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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No: **3BM-GRI2025**

November 16, 2020

Marjorie Dobbson
Chief Administrative Officer (CAO)
Hamlet of Grise Fiord
P.O. Box 16
Grise Fiord, Nunavut X0B 0C0

Bhabesh Roy, M.A.Sc., P. Eng.
Municipal Planning Engineer
Government of Nunavut-CGS
P.O. Box 379
Pond Inlet, Nunavut X0A 0S0

Email: gfsao@qiniq.com

Email: broy@gov.nu.ca

RE: NWB Renewal Licence No: 3BM-GRI2025

Dear Ms. Dobbson and Mr. Roy:

Please find attached Licence No: **3BM-GRI2025** (Licence) issued to Hamlet of Grise Fiord by the Nunavut Water Board (NWB or Board) 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 (Nunavut Agreement)*. 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 may be in contravention of the *Nunavut Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*. 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 (3) 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's interest, to hold a public hearing. 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 are acknowledged by the Manager of Licensing.

The NWB strongly recommends that the Licensee consult the comments received by interested persons on issues identified. This information is attached for your consideration.¹

Sincerely,

Lootie Toomasie
Nunavut Water Board
Chair

LT/as/ri

Enclosure: Licence No: **3BM-GRI2025**
 Comments – CIRNA and ECCC

Cc: Qikiqtani Distribution List

¹ Crown-Indigenous Relations and Northern Affairs (CIRNA) and Environment and Climate Change Canada (ECCC), September 14, 2020

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DECISION

LICENCE NUMBER: 3BM-GRI2025

This is the decision of the Nunavut Water Board (NWB) with respect to a complete application received on August 06, 2020 for the renewal of a Water Licence made by:

HAMLET OF GRISE FIORD

to allow for the use of water and deposit of waste during municipal activities by the Hamlet of Grise Fiord located within the Qikiqtani Region, Nunavut, generally located at the geographical coordinates as follows:

Latitude: 76°25'03" N

Longitude: 82°53'38" W

DECISION

After having been satisfied that the application is exempt from the *Nunavut Planning and Project Assessment Act* (NUPPAA) under section 235 of that Act, and exempt from the requirement for screening by the Nunavut Impact Review Board (NIRB) under section 12.4.3 of the *Nunavut Agreement* as per Nunavut Planning Commission (NPC) November 08, 2019², the NWB decided that the application could proceed through the regulatory process. In accordance with s. 55.1 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (Act) and Article 13 of the *Nunavut Agreement*, public notice of the application was given and interested persons were invited to make representations to the NWB.

After reviewing the submission of the Applicant and considering the representations made by interested persons, 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 *Nunavut Agreement* and of the Act, waived the requirement to hold a public hearing, and determined that:

Licence No: 3BM-GRI1520 be renewed as Licence No: 3BM-GRI2025 subject to the terms and conditions contained therein. (Motion #: 2020-B1-025)

Signed this 16th day of November, 2020 at Gjoa Haven, NU.

Lootie Toomasie
Nunavut Water Board, Chair

LT/as/ri

² Nunavut Planning Commission (NPC) Conformity Determination, November 08, 2019



I. BACKGROUND

The Hamlet of Grise Fiord (Hamlet) is located on the southern tip of Ellesmere Island, 320 km northeast of Resolute, in the Qikiqtani Region of Nunavut. The Hamlet is situated in a zone of continuous permafrost and experiences temperatures ranging from approximately -35° to 8° Celsius.

The Hamlet is responsible for providing municipal services to its estimated 178 (2020) residents, including potable water supply, sewage treatment, and solid waste management, partly in the context of a water licence issued by the Nunavut Water Board (NWB or Board) to the Hamlet. The potable water source for the community is a stream of glacial runoff which lasts for about 45 to 50 days a year during the summer from mid June to beginning of August, resupplying two storage tanks through gravity feed. These storage tanks were built in 1986 (Tank A) and 2002 (Tank B) and have a capacity of 4,000 m³ each. The Community has a secondary water source (Airport River) about 300 m away from these tanks.

II. PROCEDURAL HISTORY

On **August 06, 2020**, the Hamlet of Grise Fiord submitted a renewal Water Licence Application (Application). The following documents were submitted by the Applicant:

- Hamlet Authorization Letter
- Water Licence Renewal Application
- Inuktitut and English Summaries
- Hydrology study of water source
- Raw water chemical analysis
- Current status of Water Supply

On **August 14, 2020**, the NWB concluded that the Application generally met the requirements of section 48(1) of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSTRA or Act) and forwarded notice of the Application to interested parties. All parties were invited to make representations to the NWB within thirty (30) days by **September 14, 2020**.

On the deadline for comments, submissions were received from Crown Indigenous Relations and Northern Affairs (CIRNA) and Environment and Climate Change Canada (ECCC). The Applicant was given until **September 29, 2020**, to respond to the interveners' comments. On request by the Applicant the deadline for response was extended till **October 09, 2020**.

On **October 16, 2020**, ECCC confirmed that they were satisfied by the response received from the Applicant; CIRNA indicated that the response received was not adequate and required further

clarifications. On **October 25, 2020**, the Applicant submitted further responses to CIRNA. On **November 02, 2020**, CIRNA wrote to the NWB via email about two outstanding comments which the Applicant had not answered sufficiently. CIRNA recommended the NWB consider including conditions for their outstanding comments relating to the management of the Solid Waste Disposal Facility and updating O&M Plan for the Water Supply Facility. Conditions addressing these concerns have been included in Part F of this renewed Licence.

The NWB has placed in its Public Registry copies of the Application and all comments received from interveners. This information can be accessed on the NWB's FTP site using the following link:

<ftp://ftp.nwb-oen.ca/registry/3%20MUNICIPAL/3B/3BM%20-%20Municipality/3BM-GRI2025/>

III. FILE HISTORY

According to information included on the NWB's FTP site, three licences have been issued by the NWB to the Hamlet of Grise Fiord in the past for its Municipal undertaking.

Licences Issued by the Nunavut Water Board

- Licence, NWB3GRI0308 – Type “B”, was issued to the Hamlet of Grise Fiord on November 15, 2003 with an expiry date of November 15, 2008. The licence allowed for the use of 6,200 m³ of Water per year and the deposit of Waste in support of a Municipal undertaking;
- Licence 3BM-GRI0911 was issued to the Hamlet of Grise Fiord on July 25, 2009 for the use of 7,720 m³ of Water per year and the deposit of Waste. This licence expired on July 31, 2011.
- Licence 3BM-GRI1520 was issued to the Hamlet of Grise Fiord on December 09, 2015 and allowed for the use of 7,700 m³ of Water per year and the deposit of Waste. This licence expires on December 08, 2020.

IV. GENERAL CONSIDERATIONS

The following sections provide background information relevant to the terms and conditions included in this Licence, in the context of submissions received and/or the Board's rationale.

Term of the Licence

In accordance with s. 45 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWSRTA or Act), the NWB may issue a licence for a term not exceeding twenty-five (25) years. In determining an appropriate term for a renewal licence, the Board generally takes into

consideration several factors including interveners' comments, the Licensee's compliance history, as well as the rationale contained in the application.

The Licensee requested in its Application, a five (5) year term for the licence. ECCC in their submissions stated that they support the term requested for the renewal licence. The Board, in examining the compliance history of the licensee, felt that a five year term was appropriate. The Board has therefore granted the term requested by the Licensee. In so doing, the Board believes and expects that the **five-year term** will provide the Licensee with significant opportunities to consistently abide by the terms and conditions in the Licence over time and provide ongoing compliance record prior to a need for renewal.

Annual Reports

Under Part B, Item 1 of the Licence, the Licensee is required to submit Annual Reports for the purpose of ensuring that the NWB has an accurate annual update of municipal activities related to Water use and Waste disposal during each 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:

<ftp://ftp.nwb-oen.ca/other documents/Standardized Forms/>

Water Supply Facility

The Hamlet obtains its freshwater from a stream of glacial runoff, which is available for 45 to 50 days every year in the summer. The Water Supply Facility consists of two water storage tanks, a heating system, boilers to supply heat, a chlorination system, and trucks to deliver the water to the Community. Water is stored in 2 storage tanks. These storage tanks were built in 1986 (Tank A) and 2002 (Tank B) and have a capacity of 4,000 m³ each. The hamlet reports that Tank A is currently 100% filled.

During the Hamlet's cleaning of Tank B in July 2020, significant settlement (up to 400mm) of the steel plate tank floor was observed. It was noted that a column designed to support the tank roof was unsupported and suspended from the roof structure. The issue was reported by the Hamlet to Government of Nunavut, Community and Government Services (GN-CGS) on July 15, 2020. On July 19, 2020, GN-CGS mobilized a contractor from Resolute Bay to undertake initial structural repairs. Preliminary determinations are that the tank floor deformation is likely due to permafrost degradation beneath the tank. While no failure of the tank enclosure was observed, the deformation is placing stress on the welds between the tank wall and the tank floor that may limit the tank's capacity to as little as 50% (2000 m³). Further engineering review, inspection and repairs are scheduled for spring and summer of 2021.

GN-CGS is preparing to ship, via 2020 sealift, between 60,000 and 120,000 litres of bottled potable water to partially mitigate any possible water shortage.

CIRNA, in their comments on the renewal application, stated that the Applicant should consider adding Airport River as a secondary source to the Licence because of the water shortage risks identified with the current water source. On October 15, 2020 the Applicant sent a letter to NWB requesting to add Airport River as a secondary water source to the renewed licence. This secondary water source has not yet been certified by public health authorities as safe for potable purposes. GN-CGS have stated that the water drawn from the secondary source will be stored separately and designated for fire demand and other non-potable uses until complete bacteriological and chemical analysis have been completed. Therefore, the NWB understanding is that Water from this secondary source may be used for potable purposes only if this source is approved for potable use by the Government of Nunavut Public Health Authorities.

The Applicant has also stated that they are working on a new Water Treatment Plant. The design works are scheduled to begin soon and the new facility is anticipated to be operational in the next 3 to 4 years.

Sewage Disposal Facility

The Sewage Disposal Facility (SDF) consists of a non-engineered, unfenced sewage lagoon with a capacity of 19,360 m³. The lagoon is located 800 m away from the community next to the landfill. It is an earthen and unlined lagoon where sewage undergoes natural treatment before being discharged into the ocean.

Solid Waste Disposal Facility

The Solid Waste Disposal Facility (SWDF) consists of a main Solid Waste area and a bulky metal area. There is no protocol in place for the management and handling of waste. The solid waste facility does not segregate hazardous waste and drums of waste oil and other unknown liquids are not stored separately.

Concerns regarding the SWDF have been raised by CIRNA and ECCC. Both interveners have suggested that improving management of the existing site, until a new one is operational, is imperative.

The Hamlet states that they are working on a feasibility study for the selection of a new waste management site. The decommissioning of the existing site will be implemented soon after the new site is commissioned. The new site will have independent cells to manage each different type of waste. The new site is anticipated to be built and operational in next 3 to 4 years.

In 2013, the annual report mentioned “The design of new Solid Waste site is complete. The Project is on hold due to funding. Therefore design was not submitted to NWB.” CIRNA stated that there was a similar comment regarding the design to decommission the existing solid waste facility. CIRNAC did not find an explanation as to why the previously completed design is no longer applicable and why it is necessary to repeat several steps of the process. CIRNA requested an explanation why the 2013 new landfill design and decommissioning design will not be used. The Applicant responded in their reply to comments on October 08, 2020, stating that this was due to GN-CGS’s policy and procedure changes.

Operation & Maintenance Plans

CIRNA provided their technical review comments on the O&M Plan and recommended the following:

1. Updating the Hazardous Waste Management Procedure prior to any renewed licence being issued. Of particular importance is the implementation plan required in Part F, Item 3(d) of the existing licence;
2. Correct deficiencies in the Solidwaste O&M Plan listed in their submission. This could include integrating the Hazardous Waste Management Procedure or referring to the Procedure if it is kept as a separate document;

The Applicant submitted a Solid-Waste Operation and Maintenance Plan, submitted on October 09, 2020.

Further recommendations were received from CIRNA regarding the Solidwaste O&M Plan. These are as follows:

1. The plan does not specify secondary containment is a requirement for hazardous waste storage. Page 24 of the plan includes a recommendation that a bermed and lined area be constructed without any concrete steps on how this will be accomplished in Grise Fiord.
2. Section 7.2.1 on operations for hazardous waste uses the term “should” for activities like fencing and gating, restricting public access, creating a map, storage and many others. This is not sufficient, the manual needs to prescribe how materials will be properly stored and managed.
3. No implementation plan for hazardous waste management was found in the updated plan, as required in Part F Item 3(d) of the current licence.

On November 02, 2020 CIRNA stated that some of their comments on the Solidwaste O&M Plan have not been addressed to satisfaction. CIRNA recommended the Board consider including a condition for the Applicant to provide instructions with specific measures taken in Grise Fiord for secondary containment of hazardous materials in a renewed licence.

The NWB agrees with CIRNA's recommendations and has included conditions in Part F of this Licence to submit an updated version of the Operation & Maintenance (O&M) Plan for the Solid Waste Disposal Facility, including a "Hazardous Waste Management Procedure". The updated version must contain specific instructions for the secondary containment of hazardous materials and how this will be accomplished in Grise Fiord.

Abandonment and Restoration Plan

The Applicant has stated that they plan on building a new Water Treatment Plant and a new Solid Waste Disposal Facility in the following years.

General terms and conditions have been included under Part G in the Licence, requiring the Licensee to submit an Abandonment and Restoration (A&R) Plan at least six (6) months prior to abandoning any facility under the scope of this renewal Licence.

Monitoring Plan

Part H of the Licence details the environmental monitoring requirements. Requirements are similar to the previous Licence.

The Licensee is required to seek approval and/or conformation from the Board prior to making any changes to the monitoring program. It should also be noted that additional sampling may be required upon request by the Board or the Inspector.



NUNAVUT WATER BOARD

WATER LICENCE

Licence No: 3BM-GRI2025

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 NUNAVUT 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 renewal:

Licence Number/Type: **3BM-GRI2025 TYPE "B"**

Water Management Area: **SOUTHERN ELLESMERE ISLAND WATERSHED (64)**

Location: **QIKIQTANI REGION, NUNAVUT**

Classification: **MUNICIPAL UNDERTAKING**

Purpose: **DIRECT USE OF WATER AND DEPOSIT OF WASTE**

Quantity of Water use not to Exceed: **8,000 CUBIC METRES *PER ANNUM* AT MAXIMUM RATE OF 299 CUBIC METRES *PER DAY***

Effective Date: **DECEMBER 9, 2020**

Expiry of Licence: **DECEMBER 8, 2025**

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

**Lootie Toomasie,
Nunavut Water Board, Chair**

PART A: SCOPE, DEFINITIONS AND ENFORCEMENT

1. Scope

This Licence allows for the use of Water and the deposit of Waste for a Municipal undertaking classified as per Schedule 1 of the *Regulations* at the Hamlet of Grise Fiord, located within the Qikiqtani Region of Nunavut.

- a. 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
- b. 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

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

“**Addendum**” means the supplemental text that is added to a full plan or report usually included at the end of the document and is not intended to require a full resubmission of the revised report;

“**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 water or a deposit of waste is permitted by a licence issued by the Board;

“**Board**” means the Nunavut Water Board established under the *Nunavut Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

“**Effluent**” means treated or untreated liquid waste material that is discharged into the environment from a structure such as a settling pond, lagoon (including wetland), landfill or a treatment plant;

“**Engineer**” means a professional engineer registered to practice in Nunavut in accordance with the *Consolidation of Engineers and Geoscientists Act S. Nu 2008, c.2d*

the *Engineering and Geoscience Professions Act S.N.W.T. 2006, c.16 Amended by S.N.W.T. 2009, c.12*;

“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 the designed maximum operating height on the crest of 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;

“High Water Mark” means the usual or average level to which a body of water rises at its highest point and remains for sufficient time so as to change the characteristics of the land (ref. Department of Fisheries and Oceans Canada, Operational Statement: Mineral Exploration Activities);

“Hazardous Waste” means Waste classified as “hazardous” by Nunavut Territorial or Federal legislation, or as “dangerous goods” under the Transportation of Dangerous Goods Act;

“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 a new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion;

“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 Agreement” 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;

“**Regulations**” means the *Nunavut Waters Regulations SOR/2013-69 18th April, 2013*;

“**Sewage**” means all toilet wastes and greywater;

“**Sewage Disposal Facility**” refers to the earthen and unlined lagoon where sewage undergoes natural treatment before being discharged into the ocean, as described in the Application for Water Licence renewal filed by the Applicant on August 06, 2020;

“**Solid Waste Disposal Facility**” means the area comprised of, and the associated structures designed to contain solid Waste, as described in the Application for Water Licence renewal filed by the Applicant on August 06, 2020;

“**Spill Contingency Plan**” means a Plan developed to deal with unforeseen petroleum and hazardous materials events that may occur during the operations conducted under the Licence;

“**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 Solid Waste Disposal Facility, as described in the Application for Water Licence renewal filed by the Applicant on August 06, 2020;

“**Water**” or “**Waters**” means waters as defined in section 4 of the *Act*; and

“**Water Supply Facility**” refers to the glacier run-off stream source of freshwater, and its associated equipment: Water storage tanks, boilers for heating and recirculation system and hypochlorite dosing pumps to treat the water, as described in the Application for Water Licence renewal filed by the Applicant on August 06, 2020.

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*; and
- 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.

PART B: GENERAL CONDITIONS

1. The Licensee shall file an Annual Report on the Appurtenant Undertaking with the Board no later than March 31st of the year following the calendar year being reported, containing the following information:
 - a. Tabular summaries of all data generated under the “Monitoring Program”;
 - b. The daily, monthly and annual quantities in cubic metres of fresh Water obtained at the Water Supply Facility and/or for all purposes under the licence;
 - c. The daily, monthly and annual quantities in cubic metres of sewage Waste discharged; and the monthly and yearly quantities of every type of Waste accepted at the Solid Waste Facilities; ;
 - d. Summary of modifications and/or major maintenance work carried out on the Water Supply Facility and Waste Disposal Facilities, including all associated structures;
 - e. A list of unauthorized discharges and summary of follow-up action taken;
 - f. A summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
 - g. Any Addendum with updates or revisions for manuals and plans (including *Operations and Maintenance Manuals/Plans*) as required by changes in operation and/or technology;
 - h. A summary of any studies or reports requested by the Board that relate to the use of Water and Waste disposal or restoration, and a brief description of any future studies planned;
 - i. A summary of any inspections completed by federal or territorial authorities, geotechnical or municipal engineers, on undertakings related to Waste disposal, Water use or reclamation activities;and
 - j. Any other details on Water or Waste deposit requested by the Board by November 1 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 in writing.
4. The Licensee shall, maintain the necessary signs, where possible, to identify the stations of the “Monitoring Program”. All signage postings shall be in the Official Languages of Nunavut, and shall be located and maintained to the satisfaction of an Inspector.
5. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with this project at least thirty (30) days prior to any such change.
6. The Licensee shall install flow meters or other such devices, or implement other such methods as approved by the Board in writing, for the measuring of Water volumes as

required under Part H of this Licence.

7. 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.
8. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
9. The Licensee shall review the Plans referred to in this Licence, as required by changes in operation and/or technology, and modify the Plan accordingly. Revisions to the Plans shall be submitted in the form of an Addendum to be included with the Annual Report.
10. 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.
11. 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 and any notice provided to an Inspector, 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@nwb-oen.ca

(b) Inspector Contact:

Manager of Field Operations, CIRNA
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445

12. The Licensee shall submit 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 and Inuinnaqtun.
13. 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.

14. This Licence is not assignable except as provided in Section 44 of the Act.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain all fresh water for municipal purposes under this Licence from glacial melt water source using the Water Supply Facilities and Airport River or as otherwise approved by the Board.
2. The annual quantity of Water used for all purposes shall not exceed eight thousand (8,000) cubic metres annually, at a maximum daily withdrawal rate that shall not exceed two hundred and ninety-nine (299) 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. The Licensee shall implement sediment and erosion control measures, prior to and during operations, 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 or as otherwise approved by the Board.
2. The Licensee shall provide a minimum of ten (10) days' notice to an Inspector prior to initiating any decant of the Sewage Disposal Facility.
3. All Effluent discharged from the Sewage Disposal Facility at Monitoring Program Station GRI-4 shall be measured for the parameters listed under this Licence and shall not exceed the following Effluent quality limits:

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

4. The Licensee shall maintain at all times, a Freeboard of at least 1.0 metre, or as recommended by a qualified Geotechnical Engineer and as approved by the Board in writing, for all dams, dykes or other structures intended to contain, withhold, divert or retain Water or Waste.
5. The Sewage Disposal Facility shall be maintained and operated in such a manner as to prevent structural failure.
6. The Licensee shall manage all solid Waste disposed of at the Solid Waste Disposal Facility in accordance with acceptable standard and practices.
7. The Licensee shall not open burn plastics, wood treated with preservatives, electric wire, Styrofoam, asbestos or painted wood to prevent the deposition of waste materials of incomplete combustion and/or leachate from contaminated ash residual, from impacting any surrounding waters, unless otherwise approved by the Board in writing.
8. The Licensee shall segregate and store all hazardous materials and/or hazardous Waste within the Solid Waste Disposal Facility in such a manner as to prevent the deposit of deleterious substances into any Water, until such a time that the materials have been removed for proper disposal at an approved facility.

PART E: CONDITIONS APPLYING TO MODIFICATIONS AND CONSTRUCTION

1. The Licensee shall submit to the Board for review, for construction design drawings stamped by a qualified Engineer, sixty (60) days prior to the construction of any dams, dykes or structures intended to contain, withhold, divert or retain Water or Waste.
2. The Licensee may, without written approval from the Board, carry out modifications to the Water Supply Facility and Solid 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 2, have not been met may be carried out only with 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. The Licensee shall, within ninety (90) days of completion of Modification or construction of facilities and/or infrastructure associated with the project, submit to the Board for review a Construction Summary Report along with stamped as-built plans and drawings, providing explanation to reflect any deviations from for construction drawings taking into account construction and field decisions and how they may affect the performance of engineered facilities.
5. 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.
6. The Licensee shall implement and maintain sediment and erosion control measures prior to and during activities carried out under this Part, to prevent the release of sediment and minimize erosion.
7. With respect to earthworks, the deposition of debris or sediment into or onto any Water body is prohibited. These materials shall be disposed of at a distance of at least thirty-one (31) metres from the ordinary High Water Mark in such a fashion that they do not enter the Water.
8. The Licensee shall only use material that is free of contaminants, for construction, operation, and maintenance activities and that is obtained from approved sources, demonstrated not to be potentially acid generating and metal leaching.

PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE

1. The Board has approved the Plan entitled “Spill Contingency Plan, Municipality of Grise Fiord, Nunavut” submitted on October 08, 2020 as additional information with the Application.
2. The Licensee shall submit to the Board for approval, within three (3) months of issuance of this Licence an updated O&M Plan for the existing Solid Waste Disposal Facility. This updated Plan will include a “Hazardous Waste Management Procedure” for the Solid Waste Disposal Facility including instructions for the segregation of hazardous wastes and specific measures taken for their secondary containment. The Plan will address all outstanding requirements as requested by CIRNA in their technical submission during the renewal application.
3. The Licensee shall submit to the Board for approval, an updated Operation and Maintenance Plan for the Water Supply Facility (Water Storage and Pumping System), within thirty (30) days of the completion of repair works of the water storage tank (Tank B). The updated Operation and Maintenance Plan for the Water Supply Facility will

include instructions and operating procedures specific to Grise Fiord along with a Technical Memo of the repair works completed.

4. An inspection of all engineered facilities related to the management of Water and Waste shall be carried by an Engineer (Civil, Municipal or Geotechnical) annually or before commissioning any facility. The Engineer's report shall be submitted to the Board within sixty (60) days of the inspection, including a Cover Letter from the Licensee outlining an implementation plan addressing each of the Engineer's recommendations.
5. The Licensee shall perform more frequent inspections of the engineered facilities at the request of an Inspector.
6. The Licensee shall, during the term of this Licence, undertake the following activities in addition to any other required action should an unauthorized discharge of waste occur or if such a discharge is foreseeable:
 - a. Employ the appropriate contingency measures as approved under the Spill Contingency Plan for the Hamlet of Grise Fiord;
 - b. Report the incident immediately via the NWT/NU 24-Hour Spill Reporting Line at (867) 920-8130 and to the Inspector 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 preventative measures to be implemented.
6. The Licensee shall, in addition to Part F, Item 8, regardless of the quantity of releases of harmful substances, report to the NWT/NU 24-Hour Spill Reporting Line if the release is near or into a Water body.

PART G: CONDITIONS APPLYING TO ABANDONMENT, RESTORATION AND CLOSURE

1. The Licensee shall submit to the Board for approval an *Abandonment, Restoration and Closure Plan* at least six (6) months prior to abandoning any facilities or upon submission of the final design drawings for the construction of new facilities to replace existing ones. Where applicable, the Plan shall include information on the following:
 - a. water intake facility;
 - b. the water treatment and waste disposal sites and facilities;
 - c. petroleum and chemical storage areas;
 - d. any site affected by waste spills;
 - e. leachate prevention;
 - f. an implementation schedule;

- g. maps delineating all disturbed areas, and site facilities;
 - h. consideration of altered drainage patterns;
 - i. type and source of cover materials;
 - j. future area use;
 - k. hazardous wastes; and
 - l. a proposal identifying measures by which restoration costs will be financed by the Licensee upon abandonment.
2. The Licensee shall complete all restoration work within the time schedule specified in the Plan, or as subsequently revised and approved by the Board.
 3. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.
 4. In order to promote growth of vegetation and the needed microclimate for seed deposition, all disturbed surfaces shall be prepared by ripping, grading, or scarifying the surface to conform to the natural topography.
 5. Areas that have been contaminated by hydrocarbons shall be reclaimed to meet objectives as outlined in the Government of Nunavut's Environmental Guideline for Site Remediation, January 2002. The use of reclaimed soils for the purpose of back fill or general site grading may be carried out only upon consultation and approval by the Government of Nunavut, Department of Environment and an Inspector.

PART H: CONDITIONS APPLYING TO MONITORING PROGRAM

1. The Licensee shall maintain Monitoring Program Stations at the following locations:

Monitoring Program Station Identification	Description	Frequency	Status
GRI-1	Raw Water Supply Intake at the Water Supply Facility prior to treatment	Daily, Monthly and Annually	Active (Volume)
GRI-2	Effluent discharge from the Final Discharge Point at the Solid Waste Facility	Once in the beginning, once in the middle and once near the end of the season (when flow is observed)	Active (Quality)
GRI-3	Raw sewage at the truck offload point	NA	Inactive

Monitoring Program Station Identification	Description	Frequency	Status
GRI-4	Effluent discharge from the Final Discharge Point at the Sewage Disposal Facility	<u>Volume</u> : Monthly and Annually; <u>Water Quality</u> : Twice Annually – in the beginning and near completion of decanting	Active (Volume) (Quality)

2. The Licensee shall measure and record, in cubic metres, the daily, monthly and annual quantities of water pumped at Monitoring Program Station GRI-1, for all purposes.
3. The Licensee shall measure and record in cubic metres, the monthly and annual quantities of effluent discharged from Monitoring Program Station GRI-4.
4. All samples obtained at Monitoring Program Station GRI-4 shall be in compliance with effluent criteria as established under Part D, Item 3.
5. The Licensee shall sample at Monitoring Program Stations GRI-2 and GRI-4, according to the frequency established under Part H, Item 1, during periods of observed flow. Samples shall be analyzed for the following parameters:

Biochemical Oxygen Demand (BOD ₅)	Fecal Coliforms
Total Suspended Solids	pH
Conductivity	Nitrate-Nitrite
Oil and Grease	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)*

6. 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.

7. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
8. The Licensee shall annually review the QA/QC Plan and modify it as necessary. Revised QA/QC Plans shall be submitted to the Board with a current approval letter from an accredited lab and shall meet the standards set out in Part H, Item 6 and Part H, Item 7 of the Licence.
9. The Licensee shall include all of the data and information required by the “Monitoring Program” complete with an interpretation and discussion of the results, in the Licensee's Annual Report, as required *per* Part B, Item 1, or as requested by an Inspector.
10. Modifications to the Monitoring Program may be made only upon written approval from the NWB.
11. Additional monitoring stations, sampling and analyses may be requested by an Inspector.