



ᓄᓇᓂᓪ ᐃᓕᓕᓂᓪ ᑲᓂᓕᓂᓪ  
NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN KATIMAYINGI  
OFFICE DES EAUX DU NUNAVUT

File No: **3BM-ARC2530**

July 10, 2025

Roberto Morreti, CAO  
Municipality of Arctic Bay  
P.O. Box 150,  
Arctic Bay  
Nunavut X0A 0A0  
Phone: (867) 439-9917

Ryan Kum  
Department of Community and Government Services  
P.O. Box 1000, Station 700,  
4th Floor W.G. Brown Building, Iqaluit  
Nunavut X0A 0H0  
Phone: (867) 975-6411

Email: [cao@arcticbay.ca](mailto:cao@arcticbay.ca)

Email: [communitysupportdivision@gov.nu.ca](mailto:communitysupportdivision@gov.nu.ca)

**RE: NWB Replacement Water Licence No: 3BM-ARC2530**

---

Dear Roberto Morreti:

Please find attached Licence No: **3BM-ARC2530** issued to the Municipality of Arctic Bay (Municipality or Licensee or Applicant) 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 the use of Water and the deposit of Waste are an integral part of this approval.

If the Licensee contemplates continuing this Undertaking after the Licence expires, it is the responsibility of the Licensee to apply to the NWB for a renewal water licence. 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 the use of Water and the deposit of Waste must cease, or the Licensee may be in contravention of the *Nunavut Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act (NWNSTRA or 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 application 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 the 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.

It should be noted that in accordance with s. 75(1)(a) of the *Nunavut Planning and Project Assessment Act (NuPPAA)*, the Board is not allowed to issue a permit or authorization for any project proposal that has not been submitted to the Nunavut Planning Commission (NPC) in accordance with s. 76 of *NuPPAA*.

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

Sincerely,

---

Lootie Toomasie  
Nunavut Water Board,  
Chair

LT/ns/rh

Enclosure: Water Licence No: **3BM-ARC2530**

Comments – CIRNAC, ECCC, DFO

Cc: Distribution List – Qikiqtani

---

<sup>1</sup> Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), February 10, 2025; Environment and Climate Change Canada (ECCC), February 07, 2025; Fisheries and Oceans Canada (DFO), February 10, 2025.

---

## TABLE OF CONTENTS

<b>DECISION</b> .....	ii
<b>I. BACKGROUND</b> .....	iii
<b>II. PROCEDURAL HISTORY</b> .....	iii
<b>III. FILE HISTORY</b> .....	iv
<b>IV. GENERAL CONSIDERATIONS</b> .....	iv
Term of the Licence .....	v
Annual Reports .....	v
Water Use .....	v
Deposit of Waste.....	vi
Monitoring Program.....	vii
Summary of Comments.....	viii
 <b>WATER LICENCE</b> .....	 1
<b>PART A: SCOPE, DEFINITIONS AND ENFORCEMENT</b> .....	2
1. Scope .....	2
2. Definitions .....	2
3. Enforcement .....	5
<b>PART B: GENERAL CONDITIONS</b> .....	5
<b>PART C: CONDITIONS APPLYING TO WATER USE</b> .....	8
<b>PART D: CONDITIONS APPLYING TO WASTE DISPOSAL</b> .....	9
<b>PART E: CONDITIONS APPLYING TO MODIFICATION AND CONSTRUCTION</b> .....	10
<b>PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE</b> .....	11
<b>PART G: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION</b> .....	13
<b>PART H: CONDITIONS APPLYING TO THE MONITORING PROGRAM</b> .....	13

## DECISION

### LICENCE NUMBER: 3BM-ARC2530

This is the decision of the Nunavut Water Board (NWB) with respect to an application received on January 08, 2025, for a renewal type B Licence made by:

#### MUNICIPALITY OF ARCTIC BAY

to allow for the use of Water and the deposit of Waste during municipal operations by the Municipality of Arctic Bay located within the Qikiqtani Region, Nunavut, generally located at the geographical coordinates as follows:

Latitude: 73° 02' 15" N

Longitude: 85° 08' 53" W

## DECISION

After having been satisfied that the Application is for a proposal that was previously reviewed by the Nunavut Planning Commission (NPC) and the conformity determination issued on April 29, 2019 still applies and is exempt from screening by the Nunavut Impact Review Board (NIRB) because it belongs to a class of works or activities set out in Schedule 12-1 of the *Nunavut Agreement* as determined by the NPC<sup>2</sup>, 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 (NWNSTRA or 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 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 *Nunavut Agreement* and of the *Act*, waived the requirement to hold a public hearing, and determined that:

**Water Licence No: 3BM-ARC1924 be replaced by Water Licence No: 3BM-ARC2530 subject to the terms and conditions contained therein. (Motion #: 2025-B1-013)**

Signed this 10<sup>th</sup> day of July, 2025 at Gjoa Haven, NU.

---

Lootie Toomasie  
Nunavut Water Board, Chair

LT/ns/rh

---

<sup>2</sup> Nunavut Planning Commission (NPC) Conformity Determination dated August 06, 2024.

## **I. BACKGROUND**

The application for amendment and renewal (Application) is made by the Municipality of Arctic Bay (Municipality) to support community operations. The community is located in Borden Peninsula, Baffin Island, Nunavut and is surrounded by hills, sitting mostly on a low gravel beach on the shore of Arctic Bay off of Adams Sound.

The Municipality has the following infrastructure:

- Water Supply Facility, which draws water from Marcil Lake to a water treatment plant and supplies water through distribution trucks;
- Sewage Disposal Facility, which consists of a single cell lagoon that receives trucked wastewater from the holding tanks in each building and a natural tundra vegetated filter strip wetland area of 11.2 hectares; and
- Solid Waste Disposal Facilities, which consists of a fenced disposal area for municipal solid waste, a separate bulk metal disposal area and a separate hazardous materials area.

## **II. PROCEDURAL HISTORY**

The Board received an application for amendment/renewal (Application) of expired licence 3BM-ARC1924 from the Municipality of Arctic Bay on January 08, 2025. The Application consisted of the following documents:

- Water Licence Amendment and Renewal Application
- Executive Summary - Arctic Bay Water Licence Renewal - English
- Executive Summary - Arctic Bay Water Licence Renewal – Inuktitut
- Arctic Bay Water License Renewal and Amendment Authorization Letter
- Arctic Bay Regulatory Submission NWB Support Letter\_Oct 31, 2024
- Cover Letter - Amendment Renewal
- Amendment Justification Letter
- NPC Letter
- Business Case Report\_ARCTIC BAY\_FINAL\_Rev1\_signseal\_wappendices
- Arctic Bay Water Supply Facility 75% Detailed Design Drawings
- Hamlet of Arctic Bay Annual Report 2019
- Hamlet of Arctic Bay Annual Report 2021
- Hamlet of Arctic Bay Annual Report 2022
- Hamlet of Arctic Bay Annual Report 2023
- Plan for Compliance 2024
- Environmental Emergency Contingency Plan November 2024 with Appendices V2
- Environmental Monitoring and QA QC Plan November 2024 with Appendices V2
- OM Plan Sewage Disposal Facility November 2024 with Appendices V2
- OM Plan Solid Waste Disposal Facility November 2024 with Appendices
- Amend Renew Application – Applicant Response to NWB request

Following receipt and an internal preliminary review, the NWB informed the Licensee on January 08, 2025, about missing plans in the Application that need to be submitted prior to proceeding with the processing of the Application. The NWB received the missing documents on January 09, 2025.

On January 10, 2025, the NWB distributed the application for a thirty-day review and comment period, with the deadline for submission set for February 10, 2025. The NWB received comments from Crown Indigenous Relations and Northern Affairs Canada (CIRNAC) on February 10, 2025, Environment and Climate Change Canada (ECCC) on February 07, 2025 and Fisheries and Oceans Canada (DFO) on February 10, 2025. The Applicant responded to all the comments on March 07, 2025.

Following the public review, the NWB anticipated the results of the study on the recommended frequency of an engineer's inspection of the water and waste infrastructure to set the monitoring requirements. However, as per recent conversations with the Applicant, the report is not yet ready for submission. To avoid further delays in the licence renewal process, the NWB has decided to proceed with issuing the licence without the study. The Applicant has been advised to submit the report as soon as it becomes available.

The NWB has placed in its Public Registry copies of the Application and all supporting documentation. This information can be accessed on the NWB's Public Registry using the following link:

<https://public.nwb-oen.ca/registry/3%20MUNICIPAL/3B/3BM%20-%20Municipality/3BM-ARC2530/>

### III. FILE HISTORY

According to information included on the NWB's Public Registry, the NWB has issued four licences to the Municipality of Arctic Bay in the past as outlined in Table 1.

**Table 1 NWB Licensing History**

Licence No.	Date Issued	Comments
NWB3ARC0207	November 1, 2002	Water use 45,000 m <sup>3</sup> per year
NWB3ARC0207 Amendment No.1	March 2, 2005	Authorization for emergency remedial work on containment berms associated with the Sewage Disposal Facility
3BM-ARC0810	March 17, 2008	Water use 45,000 m <sup>3</sup> per year
3BM-ARC0810 Amendment No.1	April 16, 2009	Authorization for construction of new Sewage Lagoon and decommissioning of the existing Sewage Disposal Facility
3BM-ARC1419	August 29, 2014	Water use 50,005 m <sup>3</sup> per year
3BM-ARC1924	August 29, 2019	Water use 59,900 m <sup>3</sup> per year

### IV. GENERAL CONSIDERATIONS

The following sections provide a general overview of the rationale for some of the main terms

and conditions included under this Water Licence.

### **Term of the Licence**

In accordance with s. 45 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act (NWNSRTA 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 the Interveners' comments, the Licensee's compliance history, as well as the rationale contained in the application.

The Applicant has requested a twenty-three (23) year term for the licence, with a proposed expiry date in August 2047. However, CIRNAC recommended that a renewal licence for the use of water and deposit of waste be issued for no more than 5 years to allow sufficient time for the construction of a new water treatment plant and to address the operational non-compliances. The NWB, in examining the requirements and past performance of the Licensee and taking into account CIRNAC's recommendation, felt that a five-year term would be appropriate, giving the Licensee sufficient time to resolve the outstanding concerns.

### **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 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 on the NWB Public Registry link:

<https://public.nwb-oen.ca/other%20documents/Standardized%20Forms/>

The NWB has also taken this opportunity to review the Annual Reports submitted in recent years, and the following deficiencies in reporting have been identified:

- failure to submit the required documentation on time;
- incomplete monitoring data in accordance with the Monitoring Program;
- no interpretation of data provided, no explanation for missing data.

The Annual Report shall include all Monitoring Program results as per requirements included within Part H (Conditions applying to the Monitoring Program) of the Licence. The NWB would like to remind the Licensee that the Annual Reporting requirements of the Licence should be adhered to at all times so as to help maintain full compliance with the respective terms and conditions in the Licence. The NWB strongly recommends that for all subsequent annual submissions, the Licensee submit a more systematic Monitoring report, in accordance with Part H, Item 1, of the current Water Licence, including a short analysis and interpretation of the data.

### **Water Use**

The Municipality of Arctic Bay obtains all of its freshwater from a natural lake called Marcil Lake, located approximately 8 kilometres east of the Municipality. The water is pumped from the lake to the treatment plant and is then distributed by trucks to residents in the community.

The Licensee has requested to increase the allowable annual water consumption from the previously approved 59,900 cubic metres to 75,000 cubic metres. The Board does not have any concerns with respect to the quantity of water requested, and the Licensee justified that the capacity of the sewage lagoon is sufficient to accommodate the increase in water use.

Based on the nature of the undertaking and Water supply needs of the Municipality, the NWB has granted the quantity of Water requested by the Municipality and set the maximum Water use for all purposes under this Licence at 75,000 cubic metres per year or no more than 299 cubic metres per day. If the Licensee requires Water in quantities greater than that allowed under the Licence or from sources other than Marcil Lake, the Licensee will be required to submit an Amendment Application to the Board for consideration.

Additionally, the Applicant also requested to remove Nanisivik Naval Facility from the scope as the Municipality no longer has an agreement with the Department of National Defense to provide potable water to the Nanisivik Naval Facility.

### **Deposit of Waste**

The Municipality generates the following types of waste: sewage and greywater, non-hazardous solid waste, hazardous waste, bulky items/scrap metal, animal waste, waste oil, sludge and contaminated soil. The following facilities have been developed to handle the waste generated by the Municipality:

#### ***i. Sewage Disposal Facility***

The Municipality uses a single-cell sewage lagoon system to treat sewage generated by the community. The lagoon system, constructed in 2013, has a projected lifespan of 20 years and is complemented by a wetland area (a vegetative filter strip) that is used to polish water treated from the sewage lagoon system. The previous lagoon system, which was constructed in 1976 and expanded in 2003, was decommissioned in 2013 in accordance with information contained in the report entitled *Arctic Bay Sewage Lagoon Decommission*, dated April 2008.

All sewage generated by the community is collected and transported by trucks to the new sewage lagoon system for treatment. Conditions have been included under Part D in the Licence to allow the deposit of all sewage generated by the Municipality at the Sewage Disposal Facility.

Additionally, the Board did not receive the investigation for high phenol concentrations in the wastewater effluent as required by the expired Licence. Phenol concentrations continue to be elevated in the recent monitoring reports, and hence the Licensee is required to investigate the reason for elevated phenol concentrations and submit a report to the Board as soon as possible.

#### ***Sludge Removal***

The Municipality does not anticipate the lagoon to require desludging during its 20-year design life because the available storage for sludge is greater than the quantity estimated to be generated. Monitoring the effluent from the lagoon will indicate the performance of the lagoon. Degradation of the performance of a lagoon is normally caused by sludge accumulation and will be the



indicator to desludge the lagoon. Prior to disposal, the sludge must be tested to ensure the disposal method chosen is safe and environmentally responsible. Accordingly, conditions have been included under Part H, Item 8 in the Licence requiring the Licensee to measure quantity and analyze the quality of sludge generated by the Sewage Disposal Facility in accordance with details contained in the respective Operations and Maintenance Manual.

## ***ii. Solid Waste Disposal Facilities***

The Municipality operates a non-engineered landfill facility for domestic, construction, industrial, institutional, metal and hazardous wastes. Conditions at the landfill, metal dump and hazardous waste area have been of a concern consistently raised in CIRNAC inspection reports since 2016. The hazardous waste, which is not in secondary containment and has an ephemeral stream running through it, has been of particular concern. The Licensee constructed a berm to divert water away from the solid waste; however, the berm was damaged in 2024 and the Licensee has committed to repairing it during summer 2025. The Board also acknowledges the Licensee's commitment to address this deficiency through addition of an additional secondary containment for hazardous waste.

## **Management Plans and Manuals**

The Applicant has submitted the following plans with the amendment/renewal Application:

- *Operation & Maintenance Plan for Municipal Water Licence Sewage Disposal Facilities dated November 2024;*
- *Operation & Maintenance Plan for Municipal Water Licence: Solid Waste Disposal Facilities dated March 2025;*
- *Environmental Monitoring Program and Quality Assurance/Quality Control Plan for Municipal Water Licence dated March 2025;*
- *Environmental Emergency Contingency Plan for Municipal Water Licence dated March 2025*

The abovementioned plans have been reviewed by the NWB and the interveners and have been approved (or accepted) with the issuance of this Licence.

Additionally, the Board notes that the plan entitled *Arctic Bay Truckfill Operations and Maintenance Manual, dated 1998* was to be updated 90 days from the issuance of the expired licence. The NWB did not receive an updated plan and upon request of the Licensee, the NWB has included a condition to submit the Operations and Maintenance Plan for truckfill operations as part of the Operations and Maintenance Manual for the new Water Supply Facility that will be submitted at least six (6) months prior to its commissioning.

## **Monitoring Program**

The conditions related to monitoring are detailed under Part H of the Licence, most of which have been carried forward from the previous Licence. The following changes were made to the monitoring program as per the Applicant's amendment request.

- The Applicant requested to change the compliance point for effluent discharged from the

Sewage Disposal Facility from ARC-4 to ARC-6b. The Applicant stated that the final discharge point from the wetland should be monitored, as the wetland is part of the treatment process and is capable of providing treatment. Furthermore, the NWB reviewed the monitoring results from recent years and there is evidence that the wetland is providing some treatment and the parameters are under the discharge limits in the Licence. Therefore, the compliance point was changed to ARC-6b. However, monitoring should continue at ARC-4 to characterize the effluent entering the wetland and to assess the future performance of the wetland.

- The effluent quality limit for Total Suspended Solids (TSS) was changed from 180 mg/L to 120 mg/L. Similarly, the Licensee is now required to measure CBOD instead of BOD<sub>5</sub> and the effluent quality limit for CBOD was set to 100 mg/L.
- The monitoring station, ARC-7b, is removed as the quarry is abandoned and is no longer required for municipal activities. Furthermore, the Applicant confirmed that the spot is normally too dry to sample, and runoff from this site would be all-natural material, mainly dust and sand.
- The requirement to monitor the quality of wastewater at ARC-3 is removed as the Applicant stated that there is low practical interest in monitoring quality at this station. However, the Licensee shall continue to monitor the volume of raw wastewater discharge.
- The Applicant requested to remove the monitoring requirements at stations ARC-10, ARC-11 and ARC-12 and indicated that a consultant has been contracted to study the recommended frequency of an engineer's inspection of the water and waste infrastructure. However, since the Board has not received the report, the requirement to monitor cannot be removed at this point.

### **Summary of Comments**

#### **Crown Indigenous Relations and Northern Affairs Canada**

1. CIRNAC recommended that the Applicant confirm that the lagoon is capable of holding the increased capacity to meet expected treatment times to meet discharge criteria.

Applicant Response: The lagoon is capable of holding the increased capacity and the Government of Nunavut (GN) has initiated the process to request planning funding to increase the lagoon capacity.

2. CIRNAC recommended that the Applicant address the issues of non-compliance prior to the Board considering any application for a renewal water licence and that the term be reduced to 5 years.

Applicant Response: The Applicant requested that the 23-year renewal be considered as the 23-year term aligns with the infrastructure lifecycle and allows the Applicant to expend effort on ensuring compliance rather than the bureaucratic application process.

3. CIRNAC recommended that the Applicant fix or install the required flowmeter to record proper water quantity measures from all sources.

Applicant Response: The Applicant committed to installing a new flowmeter in the existing water treatment plant within the next 6 months.

4. CIRNAC recommended that the Board keep the condition to assess and analyze the geothermal performance of the Sewage Disposal Facility.

Applicant Response: The condition was requested to be removed as the Municipality does not have the technical capacity to meet the requirement, as there is no Geotechnical Engineer staffed by the Municipality and it is cost-prohibitive to contract one.

5. CIRNAC recommended that the Applicant provide an update on how mitigation measures taken to date contain water run-off, and how waste disposal in general is being properly managed within the facility.

Applicant Response: The Applicant constructed a berm to divert water away from the solid waste site. However, the berm was damaged and will be repaired in 2025. Secondary containment is also planned when the new water treatment plant is commissioned.

6. CIRNAC recommended that the Applicant install a flow meter on the intake pipe immediately to record accurate water volume and level measurements.

Applicant Response: The Applicant committed to installing a new flowmeter in the existing water treatment plant within the next 6 months.

7. CIRNAC recommended that the Applicant remove dilution as a form of treatment to clean up a sewage spill.

Applicant Response: The *Environmental Emergency Contingency Plan* was updated to incorporate the recommendation.

8. CIRNAC recommended that the Applicant provide GPS coordinates of the sampling sites as identified in the Environmental Monitoring and QA/QC Plan.

Applicant Response: The *Environmental Monitoring and QA/QC Plan* was updated to incorporate the recommendation.

On March 18, 2025, CIRNAC responded, stating that some of the concerns have been addressed but comments R-02, R-03 and R-04 are not resolved.

#### Environment and Climate Change Canada

1. ECCC recommended retaining the compliance point at ARC-4 where control of effluent from the lagoon can be maintained.

Applicant Response: The Applicant referenced the report *Development of Nunavut Municipal Wastewater Management Standards* dated October 2017, prepared by exp Services Inc., and stated that the final discharge point from the wetland should be monitored, as the wetland is part of the treatment process and is capable of providing treatment.

ECCC Response: Generally, a defined point of control is the preferred approach for a compliance point. However, at a minimum, monitoring should be maintained at ARC-4 to characterize effluent prior to entering the wetland.

2. ECCC recommended that the Applicant provide supporting data and discussion supporting the request to discontinue sampling at ARC-7a.

Applicant Response: There is no monitoring data to provide as the spot is normally too dry to sample and runoff from this site would be all-natural material, mainly dust and sand. Additionally, the quarry is no longer in use and is not required to support municipal operations. Furthermore, quarries are not normally part of municipal water licences.

3. ECCC recommended that:
  - a. The Applicant clarify whether an engineer must be present to sample ARC-11
  - b. The Applicant clarify what information related to seepage monitoring at standpipes is expected to be included in the Dillon study
  - c. ARC-11 is retained in the monitoring program to monitor for potential seepage from the lagoon

Applicant Response: The Applicant confirmed that they will continue monitoring at ARC-11.

4. ECCC recommended that the Environmental Monitoring Program be updated to provide details on which guidelines will be used for the interpretation of monitoring data.

Applicant Response: The *Environmental Monitoring and the QA/QC Plan* was updated to incorporate the recommendation.

5. ECCC recommended that the Applicant prioritize proper waste management of hazardous waste such that the waste does not interact with other wastes or receiving environment. The Applicant should also discuss the measures that could be implemented to prevent runoff from hazardous waste to the sewage treatment wetland.

Applicant Response: The Applicant constructed a berm to divert water away from the solid waste site. However, the berm was damaged and will be repaired in 2025. Secondary containment is also planned when the new water treatment plant is commissioned.

On March 18, 2025, ECCC stated they have no further comments but advised that, at a minimum, monitoring should be maintained at ARC-4 to characterize effluent prior to entering the wetland (comment no. 1).

#### Fisheries and Oceans Canada

1. DFO recommended that the Applicant adhere to DFO's protective measures for fish and fish habitat, as well as standard codes of practice, to be in compliance with the *Fisheries Act* and utilize the provided resources to avoid impacting fish or their habitat.

Applicant Response: The Applicant will implement the recommendations.



## NUNAVUT WATER BOARD WATER LICENCE

**Licence No: 3BM-ARC2530**

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

### **MUNICIPALITY OF ARCTIC BAY**

(Licensee)

**P.O. BOX 150, ARCTIC BAY, NUNAVUT, X0A 0A0**

(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-ARC2530 / TYPE B**

Water Management Area: **ADMIRALTY INLET (47)**

Location: **MUNICIPALITY OF ARCTIC BAY, QIKIQTANI  
REGION, NUNAVUT**

Classification: **MUNICIPAL UNDERTAKING**

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

Quantity of Water use not  
to Exceed: **75,000 CUBIC METRES PER ANNUM OR 299 CUBIC  
METRES PER DAY**

Date of Licence Issuance: **JULY 10, 2025**

Expiry of Licence: **JULY 09, 2030**

This Licence, 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 an undertaking classified as Municipal as per Schedule 1 of the *Regulations* at the Municipality of Arctic Bay within the Qikiqtani Region, Nunavut.

- a. This Licence is issued subject to the conditions contained herein with respect to the taking of Water and the deposit 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**

In this Licence No: 3BM-ARC2530

“**Act**” or “**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;

“**Analyst**” means an Analyst designated by the Minister under Section 85 (1) of the Act;

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

“**Dam Safety Guidelines**” means the Canadian Dam Association (CDA) *Dam Safety Guidelines (DSG)*, 2007 (Revised 2013) or subsequent approved editions;

**“Decommissioned Sewage Lagoon”** means the single cell lagoon, ice pack storage area and associated wetlands located approximately 2 kilometres east of the Municipality. The lagoon was constructed in 1976, expanded in 2003 and decommissioned;

**“Effluent”** means treated or untreated liquid Waste material that is discharged into the environment from a structure such as a settling pond, landfarm 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.2* and 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”** means the point at which the Licensee no longer exerts care and/or control over the quality and/or quantity of the effluent from a treatment process;

**“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 a single Water or wastewater sample taken at a time and place representative of the total discharge;

**“Greywater”** means all liquid Wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include toilet Wastes;

**“Hazardous Waste”** means materials or contaminant which are categorized as dangerous goods under the *Transportation of Dangerous Good Act* (1992) and/or that is no longer used for their original purpose and is intended for recycling, treatment, disposal or storage;

**“High Water Mark”** means the usual or average level to which a water body 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);

**“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”** or **“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;

**“Plan for Compliance”** means the plan developed by the Municipality of Arctic Bay to meet Licence requirements, specifically, but not limited to the disposal of Sewage and Solid Waste, provided in the Application for Water Licence Renewal;

**“Quality Assurance / Quality Control (QA/QC)”** Quality Assurance means the system of activities designed to better ensure that quality control is done effectively; Quality Control means the use of established procedures to achieve standards of measurement for the three principal components of quality: precision, accuracy and reliability;

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

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

**“Sewage Disposal Facility”** comprises the engineered single cell Sewage Lagoon, decant structures and wetland area designed to contain and treat sewage, as described in the Application for Water Licence Renewal;

**“Solid Waste Disposal Facilities”** comprises the area and associated structures currently in use and designed to contain solid Waste (landfill site) as described in the Application for Water Licence Renewal filed by the Applicant;

**“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;

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

**“Undertaking”** means an undertaking in respect of which water is to be used or waste is to be deposited, of a type set out in Schedule I of the *Regulations*;

**“Use”** means use as defined in S.4 of the *Act*;

**“Vegetated Filter Strip Wetland Area”** comprises approximately 11.2 hectares of land immediately downstream of the Sewage Lagoon, for approximately 700 metres at a slope of 6 to 13% and includes the Lagoon dewatering pump and infrastructure as described in the Application for Water Licence Renewal filed by the Applicant and illustrated in construction drawings prepared by Trow Associates Inc. Project OTCD00019054A, dated April 2008;

**“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 Facilities, as described in the Application for Water Licence Renewal filed by the Applicant;

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

**“Water Supply Facility”** comprises the area and associated intake infrastructure at Marcil Lake, as described in the Application for Water Licence Renewal filed by the Applicant.

### **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 Undertaking with the Board no later than March 31<sup>st</sup> of the year following the calendar year being reported, containing the following information:
  - a. the daily, monthly and annual quantities in cubic metres of freshwater obtained from all sources;
  - b. the daily, monthly and annual quantities in cubic metres of each and all waste

- discharged including the hazardous and non-hazardous waste accepted at the Solid Waste Disposal Facilities;
- c. tabular summaries and a brief written interpretation of all data generated under the “Monitoring Program” and discussion of wastewater treatment levels of the Sewage Treatment Facility, as well as the treatment efficiency of the Vegetated Filter Strip Wetland Area;
  - d. summary of modifications to the “Monitoring Program” in accordance with Part H, Item 16;
  - e. a list of unauthorized discharges and a summary of follow-up action taken;
  - f. assessment of the geotechnical and geothermal performance of the Sewage Disposal Facility including an analysis of the results from the thermistor, standpipe and settlement monitoring stations, as required in Part H, Item 12;
  - g. quantity of any sludge (in cubic metres per month and per year) removed from the Sewage Disposal Facility along with the treatment/storage/disposal provided;
  - h. results of sampling and analyses of any sewage sludge, if removed from the Sewage Disposal Facility, in accordance with Part H, Item 8;
  - i. 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;
  - j. any updates or revisions for manuals and plans (i.e., Operations and Maintenance, Abandonment and Restoration, QA/QC) as required by changes in operation and/or technology;
  - k. a summary of any studies, reports and plans requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;
  - l. a summary of any abandonment and restoration work completed during the year and an outline of any work anticipated for the next year;
  - m. summary of modifications and/or major maintenance work and/or investigations carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities;
  - n. update on the Compliance Plan and progress made on specific requirements therein; and
  - o. any other details on water use or waste disposal requested by the Board by November 1<sup>st</sup> of the year being reported.
2. The Licensee shall notify the Board of any changes in operating plans or conditions associated with this Project at least thirty (30) days prior to any such change.
  3. 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.
  4. The “Monitoring Program” and compliance dates specified in the Licence may be modified at the discretion of the Board.

5. The Licensee shall install flow meters or other such devices, or implement suitable methods required for the measuring of water volumes as required under Part H, Item 3.
6. The Licensee shall post 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.
7. The Licensee shall, for all Plans and Manuals submitted under this Licence, implement the Plans and Manuals as approved by the Board.
8. Every Plan and Manual 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 and/or Manual by the Board become part of this Licence. All terms and conditions of the Licence should be contemplated in the development of a Plan and/or Manual where appropriate.
9. 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.
10. 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.
11. The Licensee shall immediately report 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, to the NWT/NU 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4284.
12. The Licensee shall ensure a copy of this Licence is maintained at the site of operations 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@nwb-oen.ca](mailto:licensing@nwb-oen.ca)

**(b) Inspector Contact:**  
Inspector Contact:

Manager of Field Operations, CIRNAC  
Nunavut District, Nunavut Region  
918 Nunavut Drive  
Iqaluit, NU X0A 3H0  
Telephone: (867) 975-4284

13. The Licensee shall submit an 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.
14. The Licensee shall ensure that all documents or correspondence submitted by the Licensee to the Board are received and acknowledged by the Manager of Licensing.
15. This Licence is assignable as provided for in Section 44 of the *Act*.
16. The expiry or cancellation of this Licence does not relieve the Licensee from any obligation imposed by the Licence, or any other regulatory requirement.

**PART C: CONDITIONS APPLYING TO WATER USE**

1. The Licensee shall obtain all potable Water required for the Water Supply Facility and relevant uses included under the scope of this Licence from Marcil Lake or as otherwise approved by the Board in writing.
2. The annual quantity of water used for all purposes under this Licence shall not exceed seventy-five thousand (75,000) cubic metres *per* annum and a maximum of two hundred and ninety-nine (299) cubic metres *per* day.
3. The use of Water from streams or any water bodies not identified in Part C, Item 1, is prohibited unless authorized and approved by the Board in writing.
4. The Licensee shall maintain the Water Supply Facility to the satisfaction of the Inspector.
5. The Licensee shall equip all Water intake hoses with a screen of an appropriate mesh size to ensure that fish are not entrained and shall withdraw Water at a rate such that fish do not become impinged on the screen.
6. The Licensee shall not remove any material from below the ordinary High Water Mark of any water body unless approved by the Board in writing.
7. The Licensee shall not cause erosion to the banks of any water body and shall provide necessary controls to prevent such erosion.
8. Sediment and erosion control measures shall be implemented prior to and maintained

during the undertaking to prevent entry of sediment into Water.

9. 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.

**PART D: CONDITIONS APPLYING TO WASTE DISPOSAL**

1. The Licensee shall direct all municipal Sewage generated by the Municipality of Arctic Bay to the Sewage Disposal Facility, or as otherwise approved by the Board in writing.
2. The Licensee shall provide notice to an Inspector at least ten (10) days prior to initiating any decant of the Sewage Disposal Facility.
3. All Effluent discharged from the Sewage Disposal Facility at Monitoring Program Station ARC-6b shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample
CBOD	100 mg/L
Total Suspended Solids	120 mg/L
Faecal Coliforms	1 x 10 <sup>6</sup> CFU/dL
Oil and grease	No visible sheen
pH	Between 6 and 9

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 Wastes.
5. The Sewage Disposal Facility shall be maintained and operated to the satisfaction of an Inspector and in such a manner as to prevent structural failure.
6. The Licensee shall dispose of and contain all solid Wastes generated by activities and undertakings under this Licence at the Solid Waste Disposal Facilities or as otherwise approved by the Board in writing.
7. The Licensee shall segregate and securely store all hazardous materials and/or hazardous Waste, including Waste oil, within the Solid Waste Disposal Facilities in such a manner as to prevent the deposit of deleterious substances into any Water and until such time that proper disposal arrangements are made.
8. The Licensee shall implement measures to control wind-blown litter at the Solid Waste Disposal Facilities.

9. 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.
10. The Licensee shall, for the construction, operation and maintenance activities, use materials free of contaminants, obtained from an approved source, and that have been demonstrated not to possess acid generating and metal leaching properties.
11. The construction or disturbance of any stream/lake bed or the banks of any definable watercourse is not permitted unless authorization is obtained from the Department of Fisheries and Oceans Canada (DFO).

**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, sixty (60) days 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 consent from the Board, carry out Modifications to the Water Supply Facility 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. such Modifications do not place the Licensee in contravention of the Licence or the *Act*;
  - c. such Modifications are consistent with the NIRB Screening Decision;
  - d. 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
  - e. the Board has not rejected the proposed Modifications.
3. The Modifications for which all of the conditions referred to in Part E, Item 2 have not been met can be carried out only with written approval from the Board.
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 a Construction Summary Report along with as-built plans and drawings stamped by an Engineer, providing explanation to reflect any deviations from for construction drawings and taking into account construction and field decisions and how they may affect the performance of the 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 impacts to water resulting from the release of sediment and to 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 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 construction or disturbance of any stream/lake bed or banks of any definable Water course is not permitted, unless authorized by the Board in writing.
9. The Licensee shall use material that is free of contaminants for construction, operation, and maintenance activities and that is obtained from approved sources and has been demonstrated not to be potentially acid generating and metal leaching.
10. The Licensee shall submit to the Board for approval, sixty (60) days prior to the initiation of any quarrying activities, a Quarry Management Plan that includes the following:
  - a. Confirmation that the quarry material does not produce acid rock drainage and is non-metal leaching;
  - b. An assessment of any potential impacts to freshwater quality; and
  - c. Mitigation measures.

**PART F: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE**

1. The Licensee shall implement the Manual entitled “Municipality of Arctic Bay Operation & Maintenance Plan for Municipal Water Licence: Sewage Disposal Facilities” dated November 2024, that was submitted as additional information with the Application and has been approved by the Board with the issuance of the Licence.
2. The Licensee shall implement the Plan entitled “Municipality of Arctic Bay Operation & Maintenance Plan for Municipal Water Licence: Solid Waste Disposal Facilities” dated March 2025 that was submitted as additional information with the Application and has been approved by the Board with the issuance of the Licence.
3. Licensee shall implement the Plan entitled “Municipality of Arctic Bay Environmental Emergency Contingency Plan for Municipal Water Licence” dated March 2025 that was submitted as additional information with the Application and has been approved by the Board with the issuance of the Licence.



4. The Licensee shall submit to the Board for approval, at least six (6) months prior to commissioning of the new Water Supply Facility, an Operations and Maintenance Plan for this facility which should include Operations and Maintenance Plan for the Truck-fill Station.
5. An inspection of all engineered facilities related to the management of Water and Waste shall be carried by an Engineer (Civil, Municipal or Geotechnical) before commissioning any facility. The Engineer's report shall be submitted to the Board within sixty (60) days of receiving the inspection report, including a Cover Letter from the Licensee outlining an implementation plan addressing each of the Engineer's recommendations.
6. The Licensee shall perform more frequent inspections of the engineered facilities at the request of an Inspector.
7. The Licensee shall implement sediment and erosion control measures prior to and during activities carried out under this Part to prevent the release of sediment and minimize erosion.
8. The Licensee shall prevent any chemicals, petroleum products or Wastes associated with the activities under this Undertaking from entering Water. All Sumps and fuel caches shall be located at a distance of at least thirty-one (31) metres from the ordinary High Water Mark of any adjacent Water body and inspected on a regular basis.
9. The Licensee shall conduct any equipment maintenance and servicing in designated areas and shall implement special procedures (such as the use of drip pans) to manage motor fluids and other Waste and contain potential spills.
10. If, during the term of this Licence, an unauthorized discharge of Waste occurs, or if such a discharge is foreseeable, the Licensee shall:
  - a. Employ the Environmental Emergency Contingency Plan;
  - b. Report the spill immediately to the NWT/NU 24-Hour Spill Line at (867) 920- 8130 and to the Inspector at (867) 975-4284; and
  - c. For each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site.
11. The Licensee shall, in addition to Part F, Item 10, regardless of the quantity of releases of harmful substances, report to the NWT/NU 24-Hour Spill Line if the release is near or into a water body.

## **PART G: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION**

1. The Licensee shall submit to the Board for approval in writing, an Abandonment and Restoration 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 facilities;
  - b. Sewage Disposal Facility, Water Supply Facility and Waste Disposal 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. Stream crossings;
  - i. Consideration of altered drainage patterns;
  - j. Type and source of cover materials;
  - k. Future use of affected area;
  - l. Hazardous Wastes; and
  - m. A proposal identifying measures by which restoration costs will be financed by the Licensee upon abandonment
2. If the Plan referred to in Part G, Item 1 is not approved the Licensee shall make the necessary revisions and resubmit the Plan within thirty (30) days following notification from the Board.
3. The Licensee shall complete all restoration work within the time schedule specified in the Plan, or as subsequently revised and approved by the Board.
4. The Licensee shall practice progressive reclamation of the abandoned quarry in accordance with the restoration guidelines outlined in INAC's document entitled Environmental Guidelines for Pits and Quarries, 2010.
5. Areas that have been contaminated by hydrocarbons from normal fuel transfer procedures shall be reclaimed to meet objectives as outlined in the Government of Nunavut's Environmental Guideline for Site Remediation, 2010. 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 THE MONITORING PROGRAM**

1. The Licensee shall implement the Plan entitled "Municipality of Arctic Bay Environmental Monitoring Program and Quality Assurance/Quality Control Plan for

Municipal Water Licence” dated March 2025 that was submitted as additional information with the Application and has been accepted by the Board.

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

Monitoring Station ID	Description	Frequency	Status
ARC-1	Raw Water intake at Marcil Lake	<u>Volume</u> Daily, Monthly and Annually	Active (Volume)
ARC-2	Raw Sewage from pump out truck	N/A	Inactive
ARC-3	Raw Wastewater Discharge (South Berm)	<u>Volume</u> Monthly and Annually	Active (Volume, Water Quality)
ARC-4	Lagoon Pump Discharge (North Berm)	<u>Water Quality</u> Once prior to decant	Active (Volume, Water Quality)
ARC-5	Ocean Water five (5) metres from point where Effluent enters the ocean from existing Sewage Disposal Facility	N/A	Inactive
ARC-6a	Sampling Well at the end of Wetland area	N/A	Inactive
ARC-6b	Surface Water at the end of Wetland area	<u>Water Quality</u> Three (3) times annually (once at the onset of decant; once during decant; and once at the end of decant)	Active (Water Quality)
ARC-7	Water five (5) metres from Sewage Disposal Facility Effluent entering Victor Bay	N/A	Inactive
ARC-7b	Runoff from the Quarry Site	N/A	Inactive
ARC-8	Sewage Sludge	<u>Volume / Water Quality</u> Prior to removal from Lagoon	Active (Volume, Water Quality)

ARC-9	Runoff from the Solid Waste Disposal Facilities	<u>Water Quality</u> Annually during periods of runoff or seepage	Active (Water Quality)
ARC-10	Thermistors in accordance with approved Instrumentation Monitoring and Surveillance Plan	TBD	(Temperature)
ARC-11	Standpipes in accordance with approved Instrumentation Monitoring and Surveillance Plan	TBD	(Seepage)
ARC-12	Settlement stations In accordance with approved Instrumentation Monitoring and Surveillance Plan	TBD	(Location, Elevation)

3. The Licensee shall measure and record, in cubic metres, the daily, monthly and annual quantities of Water pumped for all purposes at Monitoring Program Station ARC-1.
4. The Licensee shall measure and record, in cubic metres, the monthly and annual quantities of raw sewage offloaded from trucks and the number of days of use for the Sewage Disposal Facility.
5. The Licensee shall measure and record, in cubic metres, the monthly and annual quantities of effluent pumped from Monitoring Program Station ARC-4.
6. The Licensee shall sample Water quality at Monitoring Program Stations ARC-3, ARC-4, ARC-6b as required under Part H, Item 2. Samples shall be analyzed for the following parameters:

Carbonaceous Biochemical Oxygen Demand – CBOD	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 Copper  
Total Aluminum  
Total Mercury

Total Nickel  
Total Lead  
Total Arsenic  
Total Organic Carbon (TOC)

7. The Licensee shall sample at Monitoring Program Stations ARC-7b and ARC-9 annually during periods of runoff or seepage. Samples shall be analyzed for the following parameters:
- |   |                  |
|---|------------------|
| TPH (Total Petroleum Hydrocarbons)            | Faecal Coliforms |
| PAH (Polycyclic Aromatic Hydrocarbons)        | Conductivity     |
| BTEX (Benzene, Toluene, Ethylbenzene, Xylene) | Oil and Grease   |
| CBOD  | Ammonia Nitrogen |
| pH  | Total Alkalinity |
| Total Suspended Solids                        | Calcium          |
| Nitrate-Nitrite                               | Potassium        |
| Total Phenols                                 | Sulphate         |
| Total Hardness                                | Total Cadmium    |
| Magnesium                                     | Total Chromium   |
| Sodium  | Total Lead       |
| Total Arsenic                                 |                  |
| Total Copper                                  |                  |
| Total Iron                                    |                  |
| Total Mercury                                 |                  |
8. The Licensee shall sample, measure the quantity and analyze the quality of any sludge removed from the Sewage Disposal Facility in accordance with procedures developed for the approved Operations and Maintenance Plan referred to in Part F, Item 1. The results shall be reported within the Annual Report as per Part B, Item 1.
9. 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.
10. All analyses shall be performed by a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
11. The Licensee shall annually review the QA/QC Plan and modify it as necessary. Revised QA/QC Plan shall be submitted to the Board with a current approval letter from an accredited laboratory and Analyst, confirming acceptance of the Plan for analyses to be performed under this Licence, and shall meet the standards set out in Part H, Item 9 and Part H, Item 10.
12. The Licensee shall submit to the Board, as part of the Annual Report required under Part B, Item 1, monitoring results for thermistor, standpipe, and settlement stations at Monitoring Program Stations ARC-10, ARC-11, and ARC-12. An annual assessment of

the geotechnical and geothermal performance of the Sewage Disposal Facility shall be provided as an Addendum to the Annual Report required as per Part B Item 1. This assessment shall include:

- a. interpretation of unexpected monitoring results;
  - b. analyses of settlement station result on liner integrity; and
  - c. analyses of thermistor and seepage results on berm stability.
13. The detailed Instrumentation Monitoring and Surveillance Plans shall be incorporated into the Manuals referred to in Part F, Item 2, and Part F, Item 3, and shall include the following information where applicable:
  - a. details of the proposed instrumentation plan, the frequency of measurements and trigger values or observations for remedial action;
  - b. review of geothermal monitoring plans including the number of thermistors to be installed, the location of thermistor installations, the installation of thermistors within the key trench, the depth of thermistor strings in subgrade soils, justification for the final chosen depth of thermistor strings, and the final detailed design of thermistor strings, taking into consideration reviewer comments; and
  - c. details of settlement monitoring at the upstream and downstream toes of the berms.
14. The Licensee shall confirm the locations and GPS coordinates for all monitoring stations referred to in Part H, Item 2 with an Inspector.
15. Additional monitoring stations, sampling and analysis may be requested by an Inspector.
16. The Licensee shall include all of the data and information required by the Monitoring Program as well as an indication of wastewater treatment levels and Water quality upstream and downstream of the Vegetated Filter Strip Wetland Area, within the Licensee's Annual Report, as required under Part B, Item 1, or as requested by an Inspector.
17. 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 request.