

Grise Fiord



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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: 3BM-GRI0911

August 3, 2009

Janice Anderson
Senior Administrative Officer
Hamlet of Grise Fiord
P.O. Box 117
Grise Fiord, NU X0A 0J0
E-mail: gfsao@qiniq.com

New

RE: NWB Licence No. 3BM-GRI0911

Dear Ms. Anderson:

Please find attached Licence No. 3BM-GRI0911 issued to the Hamlet of Grise Fiord by the Nunavut Water Board (NWB) pursuant to its authority under Article 13 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*. The terms and conditions of the attached Licence related to water use and waste disposal are an integral part of this approval.

If the Licensee contemplates the renewal of this Licence, it is the responsibility of the Licensee to apply to the NWB for its renewal. The past performance of the Licensee, new documentation and information, and issues raised during a public hearing, if the NWB is required to hold one, will be used to determine the terms and conditions of the Licence renewal. Note that if the Licence expires before the NWB issues a new one, then water use and waste disposal must cease, or the Licensee will be in contravention of the *Nunavut Land Claims Agreement* (NLCA) and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSTRA). However, the expiry or cancellation of a licence does not relieve the holder from any obligations imposed by the licence. The NWB recommends that an application for the renewal of this Licence be filed at least three months prior to the Licence expiry date.

If the Licensee contemplates or requires an amendment to this licence, the NWB may decide, in the public interest, to hold a public hearing. An application for amendment will be required for the construction of the proposed new solid waste disposal facility. The Licensee should submit applications for amendment as soon as possible to give the NWB sufficient time to go through the amendment process. The process and timing may vary depending on the scope of the amendment, however a minimum of sixty (60) days is required from time of acceptance by the NWB. It is the responsibility of the Licensee to ensure that all application materials have

been received and acknowledged by the Manager of Licensing.

The NWB strongly recommends that the Licensee consult the comments received from interested persons on issues identified. This information is attached for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. Kabloona', with a horizontal line extending to the right.

Thomas Kabloona
Nunavut Water Board, Chair

TK/dc/ph

Enclosure: Licence No. 3BM-GRI0911
Comments from EC, GN-DOE, GN-CLEY and INAC

cc: Qikiqtani Distribution List
Bhabesh Roy, GN-CGS



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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

DECISION

LICENCE NUMBER: 3BM-GRI0911

This is the decision of the Nunavut Water Board (NWB) with respect to an application for a Licence renewal received September 29, 2008 made by:

HAMLET OF GRISE FIORD

to allow for the use of water and disposal of waste for the Hamlet of Grise Fiord, located within the Qikiqtani region of Nunavut. With respect to this application, the NWB gave notice to the public that the Hamlet had filed an application for a water licence renewal.

DECISION

After having been satisfied that the application was exempt from the requirement for screening by the Nunavut Impact Review Board in accordance with S. 12.3.2 of the *Nunavut Land Claims Agreement* (NLCA), the NWB decided that the application could proceed through the regulatory process. After reviewing the full submission of the Applicant and written comments expressed by interested parties, the NWB, having given due regard to the facts and circumstances, the merits of the submissions made to it and to the purpose, scope and intent of the NLCA and of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWSRTA), decided to waive the requirement to hold a public hearing and determined that:

Licence Number 3BM-GRI0911 be issued subject to the terms and conditions contained therein. (Motion #: 2009-05-L05)

SIGNED this 25th day of July, 2009 at Gjoa Haven, NU.

Thomas Kabloona
Nunavut Water Board, Chair

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I. BACKGROUND

The Hamlet of Grise Fiord is a small community located on the southern tip of Ellesmere Island in Nunavut, at 76°25'N and 83°01'W within the Qikiqtani region of Nunavut. The community is located approximately 320 km northeast of Resolute. The Community is situated on a narrow strip of beach near the mouth of Grise Fiord. From the beach, the land slopes back into a series of low benches for about 100 m until it reaches the foot of a steep rock-face. The surficial soils in the area consist of free-draining gravel deposits. A major layer of silty sand with traces of gravel was identified over a large portion of the valley above the settlement. The depth of the active layer of permafrost is approximately 0.6 m.

A true arctic desert, Grise Fiord receives an average of 15.2 cm of snowfall each year. There is so little rainfall in the area that the mean annual precipitation totals near 0 cm. July mean high and low temperatures are 10° C and 2.2° C. January mean high and low temperatures are -27.2° C and -35° C. Winds are generally south-east and annually average 18.5 km/h.

Prior to 1978, ice blocks cut from icebergs frozen into the flow ice were the main source for water for most of the year. The ice blocks would be transported by Bombardier and trailer to residents' water tanks and left to melt. A reverse-osmosis plant for the desalinization of sea water was installed in the late 1980's but was decommissioned due to operational problems. Water is now obtained from a small glacial runoff pond located in the center of the community. The water is of good to excellent chemical quality for domestic use. The water is clear, very soft, poorly buffered, neutral, and low in dissolved solids. Treated water is below the recommended limit with respect to corrosiveness. Batch chlorination has been shown to have eliminated or greatly reduced most corrosion-intensifying bacteria. Global warming is suspected in reducing the size of the glacier situated above the Hamlet. Although threatening, the impact to the community is not yet known.

During the prior application for water Licence (2002/2003) the expected population for 2009 was estimated at 169. The current renewal application states the 2008 population at roughly 150, which is lower than the 2002 population. Statistics Canada has recorded the 2001 population at 163 and the 2006 population at 141, a decrease of 13.5%.¹ As the Hamlet population appears to be fluctuating and is lower than the anticipated population when many of the facilities were designed, the Water Supply and Waste Disposal Facilities are anticipated to be able to meet the requirement of the Hamlet, however proper testing and annual reporting is required to verify that the facilities are operating as intended.

¹ www.statcan.gc.ca

II. PROCEDURAL HISTORY

The NWB issued a municipal water licence to the Hamlet of Kimmirut on November 15, 2003, to allow for the use of water and disposal of waste under Licence NWB3GRI0308. The municipal water licence expired on November 15, 2008. The Hamlet of Grise Fiord, in conjunction with the Government of Nunavut Department of Community and Government Services (CGS), submitted an application for water licence renewal to the NWB on August September 29, 2008. Following a preliminary technical review of the application, the NWB noted in a letter to the applicant on December 8, 2008, that several documents/reports had not been received and that the application process would proceed upon submission:

- Drawings, diagrams or maps for facilities;
- Information required by the supplemental questionnaire;
- Annual Reports for 2005-2007 – required by March 31 of the year being reported;
- A document identifying the Final Discharge Points – required by May 15, 2004;
- Operations and Maintenance Plan of the sewage and solid waste facilities – required by May 31, 2004;

A response to the December 8, 2008 request was submitted December 17, 2008 and on January 20, 2009, the NWB publicly posted notice of this application, in accordance with Section 55.1 of the Act and Article 13 of the *Nunavut Land Claims Agreement* (NLCA). This assessment process included the referral of the application to a variety of Federal, Territorial and local organizations for their review and comment. Information contained in the submission for review included:

- Application cover letter dated Sept 12, 2008;
- NWB Licence renewal application;
- Supplementary Questionnaire;
- Technical Summary Report in English and Inuktitut; and
- Response to December 8, 2008 Technical Advisor Questions.

The scope of the renewal application included water use, and ongoing disposal of sewage and solid waste. No public concern was expressed during this review. Therefore, the NWB waived the requirement to hold a public hearing and proceeded with the application process.

The NWB received comments on the application from interested parties including Environment Canada (EC), Indian and Northern Affairs Canada (INAC), Government of Nunavut, Department of Culture, Language, Elders and Youth (GN-CLEY) and the Government of Nunavut, Department of Environment (GN-DOE) on or prior to February 20, 2009. The review identified issues with the Application and the file in general that needed to be addressed, which focused primarily on compliance with the existing/expired water licence.

Based upon the results of the detailed assessment of the renewal application, including consideration of any potential accidents, malfunctions, or impacts to water that the overall project might have in the area, the Board has approved the application and has issued Licence 3BM-GRI0911.

III. ISSUES

Term of Licence

In accordance with section 45 of the Act, the NWB may issue a licence for a term not exceeding twenty-five years. In determining an appropriate term of a water licence, the Board considers a number of factors, including the results of INAC site inspections and the compliance record of the Applicant. In review of the previous water licence NWB3GRI0308 inspection reports, the NWB has noted compliance issues identified by the Inspector in a Municipal Water Use Inspection Report submitted to the NWB on September 30, 2003 for an inspection on July 31, 2003, which include:

- Sewage lagoon was in good condition. Some seepage was observed. The lagoon had sufficient freeboard for the rest of the season;
- Waste oil found near a creek. The inspector instructed the municipality to relocate the drums. The inspector recommends that all the drums be placed in one location that is flat and dry. The dump was found to be poorly segregated with excessive surface water draining through it. Batteries at the site were not properly stored in a container. Bulky waste was scattered throughout the dump; and
- At the time of the inspection, the hamlet did not have a water Licence.

A subsequent inspection was conducted on August 19, 2006 and reported to the NWB on November 21, 2006 identifying additional compliance issues including:

- The inspector noted that there was still no fence around the potable water resupply catchment;
- No immediate concerns identified for waste oil storage; and
- Drums and transformers that were well within 30 metres of the high water mark during the 2003 inspection were still at the same location during the 2006 inspection.

In its renewal application, the Hamlet requested a term of five years. INAC provided recommendation that all Operations Plans be received prior to a renewal of the Licence. An alternative recommendation would be to require all such plans be submitted within three (3) months of the issuance of any renewal. GN-DOE noted that the information needed to properly review the water licence application from the Hamlet is missing. Given the need to be operating under a valid water Licence, the NWB should amend the current licence for a short period of time. This should allow the Hamlet time to submit all the necessary information prior to a review at a later date. EC identified information gaps in the renewal application and requested

the NWB extend the existing water Licence for a term of 18 months so the Hamlet has the opportunity to address the deficiencies in the application and to provide the necessary documentation. The Hamlet should then submit an application for renewal to the Board for renewal.

Taking into account the information submitted for the this renewal, the NWB has decided on a two (2) year term for the Licence based on issues with non-compliance, including non-compliance with administrative and reporting requirements.

The two (2) year Licence term is intended to send a clear message to the Hamlet and regulatory authorities that the Board will not passively encourage the Hamlet's failure to comply with the Licence conditions and associated legal requirements. The Board fully expects the Hamlet to take immediate steps towards full compliance with all Licence requirements for its existing facilities. Upon submission of an application to renew the Licence in approximately twenty one (21) months, the Board expects the Hamlet to be in full compliance with the licence. This shorter licence duration also permits the Board to increase its level of confidence of the Licensee that the facilities are operating as they should. As per Part B, Item 11 of the Licence, the Licensee must submit a Plan for Compliance that clearly demonstrates how the Hamlet will achieve full compliance with the Licence conditions during this time period.

The NWB reminds the Licensee of its responsibility to comply with the terms and conditions of the Licence. If monitoring results demonstrate that effluent does not meet discharge limits imposed within this Licence, the Licensee is required to take the necessary measures to remedy the situation.

Annual Report

The NWB has imposed on the Licensee, the requirement to produce an Annual Report. These reports are for the purpose of ensuring that the NWB has an accurate annual update of municipal activities during a calendar year. This information is maintained on the Public Registry and is available to interested parties upon request. A "*Standardized Form for Annual Reporting*" is to be used by the Licensee and is available from the NWB file transfer protocol (FTP) site under the Public Registry link at the NWB Website.

Website Public Registry:

(<ftp://nunavutwaterboard.org/ADMINISTRATION/Standardized%20Forms/>).

Operational Plans

Under the original licence NWB3GRI0308 Part F Item 1, the Licensee was required to submit a Plan for the Operation and Maintenance (O&M) of the Sewage and Solid Waste Facilities. This Plan was not submitted in accordance with the previous Licence.

INAC, GN-DOE and EC all noted in their comments to the NWB, that Operations and Maintenance Procedures should be provided and each party provided several items that should be submitted prior to a full technical review of the file.

The Board agrees with the above parties that the application is not sufficient for a proper technical review. The NWB is requiring that a key item for the Licensee to follow up with is the Operations and Maintenance Manual and is imposing a deadline of ninety (90) days of issuance of this Licence, for the submission of an O&M Manual for the Sewage and Solid Waste Facilities.

The purpose of the O&M Manual noted above is to assist Hamlet staff in carrying out the procedures relating to the waste disposal facilities. The O&M Manual should demonstrate to the NWB that the Hamlet is capable of operating and maintaining the infrastructure related to water use and waste disposal and to meet the requirements of the Licence. The O&M Manual should be based, at a minimum on the various NWB-approved guidelines available (i.e. *Guidelines for the Preparation of an Operations and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories*, Duong and Kent, 1996) and other regulatory guidelines as deemed appropriate.

Water Use

The Hamlet of Grise Fiord currently utilizes melt water from a glacier proximal to the community as a source of potable water with the quantity used not to exceed the combined volume of the two storage tanks, 7720 cubic metres annually. No concerns were raised by the parties in their written submissions as to the amount of water required by the Hamlet, the manner in which it is obtained, or in the manner in which this water will be used.

Sewage

The Hamlet of Grise Fiord currently discharges its wastewater directly to a sewage lagoon with a total capacity of 19,360 cubic metres and is decanted annually. Currently the lagoon has no fencing and is adjacent to the existing Solid Waste Disposal Facility. The Board has maintained, at a minimum, the effluent quality criteria for the discharge of the sewage lagoon, consistent with the *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories* (Northwest Territories Water Board, 1992). In addition, the Board has also included the requirement for the preparation and submission of a Quality Assurance/Quality Control (QA/QC) Plan to a laboratory analyst for approval necessary for the collection, preservation and submission of water quality samples required under the Licence. The purpose of the QA/QC Plan is to ensure that samples obtained in the field, accurately represent the physical and chemical nature of the water being sampled.

Solid Waste

The Hamlet's Solid Waste Disposal Facility located approximately 1.4 km west of the community, proximal to the location where sewage is currently discharged. No changes to the Facility were proposed in the renewal application. The 2003 and 2006 inspection reports identified drums within thirty (30) metres of a water body and the Licensee should include a section in their next annual report that documents action taken to remedy this. Additional conditions have been incorporated into the Licence to address concerns with regard to windblown rubbish being removed from the site. Recommendations included the installation of fencing around the solid waste disposal site. All solid waste disposed of at the facility must be permanently contained.

Abandonment and Restoration

To ensure that all existing end-of-life facilities are reclaimed in an appropriate manner, the NWB requires Licensees to submit an *Abandonment and Restoration Plan*. A Plan is to be submitted at least six (6) months prior to final closure of any licensed facility or upon the planned construction of new facilities to replace existing ones. The requirements for the Plan are outlined in Part G, Item 1 of this Licence.

Monitoring

Monitoring stations including the fresh water intake, discharge from the Solid Waste Disposal Facility and final discharge point for the Sewage Disposal Facility have been maintained in the short term renewal. Monitoring Station GRI-3 (truck discharge to lagoon) has been reclassified as inactive.



NUNAVUT WATER BOARD WATER LICENCE

Pursuant to the Nunavut Waters and Nunavut Surface Rights Tribunal Act and the Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada, the Nunavut Water Board, hereinafter referred to as the Board, hereby grants to

HAMLET OF GRISE FIORD

(Licensee)

P.O. BOX 117, GRISE FIORD, NU, X0A 0J0

(Mailing Address)

hereinafter called the Licensee, the right to alter, divert or otherwise use water or dispose of waste for a period subject to restrictions and conditions contained within this Licence:

Licence Number/Type: 3BM-GRI0911 TYPE "B"

Water Management Area: NUNAVUT 04

Location: GRISE FIORD, SOUTHERN ELLESMERE ISLAND
QIKIQTANI REGION, NUNAVUT

Classification: MUNICIPAL UNDERTAKING

Purpose: DIRECT WATER USE AND DEPOSIT OF WASTE

Quantity of Water use not
to Exceed: 7,720 CUBIC METRES ANNUALLY

Date of Licence Issuance: JULY 25, 2009

Expiry of Licence: JULY 31, 2011

This Licence, issued and recorded at Gjoa Haven, Nunavut, includes and is subject to the annexed conditions.

Thomas Kabloona,
Nunavut Water Board, Chair

PART A: SCOPE AND DEFINITIONS

1. Scope

- a. This Licence allows for the use of water and the disposal of waste for municipal undertakings at the Hamlet of Grise Fiord, Qikiqtani Region, Nunavut (76°25'N and 83°01'W);
- b. This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any waters. Whenever new Regulations are made or existing Regulations are amended by the Governor in Council under the Nunavut Waters and Nunavut Surface Rights Tribunal Act, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be subject to such requirements; and
- c. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. Definitions

In this Licence: **3BM-GRI0911**

“**Act**” means the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

“**Amendment**” means a change to original terms and conditions of this Licence requiring correction, addition or deletion of specific terms and conditions of the Licence; modifications inconsistent with the terms of the set terms and conditions of the Licence;

“**Appurtenant undertaking**” means an undertaking in relation to which a use of waters or a deposit of waste is permitted by a licence issued by the Board;

“**Board**” means the Nunavut Water Board established under the *Nunavut Land Claims Agreement*;

“**Effluent**” means treated or untreated liquid waste material that is discharged into the environment from a structure such as a settling pond or a treatment plant;

“**Engineer**” means a professional engineer registered to practice in Nunavut in

accordance with the *Engineering, Geological and Geophysical Act (Nunavut)* S.N.W.T. 1998, c.38, s.5;

"Final Discharge Point" in respect of an effluent means an identifiable discharge point of a facility beyond which the operator of the facility no longer exercises control over the quality of the effluent;

"Freeboard" means the vertical distance between water line and crest on a dam or dyke's upstream slope;

"Geotechnical Engineer" means a professional engineer registered with the Association of Professional Engineers, Geologist and Geophysicists of Nunavut and whose principal field of specialization with the engineering properties of earth materials in dealing with man-made structures and earthworks that will be built on a site. These can include shallow and deep foundations, retaining walls, dams, and embankments;

"Grab Sample" means an undiluted quantity of material collected at a particular time and place that may be representative of the total substance being sampled at the time and place it was collected;

"Greywater" means all liquid wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include toilet wastes;

"Inspector" means an Inspector designated by the Minister under Section 85 (1) of the Act;

"Licensee" means the holder of this Licence;

"Modification" means an alteration to a physical work that introduces new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion, and changes to the operating system that are consistent with the terms of this Licence and do not require amendment;

"Monitoring Program" means a monitoring program established to collect data on surface water and groundwater quality to assess impacts to the freshwater aquatic environment of an appurtenant undertaking;

"Nunavut Land Claims Agreement" (NLCA) means the *"Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada"*, including its preamble and schedules, and any amendments to that agreement made pursuant to it;

"Sewage" means all toilet wastes and greywater;

"Sewage Disposal Facility" comprises the area and engineered lagoon and decant structures designed to contain and treat sewage, as described in the Application for Water Licence filed by the Applicant on February 5, 2003 and illustrated in Drawing No. 2002-1000-051;

"Solid Waste Disposal Facility" comprises the area and associated structures (landfill site) designed to contain Solid Waste as described in the Application for Water Licence filed by the Applicant on February 5, 2003 and illustrated in Drawing No. 2002-1000-051;

"Toilet Wastes" means all human excreta and associated products, but does not include greywater;

"Waste" means, as defined in S.4 of the Act, any substance that, by itself or in combination with other substances found in water, would have the effect of altering the quality of any water to which the substance is added to an extent that is detrimental to its use by people or by any animal, fish or plant, or any water that would have that effect because of the quantity or concentration of the substances contained in it or because it has been treated or changed, by heat or other means;

"Waste Disposal Facilities" means all facilities designated for the disposal of waste, and includes the Sewage Disposal Facility and the Solid Waste Disposal Facility;

"Water Supply Facilities" comprises the area and associated intake infrastructure at the Glacial Run-off Water Supply, as described in the Application for Water Licence filed by the Licensee on February 5, 2003, and illustrated in Drawing No. 2002-1000-051;

3. **Enforcement**

- a. Failure to comply with this Licence will be a violation of the *Act*, subjecting the Licensee to the enforcement measures and the penalties provided for in the *Act*;
- b. All inspection and enforcement services regarding this Licence will be provided by Inspectors appointed under the *Act*;
- c. For the purpose of enforcing this Licence and with respect to the use of water and deposit or discharge of waste by the Licensee, Inspectors appointed under the *Act*, hold all powers, privileges and protections that are conferred upon them by the *Act* or by other applicable law; and

- d. The Licensee shall, in relation to any application to renew or amend the Licence, have in place a Plan for Compliance approved by the Board in writing, to achieve full compliance with the conditions of this Licence, or a Plan for Compliance must be submitted at the time of Application, in order for the Application to be deemed complete.

PART B: GENERAL CONDITIONS

- 1. The Licensee shall file an Annual Report with the Board not later than March 31st of the year following the calendar year reported which shall contain the following information:
 - a. tabular summaries of all data generated under the "Monitoring Program" and an indication of wastewater treatment levels upstream and downstream of the Wetland Area;
 - b. modifications to the "Monitoring Program" in accordance with Part H, Item 9;
 - c. the monthly and annual quantities in cubic metres of fresh water obtained at the Water Supply Facilities;
 - d. the monthly and annual quantities in cubic metres of each and all waste discharged;
 - e. the annual quantity in cubic meters and tones of sludge removed from the Enhanced Sewage Disposal Facility along with the treatment, storage, and disposal provided as required in Part H Item 6;
 - f. the results of sampling and analyses of sewage sludge in accordance with the Operations and Maintenance Manual referred to in Part F Item 2 and as required in Part H Item 5;
 - g. a summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities;
 - h. a list of unauthorized discharges and summary of follow-up action taken;
 - i. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
 - j. any updates or revisions for manuals and plans (i.e., *Operations and Maintenance Manual*) as required by changes in operation and/or technology, may be subject to Board approval;

- k. detailed minutes of any public consultation and participation with local organizations and the residents of the community regarding licence amendments;
 - l. a summary of any studies or reports requested by the Board that relate to water use and waste disposal or restoration, and a brief description of any future studies planned; and
 - m. any other details on water use or waste disposal requested by the Board by November 1st of the year being reported.
- 2. The Licensee shall comply with the "Monitoring Program" described in this Licence, and any amendments to the "Monitoring Program" as may be made from time to time, pursuant to the conditions of this Licence.
 - 3. The "Monitoring Program" and compliance dates specified in the Licence may be modified at the discretion of the Board.
 - 4. Meters, devices or other such methods used for measuring the volumes of water used and waste discharged shall be installed, operated and maintained by the Licensee.
 - 5. The Licensee shall, within ninety (90) days after the first visit by the Inspector following issuance of this Licence, post the necessary signs to identify the stations of the "Monitoring Program". All signage postings shall be in the Official Languages of Nunavut.
 - 6. The Licensee shall post signs in the appropriate areas to inform the public of the location of the Water Supply Facilities and the Waste Disposal Facilities. All signage postings shall be in the Official Languages of Nunavut.
 - 7. The Licensee shall immediately report to the 24-Hour Spill Report Line (867-920-8130) any spills of Waste, which are reported to, or observed by the Licensee, within the municipal boundaries or in the areas of the Water Supply or Waste Disposal Facilities.
 - 8. The Licensee shall ensure a copy of this Licence is maintained at the Municipal Office at all times. Any communication with respect to this Licence shall be made in writing to the attention of:

(a) **Manager of Licensing:**
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0
Telephone: (867) 360-6338

Fax: (867) 360-6369
Email: licensing@nunavutwaterboard.org

(b) Inspector Contact:

Water Resources Officer
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445

9. The Licensee shall submit one paper copy and one electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut.
10. The Licensee shall ensure that all document(s) and correspondence submitted by the Licensee, to the Board, are received and acknowledged by the Manager of Licensing.
11. The Licensee shall submit to the Board for approval, within ninety (90) days of Licence issuance or upon the filing of any application in relation to the Licence within that time, a Plan for Compliance that clearly demonstrates the measures the Licensee will undertake, including an implementation schedule, to achieve full compliance with the conditions of this Licence, including the issues raised in the Inspector's Reports.
12. The Licensee shall, for all Plans submitted under this Licence, include a proposed timetable for implementation. Plans submitted, cannot be undertaken without subsequent written Board approval and direction. The Board may alter or modify a Plan if necessary to achieve the legislative objectives and will notify the Licensee in writing of acceptance, rejection or alteration of the Plan.
13. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
14. Every Plan to be carried out pursuant to the terms and conditions of this Licence shall become a part of this Licence, and any additional terms and condition imposed upon approval of a Plan by the Board become part of this Licence. All terms and conditions of the Licence should be contemplated in the development of a Plan where appropriate.
15. This Licence is assignable as provided for in Section 44 of the Act.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain all fresh water from glacial melt water using the Water Supply Facilities or as otherwise approved by the Board in writing.
2. The annual quantity of water, used for all purposes, shall not exceed 7,720 cubic metres.
3. The Licensee shall not remove any material from below the ordinary high water mark of any water body unless otherwise approved by the Board in writing.
4. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.
5. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Licensee shall direct all Sewage to the Sewage Disposal Facility.
2. All Effluent discharged from the Sewage Disposal Facility at Monitoring Program Station GRI-4 shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample
BOD ₅	120 mg/L
Total Suspended Solids	180 mg/L
Faecal Coliforms	1×10^6 CFU/100mL
Oil and grease	No visible sheen
pH	between 6 and 9

3. A Freeboard limit of 1.0 meter, or as recommended by a qualified geotechnical Engineer and as approved by the Board in writing, shall be maintained at all dams, dykes, or structures intended to contain, withhold, divert or retain water or wastes.
4. The Licensee shall provide at least ten (10) days notification to an Inspector, prior to initiating any decant of the sewage lagoon.
5. The Sewage Disposal Facility and the Enhanced Sewage Disposal Facility shall be maintained and operated, in such a manner as to prevent structural failure.

6. The Licensee shall dispose of and permanently contain all Solid Wastes at the Solid Waste Disposal Facility or as otherwise approved by the Board in writing.
7. The Licensee shall segregate and store all hazardous materials and/or hazardous waste including waste oil, within the Solid Waste Disposal Facility in a manner as to prevent the deposit of deleterious substances into any water, until such a time as proper disposal arrangements are made.
8. The Licensee shall implement measures to control wind-blown litter at the Solid Waste Disposal Facility.
9. The Licensee shall use clean material for construction, operation, and maintenance activities that is obtained from an approved source and which has been demonstrated not to produce acid rock drainage and to be non-metal leaching.

PART E: CONDITIONS APPLYING TO MODIFICATION AND CONSTRUCTION

1. The Licensee shall submit to the Board for approval, for construction drawings stamped and signed by a qualified engineer registered in Nunavut, six (6) months prior to the construction of any dams, dykes or structures intended to contain, withhold, divert or retain water or wastes.
2. The Licensee may, without written approval from the Board, carry out modifications to the Water Supply and Waste Disposal Facilities provided that such modifications are consistent with the terms of this Licence and the following requirements are met:
 - a. the Licensee has notified the Board in writing of such proposed modifications at least sixty (60) days prior to beginning the modifications;
 - b. these modifications do not place the Licensee in contravention of the Licence or the Act;
 - c. the Board has not, during the sixty (60) days following notification of the proposed modifications, informed the Licensee that review of the proposal will require more than sixty (60) days; and
 - d. the Board has not rejected the proposed modifications.
3. Modifications for which all of the conditions referred to in Part E, Item 3, have not been met, may only be carried out upon written approval from the Board. The Licensee shall provide as-built plans and drawings of the Modifications referred to in this Licence within ninety (90) days of completion of the Modification. These plans and drawings shall be stamped by an Engineer.

4. All activities shall be conducted in such a way as to minimize impacts on surface drainage and the Licensee shall immediately undertake any corrective measures in the event of any impacts on surface drainage.
5. The Licensee shall ensure that sediment and erosion control measures are implemented prior to and maintained during activities carried out under this Part to prevent the release of sediment and minimize erosion.
6. The construction or disturbance of any stream/lake bed or banks of any definable water course are not permitted, unless authorized by the Board in writing.

PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE

1. The Licensee shall submit to the Board for approval, within ninety (90) days following issuance of the Licence, an Operation and Maintenance (O&M) Manual for the Sewage Disposal Facility and Solid Waste Disposal Facility, prepared where appropriate in accordance with the *"Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories; 1996"*. The Manual shall take into consideration the comments received during the application review process and shall contain the following plans:
 - a. Sewage Operation and Maintenance Plan;
 - b. Solid Waste Operation and Maintenance Plan;
 - c. Hazardous Waste Management Plan;
 - d. Sludge Management Procedures;
 - e. Spill Contingency Plan; and
 - f. Monitoring Program Quality Assurance/Quality Control Plan (QA/QC Plan).
2. The Licensee shall review the O&M Manual referred to in Part F, Items 1 as required by changes in operation and/or technology and modify accordingly. Revisions are to be submitted in the form of an Addendum to be included with the Annual Report.
3. An inspection of all engineered facilities related to the management of water and waste shall be carried out annually in July or August by a Geotechnical Engineer. The engineer's report shall be submitted to the Board within sixty (60) days of the inspection, including a covering letter from the Licensee outlining an implementation plan addressing each of the Engineer's recommendations.
4. If, during the period of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:

- a. employ the appropriate contingency measures as described in the Operation and Maintenance Manual for the Hamlet of Grise Fiord;
- b. report the incident immediately via the 24-Hour Spill Reporting Line at (867) 920-8130 and to the INAC Manager of Field Operations at (867) 975-4295; and
- c. submit to the Inspector, a detailed report on each occurrence, not later than thirty (30) days after initially reporting the event, that provides the necessary information on the location (including the GPS coordinates), initial response action, remediation/clean-up, status of response (ongoing, complete), proposed disposal options for dealing with contaminated materials and any preventative measures to be implemented.

PART G: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION

1. The Licensee shall submit to the Board for approval an *Abandonment and Restoration Plan*, at least six (6) months prior to a) abandoning of any facilities and b) the construction of new facilities to replace existing ones. Where applicable, the Plan shall include information on the following:
 - a. solid waste facility;
 - b. water intake facilities;
 - c. the water treatment and waste disposal sites and facilities;
 - d. petroleum and chemical storage areas;
 - e. any site affected by waste spills;
 - f. leachate prevention;
 - g. an implementation schedule;
 - h. maps delineating all disturbed areas, and site facilities;
 - i. consideration of altered drainage patterns;
 - j. type and source of cover materials;
 - k. future area use;
 - l. hazardous wastes; and
 - m. a proposal identifying measures by which restoration costs will be financed by the Licensee upon abandonment.
2. The Licensee shall complete the restoration work within the time schedule specified in the Plan, or as subsequently revised and approved by the Board.

PART H: CONDITIONS APPLYING TO THE MONITORING PROGRAM

1. The Licensee shall maintain Monitoring Program Stations and implement the program as described in the table below and the conditions under this Part.

Monitoring Program Station Number	Description	Frequency	Status
GRI-1	Raw water supply intake at the Glacial Run-off Water Supply prior to treatment	<u>Volume</u> Monthly and Annually	Active (Volume)
GRI-2	Effluent discharge from the Final Discharge Point of the Solid Waste Disposal Facilities	<u>Water Quality</u> Once at the beginning, middle and near the end of the season when flow is observed	Active (Water Quality)
GRI-3	Raw Sewage at the truck offload point	N/A	Not Active
GRI-4	Effluent discharge from the Final Discharge Point of the Sewage Disposal Facilities	<u>Volume</u> Monthly and Annually <u>Water Quality</u> Twice Annually – start and near completion of decanting	Active (Volume and Water Quality)

2. The Licensee shall confirm the locations and GPS coordinates for all monitoring stations referred to in Part H Item 1 with an Inspector.
3. The Licensee shall collect samples at Monitoring Program Stations GRI-2 and GRI-4, according to the frequency provided in Part H Item 1. Samples shall be analyzed for the following parameters:

Biochemical Oxygen Demand – BOD ₅	Faecal Coliforms
Total Suspended Solids	pH
Conductivity	Nitrate-Nitrite
Oil and Grease (visual)	Total Phenols
Magnesium	Calcium
Sodium	Potassium
Chloride	Sulphate
Total Hardness	Total Alkalinity
Ammonia Nitrogen	Total Zinc
Total Cadmium	Total Iron
Total Cobalt	Total Manganese
Total Chromium	Total Nickel
Total Copper	Total Lead
Total Aluminum	Total Arsenic
Total Mercury	Total Organic Carbon (TOC)

Total Petroleum Hydrocarbons (GRI-2 only)

4. The Licensee shall measure and record in cubic meters, the monthly and annual quantities of water pumped from Monitoring Program Station GRI-1 for all purposes and effluent pumped or discharged from Monitoring Program Station GRI-4.
5. The Licensee shall measure and record the annual quantities of sludge removed from the Sewage Disposal Facility along with the methods of treatment, storage, and disposal provided.
6. The Licensee shall within ninety (90) days following issuance of the Licence, submit to the Board a Quality Assurance/Quality Control (QA/QC) Plan. The Plan shall include up to date field sampling methods to all applicable standards, acceptable to an accredited laboratory as required by Part J, Item 8 and Part J, Item 9. The Plan shall include a covering letter from the accredited laboratory confirming acceptance of the Plan for analyses to be performed under this Licence.
7. The Licensee shall annually review the QA/QC plan submitted under Part J, Item 6 and modify it as necessary. Revised plans shall be submitted to the NWB with an approval letter from an accredited lab that meets standards set in Part J, Item 8 and Part J, Item 9.
8. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board in writing.
9. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
10. Modifications to the Monitoring Program may be made only upon written approval from the Board. Requests for changes to the Monitoring Program should be forwarded to the NWB in writing, and should include the justification and appropriate evidence to support the change.