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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: 8BC-FOD1828 Renewal-Amendment

June 8, 2018

Major Ian Creighton
North Warning System Office
Department of National Defence
101 Colonel By Drive
Ottawa, Ontario K1A 0K2

Email: Ian.Creighton3@forces.gc.ca

RE: NWB Renewal-Amendment Water Licence No. 8BC-FOD1828

Dear Major Creighton:

Please find attached Licence No. 8BC-FOD1828 issued to the Government of Canada, Department of National Defence by the Nunavut Water Board (NWB) pursuant to its authority under Article 13 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada (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 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 the use of Water and the deposit of Waste must cease, or the Licensee may be in contravention of the *Nunavut Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act (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 s. 75(1)(a) of the *Nunavut Planning and Project Assessment Act (NuPPAA)*, the Board is not allowed to issue a permit or authorization for any project proposal that has not been submitted to the Nunavut Planning Commission (NPC) in accordance with s. 76 of *NuPPAA*.

If the Licensee contemplates or requires an amendment to this licence, the NWB may decide, in the public's interest, to hold a public hearing. The Licensee should submit applications for amendment as soon as possible to give the NWB sufficient time to go through the amendment process. The process and timing may vary depending on the scope of the amendment, however,

a minimum of **sixty (60) days** is required from time of acceptance by the NWB. It is the responsibility of the Licensee to ensure that all application materials have been received and are acknowledged by the Manager of Licensing.

The NWB strongly recommends that the Licensee consult the comments received by Indigenous and Northern Affairs Canada, Environment and Climate Change Canada, and Fisheries and Oceans Canada on issues identified. This information is attached for your consideration.¹

Sincerely,

Lootie Toomasie
Nunavut Water Board,
Chair

LT/kt/rqd

Enclosure: Renewal-Amendment Licence No. 8BC-FOD1828

Comments – INAC, ECCC, DFO

Cc: Distribution List – Qikiqtani

¹ Indigenous and Northern Affairs Canada (INAC), March 14, 2018; Environment and Climate Change Canada (ECCC), March 9, 2018; Fisheries and Oceans Canada (DFO), March 7, 2018

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DECISION

LICENCE NUMBER: 8BC-FOD1828

This is the decision of the Nunavut Water Board (NWB) with respect to an application dated January 17, 2018 for a renewal - amendment of a Water Licence made by:

GOVERNMENT OF CANADA, DEPARTMENT OF NATIONAL DEFENCE

to allow for the use of Water and the deposit of Waste during operation and maintenance of the FOX-3 Long Range Radar Station located north of Dewar Lakes on Baffin Island within the Qikiqtani Region, Nunavut, generally located at the geographical coordinates as follows:

Latitude: 68° 40'48" N

Longitude: 71° 14'48" W

DECISION

After having been satisfied that the Application is for a proposal that falls outside of an area with an approved land use plan, and, as such, a conformity determination from the Nunavut Planning Commission (NPC) is not required; and that the activities were previously screened by the Nunavut Impact Review Board (NIRB File No. 03DN118)^{1,2}; 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:

Renewal-Amendment Licence No. 3BC-FOD0919 be renewed and amended as Licence No. 8BC-FOD1828 subject to the terms and conditions contained therein. (Motion #: 2018-B1-012)

Signed this 8th day of June, 2018 at Gjoa Haven, NU.

Lootie Toomasie
Nunavut Water Board,
Chair

LT/kt/rqd

¹ Nunavut Planning Commission, Conformity Determination, January 12, 2018

² Nunavut Impact Review Board Screening Decision, October 31, 2003

Introduction

The FOX-3 Station was originally built between 1955-57 as an auxiliary to the Distant Early Warning Line to detect airborne objects within the arctic surveillance area. FOX-3 now serves as a Long Range Radar Station and is currently unmanned for most of the year. However, the site is visited by FOX-M staff on scheduled quarterly maintenance trips and on an as needed basis. From May to September the site may be returned to manned status with between 5 to 20 persons on-site to support project activities.

FOX-3 is located on a hilltop about 518 metres above sea level and has an airstrip in a valley at about 152 metres above sea level. Relevant on-site facilities include site buildings, a freshwater intake, four (4) 10,000 litre water tanks, fuel storage area, and one incinerating toilet. The site also has a Sewage Disposal Facility consisting of a sump, holding tank, and masticating pump. When the septic tank nears or reaches capacity the sewage is discharged out the sewage outfall pipe to the receiving sump.

File History

On August 20, 2003, Nasittuq Corporation submitted a new application on behalf of the North Warning System Office, Department of National Defence (Licensee or DND) for a water licence covering water use and waste disposal activities during operations at FOX-3. After reviewing the submission of the Applicant and written comments provided by interested parties, the NWB issued Licence No. NWB6FOD0409 (3BC-FOD0409) on February 17, 2004.

On February 12, 2009 the NWB received an application to amend the expiry of the Licence until September 1, 2009. This amendment was approved on February 27, 2009 following a ten day 'urgent' review period. On September 23, 2009 Licence 3BC-FOD0409 was renewed as 3BC-FOD0919 with an expiry date set for August 31, 2019.

Procedural History

On January 17, 2018 the Nunavut Water Board (NWB or Board) received from the Government of Canada, Department of National Defence, the following documents in support of the renewal of Licence 3BC-FOD0919:

- 180117 3BC-FOD0919 Water Licence Inspection July 20 2016-ILAE.pdf
- 180117 3BC-FOD0919 Renewal Amendment Cover Letter Signed-ILAE.pdf
- 180117 3BC-FOD0919 NWB Spill Contingency Plan 01Apr16-ILAE.pdf
- 180117 3BC-FOD0919 Water Licence Amendment Application-ILAE.pdf
- 180117 3BC-FOD0919 FOX-3 Landfarm Management Plan 2017-ILAE.pdf
- 180117 3BC-FOD0919 FOX-3 Exploration-Remote Camp Questionnaire-ILAE.pdf
- 180117 3BC-FOD0919 FOX-3 Executive Summary-ILAE.pdf
- 180117 3BC-FOD0919 FOX-3 Executive Summary Inuktitut-ILAE.pdf
- 180117 3BC-FOD0919 FOX-3 Dewar Lakes_Environmental Protection Plan-ILAE.pdf
- 180117 3BC-FOD0919 FOX-3 Dewar Lakes Site Map-ILAE.pdf

- 180117 3BC-FOD0919 031016 NIRB Screening-ILAE.pdf
- 180112-03DN118 07DN069-NPC Exempt From Screening-IA1E.pdf

In accordance with Schedule 1 of the new *Nunavut Waters Regulations* which came into effect during the term of the current licence 3BC-FOD0919, the classification of the undertaking changed from ‘Municipal’ to ‘Other’. For that reason, the application was assigned the new file number 8BC-FOD.

On February 12, 2018 the NWB acknowledged receipt and distributed the application to interested persons for a thirty-day comment and review period. On or before the deadline for comments, submissions were received from Indigenous and Northern Affairs Canada (INAC), Department of Fisheries and Oceans Canada (DFO) and Environment and Climate Change Canada (ECCC).

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. In determining an appropriate term of a water licence, the Board considers a number of factors including, but not limited to: the results of INAC site inspections and the corresponding compliance record of the Applicant; as well as intervenor comments provided during the application review process.

In review of the comments received on the application, the NWB notes that there were no concerns expressed with respect to the requested licence term of ten (10) years proposed by the Applicant. In review of the information available during the renewal process, the NWB concurs with the Applicant that a Licence term of approximately ten (10) years is appropriate.

Sewage Disposal

The applicant requested in its cover letter to the application that the condition of Part D, Item 1, requiring the Licensee to submit to the Board for approval a Sewage Disposal Update, be removed, as the information was previously provided to the NWB.

The Board confirms that the document entitled “Sewage Disposal Update: Sumps for Sewage Outfalls at CAM-3, FOX-3, DYE-M, and BAF-3” was received on February 1, 2010 and distributed on February 10, 2010 to interested persons for review and comment. Comments on the document were received from Environment Canada; as well as Indian and Northern Affairs Canada on March 12, 2010. Submissions have been placed on the NWB public registry and are available from the NWB ftp site. The NWB has approved the Plan as part of this Licence renewal; however, requires the Licensee to submit an addendum to the Plan that addresses the comments received.

Further to the above, both INAC and ECCC expressed concerns in their submissions on the application regarding overtopping of the sewage sump, as documented in the July 20, 2016

water licence inspection report. Both parties recommended that the Licensee confirm whether the issue has been resolved. On May 31, 2018 the applicant confirmed that the erosion that was noted by the water licence inspector in 2016 was repaired in 2017, and that the operations and maintenance contractor performs preventive maintenance to ensure that there is no erosion on the sewage effluent receiving sump.

Landfill Operations and Maintenance Manual

The applicant requested in its cover letter to the application that the condition of Part E, Item 1, requiring the Licensee to submit to the Board for approval an Operations and Maintenance Plan for the Landfill, be removed, as the information was previously provided to the NWB and the Landfill is no longer being used at the site.

The Board confirms that the Plan entitled “Operation and Maintenance (O&M) Plan for the Landfill and Handling of Solid Wastes at FOX-3” was received on February 1, 2010, and distributed on February 10, 2010, to interested persons for review and comment. Comments on the Plan were received from Environment Canada dated March 12, 2010, and Indian and Northern Affairs Canada dated March 17, 2010. Submissions have been placed on the NWB public registry and are available from the NWB ftp site.

The NWB has approved the Plan as part of this Licence renewal; however, requires the Licensee to submit an addendum to the Plan that addresses the comments received. In addition the Licensee is reminded of the condition in Part B Item 6 of the Licence requiring the Licensee to 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.

Spill Contingency Plan

The applicant submitted as part of its water licence application package a Plan entitled “Spill Contingency Plan for the North Warning System” dated April 1, 2016. In its submission dated March 14, 2018, INAC commented on the location of spill kits and recommended that spill kits be placed in high risk spill areas so as to minimize spill response time.

The NWB has approved the Spill Contingency Plan as part of this Licence renewal; however, requires the Licensee to submit an addendum to the Plan that addresses INAC’s comment. In addition the Licensee is reminded of the condition in Part B Item 6 of the Licence requiring the Licensee to 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.

Fuel Leak Detection and Reconciliation System

The previous Licence 3BC-FOD0919 required as a condition in Part G Item 2 that the Licensee submit to the Board a feasibility report addressing the recommendation made by INAC to install a remote leak detection system capable of generating a timely site response in the event of a fuel leak while the site is unmanned from October to April.

The Board confirms receipt of the document entitled “Fuel Leak Detection and Reconciliation System (FLDRS) Feasibility Report: Long Range Radar (LRR) Sites & Short Range Radar (SRR) Sites” dated March 2010. The NWB acknowledged and distributed the report to interested persons for information on April 26, 2010. The document has been placed on the NWB public registry and is available from the NWB ftp site. As such, the subject condition is from this renewed Licence.

Landfarm

The Board has approved as part of this Licence, the applicant’s “Landfarm Design and Management Plan North Warning Site: FOX-3, Dewar Lakes, Nunavut”, dated November 2017 that was submitted as part of the application package. In addition, the Licence renewal includes conditions in Part G (condition applying to waste disposal) and Part H (conditions applying to abandonment and restoration or temporary closing) related to the treatment of petroleum hydrocarbon contaminated soil in the Landfarm as well as requirements for discharge of effluent from the Landfarm.

The Licensee is also reminded of the condition in Part B Item 6 of the Licence requiring the Licensee to 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.

Quality Assurance/ Quality Control Plan

The applicant requested in its cover letter to the application that the condition of Part I, Item 8, requiring the Licensee to submit to the Board a Quality Assurance/ Quality Control Plan, be removed, as the information has previously been provided to the NWB.

The Board confirms that the QA/QC Plan, dated February 10, 2010, has been submitted and that additional information about the Plan was submitted May 11, 2010 in response to comments from the INAC analyst. Submissions have been placed on the NWB public registry and are available from the NWB ftp site.

In its comments dated March 9, 2018, ECCC noted that the amendment application proposes to use portable field analytical equipment for water quality monitoring without providing details on the type of equipment or the accuracy and detectability of the analysis as compared to laboratory analyzed samples. ECCC further recommended the provision of such details. The Board agrees with ECCC and is requiring the Licensee to submit an updated QA/QC Plan that addresses ECCC’s comments.

Monitoring

The applicant requested in its cover letter to the application that the list of parameters required for analysis at monitoring station FOD-3 (effluent discharged from fuel storage area) include only those parameters directly correlated with the presence of hydrocarbons. The Board agrees with the applicant and the Licence renewal has been amended accordingly.

This Licence renewal also discontinues monitoring station FOD-2, the final discharge point from the Sewage Disposal Facility. As stated in the application documents and the Sewage Disposal Update, January 2010, sewage and greywater are combined in the Sewage Disposal Facility including discharge to a sump located at a distance of at least thirty one (31) metres above the ordinary high water mark of any water body, at a site where direct flow into a water body is not possible and no additional impacts are created.



NUNAVUT WATER BOARD

WATER LICENCE RENEWAL-AMENDMENT

Licence No. 8BC-FOD1828

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

GOVERNMENT OF CANADA, DEPARTMENT OF NATIONAL DEFENCE

(Licensee)

**NORTH WARNING SYSTEM OFFICE, C/O NATIONAL DEFENCE
HEADQUARTERS, 101 COLONEL BY DRIVE OTTAWA, ON, K1A 0K2**

(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-Amendment:

Licence Number/Type: **8BC-FOD1828 TYPE "B"**

Water Management Area: **NUNAVUT 05**

Location: **DEWARS LAKES
QIKIQTANI REGION, NUNAVUT**

Classification: **OTHER UNDERTAKING**

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

Quantity of Water use not to Exceed: **ONE THOUSAND FOUR HUNDRED AND FORTY (1440)
CUBIC METRES ANNUALLY**

Date of Licence Issuance: **JUNE 8, 2018**

Expiry of Licence: **JUNE 7, 2028**

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 an Other undertaking classified as per Schedule 1 of the *Regulations* at the FOX-3 Long Range Radar Station, located north of Dewar Lakes, Baffin Island, approximately 230 km southwest of Clyde River 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;

“**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*;

“Bermed Fuel Storage Facility” means all fuel storage facilities on site contained with a berm;

“Closure and Reclamation Plan” means a Plan developed to reach the closure goal and taking in account the “Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories” 2013;

“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*;

“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*;

“Landfarm Facility” means the facility designed to treat hydrocarbon contaminated soil referred to in the renewal application dated January 17, 2018;

“Landfill” means the facility designed to contain solid wastes referred to in the renewal application dated July 30, 2009;

“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;

“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;

“Secondary Containment” means an impermeable structure, external to and separate from primary containment, which prevents unplanned spills of hazardous materials and provides a minimum capacity of 110% of the original vessel. Where multiple vessels are stored within the containment, it must provide a minimum capacity equal to the sum of the largest vessel and 10% of the aggregate volume of all other vessels located in the

containment. This structure shall also provide containment and control of hoses and nozzles;

“Sewage” means all toilet Wastes and greywater;

“Sewage Disposal Facility” means the disposal system as described in the water licence application filed by the applicant on July 30, 2009 and in the Sewage Disposal Updated dated January 2010;

“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;

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

“Waste Disposal Facilities” means the Sewage Disposal Facility; Landfill; and Landfarm;

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

“Water Supply Facility” means the intake, piping, storage tanks and distribution network designed to provide water for the site.

3. **Enforcement**

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

PART B: GENERAL CONDITIONS

1. The Licensee shall file an Annual Report on the Appurtenant Undertaking with the Board no later than March 31st of the year following the calendar year being reported, containing the following information:
 - a. A summary report of Water use and Waste disposal activities;
 - b. Quantity of Waste disposed of in on-site Waste disposal facilities;
 - c. Quantity of Waste backhauled to approved facility for disposal;
 - d. A list of unauthorized discharges and a summary of follow-up actions taken;
 - e. Updates or revisions, if applicable, to the Spill Contingency Plan, and Operations and Maintenance Plans, as required by Part B Item 6 submitted in the form of an Addendum. Revisions may be subject to Board approval;
 - f. A description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;
 - g. A summary of all information requested and results of the Monitoring Program; and
 - h. Any other details on Water use or 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 install flow meters or other such devices, or implement suitable methods required for the measuring of Water volumes as required under Part J, Item 1.
4. 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.
5. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
6. 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.
7. 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.
8. 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

9. The Licensee shall submit one (1) paper copy and one (1) electronic copy of all reports, studies, and plans to the Board. Reports or studies submitted to the Board by the Licensee shall include a detailed executive summary in Inuktitut.
10. The Licensee shall ensure that all documents or correspondence submitted by the Licensee to the NWB are received and acknowledged by the Manager of Licensing.
11. This Licence is assignable as provided for in Section 44 of the *Act*.
12. 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 water from Water Lake as shown on drawing No. H-D67/2-8400-101. The volume of water for the purposes of this Licence shall not exceed one thousand four hundred and forty (1,440) cubic metres annually.
2. The use of Water from streams or any Water bodies not identified in Part C, Item 1, is prohibited unless authorized and approved by the Board in writing.
3. The withdrawal of Water from any stream shall not exceed ten (10) per cent of the low flow of that stream unless approved by the Board in writing.
4. The Licensee shall submit to the Board for approval in writing, the following information at least thirty (30) days prior to the use of Water of a sufficient volume that the source water body may be drawn down: volume required, hydrological overview of

the water body, details of impacts, and proposed mitigation measures.

5. The Licensee shall equip all water intake hoses with a screen of an appropriate mesh size to ensure that fish are not entrained and shall withdraw Water at a rate such that fish do not become impinged on the screen.
6. The Licensee shall not conduct any work below the ordinary High Water Mark of any water body unless approved by the Board in writing.
7. The Licensee shall not cause erosion to the banks of any body of Water and shall provide necessary controls to prevent such erosion.
8. Sediment and erosion control measures shall be implemented prior to and maintained during the undertaking to prevent entry of sediment into Water.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Board has approved the Plan entitled “Sewage Disposal Update: Sumps for Sewage Outfalls at CAM-3, FOX-3, DYE-M, and BAF-3”, dated January 28, 2010.
2. The Licensee shall submit within thirty (30) days of issuance of the Licence, an Addendum to the Plan referred to in Part D, Item 1, addressing the following issues:
 - a. Sludge removal and characterization prior to disposal; and
 - b. Operation and maintenance procedures for the Sewage Disposal Facility;
3. The Licensee shall locate areas designated for Waste disposal at a minimum distance of thirty-one (31) metres from the ordinary High Water Mark of any water body such that the quality, quantity or flow of Water is not impaired, unless otherwise approved by the Board in writing.
4. The Licensee shall not practice on-site land filling of domestic Waste, unless otherwise approved by the Board in writing.
5. The Licensee is authorized to dispose of all acceptable food Waste, paper Waste and untreated wood products in an incinerator.
6. The Licensee shall not open burn plastics, wood treated with preservatives, electric wire, Styrofoam, asbestos or painted wood to prevent the deposition of Waste materials of incomplete combustion and/or leachate from contaminated ash residual, from impacting any surrounding Waters, unless otherwise approved by the Board in writing.
7. The Licensee shall provide to the Board, documented authorization from all communities receiving waste from the Appurtenant Undertaking.
8. The Licensee shall backhaul and dispose of all hazardous Wastes, Waste oil and non-combustible Waste generated through the course of the operation at a licensed Waste

disposal site.

9. 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.
10. The Licensee shall dispose of Greywater through the Sewage Disposal Facility Sump. All Effluent shall be disposed to a Sump located at a distance of at least thirty one (31) metres above the ordinary high water mark of any water body, at a site where direct flow into a water body is not possible and no additional impacts are created, unless otherwise approved by the Board in writing.
11. The Licensee may manage Toilet Wastes through the use of incineration toilets, and dispose of all resulting ash in an approved and licenced Landfill. In the event that the on-site population exceeds the capacity of the incineration toilet, the Licensee shall direct Toilet Wastes to the Sewage Disposal Facility Sump.
12. All discharge of Effluent at Monitoring Station FOD-3 (Fuel storage area) shall not exceed the following Effluent quality limits:

| Parameter | Maximum Concentration of any Grab Sample (µg/L) |
|----------------|---|
| Oil and Grease | 5000 |
| Benzene | 370 |
| Toluene | 2 |
| Ethylbenzene | 90 |

13. If Effluent does not meet the Effluent quality limits of Part D, Item 12 above, it shall be considered hazardous waste and disposed off-site at an approved, licensed facility.
14. The Licensee shall implement measures to prevent leachate or runoff from the Landfill from entering a water body such that no additional impacts are created, unless otherwise approved by the Board in writing.
15. The Board has approved the Plan entitled, Landfarm Design and Management Plan North Warning Site: FOX-3, Dewar Lakes, Nunavut, dated November 2017
16. The Licensee is authorized to treat petroleum hydrocarbon contaminated soil generated by two spills (originated from: a 3 mm crack in the apron-to-summit pipeline; and a helicopter crash which occurred on 13 May 2013) at the Landfarm Facility, or as otherwise approved by the Board. All soil must be treated to meet the appropriate post-treatment, land-use criteria outlined in the Canadian Council of Ministers of the Environment's (CCME) Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil (2008) and the Government of Nunavut – Department of Environment's Guidelines for Contaminated Site Remediation (Revised 2009).

17. All discharge of Effluent at Monitoring Station FOD-4 (Landfarm) shall not exceed the following Effluent quality limits:

| Parameter | Maximum Concentration of any Grab Sample (µg/L) |
|----------------------|---|
| pH | 6 to 9 (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 |
| Phenols | 20 |
| Zinc (total) | 500 |
| Benzene | 370 |
| Toluene | 2 |
| Ethylbenzene | 90 |

18. The Licensee shall treat, as required, the Effluent generated by the Landfarm Facility such that the Effluent discharged shall not exceed the Effluent quality limits established under Part D, Item 17, prior to Discharge into the receiving environment.
19. The Licensee shall confirm compliance with respective Effluent quality limits in Part D, Items 12 and 17, prior to Discharge.
20. The Licensee shall provide at least ten (10) days notice to the Inspector prior to any planned Discharges from any facilities. The notice shall include an estimated volume proposed for Discharge and the receiving location.

PART E: CONDITIONS FOR CAMPS, ACCESS INFRASTRUCTURES AND OPERATIONS

1. The Board has approved the Plan entitled “Operation and Maintenance (O&M) Plan for the Landfill and Handling of Solid Wastes at FOX-3”, dated January 28, 2010.
2. The Licensee shall submit within thirty (30) days of issuance of the Licence, an Addendum to the Plan referred to in Part E, Item 1, addressing ECCC’s comments including the need for sampling of surface water and seepage areas to assess the landfill’s performance and the potential for environmental risk.

3. The Licensee shall not erect camps or store material on the surface of frozen streams or lakes including the immediate banks except what is for immediate use. Camps shall be located such as to minimize impacts on surface drainage.
4. The Licensee shall conduct all activities in such a way as to minimize impacts on surface drainage and the Licensee shall immediately undertake corrective measures in the event of any impacts on surface drainage.
5. Stream crossing shall be a minimum of five hundred (500) meters from spawning areas.
6. With respect to access road, pad construction or other earthworks, the deposition of debris or sediment into or onto any water body is prohibited. These materials shall be disposed a distance of at least thirty one (31) metres from the ordinary High Water Mark in such a fashion that they do not enter the Water.
7. The Licensee shall not mobilize heavy equipment or vehicles for trenching or other activities unless the ground surface is capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of equipment or vehicles shall be suspended if rutting occurs.

PART F: CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply Facilities 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.
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 G: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. The Board has approved the Plan entitled “Spill Contingency Plan for the North Warning System” dated April 1, 2016 that was submitted as additional information with the Application.
2. The Licensee shall submit within thirty (30) days of issuance of the Licence, an Addendum to the Plan referred to in Part G, Item 1, in the format set out by the Consolidation of Spill Contingency Planning and Reporting Regulations R-068-93 addressing the location of spill kits so as to minimize spill response times.
3. 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.
4. 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.
5. The Licensee shall provide secondary containment for hazardous waste and fuel storage area.
6. 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.
7. The Licensee shall, in addition to Part G, Item 6, regardless of the quantity of releases of harmful substances, report to the NWT/NU Spill Line if the release is near or into a Water body.

PART H: CONDITIONS APPLYING TO CLOSURE AND RECLAMATION OR TEMPORARY CLOSURE

1. The Licensee shall submit to the Board for approval six (6) months prior to the abandonment of the FOX-3 site or any associated facilities, an Abandonment and Restoration Plan that includes the following where appropriate:
 - a. Water intake facilities;
 - b. Water treatment and waste disposal sites and facilities;
 - c. Petroleum and chemical storage areas;
 - d. Any site affected by waste spills;

- e. Leachate prevention;
 - f. An implementation schedule;
 - g. Maps delineating all disturbed areas, and site facilities;
 - h. Consideration of altered drainage patterns;
 - i. Type and source of cover materials;
 - j. Future area use;
 - k. Hazardous wastes; and
 - l. A proposal identifying measures by which restoration costs will be financed by the Licensee upon abandonment.
2. The Licensee shall complete the restoration work within the time schedule specified in the Plan, or as subsequently revised and approved by the Board.
3. Areas that have been contaminated by hydrocarbons shall be reclaimed to meet objectives as outlined in the Government of Nunavut's Environmental Guideline for Site Remediation, 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 maintain Monitoring Stations at the following locations:

| Monitoring Program Station Number | Description | Status |
|--|--|------------------------------|
| FOD-1 | Raw water supply from Water Lake prior to deposit in water tanks | Active (Volume cubic meters) |
| FOD-2 | Final Discharge Point from the Sewage Disposal Facility | Discontinued |
| FOD-3 | Final Discharge Point of the Bermed Fuel Storage Facility | Active (Quality) |
| FOD-4 | Final Discharge Point from the Landfarm | Active (Quality) |

2. The Licensee shall measure and record, in cubic metres, the daily quantities of water pumped from Monitoring Station FOD-1 for all purposes.
3. The Licensee shall, prior to release of Effluent from the Bermed Fuel Storage Facilities at FOD-3, sample for the purposes of verifying compliance with Effluent Quality Limits for the parameters listed under Part D Item 12.
4. The Licensee shall, prior to release of Effluent from the Landfarm at FOD-4, sample for the purposes of verifying compliance with Effluent Quality Limits for the parameters listed under Part D, Item 17.

5. The Licensee shall provide 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.
6. The Licensee shall determine the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where Wastes associated with operations and maintenance activities are deposited.
7. 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 Analyst.
8. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025 unless otherwise approved by the Board. The accreditation shall be current and in good standing.
9. The Licensee shall within ninety (90) days following issuance of the Licence, submit to the Board for acceptance an updated Quality Assurance/Quality Control (QA/QC) Plan that addresses the comments received from ECCC including:
 - a. Details of the proposed field analytical equipment to sample for the required parameters;
 - b. Discussion of the accuracy (including Quality Assurance/ Quality Control) and detection limits of the field analytical equipment as compared to laboratory.
10. The Licensee shall include in the Annual Report required under Part B, Item 1 all data, monitoring results and information required by this Part.