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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

Licence No.: 1BR-ELR1829

June 28, 2018

Charlotte Lamontagne
Director, Contaminated Sites
Indigenous and Northern Affairs Canada
PO Box 2200
Iqaluit, NU X0A 0H0
Email: charlotte.lamontagne@canada.ca

RE: NWB Licence 1BR-ELR1829

Dear Ms. Lamontagne:

Please find attached Licence No. **1BR-ELR1829** issued to Indigenous and Northern Affairs Canada (INAC) 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 Waters and the deposit of Waste are an integral part of this approval.

If the Licensee contemplates the renewal of this Licence, it is the responsibility of the Licensee to apply to the NWB for its renewal. The past performance of the Licensee, new documentation and information, and issues raised during a public hearing, if the NWB is required to hold one, will be used to determine the terms and conditions of the Licence renewal. Note that if the Licence expires before the NWB issues a new one, then Water use and Waste deposit must cease, or the Licensee may be in contravention of the *Nunavut Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*. However, the expiry or cancellation of a licence does not relieve the holder from any obligations imposed by the Licence. The NWB recommends that an application for the renewal of this Licence be filed at least **three (3) months** prior to the Licence expiry date. 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 a project proposal that has not been submitted to the Nunavut Planning Commission (NPC) for the NPC's relevant determination.

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 any 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 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 interested persons on issues identified. This information is attached for your consideration.¹

Sincerely,

Lootie Toomasie
Nunavut Water Board
Chair

LT/dd/ip

Enclosure: Amendment and Replacement Licence No. **1BR-ELR1829**
Comments – DFO, INAC

Cc: Kivalliq Region Distribution List

¹ Fisheries and Oceans Canada (DFO), May 10, 2018; Indigenous and Northern Affairs Canada (INAC), May 30, 2018.

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DECISION

LICENCE NUMBER: 1BR-ELR1829

This is the decision of the Nunavut Water Board (NWB) with respect to an application dated April 5, 2018 for Water Licence Amendment made by:

INDIGENOUS AND NORTHERN AFFAIRS CANADA, CONTAMINATED SITES

to allow for the use of water and deposit of waste to support long-term monitoring activities at the Ennadai Lake, former Weather Station Remediation Project Site located within the Kivalliq Region, Nunavut, generally at the following geographical coordinates:

Project Extents:

Latitude: 61° 08' 07" N Longitude: 100° 53' 51" W

Latitude: 61° 08' 07" N Longitude: 100° 51' 46" W

Latitude: 61° 07' 37" N Longitude: 100° 51' 46" W

Latitude: 67° 07' 37" N Longitude: 100° 53' 51" W

DECISION

After having been satisfied that the Application is for a proposal that was previously reviewed by the NPC, for which the conformity determination, dated December 12, 2013, still applies, was previously screened by NIRB (Nile No. 13UN039, Feb 24, 2014), and is exempt from the requirements for further screening as described within s. 12.4.3 / Schedule 12-1 of the *Nunavut Agreement*,² 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* (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. 1BR-ELR1829 be issued subject to the terms and conditions contained therein. (Motion #: 2018-B1-015)

SIGNED this 28th day of June 2018 at Gjoa Haven, NU.

Lootie Toomasie
Nunavut Water Board Chair
LT/dd/ip

² Confirmed in a letter by Peter Scholz, NPC, dated March 14, 2018.

I. BACKGROUND

The Ennadai Lake Remediation Project (the Project) is located in Southwestern Nunavut approximately 380 km west of the community of Arviat within the Kivalliq Region. The Project was a former weather station at Ennadai Lake (the Site). It operated as either a manned or an unmanned station from 1949 to 1979. The Site was abandoned in the late 1980s to early 1990s. Indigenous and Northern Affairs Canada (INAC) has assumed responsibilities of the site through the Contaminated Sites Program (CSP). As part of the Federal Contaminated Sites Action Plan (FCSAP), the CSP is to clean up federally owned contaminated sites and to address the environmental liabilities associated with those sites.

EBA Engineering Consultants Ltd. (EBA) was retained by Public Works and Government Services Canada (PWGSC) on behalf of INAC to complete a Remedial Action Plan (RAP), and an Environmental Screening Report (ESR) for the Ennadai Lake remediation project. Remediation took place between 2014 and 2015 and included the construction of a non-hazardous waste landfill (NHWL), demolition and disposal of on-site structures and clean-up of hazardous waste and contaminated soil.

The NHWL was constructed in 2014 and was designed to contain non-hazardous materials only. It is approximately 240 m east of the site and occupies a footprint of approximately 1,500 m² (38 m x 40 m).

Most major remediation activities were carried out in 2014. In 2015, only two weeks were spent on site to remove waste segregated the year prior. Reclamation activities included the following:

- Access to site;
- Roads and the airstrip were re-constructed and repaired as required;
- A camp was established to support site operations;
- Existing site infrastructure was demolished, waste was segregated into hazardous and non-hazardous materials and disposed of properly;
- Non-hazardous wastes including scattered debris and partially buried debris was put in the NHWL;
- All Hazardous wastes was disposed of at an off-site licensed disposal facility;
- Contaminated soils were handled as described in the RAP, which included the establishment and decommissioning of a Landfarm; and
- Several borrow sources were developed, the material used during the remediation work.

The Ennadai Lake Long Term Monitoring plan was implemented in 2016 and includes visual inspection, groundwater sampling, soil sampling (if required), and natural environmental monitoring. The first monitoring event took place in 2016 and the next event will take place in 2018 (year 3). Future monitoring is scheduled for 2020, 2022, 2025, 2030, 2035, and 2040.

II. PROCEDURAL HISTORY

On April 5, 2018, the NWB received the following documents as part of the Water Licence Amendment Application (Amendment) submitted by INAC in support of the monitoring phase of the Ennadai Lake Remediation Project:

1. 1BR-ELR1419 – Amendment Application – Cover Letter
2. 1BR-ELR1419 – Amendment Application - Executive Summary – English
3. 1BR-ELR1419 – Amendment Application - Executive Summary – Inuktitut
4. 1BR-ELR1419 – Amendment and Renewal Application for Ennadai Lake Long Term Monitoring
5. 1BR-ELR1419 – NPC Conformity Determination and Exemption from NIRB Screening (letter dated March 14, 2018).

It was noted that documents submitted with the original Application on September 09, 2013, still apply, and were included as part of the Amendment Application review process. These included:

- Environmental Screening Report;
- Remedial Action Plan;
- Site Specific Health plan; and
- Spill Contingency Plan.

Following the completeness check of the application, the NWB acknowledged receipt of the submission and distributed them for comment on April 26, 2018 for a thirty (30) day comment and review period. Comments were received from DFO on May 10, 2018 and from INAC on May 30, 2018.

On May 30, 2018, it was also noticed by the NWB that the long-term monitoring plan entitled, “Ennadai Lake Long Term Monitoring Program,” and dated January 22, 2016, was submitted to the Board on March 27, 2017, but did not go through the process of public review. On May 30, 2018, the NWB distributed this monitoring plan for a fifteen (15) day public review period, for which no comments were received.

III. GENERAL CONSIDERATIONS

The Licence No. **1BR-ELR1829** will replace Licence No. **1BR-ELR1419**. As requested by the Licensee, conditions presented in the Licence will now reflect long-term monitoring activities, and will no longer reflect remediation activities.

Term of Licence

In accordance with the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* s. 45, the NWB may issue a Licence for a term not exceeding twenty-five years. The applicant requested a twenty-three (23) year renewal-amendment Licence (to expire in 2041), under which they plan to monitor, assess and confirm the stability of the NHWL at the project site. In its review of the Application, both DFO and INAC had no issues with the twenty-three (23) year Licence term. However, in determining an appropriate term of a Water Licence, the Board considers a number of factors including the risk to water resources posed by the undertaking. The NWB’s review of

landfill monitoring data presented in the 2016 Long Term Monitoring Report revealed exceedances relative to *Federal Interim Groundwater Quality Guidelines* (EC, 2010). Given the current stage of the program, the Board has decided to issue the Licence for a term of eleven (11) years, half way through the long-term monitoring activities. Eleven-year Licence term will allow the Licensee sufficient time to submit water quality reports from the 2025 monitoring event, sufficient time to NWB to assess the monitoring information, and allow for any follow-up actions that may need to be taken.

Major Conditions Removed/Amended with this Licence Issuance

The following section summarizes the terms and conditions that have been removed or amended with issuance of the Replacement-Amendment Licence:

- Part A, definitions related to reclamation, construction, camps and waste treatment facilities, have been removed;
- In Part B, all terms pertaining to Camps, Landfarms, and Sewage Disposal Facilities, have been removed as those facilities no longer exist and/or require monitoring.
- The conditions applying to the Undertaking section was added to the conditions applying to camps, access infrastructure and operations. All terms pertaining to the handling, storage and transportation procedures for hazardous materials has been removed given that all onsite clean-up activities have concluded.
- In Part E, all terms pertaining to the establishment and use of a camp have now been removed. The renewed and amended Licence now includes a term stating that camps are not authorized under this Licence.
- In Part F, of this Licence, all terms pertaining to land-based drilling have been removed, the only drilling activities allowed are for the purpose of installing/maintaining monitoring wells and other instrumentation for monitoring the site during long-term monitoring activities.
- In Part G, Conditions applying to Construction and Modifications, all terms pertaining to the submission of as-built plans/drawings and construction modifications to the Water and Waste management facilities or structures have been removed given that they are no longer applicable to the scope of this Licence.
- In Part H, a revised Spill Contingency Plan is requested to reflect long-term monitoring conditions.
- In Part I, the terms now only reference the Abandonment and Restoration of the monitoring site, with the reduced scope of just the monitoring wells that are on site.
- In Part J, Conditions for the Monitoring Program, all terms that were related to monitoring the on-site camp activities and the Sewage Disposal Facility were removed in this renewed and amended Licence given that no camp and Sewage Treatment is permitted on site.

A. Scope Definitions and Enforcement

The Licence allows for the use of water in support of an (Industrial Undertaking). Definitions related to reclamation that are not associated with monitoring, have been removed to reflect current conditions.

B. General Conditions

Annual Report

As a requirement of section 14(1) of the *Nunavut Waters Regulations* and similar to the terms and conditions generally included in all licences issued by the Board, the NWB has included under Part B, Item 1 of this Licence, requirements for the Licensee to submit to the Board for review, prior to the 31st of March, annually, a report detailing Water use and/or Waste deposit activities for the undertaking for the preceding year. The submission of Annual Reports ensure that the NWB has on file accurate updates of all Water use and/or Waste deposit activities related to an undertaking for any particular year preceding one in which the report is filed.

The Board provides public access to the information submitted in licensees' annual reports through its ftp site as well as upon request from interested parties.

The NWB has included on its website a standardized form for annual reporting that licensees can use to submit annual reporting information, supplemented by other project-specific, relevant details. A copy of the NWB's generic Annual Report Form can be obtained from the NWB upon request or electronically from the NWB's FTP site using the following link:

<ftp://ftp.nwb-oen.ca/other%20documents/>

As part of the Licence replacement process, the NWB conducted a review of the 2014 to 2017 annual reports and the Final Remediation Report. It was noted that the annual 2014 to 2017 annual reports were in good standing, and the Final Remediation Report was generally comprehensive and complete.

C. Conditions Applying to Water Use

The Board has authorized maximum water usage as one (1) cubic metre per day to allow for sampling and related purposes. The Licensee indicated in the Application that all potable Water necessary to support field personnel during monitoring events will be sourced from an approved source off-site.

D. Conditions Applying to Waste Disposal

With decommissioning of the site completed in 2015 and no future camp activities planned, the Application identifies domestic solid Waste (paper towels, filters, Teflon tubing, etc) resulting from monitoring field events as the only Waste type expected as a result of the undertaking. As the Licensee intends to dispose of all solid Waste off-site at an approved facility, and no other type of Waste is expected to be generated as a result from the undertaking, this Licence does not permit the Licensee to dispose of Waste except for the disposal of pump-out water resulting from groundwater monitoring.

All remaining Waste at the Ennadai Lake site is contained in the NHWL, under a cover consisting of at least 1.0 metres of granular fill, as indicated in the Ennadai Lake Long Term Monitoring Plan (INAC, 2017). According the Plan, the NHWL contains the following material:

- Non-hazardous site debris, such as scrap metal and wood
- Type A Petroleum Hydrocarbon (PHC) contaminated soil
- Tier I contaminated soil (see Table 1)
- Asbestos Containing Material (ACM)

Importantly, the Board notes that as the NHWL stabilizes, and as the Monitoring Program shows sustained chemical conditions in groundwater or soil that exceed the standards prescribed in the Ennadai Lake Long Term Monitoring Plan, the Licensee will need to notify the Board immediately with a strategy on how to manage the Waste accordingly.

E. Conditions for Camps, Access Infrastructure and Operations

The undertaking involves no further use of a camp or operations infrastructure related to Water and Waste Management, and all related conditions were removed. As access to the site is required, conditions that pertain to access infrastructure remain in the Licence.

F. Conditions Applying to Drilling Operations

Neither the Application nor the Monitoring Program indicates the need for further drilling at the Ennadai Lake Remediation Site. Nevertheless, the Board has maintained conditions related to drilling, should the Licensee find it advantageous to augment its monitoring program through the installation of additional monitoring wells or instrumentation.

G. Conditions Applying to Modifications

The current scope for this Licence does not include construction activities, however this section was left in the Licence to account for situations arising in which modifications are required.

H. Conditions Applying to Spill Contingency Planning

The Board has previously approved the Spill Contingency Plan (SCP) submitted by the Licensee with the 2013 application. The Applicant has further identified, that hazardous chemicals will not be utilized at site for the upcoming monitoring activities, and the information contained in the SCP remains relevant, therefore no further revision was required to the SCP. All other requirements for the Spill Contingency Plan are detailed under Part H of the Licence.

I. Conditions Applying to Closure and Reclamation

The Board has previously approved the Remedial Action Plan that was submitted with the 2013 application. The Licensee has completed the requirements listed in this plan, however, this plan does not contain information on post-monitoring closure, such as the removal of NHWL groundwater wells or the airstrip. The Licensee is required to submit to the Board for review a addendum to this plan that includes information on post-monitoring closure, as identified in Part I, Item 1.

Information included with the Application states that abandonment and restoration activities for the site concluded in 2015, with post-remediation, long-term monitoring beginning in 2016. At the request of the Board, the Licensee has provided a copy of Ennadai Lake Project Closure Report summarizing the remediation activities for the project. The report includes the following information: construction and decommissioning of the Landfarm including the installation and removal of three (3) groundwater monitoring wells, construction and decommissioning of a Non-Hazardous Waste Landfill (NHWL) and installation of three (3) groundwater monitoring wells; disposal of non-hazardous Waste, bagged asbestos, Tier 1 soil and Type A PHC contaminated soil in NHWL; transportation and disposal off-site of hazardous waste, demolition of site infrastructure, excavation and management of legacy dumps of Type B PHC contaminated soil,

and general site cleanup.

Under the terms and conditions in the Licence applying to abandonment and restoration, the Licensee is required to remove any remaining equipment associated with the project upon completion. Additional conditions for restoration have been included under Part I of this Water Licence.

J. Conditions Applying to the Monitoring Program

Under Part J Item 8 of Licence 1BR-ELR1419 the Licensee was required to submit for Board's review a Quality Assurance/ Quality Control (QA/QC) Plan at least thirty (30) days prior to first release any effluent. As no QA/QC Plan is submitted yet, the Board has reiterated its requirement of the Licensee to submit to the Board for review, a QA/QC Plan. The Plan must be approved by an accredited laboratory, and a letter from this laboratory must be provided, confirming that the plan is acceptable. All of the monitoring results are to be provided to the NWB as part of the annual report. This requirement is included in Part J, Item 13 of the Licence.

The Licensee shall conduct its monitoring activities in accordance with the Ennadai Lake Long Term Monitoring Plan," dated, January 22, 2016, submitted on March 27, 2017. This plan has been approved by the Board with the issuance of this Licence.

The Licensee's Monitoring Plan loosely reflects the strategy outlined in the Abandoned Military Site Remediation Protocol (INAC, 2009), long-term monitoring is separated into phases. Phase I monitoring involves monitoring events in years 1, 3, and 5 (i.e. 2016, 2018, and 2020). Phase II, will include subsequent monitoring events in years 7, 10, 15, 25, and 30 (2022, 2025, 2030, 2035 and 2040). The NWB has extended the Licence term to after the 2025 monitoring event (i.e. 2029), in order to allow the Licensee necessary time to consolidate, assess and respond appropriately to monitoring results collected to date.

Importantly, the Board notes that the 2016 Long Term Monitoring Report revealed exceedances in total and dissolved metal concentrations, and pH, relative to Federal Interim Groundwater Quality Guidelines (EC, 2010). Groundwater monitoring results from 2016 consisted of one groundwater sample collected from MWLF-3 and a duplicate of this sample. The sample exhibited concentrations of aluminium, cadmium, chromium, copper, iron, silver, titanium, and zinc marginally above, and pH marginally below, the Federal Interim Groundwater Quality Guidelines (FIGQGs). Groundwater sampling prior to this was limited to three samples collected from wells that have since been decommissioned (MW 13-2, LF3-WS-02). The 2016 monitoring report states that to date sampling activities have been minimal and are too few to determine a statistically significant impact. The Board is in agreement with this statement and for these reasons, supports the decision to continue Monitoring activities of the NHWL under Phase II.

Furthermore, the Board notes that under Section 2.3 of the Ennadai Lake Long Term Monitoring Plan, INAC will determine whether further monitoring is required following an assessment of Phase I and Phase II data. Combined with the fact that no soil samples have ever been collected at the NHWL, the severe shortage of sampling results leaves the NWB and other reviewers with little to no indication how containment in the NHWL is performing, and whether chemical equilibrium has been reached. The Board supports the plan to have monitoring at Ennadai Lake continue until at least 2040.

Should monitoring continue after 2040, the Board understands that the decision to initiate Phase III monitoring will rest on the evaluation of Phase I and Phase II monitoring results. The requirement of a Phase II/Final Summary Report will be included as a condition within the next renewal Licence.



NUNAVUT WATER BOARD WATER LICENCE RENEWAL

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

INDIGENOUS AND NORTHERN AFFAIRS CANADA, CONTAMINATED SITES

(Licensee)

P.O. BOX 2200 IQALUIT, NUNAVUT, X0A 0H0

(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 Amendment/Renewal:

Licence Number/Type:	1BR-ELR1829 / TYPE "B"
Water Management Area:	UPPER KAZAN - ENNADAI LAKE (07)
Location:	ENNADAI LAKE (FORMER WEATHER STATION) REMEDICATION SITE, KIVALLIQ REGION, NUNAVUT
Classification:	INDUSTRIAL UNDERTAKING
Purpose:	DIRECT USE OF WATER AND DEPOSIT OF WASTE
Quantity of Water use not to Exceed:	ONE (1) CUBIC METRE PER DAY
Date of Licence Issuance:	JUNE 28, 2018
Expiry of Licence:	JUNE 27, 2029

This Renewal Amendment 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

- a. This Licence allows for the use of Water and the disposal of Waste for an undertaking classified as Industrial as per Schedule I of the Regulations at the Ennadai Lake, Former Weather Station Remediation Project, located approximately 380km West of the community of Arviat within the Kivalliq Region, Nunavut.
- b. This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any waters. Whenever new Regulations are made or existing *Regulations* are amended by the Governor in Council under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be subject to such requirements; and
- c. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. Definitions

“**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*;

“**Application**” means the application for amendment and renewal of Licence No. 1BR-ELR1419, received by the Board April 5, 2018;

“**Appurtenant Undertaking**” Means an undertaking in relation to which a use of Water or a deposit of Waste is permitted by a licence issued by the Board;

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

“**Effluent**” means treated or untreated liquid waste material that is discharged into the

environment from a structure such as a settling pond, 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;

“Hazardous Waste” means waste classified as “hazardous” by Nunavut Territorial or Federal Legislation, or as “dangerous goods” under the *Transportation of Dangerous Goods Act* at the time of clean-up;

“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;

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

“Landfarm Facility” means an engineered facility and associated appurtenance designed and constructed for the treatment and storage of hydrocarbon impacted soil and/or Water;

“Licensee” means the individual or organization to which 1BR-ELR1829 Type “B” is issued or assigned;

“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 the monitoring program entitled Ennadai Lake Long Term Monitoring Program, dated January 22, 2016, that was established to collect data on surface water quality and groundwater quality, to assess impacts to the environment of the appurtenant undertaking;

“Non-Hazardous Waste Landfill” comprises the landfill constructed for the disposal of non-hazardous Waste derived from the site cleanup, as described in the *Ennadai Lake Long Term Monitoring Program*, dated January 22, 2016, previously submitted and to be approved with this Licence;

“Nunavut Agreement” means the “*Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada*”, including its preamble and schedules, and any amendments to that agreement made pursuant to it;

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

“Sewage” means all toilet Wastes and greywater;

“Solid Waste” means non-hazardous waste and Type-A soil;

“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” 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;

“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;

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

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 the 31st of March of the year following the calendar year being reported, containing the following information:
 - a. The monthly and annual quantities (in cubic metres) of fresh water obtained from all sources;
 - b. A summary of any modification associated with this Licence;
 - c. A list of unauthorized discharges and a summary of follow-up actions taken;
 - d. Any revisions to the approved management plans;
 - e. A brief summary of work done to address concerns or deficiencies listed in the inspection reports and/or compliance reports prepared by an Inspector;

- f. An executive summary in English and Inuktitut of all plans, reports, or studies conducted under this Licence;
 - g. A summary of all information requested and results of the Monitoring Program, an analysis and interpretation of the results, and any follow-up measures that may be required;
 - h. An analysis of data collected during the Monitoring Program and a brief description of any future studies planned by the Licensee;
 - i. Any other details on Waste disposal requested by the Board by November 1 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, 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.
- 6. The Licensee shall, for all Plans submitted under this Licence implement the Plans as approved by the Board in writing.
- 7. 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.
- 8. Every Plan to be carried out pursuant to the terms and conditions of this Licence shall become a part of this Licence, and any additional terms and conditions imposed upon approval of a Plan by the Board become part of this Licence. All terms and conditions of the Licence should be contemplated in the development of a Plan where appropriate.
- 9. The Licensee shall post signs in the appropriate areas to identify the stations of the Monitoring Program associated with the undertaking. All signage postings shall be in the Official Languages of Nunavut
- 10. 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
- (b) **Inspector Contact:**
Manager of Field Operations, INAC
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445

11. The Licensee shall submit one paper copy and one electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut.
12. 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.
13. This Licence is assignable as provided for in section 44 of the *Act*.

PART C. CONDITIONS APPLYING TO WATER USE

1. The Licensee is authorized to use up to one (1) cubic metre of Water per day for sampling and related purposes.
2. The Licensee shall not remove any material from below the ordinary High Water Mark of any Water body.
3. The Licensee shall not conduct any activity that will cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.

PART D. CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Licensee shall backhaul all waste generated on site to an authorized off-site landfill.
2. The Licensee shall provide to the Board documented authorization from all communities in Nunavut receiving Wastes from the Ennadai Lake Remediation Project prior to any backhauling and disposal of wastes to those communities.

3. The Licensee shall maintain records of all waste backhauled and records of confirmation of proper disposal of backhauled waste. These records shall be made available to an Inspector upon request.
4. In the case of a requirement for discharge, surface contact water and seepage collected from the perimeter of the Landfill Facility shall not exceed the following Effluent discharge criteria prior to being released at least thirty-one (31) metres away into the receiving freshwater environment:

Parameter	Maximum Allowable Concentration (µg/L)
pH	6 to 9 (pH units)
Oil and Grease	5000
Arsenic (total)	100
Cadmium (dissolved)	10
Chromium (dissolved)	100
Cobalt (dissolved)	50
Copper (dissolved)	200
Lead (dissolved)	50
Mercury (total)	0.6
Nickel (dissolved)	200
PCB (total)	1000
Zinc (total)	500
Benzene	370
Toluene	2
Ethylbenzene	90

5. The Licensee shall for the purposes of monitoring maintain ground water monitoring wells at the Non-Hazardous Waste Landfill and any other areas of the Project site requiring future monitoring.
6. If the Effluent associated with Part D, Items 4 exceeds relevant discharge limits, they shall be considered hazardous waste and be disposed off-site at a licensed facility or as otherwise approved by the Board in writing.

PART E. CONDITIONS FOR CAMPS, ACCESS INFRASTRUCTURES AND OPERATIONS

1. Establishment and use of a camp is not authorized under this Licence.
2. With respect to access road, pad construction or other earthworks, the deposition of debris or sediment into any water body is prohibited. These materials shall be disposed of above the ordinary high water mark in such a fashion that they do not enter the water.

3. The Licensee shall conduct all activities 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.
4. The Licensee shall not cause erosion to the banks of any body of Water and shall provide necessary controls to prevent such erosion.
5. The Licensee shall minimize disturbance to terrain, permafrost and drainage during movement of contractor's equipment and personnel around the site during post closure monitoring activities.
6. All sites affected by sampling activities shall be stabilized, landscaped as necessary, and suitable erosion control measures implemented to minimize sediment deposition into watercourses located on or adjacent to the site.
7. The Licensee shall implement proper handling, storage and transportation procedures for hazardous materials to prevent entry to any Water body.
8. The Licensee shall restore and stabilize all areas affected by the undertaking upon completion of work.

PART F. CONDITIONS APPLYING TO DRILLING OPERATIONS

1. Drilling is not permitted under this Licence except for the purposes of installing monitoring wells and/or instrumentation required for monitoring the Non Hazardous Waste Landfill.

PART G. CONDITIONS APPLYING TO CONSTRUCTION AND MODIFICATIONS

1. The Licensee may, without written consent from the Board, carry out Modifications to the Water and Waste management structures or 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.
2. Modifications for which all of the conditions referred to in Part G, Item 1 have not been

met can be carried out only with written approval from the Board.

3. The Licensee shall provide as-built plans and drawings of the Modifications referred to in this Licence within ninety (90) days of completion of the Modification. These plans and drawings shall be stamped by an Engineer.

PART H. CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. The Licensee shall implement the Plan entitled “Spill Contingency Plan, Ennadai Lake Weather Station Environmental Remediation Project. Ennadai Lake, Nunavut.” dated August 2013 that was previously approved by the Board.
2. The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project 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 approved Spill Contingency Plan;
 - b. Report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4295; 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.

PART I. CONDITIONS APPLYING TO CLOSURE AND RECLAMATION OR TEMPORARY CLOSING

1. The Licensee shall provide to the Board for review, and with the 2018 annual report, an addendum to the plan entitled “Remedial Action Plan Former Weather Station Ennadai Lake, Nunavut” dated November 2012, that includes:
 - a. a final procedure for plugging and abandonment of groundwater monitoring wells according to the *Yukon Government Environment Act - Contaminated Sites Regulation - Protocol No. 7 - Groundwater Monitoring Well Installation, Sampling and Decommissioning*;
 - b. a plan for the air strip upon completion of the monitoring program, and
 - c. and other reclamation activates required prior to final closure.

2. All work to roads and the air strip shall be graded to match natural contours to reduce erosion.
3. The Licensee shall remove from the site, all infrastructure and site materials, including all fuel caches, drums, barrels, material and equipment prior to the expiry of this Licence.
4. 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 Contaminated Site Remediation*, 2009. 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.
5. All disturbed areas shall be contoured and stabilized upon completion of work and restored to a pre-disturbed state.
6. The Licensee shall complete all restoration work prior to the expiry of this Licence.

PART J. CONDITIONS APPLYING TO THE MONITORING PROGRAM

1. The Board approves the plan entitled "Ennadai Lake Long Term Monitoring Plan," dated, January 22, 2016, submitted on March 27, 2017.
2. The Licensee shall carry out the long-term monitoring activities according to the Abandoned Military Site Remediation Protocol, December 2008, Indigenous and Northern Affairs Canada.
3. The Licensee shall maintain Monitoring Program Stations at the following locations:

Monitoring Program Station Number	Description	Status
ELR-7	Monitoring well MW13-1 installed at the Non-Hazardous Waste Landfill Facility	Active (Water Quality)
ELR-8	Monitoring well MW13-2 installed at the Non-Hazardous Waste Landfill Facility	Active (Water Quality)
ELR-9	Monitoring well MW13-3 installed at the Non-Hazardous Waste Landfill Facility	Active (Water Quality)

4. The Licensee shall sample at Monitoring Program Stations ELR-7, ELR-8, and ELR-9. Samples shall be analyzed for the following parameters:

pH	Conductivity
Total Suspended Solids	Ammonia Nitrogen
Nitrate – Nitrite	Oil and Grease (visual)
Total Phenols	Sulphate
Total Hardness	Total Alkalinity
Sodium	Potassium
Magnesium	Calcium
Chloride	Total Cadmium
Total Copper	Total Chromium
Total Iron	Total Lead
Total Mercury	Total Nickel
Total Zinc	Total Phosphorous
Total Aluminum	Total Arsenic
Total Manganese	Total Cobalt
Total Petroleum Hydrocarbons (TPH)	
Polycyclic Aromatic Hydrocarbons (PAH)	
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)	

5. The Licensee shall monitor groundwater quality proximal to the Waste Disposal Facilities by collecting representative samples from all monitoring wells installed under Part K, Item 3. Samples shall be analyzed for parameters listed under Part K, Item 4.
6. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board in writing.
7. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
8. The Licensee shall submit to the Board for review, with the next annual report, or thirty (30) days prior to the release of any effluent, a Quality Assurance/Quality Control Plan that conforms to the guidance document “*Quality Assurance (QA) and Quality Control (QC) Guidelines For Use by Class “B” Licensees in Collecting Representative Water Samples in the Field and for Submission of a QAQC Plan*” INAC (1996). The Plan shall be acceptable to an accredited laboratory and include a covering letter from the accredited laboratory confirming acceptance of the Plan for analyses to be performed under the Licence.
9. The Licensee shall ensure that tabular summaries for all data and information generated under the Monitoring Program, as well as an analysis of data collected during the Monitoring Program, are provided to the Board in the Annual Report, in accordance with Part B, Item 1.

10. The Licensee shall determine the GPS co-ordinates (in degrees, minutes, and seconds of latitude and longitude) of all locations where sources of Water are utilized for all purposes.
11. The Licensee shall submit a Monitoring Summary Report the year after the 2025 onsite Monitoring activities. The Monitoring Summary Report should be submitted with the Annual Report. The Report shall summarize data collected to date during monitoring, and include information on the integrity of the NHWL. The Report shall also address whether the facilities have performed as expected. The report must include an assessment of how the facilities are expected to perform in the long-term as well as appropriate recommendations.
12. The Licensee shall conduct any additional monitoring requested by the Inspector.