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NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN KATIMAYINGI  
OFFICE DES EAUX DU NUNAVUT

File No.: **3BM-ARC1924**

August 23, 2019

Debbie Johnson  
Senior Administrative Officer  
Hamlet of Arctic Bay  
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Email: [broy@gov.nu.ca](mailto:broy@gov.nu.ca)

**RE: NWB Amendment Renewal Water Licence No. 3BM-ARC1924**

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Dear Ms. Johnson and Mr. Roy:

Please find attached Licence No. **3BM-ARC1924** issued to the Hamlet of Arctic Bay 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 the continuing of this Undertaking after the Water 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 deposit of Waste must cease, or the Licensee may be in contravention of the *Nunavut Land Claims Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act (NWNSRTA)*. 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. It should be noted that in accordance with Section 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 Section 76 of *NuPPAA*.

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 from Crown-Indigenous Relations and Northern Affairs (CIRNA) on issues identified. This information is attached for your consideration.<sup>1</sup>

Sincerely,

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Lootie Toomasie  
Nunavut Water Board  
Chair

LT/sk/rqd

Enclosure: Amendment Renewal Licence No. **3BM-ARC1924**

Comments – CIRNA

Cc: Distribution List – Qikiqtani

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<sup>1</sup> Crown-Indigenous Relations and Northern Affairs (CIRNA), July 29, 2019 and August 12, 2019.

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## I. BACKGROUND

The Hamlet of Arctic Bay (the Hamlet) is a vibrant, traditional community of Baffin Region located on Borden Peninsula, Baffin Island, Nunavut. The community is surrounded by steep hills and sits mostly on a low gravel beach on the shore of Arctic Bay, off of Adams Sound.

The community has a population of approximately 830 people (2019), with the following relevant municipal infrastructure:

- Water Supply Facility, which draws Water from Marcil Lake and supplies distribution trucks;
- Wastewater Treatment Facility, which receives trucked sewage (wastewater) from the holding tanks in each building; and
- Solid Waste Disposal Facility, which accommodates domestic, construction, metal and hazardous Wastes.

## II. FILE HISTORY

The Hamlet of Arctic Bay has held Water Licences with the NWB since 2002, as outlined in Table 1.

**Table 1. Project 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

## III. APPLICATION PROCEDURAL HISTORY

On June 02, 2019, an Application to renew Licence No. 3BM-ARC1419 was submitted to the NWB by Government of Nunavut – Community and Government Services (GN-CGS) on behalf of the Hamlet of Arctic Bay. Following receipt, the NWB conducted an internal review of the Application package, which identified specific deficiencies that had to be addressed in order for the Application to proceed through the licensing process. The Board provided details of its findings to the Proponent in correspondence<sup>1</sup> dated June 14, 2019.

On June 20, 2019, the NWB received a response<sup>2</sup> from the Proponent. The information provided did not fully address the deficiencies indicated previously, and the Proponent was

<sup>1</sup> Email from S. Kuflevskiy, NWB, to B. Roy, GN-CGS, Re: 3BM-ARC1419 Renewal Application Inquiry, June 14, 2019.

<sup>2</sup> Email from B. Roy, GN-CGS, to S. Kuflevskiy, NWB, Re: 3BM-ARC1419 Renewal Application Inquiry, June 20, 2019.

asked to provide more information in correspondence<sup>3</sup> from the Board dated June 24, 2019.

On June 27, 2019, in response to the NWB's correspondence, the Proponent provided copies of new or revised documents to address the indicated deficiencies. Having determined the submission to address the relevant deficiencies satisfactorily, the Board distributed the Application for a thirty (30) day public review period on June 28, 2019. The Application to renew Licence No. 3BM-ARC1419 includes the following documents:

- Appendix A – New Application form signed by SAO, dated May 27, 2019
- Appendix B – Authorization Letter issued by the Hamlet of Arctic Bay
- Appendix C – Plan of Compliance
- Appendix D – Technical Summary of the Project Proposal in English and Inuktitut
- Appendix E – Standalone Hazardous Waste Management Plan
- Appendix F – NPC Letter dated April 29, 2019
- Appendix G – Arctic Bay Truckfill Operations and Maintenance Manual

On or before the deadline for comments, the NWB received a submission from Crown-Indigenous Relations and Northern Affairs (CIRNA).

## IV ISSUES

### Term of the Licence

The Licensee has requested a ten (10) year term for the Renewal Licence. In accordance with s. 45 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSRTA or the *Act*), the NWB may issue a Licence for a term not exceeding twenty-five (25) years. In determining an appropriate term for the Renewal Licence, the Board took into consideration several factors including intervenor's comments, the Licensee's compliance history, and rationale included in the Application. Crown-Indigenous Relations and Northern Affairs (CIRNA) recommended in its review comments that consideration be given to a term of five (5) instead of ten (10) years for any potential Licence issued to the Hamlet.

Given the Licensee's compliance disposition, the Board has decided to issue the Licence for a five (5) year term, which the Board believes will provide the Applicant with adequate time to address all non-compliance issues associated with its Undertaking. The Board requires all non-compliance issues raised by CIRNA to be addressed ASAP.

Further, the five (5) year licence term will provide stakeholders and the Board with an opportunity to continue to examine the overall performance of the Licensee over time and prior to considering any future renewal licence that might include a longer term.

The Licensee should note that if it is determined that it is necessary to renew or amend the Licence, the Application for such a Renewal or Amendment should be filed at least **three (3) months** prior to the Licence expiry date so as to allow adequate time for the Board to complete the renewal process before the Licence expires.

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<sup>3</sup> Email from S. Kuflevskiy, NWB, to B. Roy, GN-CGS, Re: 3BM-ARC1419 Renewal Application Inquiry, June 24, 2019.

## 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/>

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;
- mislabeled Monitoring Program Stations or missing labels in Water chemistry data submitted to the Board;
- no annual Engineer’s reports submitted for the engineered facilities.

The Board 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 respective terms and conditions in the Licence. The Board strongly recommends that for all subsequent annual submissions the Licensee demonstrates more systematic sample or Monitoring Stations identification, which is in accordance with Part I, Item 2 of current Water Licence, and provides annual Engineer’s reports for all engineered structures.

Additionally, a number of compliance issues have been repeatedly indicated by CIRNA Inspections over the past 4 years and provided within Water Licence Inspection Reports. The Board strongly recommends that the Licensee review these reports and address issues with applicable information in subsequent Annual Reports.

## Water Use

The Hamlet of Arctic Bay obtains all of its freshwater from a natural lake called Marcil Lake, located approximately 8 kilometers east of the Hamlet. 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 50,005 cubic metres to 59,900 cubic metres. The Board does not have any concerns with respect to the quantity of Water requested, since the net trucked Water availability for the Marcil Lake watershed over the next 10 years is estimated at 18.5 million cubic metres. The NWB understands that there is a mutual agreement between the Hamlet of Arctic Bay and the Department of National Defense to provide potable Water to the Nanisivik Naval Facility. Part B, Item 1 of this Licence requires the quantities of Water provided to the Nanisivik Naval Facility to be included within the Hamlet’s Annual Reports to avoid discrepancies between the total Water drawn from the source vs. the Water consumed by the Municipality.

Based on the nature of the undertaking and Water supply needs of the Hamlet, the NWB has granted the quantity of Water requested by the Hamlet and set the maximum Water use for all purposes under this Licence at 59,900 cubic metres per year or no more than 299 cubic metres per day, to allow for some flexibility, under Part C, Item 2 in the Licence. 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.

## **Waste Deposit**

The Application indicates that the Undertaking is expected to generate 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 Hamlet:

### ***i. Wastewater Treatment Facility***

The Hamlet uses a single cell Sewage Lagoon system to treat Sewage generated by the community. The Lagoon system, which was constructed in 2013 and has a projected lifespan of 20 years, 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. Further, the report entitled, *Geothermal Analysis of Abandonment Sewage Lagoon*, dated September 28, 2012 was reviewed with the issuance of previous Water Licence.

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, Item 1 in the Licence to allow the deposit of all Sewage generated by the Hamlet at the Wastewater Treatment Facility.

Additionally, the Licensee is required to investigate the reasons for high Phenol concentrations in the Wastewater Effluent and address this issue within the next Annual Report. The Licensee should note that once the results of this investigation are submitted to the Board, the Board may initiate an amendment to the Licence to include Phenol as a Wastewater Effluent discharge criteria.

### ***Sludge Removal***

Information included in the Application indicates that sludge removal may not be required throughout the lifespan of the Wastewater Treatment Facility; however, operational conditions will determine whether any sludge removal activities will be undertaken during the lifespan of the facility. Accordingly, conditions have been included under Part I, Item 8 in the Licence requiring the Licensee to measure quantity and analyze the quality of sludge generated by the Wastewater Treatment Facility in accordance with details contained in the respective Operations and Maintenance Manual.

### ***ii. Solid Waste Disposal Facility***

The Hamlet operates a non-engineered landfill facility for the purposes of treating domestic, construction, metal and hazardous Wastes. Conditions at the landfill, metal dump and hazardous waste area have been of a concern consistently raised in CIRNA inspection reports since 2016. The hazardous Waste, which is not in secondary containment and has an ephemeral stream running through it, has been of a particular concern. The Board acknowledges the Licensee's commitment to address this deficiency through constructing a culvert across the access road to divert the Water to the wetland.

## Management Plans and Manuals

As part of the document package accompanying the Renewal Application, the Licensee submitted the following Management Plans and Manuals:

- *Arctic Bay Truckfill Operations and Maintenance Manual*, dated 1998;
- *Solid Waste Operation and Maintenance Plan for Hamlet of Arctic Bay*, dated August 2019;
- *Hazardous Waste Segregation, Storage and Transportation Procedure, Municipality of Arctic Bay*, dated June 2019;
- *Standalone Spill Contingency Plan*, dated August 2019; and
- *Hamlet of Arctic Bay Quality Assurance/ Quality Control Plan*, dated July 2019.

The NWB has conducted a review of the above-mentioned documents and determined that, while these Plans and Manuals are reasonably functional and could be implemented, the issues indicated by CIRNA during public review have not been fully addressed. The Board has therefore included conditions, under Part F, Item 2, Part F, Item 3, Part G, Item 1, and Part I, Item 1 in the Licence, requiring submission to the Board for review and approval, of updated respective Operations & Maintenance Manual for the Truck-fill Station, Operations & Maintenance Manual for the Solid Waste Disposal Facility, Spill Contingency Plan, and QA/QC Plan within ninety (90) days from the date of issuance of this Licence. The new *Hazardous Waste Segregation, Storage and Transportation Procedure* should be incorporated into the updated Operations & Maintenance Manual for the Solid Waste Disposal Facility.

## Monitoring Program

It should be noted that the following modifications were applied to the Monitoring Program under Part I, Item 2 of the Licence to reflect the recommendations provided by CIRNA:

- Frequency of raw Wastewater sampling at Monitoring Station ARC-3 was adjusted to “*once prior to Licence renewal*”;
- Frequency of Sewage Lagoon Discharge at Monitoring Station ARC-4 was set to “*once prior to decant*” to harmonize with other Municipal Water Licences;
- Monitoring Station ARC-6a was temporarily removed from the Monitoring Program, since no monitoring well has been installed at the end of the wetland and an ongoing surface Water sampling is conducted three times annually at Monitoring Station ARC-6b; and
- Monitoring Stations ARC-5 and ARC-7 related to monitoring of ocean Water were temporarily removed from the Monitoring Program.



## DECISION

### LICENCE NUMBER: 3BM-ARC1924

This is the decision of the Nunavut Water Board (NWB) with respect to a complete application received on June 28, 2019 for a renewal of a Water Licence made by:

#### HAMLET OF ARCTIC BAY

to allow for the use of Water and deposit of Waste for a Municipal Undertaking that includes the operation of Water Supply Facility, Wastewater Treatment Facility, and a Solid Waste Disposal Facility at the Hamlet of Arctic Bay located within the Qikiqtani Region, Nunavut at the following general geographical coordinates:

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 for which the conformity determination, dated August 20, 2014, remains applicable, and is exempt from the requirements for screening by the Nunavut Impact Review Board (NIRB)<sup>4</sup>, as described within Section 12.4.3/ Schedule 12-1 of the *Nunavut Agreement*, the NWB decided that the application could proceed through the regulatory process. In accordance with Section 55.1 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act (NWNSRTA 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 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-ARC1419 be renewed as Licence No. 3BM-ARC1924 subject to the terms and conditions contained therein. (Motion #: 2019-B1-019)**

Signed this 23<sup>rd</sup> day of AUGUST 2019 at Gjoa Haven, NU.

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Lootie Toomasie  
Nunavut Water Board  
Chair

TK/sk/rqd

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<sup>4</sup> Nunavut Planning Commission (NPC) Conformity Determination, August 20, 2014 and April 29, 2019.



## NUNAVUT WATER BOARD WATER LICENCE AMENDMENT RENEWAL

### Licence No. 3BM-ARC1924

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 ARCTIC BAY

(Licensee)

**P.O. BOX 150, ARCTIC BAY, NU 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 Renewal:

Licence Number/Type: **3BM-ARC1924 / TYPE "B"**

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

Location: **HAMLET 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: **59,900 CUBIC METRES PER ANNUM  
OR 299 CUBIC METRES PER DAY**

Effective Date: **AUGUST 29, 2019**

Expiry of Licence: **AUGUST 28, 2024**

This Licence renewal and amendment, 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 Arctic Bay located 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**

“**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*;

“**Applicant**” means the Licensee;

“**Application**” means the complete amendment-renewal application and supporting documents filed with the NWB by the Government of Nunavut – Community Government Services (GN-CGS) on behalf of Hamlet of Arctic Bay on June 28, 2019;

“**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 *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

**“Compliance Plan”** means the plan developed by the Hamlet 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 filed by the Applicant;

**“Dam Safety Guidelines”** means the *Canadian Dam Association (CDA) Dam Safety Guidelines (DSG)*, January 1999 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 Hamlet. 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 an identifiable discharge point of a facility beyond which the Licensee 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 embankment;

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

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

**“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);

**“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 18<sup>th</sup> April, 2013;

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

**“Solid Waste Disposal Facility”** 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;

**“Sump or Sumps”** A structure or depression that collects, controls, and filters liquid Waste before it is released to the environment. This structure should be designed to prevent erosion while allowing percolation of liquid Waste;

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

**“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 Section 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, the Wastewater Treatment Facility, and the Solid Waste Disposal Facility, as described in the Application for Water Licence Renewal filed by the Applicant;

**“Wastewater Treatment Facility”** comprises the engineered single cell Sewage Lagoon and decant structures designed to contain and treat sewage, 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;

**“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 Appurtenant 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. Quantity of freshwater (in cubic metres per month and per year) obtained from all sources, including the Water provided to the Nanisivik Naval Facility;  
Quantity of each and all Waste discharged (in cubic metres per month and per year), including the hazardous and non-hazardous Waste accepted at the Solid Waste Disposal Facility;
    - b. Tabular summaries of all data generated under the “Monitoring Program”, including an interpretation and discussion of Wastewater treatment levels of the
-

- Wastewater Treatment Facility, as well as the treatment efficiency of the Vegetated Filter Strip Wetland Area;
- c. Summary of modifications to the “Monitoring Program” in accordance with Part I, Item 17;
  - d. List of unauthorized discharges and summary of follow-up actions taken;
  - e. Assessment of the geotechnical and geothermal performance of the Wastewater Treatment Facility including an analyses of the results from the thermistor, standpipe and settlement monitoring stations, as required in Part I, Item 12;
  - f. Quantity of any sludge (in cubic metres per month and per year) removed from the Wastewater Treatment Facility along with the treatment/storage/disposal provided;
  - g. Results of sampling and analyses of any sewage sludge, if removed from the Wastewater Treatment Facility, in accordance with Part I, Item 8;
  - h. Summary of modifications and/or major maintenance work carried out on the Water Supply and Waste Disposal Facilities, including all associated structures and facilities;
  - i. Any updates or revisions for manuals and plans (i.e., Operations and Maintenance Manuals) as required by changes in operation and/or technology;
  - j. Summary of any studies, reports, and plans (e.g., Operations and Maintenance, Abandonment and Restoration, Quality Assurance/ Quality Control Plans) requested by the Board that relate to Water use, Waste disposal, or reclamation, and a brief description of any future studies planned;
  - k. Summary of any Abandonment and Restoration work completed during the year and an outline of any work anticipated for the following year;
  - l. Update on the Compliance Plan and progress made on specific requirements therein;
  - m. Detailed minutes of any public consultation and participation with local organizations and the residents of the community regarding Licence amendments; and
  - n. 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 NWB 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 I, Item 3.

6. The Licensee shall post 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.
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, Manuals, and Reports submitted under this Licence, include a proposed timetable for implementation. Plans, Manuals, and Reports submitted, cannot be undertaken without subsequent written Board approval and direction. The Board may alter or modify a Plan or Manual if necessary to achieve the legislative objectives and will notify the Licensee in writing of acceptance, rejection or alteration of the Plan and/or Manual.
10. The Licensee shall review the Plans and Manuals referred to in this Licence, as required by changes in operation and/or technology, and modify the Plans and Manuals accordingly. Revisions to the Plans and Manuals 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](tel:8679208130) and to the Inspector at [\(867\) 975-4295](tel:8679754295).
12. The Licensee shall ensure a copy of this Licence is maintained at the Municipal Office at all times. Any communication with respect to this Licence shall be made in writing to the attention of:

(a) **Manager of Licensing:**  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU X0B 1J0  
Telephone: (867) 360-6338  
Fax: (867) 360-6369  
Email: [licensing@nwb-oen.ca](mailto: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

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 any document(s) or correspondence submitted by the Licensee to the NWB is 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 use for all purposes under this Licence shall not exceed fifty nine thousand and nine hundred (59,900) cubic metres or the daily quantity of Water use for all purposes under this Licence shall not exceed 299 cubic metres.
3. The Licensee shall maintain the Water Supply Facilities to the satisfaction of the Inspector.
4. 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.
5. 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.
6. The Licensee shall not cause erosion to the banks of any body of Water and shall provide necessary controls to prevent such erosion.
7. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into Water.
8. 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 Hamlet of Arctic Bay to the Wastewater Treatment 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 Wastewater Treatment Facility.
3. All Effluent discharged from the Wastewater Treatment Facility at Monitoring Program Station ARC-4 shall not exceed the following Effluent quality limits:

Parameter	Units	Maximum Concentration of any Grab Sample
BOD <sub>5</sub>	mg/L	120
Total Suspended Solid	mg/L	180
Fecal Coliform	CFU/100mL	1 x 10 <sup>6</sup>
Oil and Grease	mg/L	No visible sheen
pH	–	6 – 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 Wastewater Treatment 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 Facility 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 Facility 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 Facility.
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 to not possess acid generating and metal leaching properties.

11. The construction or disturbance of any stream/lake bed or the banks of any definable watercourse are not permitted unless authorization is obtained from the Department of Fisheries and Oceans Canada (DFO).

**PART E: CONDITIONS APPLYING TO MODIFICATIONS AND CONSTRUCTION**

4. The Licensee shall submit to the Board for approval, for construction design drawings stamped 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 Waste.
2. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply and Waste Disposal Facilities provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:
  - a. the Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;
  - b. 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. Modifications, for which all of the conditions referred to in Part E, Item 2, have not been met, may only be carried out upon 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 erosion control measures during activities carried out under this Part, to prevent impacts to Water resulting from 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 at a minimum distance of 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 are not permitted, unless authorized by the Board in writing.
9. The Licensee shall use fill material for construction, operation and maintenance only from approved sources that have been demonstrated, by appropriate geochemical analyses, to not produce acid rock drainage and to be non-metal leaching and free of contaminants.
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 OPERATIONS AND MAINTENANCE**

1. The Licensee shall implement the Manual entitled “*Arctic Bay Wastewater Facility Operations and Maintenance Manual Volumes 1 & 2*” dated July 2012 that was submitted as additional information with the previous Amendment Application and was previously approved by the Board.
  2. The Licensee shall implement the Manual entitled “*Arctic Bay Truckfill Operations and Maintenance Manual*” dated 1998 that was submitted as additional information with the Application. The Licensee shall submit to the Board for approval in writing, within ninety (90) days from the date of issuance of this Licence, an updated Operations and Maintenance Manual for the Truck-fill Station to address the comments received during the review of Application.
  3. The Licensee shall implement the Plan entitled “*Solid Waste Operation and Maintenance Plan for Hamlet of Arctic Bay*” dated August 2019 that was submitted as additional information with the Application. The Licensee shall submit to the Board for approval in writing, within ninety (90) days from the date of issuance of this Licence, an updated Operations and Maintenance Plan for the existing Solid Waste Management Facility prepared, where appropriate, in accordance with the *Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories; 1996* that addresses the comments received during the review of Application.
  4. The Board has accepted the Manual entitled “*Hazardous Waste Segregation, Storage and Transportation Procedure, Municipality of Arctic Bay*” dated June 2019 that was
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submitted as additional information with the Application. The Licensee shall incorporate these Procedures into the Operations & Maintenance Manual for the Solid Waste Disposal Facility required under Part F, Item 3 and submit the updated document to the Board for approval in writing within ninety (90) days from the date of issuance of this Licence.

5. 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 Manual for this facility.
6. The Licensee shall review the Manuals and Plans referred to in this Part as required by changes in operation and/or technology and modify accordingly. Revisions are to be submitted in the form of an Addendum to be included with the Annual Report, unless directed otherwise by the Board or an Inspector.
7. An inspection of all engineered facilities related to the management of Water and Waste shall be carried out at least annually, in July or August, by a Municipal Engineer. 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 to address each of the Engineer's recommendations.
8. An inspection of all engineered facilities shall be conducted, during the summer period, by a Geotechnical Engineer in accordance with the *Canadian Dam Safety Guidelines* Facility, at least one (1) year prior to the expiry of the Licence. The Geotechnical 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 to address each of the Engineer's recommendations.
9. The Licensee shall perform more frequent inspections of the engineered facilities at the request of an Inspector.
10. 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.

#### **PART G: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING**

1. The Licensee shall implement the Plan entitled "*Standalone Spill Contingency Plan*" dated August 2019 that was submitted as additional information with the Application. The Licensee shall submit to the Board for approval in writing, within ninety (90) days from the date of issuance of this Licence, an updated Spill Contingency Plan to address the comments received during the review of Application.
2. 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.

3. 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.
4. 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 appropriate contingency measures outlined in the Spill Contingency Plan referred to in Part G, Item 1;
  - b. report the incident immediately to the NWT/NU 24-Hour Spill Line at [\(867\) 920-8130](tel:8679208130) and to the Inspector at [\(867\) 975-4295](tel:8679754295); and
  - c. for each spill occurrence, submit to the Inspector, within thirty (30) days after initially reporting the event, a detailed report that provides the necessary information on the location (including the GPS coordinates), initial response action, remediation/clean-up, status of response (ongoing, complete), proposed disposal options for dealing with contaminated materials and any preventative measures to be implemented.
5. The Licensee shall, in addition to Part G, Item 6, 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 H: 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 Facilities 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.
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2. If the Plan referred to in Part H, 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. For site reclamation purposes, the Licensee shall salvage topsoil during any construction activities, for future restoration of the site to promote re-vegetation.
5. 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.
6. 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 I: CONDITIONS APPLYING TO THE MONITORING PROGRAM**

1. The Licensee shall implement the Plan entitled "*Hamlet of Arctic Bay Quality Assurance/ Quality Control Plan*" dated July 2019 that was submitted as additional information with the Application. The Licensee shall submit to the Board for review, within ninety (90) days from the date of issuance of this Licence, an updated QA/QC Plan to address the comments received during the review of Application.
2. The Licensee shall maintain Monitoring Program Stations at the following locations and implement the following Program:

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 <u>Water Quality</u> Once prior to Licence renewal	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 Wastewater Treatment Facility Effluent entering Victor Bay	N/A	Inactive
ARC-7b	Runoff from the Quarry Site	<u>Water Quality</u> Annually during periods of runoff or seepage	Active (Water Quality)
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 Facility	<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 Facilities.
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 I, Item 2. Samples shall be analyzed for the following parameters:

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

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)	
PAH (Polycyclic Aromatic Hydrocarbons)	
BTEX (Benzene, Toluene, Ethylbenzene, Xylene)	
BOD <sub>5</sub>	Faecal Coliforms
pH	Conductivity
Total Suspended Solids	Oil and Grease
Nitrate-Nitrite	Ammonia Nitrogen
Total Phenols	Total Alkalinity
Total Hardness	Calcium
Magnesium	Potassium
Sodium	Sulphate
Total Arsenic	Total Cadmium
Total Copper	Total Chromium
Total Iron	Total Lead
Total Mercury	

8. The Licensee shall sample, measure the quantity and analyze the quality of any sludge removed from the Wastewater Treatment 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 I, Item 9 and Part I, 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 Wastewater Treatment Facility shall be provided as an Addendum to the Annual Report required as per Part B Item 1. This assessment shall include:
    - i. interpretation of unexpected monitoring results;
    - ii. analyses of settlement station results on liner integrity; and
    - iii. 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:
    - i. details of the proposed instrumentation plan, the frequency of measurements and trigger values or observations for remedial action;
    - ii. 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
    - iii. 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 I, Item 2 with an Inspector.
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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.