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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: 1BR-KIV1621

June 22, 2016

Mark Yetman, Sr. Project Manager
Indigenous and Northern Affairs Canada
10th Floor, 205 Eddy Street
Gatineau, QC, K1A 0H4

Email: mark.yetman@aadnc.gc.ca
Michael.Westlake@aadnc-aandc.gc.ca

RE: NWB Licence No. 1BR-KIV1621

Dear Mr. Yetman:

Please find attached Licence No. **1BR-KIV1621** issued to Indigenous and Northern Affairs Canada (INAC) 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 Land Claims Agreement or NLCA)*. The terms and conditions of the attached Licence related to water use and Waste disposal are an integral part of this approval.

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

If the Licensee contemplates or requires an amendment to this licence, the NWB may decide, in the public's interest, to hold a public hearing. The Licensee should submit 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 person(s) on issues identified. This information is attached for your consideration.¹

Sincerely,

Thomas Kabloona
Nunavut Water Board
Chair

TK/sj/ip

Enclosure: Licence No. **1BR-KIV1621**
Comments – DFO, and INAC – Water Resources Division

cc: Qikiqtani Distribution List

¹ Indigenous and Northern Affairs Canada (INAC), January 4, 2016 and March 10, 2016; and Department of Fisheries and Ocean Canada (DFO), January 4, 2016.

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I. INTRODUCTION

The FOX-D (Kivitoo) site is located on Davis Strait, approximately 50 kilometres west of Qikiqtarjuaq in the Qikiqtani Region, Nunavut. Several decades ago the site hosted an Intermediate Distant Early Warning (DEW) Line facility that was constructed in 1957 and operated until 1963 to support military purposes. After military activities ceased, the site became part of the Auyuittuq National Park and was later managed by Parks Canada until 1992. Between the period 1973 and 1983, Parks Canada undertook a partial clean-up of the site in which all on site structures were removed to foundation levels with the exception of two vertical fuel storage tanks and a transfer tank. Subsequently, the management of the Park was transferred from Parks Canada to Aboriginal Affairs and Northern Development Canada (AANDC) (now known as Indigenous and Northern Affairs Canada).

The FOX-D site consists of two (2) main areas known as the Upper Site and Lower Site, connected by a 4 – kilometre access road. The Upper site consisted of the continuous wave tower, main building train, warehouse, garage, two 75,000 – litre Petroleum, Oil, and Lubricant (POL) tanks, and a small building that seemed to have been an Inuit house. Prior to closure of the site in 1963, a fire completely destroyed the main building train.

The Lower Site is located on the coastal plain to the south of the upper site and originally consisted of two POL tanks; a beach landing area; drum storage, and an airstrip. A freshwater lake, borrow sources, and a construction camp are also situated at the Lower Site area. Other remaining structures on the lower site include remnants of an airstrip, and a small shed.

Site investigation and characterization work was completed in 2014, and a Remedial Action Plan (RAP) developed based on INAC's Abandoned Military Site Remediation Protocol (2009). Proposed site remediation activities are scheduled to begin in the summer of 2016 and will continue until 2017 and possibly to 2018. Upon completion of the remediation work, all equipment and structures will be removed from the project site.

To undertake the proposed remediation work, the custodian of the site, INAC, submitted a water licence application and supporting information (the Application) to the Nunavut Water Board (NWB or Board) for consideration.

II. APPLICATION SCOPE

The scope of activities and undertakings proposed in the water licence Application to support remediation of the site includes the following:

- Establishment of a temporary camp to support site operations;
- Excavation and disposal of PCB and metal contaminated soil at an off-site licenced disposal facility;
- Treatment of hydrocarbon contaminated soil using biological and/or aeration treatment on-site combined with off-site disposal at an approved disposal facility;
- Demolition of existing site infrastructure and sorting of demolition Wastes into hazardous and non-hazardous materials for proper disposal;
- Collecting, consolidating, and packaging for off-site disposal of non-hazardous Waste materials (14,834 m³, excluding materials to remain in APECs 9 and 10). APECs 9 and 10 will be regraded and remain in place;

- Containerization and labelling of hazardous materials (with the exception of Asbestos Containing Materials) for disposal off-site in accordance with the *Transportation of Dangerous Goods Act* and in Accordance with INAC's *Abandoned Military Sites Remediation Protocol*;
- Containerization and off-site disposal of asbestos-containing materials;
- Dismantling and off-site disposal of lead and PCB amended paint materials that are tested to be hazardous;
- Remediation of materials in existing class C landfills as described in the Remedial Action Plan (RAP);
- Reconstruction and repair of roads and airstrips as necessary;
- Development of several borrow sources and use of the material obtained from these sources to assist in the remediation work; and
- Receiving and sorting of various Waste items at temporary Waste Handling Facility (WHF) at the FOX-D site, established for this purpose.

III. PROCEDURAL HISTORY

The Nunavut Water Board received the above-mentioned Application on September 30, 2015 and February 17, 2016. The Application consisted of the following documents:

September 30, 2015

- Cover Letter New Application;
- New Water Licence Type "B" Application;
- Email Cover New Application;
- Response Request to Submit Standalone Appendices;
- NPC Conformity Review email;
- Archaeological Impact Assessment, Golder, May 2014;
- Final Environmental Impact Assessment (EIA) Report, October 21, 2014;
- Final Remedial Action Plan Report, Dillion, March 31, 2014;
- NIRB nontechnical description (Inuktitut);
- REG – NIRB Part 1;
- REG – NIRB Part 2 PSIR;
- REG – QIA Inuit Land Use Application;
- REG – NIRB Part 1 (Inuktitut);
- REG – Water Licence Application;
- Kivitoo Project Schedule;
- REG – NIRB Part 4 Non-Technical Description;
- REG – Land Use Permit Application; and
- Complete Water Licence Application.

February 17, 2016

- FOX-D (Kivitoo) Site Remediation Project, Interim Spill Contingency Plan dated, February 17, 2016

The NWB acknowledged receipt of the Application, excluding the interim Spill Contingency Plan, on October 15, 2015. The acknowledgment included confirmation that the NWB will officially commence processing of the Application following receipt of the Nunavut Planning Commission's (NPC) Land Use Conformity Determination and/or the Nunavut Impact Review

Board (NIRB) screening decision for the Application.

On October 13, 2015, the NWB received a copy of the NPC's determination for the Application, and on November 30, 2015, the NWB received the NIRB Screening Decision Report for the file. Following receipt of the NPC's and NIRB's decisions, the NWB distributed the Application on December 4, 2015 for a thirty (30) day comment period with the deadline for submission set for January 4, 2016. On or before the submission deadline, comments were received from INAC – Water Resources Division, and the DFO. INAC commented on requirements related to for-construction engineering drawings for facilities associated with the project, as well as management plans and effluent criteria for the facilities proposed under the project. The DFO mentioned that it had no concerns about the project and that the project did not require a *Fisheries Act* Authorization.

The interim spill contingency plan was received and distributed on February 17, 2016 for a thirty (30) day comment period with the deadline for submission set for March 17, 2016. Prior to the deadline, the NWB received comments from INAC.

IV. GENERAL CONSIDERATIONS

Term of the Licence

In accordance with s. 45 of the *Act*, the NWB may issue a licence for a term not exceeding twenty-five (25) years. The applicant requested a five (5) year term for the licence, which the Board considers consistent with the nature of the undertaking and has therefore granted.

Annual Report

Similar to conditions generally included in 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 the Water use and Waste deposit activities for the preceding year. 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 reporting information, supplemented by other relevant details. A copy of the NWB's generic annual reporting form can be obtained from the NWB upon request or electronically from the NWB's FTP site using the following link:

<ftp://nunavutwaterboard.org/ADMINISTRATION/Standardized%20Forms/>.

Water Use

The Applicant requested the use of approximately five (5) cubic metres of Water annually to support site remediation activities, which the Board considers reasonable and consistent with the type of the undertaking and has therefore granted the amount of water requested under Part C, Item 1 of the licence. A freshwater lake has been identified and tested as a possible source of Water supply; however, additional testing is required to confirm whether the source is suitable for drinking.

Deposit of Waste

In the Application, the Licensees identified several Waste types expected to be generated by the Project. Some of the Waste generated are to be disposed of at approved facilities in southern Canada while others are expected to be treated at on-site facilities. The following sections provide an overview of the way in which some of the major Waste types associated with or generated by the project will be managed by the Licensee based on information contained in the Application.

Sewage

Sewage generated by the approximately twenty (20) site personnel will be disposed of at a Sewage Lagoon Facility or Wastewater Treatment System and the effluent from the treatment facility meeting criteria in the licence will be released into the receiving environment. INAC in its submission indicated that the discharge criteria for the sewage lagoon should be consistent with the Northwest Territories *Guidelines for the Discharge of Treated Municipal Wastewater in the Northwest Territories* (1992), which the NWB concurs with. Conditions related to effluent criteria for the Sewage Lagoon Facility are included under Part D of the Licence.

Metal Contaminated Soils

Approximately 193 m³ of soil concentrated with metals, Polyromantic Hydrocarbons (PAH), and Petroleum Hydrocarbons (PHC) exist at the project site. The remediation procedures planned for soil exceeding Defence Construction Canada's (DCC) Tier II criteria include excavation, containerization, and disposal of such soil at an appropriate off-site, licenced facility.

PHC Soil

The amount of PHC soil identified at the project site exceeding INAC's *Abandoned Military Site Remediation Protocol* for PHC soil, is estimated at 3,205 m³. All Type A soil (3,005 m³) will be treated at an on-site biological and/or aeration treatment unit. Conditions have been included under Part D in the Licence to govern effluent discharged from any on-site treatment facility designed and constructed to treat Type A soil. All Type B soil (approximately 200 m³) found on site will be placed in containers and shipped to disposal at an appropriate off-site, licenced facility.

Barrelled Water

Contaminated water collected in abandoned barrels will be treated as necessary and sampled prior to discharge into the receiving environment. Conditions have been included under Part D of the Licence requiring that the barrelled water Effluent meet specific criteria prior to discharge into the receiving environment.

Non-Hazardous Material

The volume of non-hazardous material on site, consisting of debris, heavy equipment, barrels, scrap metal, and more, is estimated at 14,834 m³. The proposed remediation approach for non-hazardous Waste is to excavate, sort and separate the Waste into various waste types for appropriate on-site and/or off-site treatment and disposal measures. Buried debris that cannot be fully accessed will remain buried and will be re-stabilized within their locations.

Hazardous Material PCB/Lead Amended Paint Products

Hazardous material including asbestos containing material, and PCB/Lead Amended Paint Products will be shipped off-site for disposal at appropriate licenced facility in southern

Canada.

V. SPILL CONTINGENCY PLANNING

The Applicant submitted an Interim Spill Contingency Plan subsequent to submission of the Application, which the Board has distributed publicly for review and approved with issuance of the Licence under Part I, Item 1. The Licensee, however, is required to submit a final version of the Spill Contingency Plan to the Board for review and acceptance at least fifteen (15) days prior to commencement of on-site project activities in accordance with Part I, Item 2.

VI. CLOSURE AND RECLAMATION

The Applicant submitted a Remedial Action Plan (RAP) for the project that the Board has approved under Part J, Item 1 of the Licence. Any changes to the RAP are to be submitted in the form of an addendum under Part J, Item 2.

VII. OPERATIONS AND MAINTENANCE MANUAL

In accordance with Part F, the Licensee is required to submit to the Board for review and approval an Operations and Maintenance (O & M) Manual for the Sewage Lagoon Facility and the Landfarm Facility at least forty-five (45) days prior to commencing operations of these facilities. The O & M Manual shall address, among other items, the monitoring requirements including Quality Assurance and Quality Control procedures, the operational aspects for the facilities, and other relevant information.

VIII. DRAWINGS PLANS AND DRAWINGS

The Licensee is required to submit to the Board for review and acceptance, at least fifteen (15) days prior to commencing construction activities, for-construction drawings and designs for relevant facilities intended to contain, withhold or divert water and/or Waste in accordance with Part H of the Licence. Further, the Licensee is required to provide to the Board, within ninety (90) days of completion of construction activities, as-built plans and drawings appropriately stamped and signed by an Engineer.

IX. MONITORING

The Licensee is required to submit a long-term monitoring plan to the Board for review and approval at least sixty (60) days prior to initiating any long-term monitoring of the site. This requirement is included under Part K, Item 10 of the Licence.

DECISION

LICENCE NUMBER: 1BR-KIV1621

This is the decision of the Nunavut Water Board (NWB) with respect to an application dated September 21, 2015 for a new Water Licence made by:

INDIGENOUS AND NORTHERN AFFAIRS CANADA

to allow for the use of Water and deposit of Waste during temporary camp operations and activities related to remediation at the FOX-D (Kivitoo) Site Remediation Project, located within the Qikiqtani Region, Nunavut, at the following general geographical coordinates:

Latitude: 67° 57' 42.31" N	Longitude: 64° 55' 13.18" W
Latitude: 67° 56' 2 5.39" N	Longitude: 64° 51' 1.34" W
Latitude: 67° 55' 41.33" N	Longitude: 64° 51' 44.69" W
Latitude: 67° 55' 45.36" N	Longitude: 64° 57' 58.30" W – Project Extents
Latitude: 67° 56' 3.42" N	Longitude: 64° 53' 24.56" W – Primary Camp
Latitude: 67° 57' 2.23" N	Longitude: 64° 54' 35.47" W – Backup Camp:

DECISION

After having been satisfied that the Application is for a location that falls outside of an area with an approved Land Use Plan¹ as determined by the NPC and exempt from review in accordance with paragraph 92(1) (a) of the Nunavut Planning and Project Assessment Act (NuPPAA) by the NIRB², the NWB decided that the Application could proceed through the regulatory process. In accordance with s.55.1 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act (Act)* and Article 13 of the *NLCA*, 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 *NLCA* and of the *Act*, waived the requirement to hold a public hearing, and determined that:

Licence No. 1BR-KIV1621 be issued subject to the terms and conditions contained therein (Motion #: 2016-B1-003).

Signed this 22th day of June 2016 at Gjoa Haven, NU.

Thomas Kabloona
Nunavut Water Board, Chair

TK/sj/ip

¹ Nunavut Planning Commission (NPC) Conformity Determination, October 13, 2015.

² Nunavut Impact Review Board (NIRB) Screening Decision Report, November 30, 2015.



NUNAVUT WATER BOARD WATER LICENCE

Licence No. 1BR-KIV1621

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

(Licensee)

10TH FLOOR, 205 EDDY STREET, GATINEAU, QC K1A 0H4

(Mailing Address)

hereinafter called the Licensee, the right to alter, divert or otherwise use Water or dispose of Waste for a period subject to restrictions and conditions contained within this Licence renewal:

Licence Number/Type: 1BR-KIV1621 / TYPE "B"

Water Management Area: NORTHWESTERN DAVIS WATERSHED (50)

Location: FOX-D (KIVITOO) SITE REMEDIATION PROJECT
QIKIQTANI REGION, NUNAVUT

Classification: INDUSTRIAL UNDERTAKING

Purpose: DIRECT WATER USE AND DEPOSIT OF WASTE

Quantity of Water use not
to Exceed: FIVE (5) CUBIC METRES PER DAY

Date of Licence Issuance: JUNE 22, 2016

Expiry of Licence: JUNE 23, 2021

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

Thomas Kabloona,
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 Industrial Undertaking classified as per Schedule 1 of the *Regulations* at the FOX-D (Kivitoo) Site Remediation Project, located approximately 50 kilometres west of the Hamlet of Qikiqtarjuaq 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 depositing of Waste of any type in any Waters or in any place under any conditions where such Waste or any other Waste that results from the deposits of such Waste may enter any Waters. Whenever new Regulations are made or existing *Regulations* are amended by the Governor in Council under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, or other statutes imposing more stringent conditions relating to the quantity or type of Waste that may be so deposited or under which any such Waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be subject to such requirements; and
- b. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. Definitions

In this Licence: 1BR-KIV1621

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

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

“**Amendment**” means a change to original terms and conditions of this Licence requiring correction, addition or deletion of specific terms and conditions of the Licence; modifications inconsistent with the terms of the set terms and conditions of the Licence;

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

“**Board**” means the Nunavut Water Board established under the *Nunavut Land Claims 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;

“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” the engineered hydrocarbon impacted soil treatment facility or the Biological / Aeration Treatment Unit to be designed and constructed to treat Type B contaminated soil as mentioned in the Application received by the Board on October 30, 2015;

“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;

“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;

“Monitoring Program” means a program established to collect data on surface Water and groundwater quality to assess impacts to the environment of an appurtenant undertaking.

“Nunavut Land Claims Agreement (NLCA)” 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 2013/669 18th April, 2013;

“Sewage” means all toilet Wastes and greywater;

“Sewage Disposal Facility” comprises the lagoon system and/or engineered structures to be designed and constructed to contain and treat sewage as described in the Water Licence Application filed on October 30, 2015;

“Solid Waste” means non-hazardous Waste;

“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” means an excavation in impermeable soil for the purpose of catching or storing Water or Waste;

“Tier I Soil” means soil containing contaminant concentrations within the types and ranges defined as DCC Tier I in Appendix E of the NTI Agreement, including its preamble and schedules, and any amendments to that agreement made pursuant to it (see Table No.1);

“Tier II Soil” means soil containing contaminant concentrations within the types and ranges defined as DCC Tier II in Appendix E of the NTI Agreement including its preamble and schedules, and any amendments to that agreement made pursuant to it (see Table No.1);

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

“Type A Soil” means soil contaminated with hydrocarbons in which the primary petroleum product present in the soil as determined by laboratory analysis consists of lubricating oil and grease in the F3 and F4 fraction;

“Type B Soil” means soil contaminated with hydrocarbons in which the primary petroleum product present in the soil as determined by laboratory analysis consists of fuel oil and/or diesel fuel and /or gasoline in the F1 and F2 fraction;

“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*;

“Water Supply Facility” refers to the intake structure and equipment designed to withdraw and treat potable Water for domestic uses;

“Waste Disposal Facilities” means all on facilities designated for the disposal and treatment of Waste, including the Sewage Disposal Facility, Landfarm Facility, and existing landfills described in the complete Application filed on October 30, 2015

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 waste deposited in the on-site Waste Disposal Facilities;
 - b. Characterization of soils treated at the Landfarm Facility or the Biological / Aeration Treatment Unit;
 - c. The monthly and annual quantities (in cubic metres) of any Effluent discharge from the Landfarm Facility / Biological / Aeration Treatment Unit;
 - d. The monthly and annual quantities (in cubic metres) of any Effluent discharged from the Sewage Treatment Facility;
 - e. The monthly and annual quantities (in cubic metres) of contaminated Water in barrels, site contact Water, and demolition rinse Water discharged to the receiving environment;
 - f. A summary of all Waste deposited at the Waste Disposal Facilities;
 - g. A summary of all Waste backhauled to any community in Nunavut as required under Part D, Item 3;
 - h. The GPS co-ordinates (in degrees, minutes, and seconds of latitude and longitude) of all locations where Wastes associated with camp operations are deposited;
 - i. The GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations of all sources of Water used for the Project and whether the source(s) are on Inuit-owned land or Crown Land;
 - j. The monthly and annual quantities (in cubic metres) of freshwater used by the Project.

- k. A summary of any construction work, modification and major maintenance work (including as-built drawings) carried out on the Waste Disposal Facilities approved under the Licence;
 - l. Tabular summaries for all data and information generated under the “Monitoring Program”;
 - m. An analysis of data collected during the “Monitoring Program” and a brief description of any future studies planned by the Licensee;
 - n. A summary of remediation work undertaken during the year and an outline of work anticipated for the following year;
 - o. A summary of any studies requested by the Board that relate to Waste disposal, and or reclamation, and a brief description of any future studies planned;
 - p. A list of unauthorized discharges and summary of follow-up actions taken;
 - q. If applicable, a description of any trenches and sumps excavated, including but not limited to the following: GPS coordinates, dimensions, depth below active layer, and secondary containment features;
 - r. A public consultation/participation report describing any consultation with local organizations and the residents of the nearby communities;
 - s. A brief summary of work done to address concerns or deficiencies listed in inspection reports and/or compliance reports prepared by an Inspector;
 - t. An executive summary in English and in Inuktitut of all plans, reports, or studies conducted under this Licence; and
 - u. Any other details on the use of Water or Deposit of Waste requested by the Board by the 1st of November 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 changes.
 3. The Licensee shall, where applicable, install flow meters or other such devices, or implement suitable methods required for the measuring of Water volumes, as required under Part K.
 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. 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.

7. The Licensee shall, within thirty (30) days of arrival on site, post signs in the appropriate areas identifying the locations of the Water Supply Facility, Waste Disposal Facilities, and the “Monitoring Program Stations”. All postings shall be in the Official Languages of Nunavut
8. 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.
9. The Licensee shall ensure that 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
10. 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.
11. 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.
12. 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 withdraw, at Monitoring Station KIV-1, and use up to a maximum of five (5) cubic metres of Water per day for domestic camp use and for remediation activities as described in the Application. Water for domestic use shall be obtained from the freshwater lake identified in the Application received September 30, 2015.

2. Streams cannot be used as a Water source unless authorized and approved by the Board in writing.
3. 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.
4. The Licensee shall not remove any material from below the ordinary High Water Mark of any Water body unless authorized.
5. The Licensee shall not cause erosion to the banks of any body of Water and shall provide necessary controls to prevent such erosion.
6. The Licensee shall implement sediment and erosion control measures to prevent the deposition of dust and/or sediment into local Water bodies, arising from contractor activities or on-site vehicular travel.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. 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.
2. The Licensee is authorized to dispose of all acceptable food Waste, paper Waste and untreated wood products in an incinerator.
3. The Licensee shall provide to the Board, documented authorization from any community in Nunavut receiving backhauled Wastes from the FOX-D (Kivitoo) Site Remediation Project for storage and/or disposal.
4. The Licensee shall backhaul and dispose of all hazardous Wastes and Waste oil generated by the Project, to an approved Waste disposal facility.
5. The Licensee shall maintain records of all Waste backhauled and records of confirmation of proper disposal of backhauled Waste and include this information within the Annual Report, under Part B, Item 1. These records shall be made available to an Inspector upon request. The Licensee shall not transport Hazardous Wastes prior to registering with the Government of Nunavut as a Waste generator and utilizing the prescribed manifests.
6. The Licensee shall provide notice to an Inspector at least ten (10) days' prior to initiating any decant or discharge from the Waste Disposal Facilities.

7. The Licensee shall dispose of all Sewage generated by the Project at the Sewage Disposal Facility Authorized under this Licence.
8. All Waste discharge from the Final Discharge Point of the Sewage Disposal Facility referenced in Part D, Item 7, at Monitoring Program Stations KIV-2, shall not exceed the following Effluent quality limits:

Parameter	Maximum Allowable Concentration
BOD ₅	100 mg/L
Total Suspended Solids	120 mg/L
Fecal Coliforms	1 x 10 ⁵ CFU/dL
pH	6.0 to 9.0
Oil and Grease	no visible sheen

9. The Licensee is authorized to treat Type A Petroleum Hydrocarbon Contaminated Soil at an on-site Landfarm Facility or as otherwise approved by the Board in writing.
10. All discharge from the Landfarm Facility, contaminated Water stored in barrels, demolition rinse Water, and site contact Water, at monitoring stations KIV-3a, KIV-3b and KIV-4 shall not exceed the following Effluent quality limits prior to being released into the receiving environment:

Parameter	Maximum Allowable Concentration (mg/L)
pH	6.0 to 9.0 (pH units)
TSS	50
Oil and Grease	15 and no visible sheen
Total Lead	0.001
Benzene	0.37
Toluene	0.002
Ethylbenzene	0.090

11. If the Effluent referred to in Part D, Items 8 and 10 exceed the respective discharge limits, it shall be considered hazardous Waste requiring disposal off-site at an approved facility or as otherwise approved by the Board in writing.
12. The discharge location for all treated Effluents described in Part D, Items 8 and 10, shall be located at a minimum of thirty-one (31) metres from the ordinary High Water Mark of any Water body and where direct flow into a Water body is not possible and no additional impacts are created.
13. The Licensee shall ensure that Effluent from Monitoring Station numbers KIV-3a, KIV-3b, KIV-4, KIV-5a, KIV-5b, and KIV-5c are sampled and monitored in accordance with the respective requirements under Part K, Items 7 and 8.

14. All pump out Water from excavation and borrow pits shall be pumped to areas as described in Part D, Item 10, or as otherwise approved by the Board in writing.
15. The Licensee shall provide, proper storage, treatment, and disposal at an approved facility for any Hazardous Waste materials, including Waste oil generated through the demolition and remediation activities, unless otherwise approved by the Board in writing.
16. The Licensee shall utilize offsite and/or existing on-site Waste disposal facilities to properly dispose of suitable Waste generated in accordance with the Remedial Action Plan developed for the project.
17. The Licensee shall dispose of all soils containing substances in excess of Tier II criteria, as indicated in Table No.1, in accordance with the procedures contained in *the Remedial Action Plan for FOX-D* (Kivitoo, Nu), dated March 2014.
18. The Licensee shall not mix or blend soils that exceed the maximum levels of Tier II criteria for the purpose of attaining the specific limits of Table No.1.
19. The Licensee shall dispose of any material coated with Polychlorinated Biphenyl (PCB) amended paints, hazardous materials and soils containing contaminants in excess of the *Canadian Environmental Protection Act* (CEPA) Guidelines, with the exception of asbestos, off site at an approved treatment facility in accordance with the Application submitted to the Board by the Applicant.

PART E: CONDITIONS APPLYING TO THE UNDERTAKING

1. The Licensee shall ensure that all borrow material used in construction is obtained from sources clean and free of contaminants, are approved by an Inspector, and not possessing acid generating and metal leaching properties.
2. Should any constructed facilities fail, the Licensee shall repair such facilities immediately to the appropriate standards as recommended by an Engineer.
3. The Licensee shall implement proper handling, storage, and transportation procedures for hazardous materials during clean-up activities.
4. The Licensee shall minimize disturbance to terrain, permafrost and drainage during extraction of granular material, development and closure of landfills, movement of contractor's equipment, personnel around the site and removal of site debris.
5. The Licensee shall not cause erosion to the banks of any body of Water and shall provide necessary controls to prevent such erosion.

6. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into Water.
7. The Licensee shall design and construct all stream crossings to minimize erosion and/or deposition of Waste into Water.
8. The Licensee shall ensure that existing creek channels are maintained at their normal width and depth to the extent possible, during and after site remediation.
9. Granular materials and rock rip-rap used for any temporary stream crossings, approaches or as may be required for bank stabilization must be obtained from a source approved by an Inspector, and be clean and free of contaminants. Such material must not be removed or gathered from below the ordinary High Water Mark of any Water body.
10. All sites affected by remediation activities shall be stabilized, contoured as necessary, and suitable erosion control measures implemented to minimize sediment deposition into watercourses located on or adjacent to the site.
11. The Licensee shall restore and stabilize all areas affected by the undertaking upon completion of the work.
12. The Licensee shall not deposit any Waste in any body of Water, or on the banks thereof, which may impair the quality, quantity, or flow of Water.
13. Areas designated for Waste disposal shall be located at a minimum of thirty-one (31) metres from the ordinary High Water Mark of any body of Water, unless otherwise authorized approved by the Board in writing.
14. The Licensee shall dispose of all scrap metal, discarded machinery and parts, and other bulky material in a manner that conforms to the Plans submitted to the Board.

PART F: CONDITIONS FOR CAMP, ACCESS INFRASTRUCTURE AND OPERATION

1. The Licensee shall submit to the Board for approval in writing, at least forty-five (45) days prior to commencing operation of the Sewage Disposal Facility and the Landfarm Facility, an operations and maintenance manual that includes procedures for operating both facilities as well monitoring requirements and other relevant information.
2. The Licensee shall not erect camps or store material on the surface of frozen streams or lakes except what is for immediate use. Camps shall be located such as to minimize impacts on surface drainage.

3. The Licensee shall conduct all activities in such a way as to minimize impacts on surface drainage and shall immediately undertake any corrective measures in the event of any impacts on surface drainage.
4. Winter lake and stream crossings, including ice bridges, shall be constructed entirely of Water, ice or snow, and shall be removed prior to spring break-up.
5. With respect to access road, pad construction, demolition 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.

PART G: CONDITIONS APPLYING TO DRILLING OPERATIONS

1. The Licensee is authorized to drill for the purposes of installing monitoring instrumentation, including monitoring wells and thermistors.
2. The Licensee shall not conduct any land-based drilling within thirty-one (31) metres of the ordinary High Water Mark of any Water body, unless otherwise approved by the Board in writing.
3. The Licensee shall dispose of all drill Waste, including Water, chips, muds and salts (CaCl_2) in any quantity or concentration, from land-based drilling, in a properly constructed sump or an appropriate natural depression located at a distance of at least thirty-one (31) metres from the ordinary High Water Mark of any adjacent water body, where direct flow into a water body is not possible and no additional impacts are created.

PART H: CONDITIONS APPLYING TO CONSTRUCTION AND MODIFICATIONS

1. Licensee shall submit to the Board for review and acceptance, at least fifteen (15) days prior to commencing construction activities, for-construction drawings for all facilities design to contain or withhold Water and Waste.
2. The Licensee shall provide to the Board, within ninety (90) days of completion of construction of any facilities Under Part H, Item 1, as-built plans and drawings of the relevant facilities. These plans and drawings shall be signed and stamped by an Engineer
3. 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.
4. Modifications for which all of the conditions referred to in Part G, Item 3 have not been met may only be carried out with approval from the Board in writing.
5. The Licensee shall provide as-built plans and drawings of the Modifications referred to in this Part, within ninety (90) days of completion of the Modification. These plans and drawings shall be stamped by an Engineer.

PART I: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. The Board has approved the plan entitled *FOX-D (Kivitoo) Site Remediation Project, Interim Spill Contingency Plan*, dated February 17, 2016 with issuance of this Licence.
2. The Licensee is required to submit to the Board for review and acceptance, at least fifteen (15) days prior to commencement of on-site activities, the final version of the plan approved under Part I, Item 1 to address minor deficiencies including the contractor contact information.
3. The Licensee shall ensure that any chemicals, petroleum products or Wastes associated with the project do not enter Water. All sumps and fuel caches shall be located a minimum of thirty-one (31) metres above the ordinary High Water Mark of any adjacent water body and inspected on a regular basis. The Licensee is encouraged to use some form of secondary containment on fuel and chemical storage facilities associated with this undertaking.
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. 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.
6. The Licensee shall, in addition to Part I, Item 4, 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 J: CONDITIONS APPLYING TO CLOSURE AND RECLAMATION OR TEMPORARY CLOSURE

1. The Board has approved with issuance of the Licence the plan entitled *Remedial Action Plan for the FOX-(Kivitoo, NU)*, dated March 2014.
2. Licensee shall submit to the Board for review and acceptance in writing any changes to the Plan referred to in Part J, Item 2 in the form of an addendum.
3. The Licensee shall complete all restoration work for the temporary camp facilities and Waste disposal activities not included in the Plan reference under Part J, Item 1 of this Licence, prior to expiry of this Licence.
4. The Licensee shall backfill and restore all sumps to the pre-existing natural contours of the land.
5. All disturbed areas shall be stabilized and re-vegetated as required, upon completion of work, and restored as practically as possible to a pre-disturbed state.

PART K: CONDITIONS APPLYING TO MONITORING PROGRAM

1. The Licensee shall establish and maintain Monitoring Program stations at the following locations or as otherwise approved by the Board in writing:

Monitoring Station ID	Description	Status
KIV-1	Raw water supply intake from fresh water lake	Active (Volume)
KIV-2	Final discharge point from the Sewage Disposal Facility (sewage lagoon)	Active (Volume & Quality)

KIV-3a	Upper Site – Final discharge point for treated contaminated water stored in barrels, demolition rinse water, and site contact water	Active (Volume & Quality)
KIV-3b	Lower Site –Final discharge point for treated contaminated water stored in barrels, demolition rinse water, and site contact wat	Active (Volume & Quality)
KIV-4	Final discharge point from the hydro-carbon impacted soil treatment facility (Landfarm Facility)	Active (Volume & Quality)
KIV-5a	Monitoring well installed up-gradient of the hydro-carbon impacted soil treatment facility	Active (Quality)
KIV-5b	Monitoring well installed down-gradient of the hydro-carbon impacted soil treatment facility	Active (Quality)
KIV-5c	Monitoring well installed down-gradient of the hydro-carbon impacted soil treatment facility	Active (Quality)

- The Licensee shall monitor station KIV-1 to measure and record, in cubic metres, the daily quantities of freshwater utilized for all purposes under this Licence
- The Licensee shall monitor KIV-2, KIV-3a, KIV-3b, and KIV-4 to measure and record, in cubic metres, the daily quantities of Effluent discharged from the Waste Disposal Facilities associated with this Licence.
- 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.
- The Licensee shall determine the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where Wastes associated with the camp operations are deposited.
- The Licensee shall monitor compliance with respect to Part D, Items 8 and 10, by collecting a representative composite sample from a minimum of 5% of the total volume to be released from the Final Discharge Point of the relevant Waste Disposal Facilities at Monitoring Program Stations KIV-2, KIV-3a, KIV-3b, and KIV-4.
- The Licensee shall sample prior to discharge at Monitoring Program Stations KIV-3a, KIV-3b, and KIV-4, and analyze for the following parameters:

pH
Total Suspended Solids
Nitrate – Nitrite
Total Phenols
Total Hardness

Conductivity
Ammonia Nitrogen
Oil and Grease (visual)
Sulphate
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 Manganese
Total Cobalt	Total Arsenic
Total Petroleum Hydrocarbons (TPH)	
Polycyclic Aromatic Hydrocarbons (PAHs)	
Benzene, Toluene, Ethylbenzene, Xylene (BTEX)	

8. The Licensee shall sample and monitor stations KIV-5a, KIV-5b, and KIV-5c at least once annually during the summer, giving consideration to adequate ground thaw and obtaining a representative groundwater sample. Samples shall be analyzed for the following parameter referenced in Part K, Item 7.
9. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board.
10. The Licensee is required to submit to the Board for approval in writing, at least sixty (60) days prior to initiating any long-term monitoring program for the Project site, a Long-term monitoring plan.
11. Additional monitoring requirements may be requested by the Inspector.
12. The Licensee shall include in the Annual Report required under Part B, Item 1 all data, monitoring results and information required by this Part.

Table No.1

**(From INAC Abandoned Military Site Remediation Protocol)
DEW Line Clean-up Criteria (DCC) ^a**

Substance	DCC Tier I ^{b, c}	DCC Tier II ^{b, d}
Arsenic	-	30
Cadmium	-	5.0
Chromium	-	250
Cobalt	-	50
Copper		100
Lead	200	500
Mercury	-	2.0
Nickel	-	100
Zinc	-	500
PCB's	1.0	5.0

a. These criteria were adopted specifically for the cleanup of Arctic DEW Line Sites from the 1991 versions of the Quebec Soil Contamination Indicators and the Canadian Council of Ministers of the Environment Interim Canadian Environmental Criteria for Contaminated Sites.

b. Soil criteria are given in parts per million, ppm.

c. Soils containing lead and/or PCBs at concentrations in excess of DCC I, but less than DCC II, may be landfilled,

d. Soils containing one or more substrates in excess of DCC II must be containerized - i.e. removed in a manner which