does not indicate whether MSDS are printed and stored alongside the Spill Contingency Plan copies kept in the GN-ED&T Regional Airport Manager's Office or the Hamlet Office, as referenced in Section 6.7 of the plan.

Recommendation:

(R-10) CIRNAC recommends that the applicant confirm whether MSDS are kept with the printed Spill Contingency Plan for use during spill response.

Proponent Response:

This lagoon is located next to the Airport. Also, the third-party operator ATCO has a huge operation in the town. TIN might get help from either of these two sources whatever they need for MSDS. The lagoon is an open operation in remote areas and MSDS cannot be kept there.

Response to Reply:

CIRNAC recommends that the appropriate MSDS should be located in the same location as the Spill Contingency Plan to make it easily accessible in case of a spill.

Ans: Yes, We will. MADS is expected to be used if, as and when required.

12. Non-Compliance Identified by Applicant for the Disposal of Hazardous Waste, Waste Oil and Non-combustible Waste

Comment:

CIRNAC notes that in the Plan for Compliance (Section D-7), the applicant identifies being in non-compliance with requirements for the disposal of hazardous waste, waste oil, and non-combustible waste, and indicates that these materials will be backhauled to the south in the future. However, no timeline is provided for when this backhauling is expected to begin, and there is no information describing current practices for managing these wastes in the interim.

Recommendation:

(R-12) CIRNAC recommend that the applicant provide clarification on the current measures in place for handling hazardous waste, waste oil, and non-combustible waste, as well as any anticipated timelines for implementing the planned backhauling described in the Plan for Compliance.

Proponent Response:

TIN will combine with their local airport operation and deal with the situation diligently if, when and as required. This is a very small operation. We will follow the standard Northern practice and procedure of disposal of hazardous wastes to the south.

Response to Reply:

CIRNAC notes that the applicant has already stated that they are non-compliant with requirements for the disposal of hazardous waste, waste oil, and non-combustible waste, and restates its recommendations that the applicant provide clarification on the current measures in place for handling hazardous waste, waste oil, and noncombustible waste, as well as any anticipated timelines for implementing the planned backhauling described in the Plan for Compliance.

Ans: The Licensee has established a plan to collect and store hazardous waste, waste oil, and non-combustible waste materials in empty fuel drums. These drums will be properly sealed, stored safely, and transported to southern disposal facilities using the annual summer sealift service, as required.

GN-TIN also operates the Resolute Airport and, when necessary, will prioritize the transportation and disposal of these waste materials as part of its operational and environmental management responsibilities.

The scope of works of the local Contractor ATCO for the maintenance of the lagoon is attached.

Scope of Work for ATCO Frontec Inc.

1. Decanting of the Sewage Lagoon

ATCO Frontec Inc. shall provide and operate a suitable diesel-powered pump complete with two (2) flexible hoses, each approximately 100 feet long and 4 inches in diameter, for the purpose of decanting the sewage lagoon.

The sewage lagoon shall be pumped down until fully emptied under the supervision of the GN-TIN consultant and local staff at site.

Sewage effluent samples will be collected by GN-TIN local staff, with support from the GN-TIN consultant, at the following stages of the decanting operation:

- At the beginning of decanting;
- Midway through decanting; and
- At the completion of decanting.

2. Installation of Flow Meters and Monitoring Requirements

(a) Raw Sewage Discharge Flow Meter

A flow meter shall be installed on the sewage discharge line to measure and record the volume of raw sewage being discharged into the sewage lagoon.

ATCO shall maintain records of sewage volumes on a daily, monthly, and annual basis and provide this information to GN-TIN upon request.

(b) Treated Effluent Discharge Flow Meter

A separate flow meter shall be installed on the treated sewage effluent discharge line to measure and record the volume of treated effluent pumped from the lagoon to the wetland during the decanting period.

Reporting Requirements

By December 31 of each calendar year, ATCO shall provide GN-TIN with the following information in Excel format:

1. A summary of the volume of treated water distributed by water truck to facilities not connected to the town utilidor system, reported on a daily, monthly, and annual basis;
2. A summary of the volume of raw sewage discharged into the sewage lagoon, reported on a daily, monthly, and annual basis; and

3. A summary of the volume of treated sewage effluent pumped from the lagoon and discharged to the wetland during the decanting period, reported on a daily, monthly, and annual basis.

3. Installation of Sampling Signage

GN-TIN will provide five (5) sampling signs for installation by ATCO under the direction of the GN-TIN consultant at site.

The signs shall be installed at the following locations, including GPS coordinates for each location:

- **YRB-1(a):** Char Lake sampling location;
- **YRB-1(b):** Initial treated sewage effluent discharge point within the wetland;
- **YRB-2:** Second sewage effluent sampling point within the wetland;
- **YRB-3:** Third sewage effluent sampling point within the wetland; and
- **YRB-4:** Fourth sewage effluent sampling point within the wetland.

4. Repair of Sewage Lagoon Berms

Raw sewage trucks currently discharge sewage at two separate locations along the sewage lagoon berms. The berm slopes at both discharge locations have experienced significant erosion and deterioration and require urgent repair.

ATCO shall carry out the following repair work:

- Patch and restore the damaged berm slopes using ½-inch downgraded crushed stone or gravel;
- Compact the repair material to match the existing berm slopes and grades;
- Install a suitably sized scrap steel plate or section of corrugated steel culvert at each discharge location to protect the berm slopes from further erosion caused by sewage truck discharges; and
- Source the required scrap steel materials, where feasible, from the nearby metal disposal area.

All repair work shall be carried out under the supervision of GN-TIN local staff and the GN-TIN consultant at site.

The field operation is anticipated to require approximately seven (7) days while the GN-TIN consultant is present at site. The final work schedule shall be coordinated and confirmed with ATCO once all required materials and equipment are available at the site.

