



Final Written Submission

Municipality of Igloolik Application for Type A Water Licence
3AM-IGL----

October 29, 2020





EXECUTIVE SUMMARY

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) has participated in every stage of the review for the municipal water licence application for the Municipality of Igloolik, which included a completeness review, a technical review, a technical meeting, and a pre-hearing conference.

The application was submitted by the Government of Nunavut Community and Government Services on behalf of the Municipality of Igloolik. The application is for dual renewal and amendment of Type B Water Licence No. 3BM-IGL1520 to Type “A” Water licence 3AM-IGL----. The licence permits Municipal Undertakings such as potable water withdrawals and storage, operation of truck fill stations, wastewater collection and treatment, and the operation of waste management sites. The application proposes a new solid waste management facility, and is considered under type “A” due to the increased storage capacity of the water reservoir in 2016.

During the technical review, topics discussed were:

1. Unmet Licence Conditions (Hazardous Leachates)
2. Operational Procedures in the Operation and Maintenance Manual Volume I
3. Upgrades and Updates of Operation and Maintenance Manual Volume I
4. Filter Strip Wetland Rehabilitation
5. Health and Safety
6. Spill Contingency Plan
7. Geothermal Monitoring
8. Water Flow Meters
9. Types of Waste Approved in Licence
10. Information Requests Not Yet Provided

Most of the issues have been resolved at the Technical Meeting and by submissions made by the Government of Nunavut Community and Government Services following the Pre-Hearing Conference. Our outstanding issues relate to:

1. Including additional information in Operation and Maintenance Manuals, the Spill Contingency Plan, and Construction Summary Reports; and
2. Measuring wastewater flow volumes.





RÉSUMÉ

Relations Couronne-Autochtones et Affaires du Nord Canada (RCAANC) a participé à chaque étape de l'examen de la demande de permis d'utilisation des eaux municipales pour la municipalité d'Igloolik, ce qui comprenait un examen de l'exhaustivité, un examen technique, une séance technique et une conférence préparatoire à l'audience.

La demande a été présentée par les Services communautaires et gouvernementaux du gouvernement du Nunavut au nom de la municipalité d'Igloolik. La demande vise le renouvellement double et la modification du permis d'utilisation des eaux, passant du type B n° 3BM-IGL1520 au type A 3AM-IGL-----. Le permis autorise des projets municipaux comme les prélèvements et le stockage d'eau potable, l'exploitation de postes de remplissage de camions, la collecte et le traitement des eaux usées et l'exploitation de sites de gestion des déchets. La demande, qui a pour objet un projet d'installation de gestion des déchets solides, est examinée au titre du « type A » en raison de l'augmentation de la capacité de stockage du réservoir d'eau en 2016.

Les sujets suivants ont été abordés dans le cadre de l'examen technique :

1. Conditions du permis non satisfaites (lixiviats dangereux)
2. Procédures opérationnelles du manuel de fonctionnement et d'entretien, volume I
3. Mises à niveau et mises à jour du manuel de fonctionnement et d'entretien, volume I
4. Remise en état des terres humides/bandes filtrantes
5. Santé et sécurité
6. Plan d'urgence en cas de déversement
7. Surveillance géothermique
8. Débitmètres
9. Types de déchets approuvés en vertu du permis
10. Renseignements demandés non encore fournis

La plupart des enjeux ont été réglés lors de la séance technique et dans le cadre des mémoires présentés par les Services communautaires et gouvernementaux du gouvernement du Nunavut à la suite de la conférence préparatoire à l'audience. Nos questions en suspens concernent ce qui suit :

1. l'inclusion des renseignements supplémentaires dans le manuel de fonctionnement et d'entretien, le plan d'urgence en cas de déversement et les rapports de construction sommaires;
2. la mesure du débit des eaux usées.



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A. INTRODUCTION

The Municipality of Igloolik, located in the Qikiqtani Region of Nunavut, currently holds a Type B Water Licence, No. 3BM-IGL1520, which expires March 30, 2020. This licence allows for Municipal Undertakings and covers activities regarding potable water withdrawals from the primary water source of South Lake, for over-winter storage of potable water in the reservoir, for the operation of truck fill stations, for wastewater collection and treatment, and for the operation of waste management sites. On February 16, 2016 the Nunavut Water Board (NWB) approved Amendment No. 1 to licence No. 3BM-IGL1520 for the expansion and rehabilitation of the Sewage Lagoon Facility.

On September 1, 2017 the NWB approved Amendment No. 2 to licence No. 3BM-IGL1520 for the expansion of an existing potable water supply reservoir from 79,000 m³ to 102,800 m³. The actual volume of the reservoir upon completion, according to the 2019 Annual Report (Annual Report, 2019), is 126,440m³. Amendment No. 2 also included the replacement of an intake line that transmits water from the Municipality's primary water source, South Lake, to the Municipality's water supply reservoir, the construction of a new truck-fill station, and the inclusion of Fish Lake as an alternative water source to the scope of the Existing Licence. The cover letter attached to Amendment No. 2 to Water Licence 3BM-IGL1520 (Letter to Shawn Stuckey and Bhabesh Roy, 2016) explains on page 3 the reason for adding Fish Lake as an alternate water source and for increasing the storage capacity of the reservoir:

Details included in the Application to amend the Existing Licence indicate that in 2015 the Hamlet experienced a shortage in the reservoir's over-winter water storage due to anoxic conditions at the South Lake water source. To protect the public's safety, the Government of Nunavut – Department of Health (GN-DOH) advised that use of the South Lake water source should be temporarily discontinued. The Hamlet accepted the GN-DOH advice, and it decided to use Fish Lake as its water supply source until the integrity of the South Lake source was restored.

The Hamlet indicated in its Application that to minimize the possibility of similar shortages in the future, it is proposing, as stated above, to expand the reservoir's annual over-winter storage capacity from 79,000 m³ to 102,800 m³ as well as upgrade some of the other structures/equipment associated with the Water Supply Facilities.

On January 31, 2020, on behalf of the Municipality of Igloolik, the Government of Nunavut Community and Government Services (GN-CGS) applied to the NWB to renew the Type B licence for a 5 year term. GN-CGS provided supplemental information on February 25, February 26, and March 2, 2020, to also amend the Type B licence to a Type A licence, 3AM-IGL---, and to extend the term to 10 years. As outlined in Schedule 2 of the *Nunavut Waters Regulations*, a Type "A" water licence is required for the storage of more than 60,000 m³ of water and/or the use of at least 300 m³ of water





per day. According to the Cover Letter attached to Amendment No. 2 to Water Licence 3BM-IGL1520 (Letter to Shawn Stuckey and Bhabesh Roy, 2016):

It should be noted that the Board did not apply [the Type “A”] requirement at the time the Existing Licence was issued due to a number of factors including the nature of the storage facility involved (the Regulations are based on storage utilizing dams or dikes – Column 2, Item 3 of Schedule 2) and the fact that the Hamlet’s direct water usage from the source or its reservoir did not exceed the threshold outlined in Schedule 2 of the Regulations. The Licensee is advised, however, that if there is any proposed increase in direct source water use related to the Existing Licence in future, the associated renewal or amendment application for this potential increase in use may potentially be treated as a Type “A” application and processed in accordance with the relevant thresholds established in the Regulations.

CIRNAC provided comments, information requests, and recommendations pertaining to both the renewal and the amendment to Water Licence 3BM-IGL1520 on March 24, 2020. These can be found in Table 1.

Table 1: Summary of Information Requests (IR-) and Preliminary Recommendations (R-)

IR or R	Subject
R-01	As-Built Drawings
R-02, R-03	Scope of Licence to Include Roads Management and Watercourse Crossings
IR-01	Inclusion of Items from Licence Amendments in Compliance Plan
IR-02	Operation and Maintenance Manual for the Water Supply System
IR-03, IR-04	As-Built Drawings
IR-05	Consolidation and Storage of Hazardous Waste
IR-06	Data from the Monitoring Program

GN-CGS, on behalf of the Municipality of Igloolik, responded to information requests on April 17, 2020 indicating that most of the information requested will not be made available until travel restrictions are lifted in Nunavut. CIRNAC recommended that the documents be made available at the technical review stage for review of the information prior to the Public Hearing.

On June 12, 2020, CIRNAC provided technical review comments to the NWB. GN-CGS replied to intervenor technical review comments on June 30, 2020. The NWB held a Technical Meeting and Pre-Hearing Conference (PHC) by teleconference on July 21-22, 2020. The majority of CIRNAC concerns were resolved at the Technical Meeting. GN-CGS made a list of commitments at the PHC which tentatively resolved the remaining CIRNAC concerns. These commitments are recorded in Appendix D of the 3AM-IGL----





PHC Decision Report (NWB, 2020). On September 30, 2020, CIRNAC received the commitments made by GN-CGS in the PHC.

A summary of the subjects of recommendations made by CIRNAC on June 12, 2020, in the Technical review, and their current resolution status, can be found in Table 2. A complete list of documents reviewed can be found in Table 3, under Section B. Detailed technical review comments, resolutions, and further recommendations can be found in Section C. A summary of unresolved and follow-up recommendations can be found in Section D. References can be found in Section E.

Table 2: Summary of Recommendations and Resolution Status

Subject	Recommendation	Resolution Status
1. Unmet Licence Conditions	R-01	Resolved
	R-02	Resolved
2. Operational Procedures in the Operation and Maintenance Manual Volume I	R-03	Resolved
3. Upgrades and Updates of Operation and Maintenance Manual Volume I	R-04	Resolved
	R-05	Partially Resolved
	R-06	Partially Resolved
4. Filter Strip Wetland Rehabilitation	R-07	Resolved
5. Health and Safety	R-08	Resolved
6. Spill Contingency Plan	R-09	Partially Resolved
7. Geothermal Monitoring	R-10	Resolved
	R-11	Resolved
8. Water Flow Meters	R-12	Partially Resolved
9. Types of Waste Approved in Licence	R-13	Resolved
10. Information Requests Not Yet Provided	R-14	Resolved



**B. DOCUMENTS REVIEWED**

The following table (Table 3) provides a summary of the documents reviewed under the Application Package for Renewal of 3BM-IGL1520 and the Supplemental Information Package for Amendment of 3AM-IGL----. Table 4 provides a summary of the documents reviewed as part of the commitment package following the Pre-Hearing Conference. Documents referenced in the text which were not supplied by the proponent as part of the application can be found under Works Cited in Section E.

Table 3: Documents Reviewed as part of the Application

Appendix No.	Document Title	Author, File No., Rev., Date
Application Package for Renewal of 3BM-IGL1520, Submitted on 01/31/2020		
Appendix A	NPC letter, RE: 149222	Nunavut Planning Commission, 2019-12-20
Appendix B	Certificate of Analysis – Municipality of Igloolik 2019	Community Government Services, 2020-01
Appendix C	Cover Letter	Bhabesh Roy, M.A.Sc., P.Eng for Community and Government Services, 2020-01-31
Appendix D	Cover Letter (Signed)	Bhabesh Roy, M.A.Sc., P.Eng for Community and Government Services, 2020-01-31
Appendix E	Hamlet of Igloolik 2019 Annual Report	Community Government Services, 2020-01
Appendix F	Igloolik Water Licence Plan of Compliance	Community Government Services, 2020-01-31
Appendix G	Type “B” Renewal Water Licence Application	Gregory Morash, Hamlet of Igloolik, 2020-01-31
Supplemental Information for Amendment of 3AM-IGL----, Submitted on 25/02/2020		
Appendix H	Type “A” Water Licence Application	Gregory Morash, Hamlet of Igloolik, 2020-02-25
Appendix I	NPC letter, RE: 149222	Nunavut Planning Commission, 2019-12-20
Supplemental Information for Amendment of 3AM-IGL----, Submitted on 03/02/2020		
Appendix J	Operation & Maintenance (O&M) Manual for the Sewage Lagoon (Volumes I & II)	Exp. Services for the Government of Nunavut, Revised 2020-02
Appendix K	Drawings and plans for sewage lagoon, water reservoir and intake pipe line	Exp. Services for the Government of Nunavut , Revision 6, 2015-11-12
Correspondence from GN-CGS, Submitted on 17/04/2020		
Appendix F	Igloolik Water Licence Plan of Compliance - Revised	Community Government Services, 2020-04-15
	GN-CGS Response to Comments	Community Government Services, 2020-04-17





Table 4: Documents Reviewed as part of the Pre-Hearing Conference Commitments

Document Title	Author, File No., Rev., Date
Pre-Hearing Conference Commitments from GN-CGS, Received 30/09/2020	
Operations and Maintenance Manual Wastewater Treatment Facility (Sewage Lagoon System)	EXP Services. Inc., September 2020
Operations and Maintenance Manual Water Supply Pipeline	EXP Services. Inc., September 2020
Operations and Maintenance Manual Water Reservoir	EXP Services. Inc., September 2020
Mechanical and Electrical Operations and Maintenance Manual Igloolik Truck Fill Station	Government of Nunavut, Chiarelli Engineering, Kudlik Construction Inc., Sifec North Inc. Volume 1 of 3. November 2017, Revised November 2018.
Water Treatment Plant / Truck Fill Station Civil Related Infrastructure Operation and Maintenance Manual	EXP Services. Inc., September 2020
Igloolik Landfill Site Operation and Maintenance Manual	EXP Services. Inc., September 2020
Spill Contingency Plan	EXP Services. Inc., Version 2, September 2020
Solid Waste Management Feasibility Study	Dillon Consulting, Preliminary Report, August 2020
Memorandum: Suggested Scope of Work for Igloolik raw water intake	Eric Bell, EXP Services. Inc., September 17, 2020
Memorandum: Suggested Scope of Work for Measurement of Char Lake Water Withdrawal	Eric Bell, EXP Services. Inc., September 24, 2020





C. RESULTS OF REVIEW

Recommendation R-01 Resolved; R-02 Resolved

1. Unmet Licence Conditions (Hazardous Waste Leachates)

Leachate created at the current solid waste facility is currently considered an unauthorized discharge. Windblown garbage and possible migration of hazardous waste leachate has the potential to impact a small lake downgrade from the location of the burn and cap, and the non-engineered hazardous waste facility. It is understood that GN-CGS is planning to build an engineered waste management facility and is in the stage of studying feasibility. CIRNAC recommended (R-01) that GN-CGS clarify the interim strategy to manage this issue until the new facility can be implemented, and that an Operation and Maintenance (O&M) Manual be submitted for the solid waste facility. CIRNAC also recommended (R-02) that an O&M Manual be submitted for the Truck Fill Station, and the Potable Water Reservoir.

Resolution Status

(R-01) This recommendation is **resolved**. An O&M Manual for the current Solid Waste Disposal Facility, a site-wide Spill Contingency Plan, and the Feasibility Study for a new Solid Waste Management Facility have been submitted. These submissions fulfill the CIRNAC recommendation. CIRNAC encourages GN-CGS to provide the final Feasibility Study when it is complete, and an updated O&M manual for the Solid Waste Treatment Facility, which corresponds with the new infrastructures and operations, once the new solid waste facility is built.

During the Technical Meeting, GN-CGS verbally provided the interim strategy for managing windblown garbage and hazardous waste leachates within the existing solid waste disposal facility, and later followed up by providing a written version within the O&M Manual. CIRNAC finds the interim strategy acceptable and encourages the Municipality to follow and implement this strategy regularly:

- Metal wastes are placed in a sea can to avoid community access to the waste. The sea can is re-fillable.
- Municipal wastes undergo compacting, bundling, and placing a soil cover for interim cover. No additional treatment is undertaken.
- Leachate is collected using a dike and contained using an unlined leachate control pond.
- Leachate and windblown debris are monitored. Impacts are managed case-by-case based on findings and on engineer and inspector recommendations.





(R-02) This recommendation is **resolved**. O&M Manuals have been submitted for the Potable Water Reservoir, the Water Supply Line, and Truck Fill Station, as CIRNAC recommended. These manuals include engineering drawings for the facilities, specifications for the equipment used, and operational procedures for operators.

Recommendation R-03 Resolved

2. Operational Procedures in the Operation and Maintenance Manual Volume I

CIRNAC noted that the O&M Manual for the sewage treatment system provided in the application package however did not provide step by step procedures detailing each task on a daily, weekly, and monthly basis. CIRNAC recommended (R-03) that the operational procedures, including sampling procedures, be clearly outlined step by step in the O&M Manual for the Wastewater Treatment System (Sewage Lagoons), including:

- a) information pertaining to who is responsible to carry out specific tasks;
- b) the order and frequency in which tasks should be performed; and
- c) any special instructions related to the tasks.

Resolution Status

(R-03) This recommendation is **resolved**. GN-CGS has submitted an updated O&M Manual for the Wastewater Treatment Facility (Sewage Lagoons). The updated O&M Manual includes a section pertaining to Operation Procedures, which outlines information pertaining to who is responsible to carry out specific tasks, the order and frequency in which tasks should be performed, and special instructions related to the tasks.

Recommendation R-04 Resolved; R-05 Partially Resolved; R-06 Partially Resolved

3. Upgrades and Updates of Operation and Maintenance Manual Volume I

The O&M Manual Volume 1 for the Sewage Treatment System was not clear in its depiction of the current state, or stage of construction for the Wastewater Treatment Facility sewage lagoons. The diagrams, maps and aerial photos were inconsistent with each other and with the written descriptions. The O&M Manual did not provide clear information pertaining to the lagoon construction, or the mitigation measures implemented during construction.





CIRNAC recommended (R-4) that the O&M manual be updated to reflect the current infrastructure, (R-05) that maps and photos in the O&M manual be updated, and (R-06) that GN-CGS submit Construction Summary Reports for new infrastructure.

Resolution Status

(R-04) This recommendation is **resolved**. GN-CGS has submitted an updated O&M Manual for the Wastewater Treatment Facility (Sewage Lagoons). The updated O&M Manual reflects the current state of the Wastewater Treatment Facility and its current operations, including details pertaining to operational procedures. Mitigation measures required, planned, or implemented during construction activities, and the dates of major changes or upgrades, have not been provided. GN-CGS verbally clarified during the Technical Meeting that further construction is not planned to occur on the final lagoon for an estimated 20 years. CIRNAC encourages GN-CGS to include details pertaining to mitigations for construction activities in future construction notifications, modification requests, and/or Construction Summary Reports.

(R-05) This recommendation is **partially resolved**. GN-CGS submitted an updated O&M Manual for the Wastewater Treatment Facility (Sewage Lagoons). As recommended, the updated Sewage O&M Manual includes:

- a) An aerial photo map indicating the current infrastructure in place on site;
- b) An aerial photo map comparing the existing and pre-existing lagoon arrangements;
- c) An aerial photo map indicating the locations where site samples are collected; and
- d) Instructions indicating where snow tends to accumulate and location for snow storage after removal.

The O&M Manual does not include:

- e) The pathway the operator should take to access the monitoring sites; nor
- f) The locations of safety equipment and spill kits on site.

Maintaining human health and safety is crucial when working around untreated sewage, as untreated sewage poses a risk to humans. Indicating a pathway for the operators to take to the monitoring stations would be particularly beneficial to preventing degradation of the filter strip wetland area, and to limiting operator contact with untreated or under-treated sewage. Providing the locations of safety equipment and spill kits can increase operators' ability to quickly identify the tools they need and save time in an emergency.

CIRNAC recommends that GN-CGS include a map of the municipality in the O&M Manual which clearly indicates the pathway operators are to take to access the





monitoring stations at the filter strip wetland; the locations of safety equipment and spill kits on site, the snow accumulation and dumping areas.

The directions in the O&M Manual for snow storage are unclear. CIRNAC recommends that GN-CGS confirm the orientation directions are in fact correct, and add a north arrow to maps to aid in directional instructions.

(R-06) This recommendation is **partially resolved**. GN-CGS has agreed to include a condition in an amended licence to submit Construction Summary Reports for future infrastructure. For already constructed infrastructure, GN-CGS submitted an updated O&M Manual for the Wastewater Treatment Facility (Sewage Lagoons). The updated O&M Manual includes a Construction Summary Report section (Section 4). Methodology for construction and installation of the lagoons is provided with photos for clarity. It is not clear indicate whether there were any deviations from the construction specifications and drawings, and if so, what considerations were made in resulting construction and field decisions, and resulting effects on the performance of engineered facilities.

As-built and record drawings (IGL-1 to IGL-7) are provided in Appendix C. These drawings convey the facility in its current state as recommended; they are not stamped by a professional engineer. CIRNAC recommends that Construction Summary Reports be submitted for all new and modified infrastructures in the future, and that the Construction Summary Reports include:

- i. Stamped, as-built plans and drawings;
- ii. Explanations for deviations from the construction specifications and drawings; and
- iii. Summaries of construction and field decisions and their effects on the performance of engineered facilities.

Recommendation R-07 Resolved

4. Filter Strip Wetland Rehabilitation

The O&M Manual Volume 1 for the Sewage Treatment System reported a need for slope rehabilitation, and it was unclear whether the slopes of the berms or the wetlands had been rehabilitated. Slope rehabilitation is important because slopes which do not meet the factor of safety can reduce the effectiveness of the treatment of sewage, accelerate degradation of the wetland, and may increase risks to human health. CIRNAC recommended (R-07) that GN-CGS clarify whether the filter strip wetland





slopes at the wastewater treatment lagoons have been rehabilitated, the timeline for implementation, and how this was, or would be, accomplished.

Resolution Status

(R-07) This recommendation is **resolved**. During the Technical Meeting, GN-CGS provided verbal clarification that the wetland slopes had deteriorated prior to the construction of new lagoons. In addition to completing construction of the new lagoons, GN-CGS has reinforced the wetland slopes and has used new material and a new building method for slope rehabilitation.

Recommendation R-08 Resolved

5. Health and Safety

Untreated and under-treated sewage can pose risks to human health and safety. It was unclear from the Operation and Maintenance Manual Volume I what Health and Safety measures were being implemented at the Sewage Treatment Facility. CIRNAC recommended (R-08) that Health and Safety measures for employers and employees be clearly outlined in the O&M manual.

Resolution Status

(R-08) This recommendation is **resolved**. GN-CGS has submitted an updated O&M Manual for the Wastewater Treatment Facility (Sewage Lagoons). The updated version better reflects the current state of the facilities, operational procedures, sampling procedures, and health & safety guides.

Recommendation R-09 Partially Resolved

6. Spill Contingency Plan

The Spill Contingency Plan (SCP), submitted as Appendix C of the Operation and Maintenance Manual Volume I, referenced the requirements for Spill Contingency Plans according to the *Environmental Protection Act* (1998). This plan included many but not all of the outlined requirements. The inclusion of the details outlined in the *Environmental Protection Act* will make the Spill Contingency Plan more robust and effective in the event of a spill. CIRNAC recommended that GN-CGS update the Spill Contingency Plan to include all of the listed items.





Resolution Status

(R-09) This recommendation is **partially resolved**. GN-CGS has submitted an updated Spill Contingency Plan which outlines the requirements set by the Environmental Protection Act (Environmental Protection Act, 1998), and includes:

- a) A description of the location(s) where spill kits are stored;
- b) A current aerial site photo; and
- c) A list of possible disposal methods for spilled materials which have been temporarily contained.

The Spill Contingency Plan does not include:

- d) The size and storage capacity of each sewage lagoon; nor
- e) A site photo indicating the location(s) where spill kits are stored.

CIRNAC recommends that these missing details be included in the Spill Contingency Plan.

Recommendation R-10 Resolved; R-11 Resolved

7. Geothermal Monitoring

The Operation and Maintenance Manual Volume I indicated a need for berm monitoring and it was not clear whether the referenced berm monitoring had been conducted. Further, it was not clear whether the geothermal model presented in the Geothermal Modeling Report has been updated with current site data to confirm predictions, or whether the recommendations presented by Naviq Consulting Inc. in the *Geothermal Analysis of Proposed Sewage Lagoon* (2010) have been fully implemented. CIRNAC recommended (R-10) that berm monitoring be undertaken as recommended, and (R-11) that GN-CGS clarify how the recommendations presented by Naviq Consulting Inc. have been implemented in the sewage lagoons, as part of the upgraded Wastewater Treatment Facility.

Resolution Status

(R-10) This recommendation is **resolved**. During the Technical Meeting, GN-CGS provided verbal clarification that berm monitoring for temperature and settlement occurred over the first 3 years of operation of each lagoon, from 2011 to 2014, and that the data was collected and used to inform the final design. The final design report was completed and made available in 2015.





(R-11) This recommendation is **resolved**. During the Technical Meeting, GN-CGS provided verbal clarification and confirmation that the recommendations set out in Section 6.0 of the *Geothermal Analysis of Proposed Sewage Lagoon* (Naviq Consulting Inc., 2010) have been implemented.

Recommendation R-12 Partially Resolved

8. Water Flow Meters

The proponent indicated the need to install a flow meter and a fish screen with the intake pipe used to extract water from the South Lake every summer and CIRNAC supports the initiative. CIRNAC considers it valuable for the proponent to have multiple flow meters along the water pathway to validate that flow measurements are accurate, to track water losses along the pathway to identify leaks, and to have a backup tool for measurements in the case that one breaks or fails. CIRNAC recommended that flow meters be installed as soon as possible on the water intake at South Lake and the wastewater train.

Resolution Status

(R-12) This recommendation is **partially resolved**. GN-CGS has committed to installing flow meters and has provided the specifications for the magnetic flow meters which are planned for installation. It is not clear how wastewater flow will be measured at the sewage lagoons. CIRNAC recommends that GN-CGS measure wastewater volumes decanted from the lagoons.

Recommendation R-13 Resolved

9. Types of Waste Approved in Licence

The Application form submitted by the proponent indicated under Box 14: WASTE that sewage is the only type of waste applicable to this licence. As the proponent is intending to build a new, engineered waste management facility, CIRNAC recommended (R-13) that the licence specifically outline, and include conditions for, all types of waste expected to be treated and stored at the proposed engineered waste management facility.

Resolution Status

(R-13) This recommendation is **resolved**. GN-CGS agrees to the inclusion of this condition in an amended licence.





Recommendation R-14 Resolved

10. Information Requests Not Provided

Information requested by CIRNAC as part of the Information Request stage of the application were not provided prior to the Technical Meeting due to Covid-19 travel restrictions in Nunavut. CIRNAC recommended (R-14) that the information requested by CIRNAC, and time for review, be provided prior to conducting a Public Hearing.

Resolution Status

(R-14) This recommendation is **resolved**. GN-CGS has provided all of the following requested information as part of the submission following the Pre-Hearing Conference:

- i. As-built drawings and Operation and Maintenance Manual for the water supply system pending a visit to the community and a commitment in the licence.
- ii. Consolidation and Storage of Hazardous Wastes pending completion of the feasibility study.





D. SUMMARY OF FOLLOW-UP RECOMMENDATIONS

R-05 Partially Resolved

CIRNAC recommends that GN-CGS include a Municipality map in the O&M Manual which clearly indicates the pathway operators are to take to access the monitoring stations at the filter strip wetland; the locations of safety equipment and spill kits on site, the snow accumulation and dumping areas.

CIRNAC recommends that the GN-CGS confirm the orientation directions are in fact correct, and add a north arrow to maps to aid in directional instructions.

R-06 Partially Resolved

CIRNAC recommends that Construction Summary Reports be submitted for all new and modified infrastructures in the future, and that the Construction Summary Reports include:

- i. Stamped, as-built plans and drawings;
- ii. Explanations for deviations from the construction specifications and drawings; and
- iii. Summaries of construction and field decisions and their effects on the performance of engineered facilities.

R-09 Partially Resolved

CIRNAC recommends that these missing details be included in the Spill Contingency Plan:

- i. The size and storage capacity of each sewage lagoon; and
- ii. A site photo indicating the location(s) where spill kits are stored.

R-12 Partially Resolved

CIRNAC recommends that GN-CGS measure wastewater volumes decanted from the lagoons.





E. REFERENCES

Community Government Services. (2019). *Annual Report*. Municipality of Igloolik.

Environmental Protection Act. (1998). *Section 34*. Retrieved from Spill Coningency Planning and Reporting Regulations R-068-93:
<https://www.justice.gov.nt.ca/en/files/legislation/environmental-protection/environmental-protection.r2.pdf>

Kabloona, T. (2016, September 1). Letter to Shawn Stuckey and Bhabesh Roy. *RE: Licence No. 3BM-IGL1520, Type “B” – Amendment No. 2*. Nunavut Water Board.

Nunavut Water Board. (2020, August 12). 3AM-IGL---- Pre-Hearing Conference Decision Report. *RE: Type “A” Water Licence No: 3AM-IGL----: Pre-Hearing Conference Decision Regarding an Application for a Water Licence to Replace Water Licence No: 3BM-IGL1520*. APPENDIX D: List of Commitments generated during the Technical Meeting/Pre-Hearing Conference held July 21-22, 2020.

