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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: **1BR-LON0813**

July 25, 2008

Douglas Craig, M.Sc. Environmental Officer
Defence Construction Canada
Constitution Square, Suite 1720
350 Albert Street
Ottawa, ON
K1A 0K3

Email: Douglas.Craig@dcc-cdc.gc.ca

Email: eva.schulz@uma.aecom.com

RE: NWB Licence No. 1BR-LON0813

Dear Mr. Craig:

Please find attached Licence No. 1BR-LON0813 issued to Defence Construction Canada by the Nunavut Water Board (NWB) **Motion #: 2008-04-L09** 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*. 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 disposal must cease, or the Licensee will be in contravention of the *Nunavut Land Claims Agreement* (NLCA) and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* (NWNSTRA). 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 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 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 30 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 acknowledged by the Manager of Licensing.

The NWB strongly recommends that the Licensee consult the comments received by interested persons on issues identified. The NWB notes that, among others, there is a NIRB Decision requirement to install an incineration device capable of meeting emission limits established under the Canada-wide Standards (CWS) for Dioxins and Furans and the CWS for Mercury Emissions. This information is attached for your consideration.

Sincerely,

A handwritten signature in dark ink, appearing to read 'T. Kabloona', with a long horizontal flourish extending to the right.

Thomas Kabloona
A/Chief Executive Officer

TK/tla/kt

Enclosure: Licence No. **1BR-LON0813**
Comments NIRB, QIA

cc: Qikiqtani Distribution

DECISION

LICENCE NUMBER: 1BR-LON0813

This is the decision of the Nunavut Water Board (NWB) with respect to an application for a Water Licence amendment and renewal dated September 6, 2007 made by:

DEFENCE CONSTRUCTION CANADA (DCC)

to allow for the use of water and disposal of waste during camp operations and site remediation activities at the FOX-2, Longstaff Bluff DEW Line Site located on the southwestern coast of Baffin Island, near the tip of the Baird Peninsula within the Qikiqtani Region, Nunavut, located at general latitude 68° 53'49"N and general longitude 75° 09' 37"W.

DECISION

After having been satisfied that the application was for a location within an area in which there is no valid Land Use Plan and having undergone a Screening by the Nunavut Impact Review Board in accordance with Part 4 of the *Nunavut Land Claims Agreement* (NLCA)¹, 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) 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 NWNSRTA, waived the requirement to hold a public hearing, and determined that:

Licence Number 1BR-LON0813 be issued subject to the terms and conditions contained therein. (Motion #: 2008-04-L09)

SIGNED this 19th day of July, 2008 at Gjoa Haven, NU.



Thomas Kabloona
A/Chief Executive Officer

TK/tla/kt

¹ Screening Decision for Defence Construction Canada's FOX-2, Longstaff Bluff, DEW Line Site Clean-Up Project Proposal, Nunavut Impact Review Board, October 19, 2007

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I INTRODUCTION

The FOX-2, Longstaff Bluff Distant Early Warning (DEW) Line Site is located on the southwestern coast of Baffin Island in the Nunavut Territory. The site is approximately fifteen (15) km inland from the airstrip on the southern end of a small peninsula jutting into Nauyas Bay. The nearest community is Hall Beach, 245 km to the west.

The FOX-2 site was constructed in the 1950's as part of the DEW Line, which provided radar surveillance of the northern approaches to North America. In March 1985, Canada and the United States agreed to modernize the North American Air Defence System by closing the remaining 21 Department of National Defence DEW Line sites by the early 1990's and build the North Warning System (NWS).

The purpose of the proposed remediation project is to clean-up previous activities that occurred as a result of the operation of the former DEW Line site. Specifically, the clean up is to prevent the release of physical debris and/or contaminants into the environment.

FOX-2 underwent a detailed site investigation in 2005. Site remediation is scheduled to occur from June to October of each year beginning in 2008 with completion expected in 2012. The following activities are included in the remediation project:

- Mobilize to the site via sea lift or barge, and air transport;
- Set-up of a seasonally occupied camp;
- Demolition, removal, disposal, or containerization of structures and utilities;
- Hazardous material removal, handling and transportation;
- Excavation of contaminated soil;
- On site disposal of contaminated soil;
- Off site disposal of hazardous contaminated soil;
- Construction of two (2) new landfills;
- Remediation of five (5) existing landfills;
- Quarrying nine (9) borrow areas to obtain material for closure of existing landfills, development of new landfills, upgrading access roads, backfilling contaminated soil areas and general site grading;
- Re-contouring disturbed land areas;
- Landfarm construction and decommissioning;
- Temporary on-site storage of hazardous materials, equipment and fuels;
- Demobilization of equipment, materials, wastes and personnel;
- Site monitoring including long term monitoring.

A temporary seasonally occupied camp will be set up at site to facilitate the remediation activities. Upon completion of site remediation, all camp facilities, including equipment and excess fuel, will be removed from the site. Long term monitoring of the landfills will begin upon completion of the clean-up and will continue for a 25-year period. After 25 years, the monitoring requirements will be re-evaluated.

II PROCEDURAL HISTORY

An application was filed by Defence Construction Canada on February 25, 2003 for activities associated with the proposed DEW Line Clean-up at the FOX-2 DEW Line Site. Remediation activities included the mobilization of a construction camp, removal of petroleum impacted soil from the beach POL site and temporary storage of the hydrocarbon-impacted soil in an existing bermed POL storage facility. Licence NWB5LON0308 was issued on August 5, 2003 with an expiry date of August 8, 2008.

An amendment to Licence NWB5LON0308 was applied for on January 20, 2005 to allow for site environmental assessment work to take place, including soil and water sampling, structural sampling, inventory of facilities, geophysical surveys of existing landfills and topographical surveys to provide detailed information required for finalizing plans for clean-up of the site. Amendment No.1 was issued on July 5, 2005.

On September 6, 2007, an application for a water Licence amendment was filed with the Nunavut Water Board by Defence Construction Canada (DCC), for water use and waste disposal activities associated with camp operations and site remediation activities at the FOX-2 Longstaff Bluff DEW Line site. The Application included the request for an expiry date of October 2012 and has been considered under this application to be that for renewal of the current licence with associated amendments. In addition to the Application documents of September 6, 2007, final signed and stamped tender drawings were submitted and received by the NWB on January 7, 2008.

On October 19, 2007 the Nunavut Impact Review Board (NIRB) completed its screening of the Application pursuant to Article 12 of the NLCA.

After having provided notice of the Application to the Qikiqtani distribution list on September 26, 2007, the only party to provide comments to the NWB was the Qikiqtani Inuit Association on October 26th, 2007.

III GENERAL CONSIDERATIONS

A Term of Licence

In accordance with the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* S. 45, the NWB may issue a licence for a term not exceeding twenty-five years. The NWB believes that a term of approximately five (5) years is appropriate. The licence term will allow the Licensee to properly carry out the terms and conditions of the licence and will ensure that sufficient time is given to permit the Licensee to develop, submit and implement the plans required under the licence to the satisfaction of the NWB.

B Water Use

Water will be pumped into a truck equipped with a holding tank from the Water Supply Lake and transferred to a tank at the camp area. All water intake hoses will be equipped with screens with a mesh size of 2.5 millimetres or less to prevent the intake of fish, as per the *Freshwater Intake, End*

of Pipe Fish Screen Guidelines. Water requirements for camp operations during the period of the licence are expected to be approximately twelve (12) m³ *per* day. Water requirements for construction use are expected to be forty (40) m³ *per* day.

Based upon the projected requirements of the Licensee, the Board has set the terms and conditions in the water licence, which govern water usage. The maximum permitted usage of water by the Licensee, over the term of the water licence and for all purposes, has been set at fifty two (52) m³ *per* day.

C Deposit of Waste

Sewage

Sewage will be discharged into a 2-cell lagoon, and the effluent will be tested prior to discharge. The remaining settled solids will be buried onsite. The lagoon will be located a minimum of 100 metres away from the camp and any natural drainage course or water body, and any water body that supports aquatic life. Greywater from camp operations is also discharged into the sewage lagoon.

The Board, having considered the submission of the Applicant, has set discharge criteria and conditions in the Water Licence, which govern the disposal of Effluent from the Sewage Treatment Facility during the proposed undertaking.

Solid Waste

The Licensee has indicated that domestic and non-hazardous solid waste will be incinerated and that any non-combustible residual waste (incinerator ash) will be buried in an on-site landfill.

Non-hazardous demolition waste and site debris including excavated soils meeting Tier I and Type A criteria as defined in Part A Item 2 of this Licence, will be placed in appropriately designed landfills. Two Landfills are proposed and are to be located according to demolition requirements. The Station NHW Landfill will be located directly southeast of the module train and has an available surface area of 6,900m². The Airstrip NHW Landfill will be located 130 metres north of the Hanger (Hanger Landfill).

The Licensee will construct an engineered Tier II Soil Disposal Facility to dispose of Tier II soils according to the criteria defined in Part A, Item 2 of this Licence. This facility is to be located directly northeast of the station and covers an estimated area of 3,600m². The Tier II Disposal Facility utilizes a double-containment system consisting of permafrost to limit leachate generation and synthetic liners to prevent migration of contaminants into the surrounding environment.

Soils designated as hazardous under the *Canadian Environmental Protection Act* (CEPA; 1999) and/or the *Transportation of Dangerous Goods Act*, as well as materials coated with PCB amended paint, will be disposed of in approved off-site facilities.

Additionally, the five existing landfills that were investigated will be closed through removal of surface debris, supply and installation of geomembranes and geotextiles as required, placement

of additional cover materials, grading and supply and installation of monitoring instrumentation (if required). Several landfills considered to have a higher potential environmental risk are to be excavated to the vertical and lateral extents, to bedrock or no visible debris. Excavated landfills are then re-graded with clean fill to match surrounding contours.

The Board, having duly considered the submission of the Applicant, has set the terms and conditions in the water licence which govern the disposal of solid waste during the proposed undertaking accordingly.

Construction Wastewater

Site water may be physically or chemically affected when it comes into contact with project components or activities including dewatering activities, landfill operation, landfarm operation, contaminated soil treatment areas, and decontamination procedures. Construction Wastewater will be collected and temporarily stored in preparation for future disposal following requisite sampling and meeting Effluent quality limits.

The Board, having considered the submission of the Applicant has set discharge criteria and conditions for the disposal of Construction Wastewater.

Incinerator Ash

In addition to domestic and non-hazardous solid waste, some organic and aqueous content of existing on-site barrels may be incinerated. The Licensee has indicated that a leachate extraction test will be completed on the solid residual material resulting from incineration (incinerator ash) and the toxicity of the material will be determined in accordance with the *Transportation of Dangerous Goods Act*. Materials determined to be toxic will be packaged and shipped off site for disposal and materials found to be non-toxic will be buried in the Tier II Soil Disposal Facility.

The Board, having considered the submission of the Applicant, has set a condition in the Licence regarding the disposal of incinerator ash.

D Annual Report

The requirements imposed on the Licensee in this Licence are for the purpose of ensuring that the NWB has an accurate annual update of water use and depositions of waste during a calendar year. This information is maintained on the public registry and is available to any interested persons upon request. The requirements of this Annual Report can be found in Part B, Item 1.

E Spill Contingency Planning

The Board generally requires that all Licensees prepare a comprehensive Spill Contingency Plan to establish a state of readiness to ensure a prompt and effective response to possible spills or system failure events. The site-specific Spill Contingency Plan will assist the Licensee in responding to emergencies such that the impacts to water in particular and the environment and

public health in general are minimized. The Applicant will be required to submit a site specific Spill Contingency Plan. The requirement for this Plan is detailed under Part H.

F Abandonment and Restoration

To ensure that all facilities are reclaimed in an appropriate manner upon abandonment, the NWB requires all Licensees to prepare and submit an Abandonment and Restoration Plan. The activities proposed under this Licence are for the remediation of the site. The document entitled "*Defence Construction Canada Project Description for the Clean Up of the FOX-2, Longstaff Bluff DEW Line Site* (August 2007)" submitted with the Licensee's Water Licence Application Supporting Documents on September 6, 2007 is approved by the Board. Other conditions for restoration have been included under Part I of this Water Licence.

G Monitoring

Under the previous Licence NWB5LON0308, Part J, Item 1, the Licensee was required to submit to the Board for approval, a Monitoring Program. This Monitoring Program was submitted to the Board on August 18, 2003 and conditionally approved by letter dated March 5, 2005. Additional requirements were requested in the conditional approval. The NWB has incorporated this Monitoring Program requirement into Part J and conditions contained therein. The Program includes compliance monitoring points and other locations proposed by the Licensee to monitor the quantity and quality of water discharged to the environment.

Under Licence NWB5LON0308, Part J, Item 3 the Licensee was required to submit a Quality Assurance/Quality Control Plan to the Analyst for approval. The Plan was submitted and an acknowledgement was received from the Analyst, requesting that deficiencies be corrected with an addendum. This information was provided within a revised Plan, submitted September 2005. The NWB has therefore accepted the QAQC Plan as submitted and requests that further reviews are completed as necessary under Part J.

LICENCE NO. 1BR-LON0813

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

DEFENCE CONSTRUCTION CANADA

(Licensee)
of **Constitution Square, Suite 1720, 350 Albert Street, Ottawa, ON K1A 0K3**

(Mailing Address)

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

1BR-LON0813
Licence Number _____

NUNAVUT 05
Water Management Area _____

FOX-2 LONGSTAFF BLUFF, DEW LINE SITE
QIKIQTANI REGION, NUNAVUT
Location _____

WATER USE AND WASTE DISPOSAL
Purpose _____

INDUSTRIAL - TYPE "B"
Classification of Undertaking _____

FIFTY TWO (52) CUBIC METRES PER DAY
Quantity of Water Not to Exceed _____

JULY 19, 2008
Date of Licence _____

JULY 31, 2013
Expiry Date of Licence _____

Dated this 19th day of July, 2008 at Gjoa Haven, NU.



Thomas Kabloona
A/Chief Executive Officer

PART A: SCOPE, DEFINITIONS AND ENFORCEMENT

1. Scope

This Licence allows for the use of water and the disposal of waste for an undertaking classified as Industrial as per Schedule II of the Regulations at the FOX-2 Longstaff Bluff DEW Line site, located approximately 245 km west of Hall Beach within the Qikiqtani Region, Nunavut (general latitude 68° 53' 49"N and general longitude 75° 09' 37"W):

- 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: 1 BR-LON0813

“**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*;

“**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*;

“Contact Water” means any water that may be physically or chemically affected by project activities;

“Construction Wastewater” means the collected wastewater including Demolition Rinse Water, Contact Water associated with landfill and contaminated soil excavations or trenches, the operation of new landfills (Tier II and the Non-Hazardous Waste Facilities) and landfarm;

“Demolition Rinse Wastewater” means water and associated waste generated through the decontamination and decommissioning activities;

“Effluent” means treated or untreated liquid waste material that is discharged into the environment from a structure such as a settling pond or following a treatment process;

“Engineer” means a professional engineer registered to practice in Nunavut in accordance with the Engineering, Geological and Geophysical Act (Nunavut) S.N.W.T. 1998, c.38, s.5;

“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;

“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. It includes contaminated soils which contain levels of contaminants in violation of the *Canadian Environmental Protection Act* (CEPA) and associated regulations, as well as materials contaminated with PCBs at concentration levels equal to or in excess of 50 ppm (mg/kg).

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

“Landfarm Facility” means an area designed to biologically treat Type B soils, as described in the application for Water Licence filed by the Applicant on September 6, 2007 and shown on drawings H-L133/1-9101-117 and 118;

“Licensee” means the holder of this Licence;

“Maximum Average Concentration” means the average concentration of any four consecutively collected samples taken from the identical sampling location and taken during any given timeframe;

“Modification” means an alteration to a physical work that introduces a new structure or eliminates an existing structure and does not alter the purpose or function of the work, but does not include an expansion;

“Monitoring Program” means a program established to collect data on surface water and groundwater quality as well as ground temperature 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 *Northwest Territories Water Regulations* sor/93-303 8th June, 1993, omitting Section 5, Water Use or Waste Deposit Without a Licence;

“Sewage” means all toilet wastes and greywater;

“Sewage Disposal Facility” comprises the area and engineered structures designed to contain and treat sewage consisting of a two-celled lagoon;

“Solid Waste Disposal Facilities” comprises the Non-Hazardous Waste Landfills, Hanger NHW and the Station Area NHW sites, designed to contain solid waste as described in the in the application for Water Licence filed by the Applicant on September 6, 2007; and shown on drawings H-L133/1-9101-119 and 120, and drawings H-L133/1-9101-123 and 124 respectively;

“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 in the following table:

Contaminant	Tier I Criteria
Arsenic	< 228 ppm
Cadmium	< 5 ppm
Chromium	< 250 ppm
Cobalt	< 93 ppm
Copper	< 407 ppm
Lead	≥ 200 ppm to < 500 ppm
Mercury	< 2 ppm
Nickel	< 142 ppm

Zinc	< 500 ppm
PCBs	≥ 1 ppm to ≤ 5 ppm

“**Tier II Soil**” means soil containing contaminant concentrations equal to or in excess of any of all of the contaminants listed in the following table:

Contaminant	Tier II Criteria
Arsenic	≥ 228 ppm
Cadmium	≥ 5 ppm
Chromium	≥ 250 ppm
Cobalt	≥ 93 ppm
Copper	≥ 407 ppm
Lead	≥ 500 ppm
Mercury	≥ 2 ppm
Nickel	≥ 142 ppm
Zinc	≥ 500 ppm
PCBs	>5 ppm to < 50 ppm

“**Tier II Soil Disposal Facility**” means the facility designed to contain Tier II Soil as described in the application for Water Licence filed by the Applicant on September 6, 2007; ; and shown on drawings H-L133/1-9101-125 and 126;

“**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;

“**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;

“**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 Supply Facility**” comprises the Water Supply Lake and associated infrastructure designed to collect and supply water;

“**Waste Disposal Facilities**” means all facilities designated for the disposal of waste, and includes the Sewage Disposal Facility, Solid Waste Disposal Facilities; the Tier II

Soil Disposal Facility; and Landfarm Facility.

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 which shall contain the following information:
 - i. The monthly and annual quantities (in cubic metres) of fresh water obtained from Water Supply Lake;
 - ii. The monthly and annual quantities (in cubic meters) of sewage generated;
 - iii. The monthly and annual quantities (in cubic metres) of material deposited in Non-hazardous Solid Waste Disposal Facilities;
 - iv. The monthly and annual quantity (in cubic metres) of soil deposited in the Tier II disposal facility;
 - v. A summary of all waste backhauled for disposal at licensed facilities;
 - vi. A summary of any construction work, modification and major maintenance work (including as-built diagrams) carried out on the Water Supply, Solid Waste Disposal Facilities, and Sewage Disposal Facility, including all associated structures;
 - vii. Tabular summaries for all data and information generated under the “Monitoring Program”;
 - viii. An analysis of data collected during the “Monitoring Program” and a brief description of any future studies planned by the Licensee;
 - ix. A summary of remediation work undertaken during the year and an outline of work anticipated for the following year;
 - x. A summary of any studies requested by the Board that relate to waste disposal, water use or reclamation, and a brief description of any future studies planned;
 - xi. A list of unauthorized discharges and summary of follow-up actions taken;
 - xii. Any revisions to the approved remediation plan;
 - xiii. Any revisions to the site specific Spill Contingency Plan;
 - xiv. 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;
- xv. A public consultation/participation report describing consultation with local organizations and the residents of the nearby communities;
 - xvi. A brief summary of work done to address concerns or deficiencies listed in the inspection reports and/or compliance reports prepared by an Inspector;
 - xvii. An executive summary in English and Inuktitut of all plans, reports, or studies conducted under this Licence; and
 - xviii. Any other details on water use or waste disposal requested by the Board by November 1st 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.
 - 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 sixty (60) days of issuance of this Licence, post signs in the appropriate areas identifying the locations of Water Supply Facilities, Waste Disposal Facilities and the Monitoring Program Stations. All postings shall be in the Official Languages of Nunavut.
 - 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@nunavutwaterboard.org

(b) Inspector Contact:

Water Resources Officer, INAC
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445

(c) Analyst Contact:

Taiga Laboratories
Department of Indian and Northern Affairs
4601 – 52 Avenue, P.O. Box 1500
Yellowknife, NT X1A 2R3
Telephone: (867) 669-2781
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9. 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.
10. The Licensee shall ensure that any document(s) or correspondence submitted by the Licensee to the Board is received and acknowledged by the Manager of Licensing.
11. This Licence is not assignable except as provided in Section 44 of the *Act*.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain all water for use from Water Supply Lake at Monitoring Station LON-1, up to a maximum of twelve (12) cubic metres *per* day for domestic use purposes and forty (40) cubic meters *per* day for industrial use.
2. Streams cannot be used as a water source unless authorized by the Board in writing.
3. If the Licensee requires water in sufficient volume that the source water body may be drawn down the Licensee shall, at least thirty (30) days prior to commencement of use of water, submit to the Board for approval in writing, the following: volume required, hydrological overview of the water body, details of impacts, and proposed mitigation measures.
4. The Licensee shall equip all water intake hoses with a screen of an appropriate mesh size to ensure that fish are not entrained and shall withdraw water at a rate such that fish do not become impinged on the screen.
5. The Licensee shall not remove any material from below the ordinary high water mark of any water body unless authorized.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Licensee shall locate areas designated for waste disposal at a minimum distance of thirty (30) 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 backhaul and dispose of all Hazardous Wastes, waste oil, used absorbent materials, oily or greasy rags, and equipment servicing wastes such as used engine oil, antifreeze, hydraulic oil, lead acid batteries, brake fluid and other lubricants generated through the course of the operation in a licensed waste disposal site.
4. The Licensee shall dispose of all Hazardous Waste by collection, containment, and shipment off-site to a licensed disposal facility in accordance with the *Transportation of Dangerous Goods Act*, the *Environmental Protection Act*, Nunavut Territorial Regulations and Guidelines, and the Nunavut Hazardous Waste Disposal Manual.
5. All waste backhauled from the site shall be backhauled to a licensed waste disposal facility.
6. 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, Part B Item 1.
7. The Licensee shall direct all Sewage to the Sewage Disposal Facility.
8. The Licensee shall provide notice to the Inspector at least ten (10) days prior to initiating any decant or discharge from the Waste Disposal Facilities.
9. Effluent discharged from the Final Discharge Point of the Sewage Disposal Facility at Monitoring Stations LON-3 shall not exceed the following Effluent quality limits:

Parameter	Maximum Average Concentration
pH	6.0 to 9.0 (pH units)
Oil and Grease	No visible sheen
Biological Oxygen Demand	120 mg/L
Total Suspended Solids	180 mg/L
Fecal Coliforms	10,000 CFU/dl

10. The Licensee shall collect and temporarily store, in preparation for future disposal following sampling, all site Construction Wastewater including Demolition Rinse

Wastewater and Contact Water.

11. All site Construction Wastewater referred to in Part D Item 10, and the uncontaminated aqueous content of barrels as determined in accordance with Section 5.12 of the document entitled *Defence Construction Canada Project Description for the Clean Up of the FOX-2, Longstaff Bluff DEW Line Site* (August 2007), shall not exceed the following Effluent quality limits prior to being released onto the land:

Parameter	Maximum Average Concentration (µg/L)
pH	6.0 to 9.0 (pH units)
Oil and Grease	5000
Arsenic (total)	100
Cadmium (dissolved)	10
Chromium (dissolved)	100
Cobalt (dissolved)	50
Copper (dissolved)	200
Lead (dissolved)	50
Mercury (total)	0.6
Nickel (dissolved)	200
PCB (total)	1000
Zinc (total)	500

12. The discharge location for all Effluent described in Part D Items 9 and 11 shall be located at a minimum of thirty (30) meters 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 confirm compliance with Effluent quality limits in Part D Items 9 and 11 prior to discharge
14. All pump out water from excavation and borrow pits that does not meet the Effluent quality limits in Part D Item 11, shall be pumped to an area as described in Part D Item 10 or as otherwise approved by the Board, in writing.
15. The Licensee shall dispose of barrels and their contents in accordance with Section 5.12 of the document entitled *Defence Construction Canada Project Description for the Clean Up of the FOX-2, Longstaff Bluff DEW Line Site* (August 2007) and Effluent quality limits set out in Part D Item 11.
16. The Licensee shall dispose of non-hazardous waste, Tier I Soil, Type A Soil, and co-contaminated Tier I-Type A Soil in the Solid Waste Disposal Facilities.
17. The Licensee shall dispose of Tier II Soil, co-contaminated Tier II-Type A Soil, and co-contaminated Tier II-Type B Soil in the Tier II Soil Disposal Facility.
18. The Licensee shall treat all Type B Soil, and co-contaminated Tier I-Type B soil in the

Landfarm Facility, constructed in accordance with the Plans submitted to the Board by the Licensee on September 6, 2007 and operated under the Operations and Maintenance Manual to be approved by the Board under Part E, Item 2.

19. The Licensee shall not mix or blend soils that exceed the Tier II Soil quality criteria for the purpose of decreasing contaminant levels.
20. The Licensee shall determine the toxicity of incineration ash in accordance with the *Transportation of Dangerous Goods Act*. Incinerator ash determined to be toxic shall be collected, contained and shipped off site to a licensed disposal facility. Incinerator ash determined to be non-toxic shall be disposed of in the Tier II Soil Disposal Facility.
21. The Licensee shall dispose of any material coated with Polychlorinated Biphenyl (PCB) – amended paints, hazardous materials and soils containing contaminants in excess of Canadian Environmental Protection Act (CEPA) Guidelines, off site to a licensed treatment facility in accordance with the application submitted to the Board by the Applicant on September 6, 2007.
22. The Licensee shall recover and recycle material wherever practical.

PART E: CONDITIONS APPLYING TO THE UNDERTAKING

1. The Licensee shall ensure that all borrow material used in construction is obtained from a source identified in the document entitled *Defence Construction Canada Project Description for the Clean Up of the FOX-2, Longstaff Bluff DEW Line Site* (August 2007) and shall be free of contaminants.
2. The Licensee shall submit to the Board for approval, within ninety (90) days of the issuance of this Licence, an Operation and Maintenance Manual to encompass facilities being operated at the site, including the Water Supply Facility, Sewage Disposal Facility, Solid Waste Disposal Facilities, Tier II Soil Disposal Facility, and the Landfarm Facility prepared in accordance with the “*Guidelines for the Preparation of an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories; 1996*”.
3. The Operations and Maintenance Manual referred to in Part E, Item 2 shall address the Soil Quality Remediation Objectives for the Landfarm component.
4. The Licensee shall review the Plan referred to in this Part as required by changes in operation and/or technology and modify the Plan accordingly. Revisions to the Plan are to be submitted in the form of an Addendum to be included with the Annual Report.
5. The Licensee shall, upon the failure of any constructed facilities, repair such facilities immediately to the appropriate standards as recommended by an Engineer.
6. 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 and personnel around the site and removal of site debris.

7. All activities shall be conducted in such a way as to minimize impacts on surface drainage and the Licensee shall immediately undertake any corrective measures in the event of any impacts on surface drainage.
8. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water.
9. The Licensee shall design and construct all stream crossings to minimize erosion and/or deposition of waste into water.
10. The Licensee shall not construct or disturb any stream, lakebed or banks of any definable watercourse unless authorized by the Department of Fisheries and Oceans.
11. Granular materials and rock rip-rap must not be removed or gathered from below the ordinary high water mark of a creek, stream or from any water body.
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. The Licensee shall only use water, avoiding the use calcium chloride, as a dust suppressant on site;
14. The Licensee shall implement measures to prevent the deposition of dust and/or sediment arising from contractor activities or on-site vehicle use, into water.
15. The Licensee shall not erect camps or store material on the surface of frozen streams or lakes including immediate banks except what is for immediate use. Camps shall be located such as to minimize impacts on surface drainage.
16. Winter lake and stream crossings, including ice bridges, shall be constructed entirely of water, ice or snow. The Licensee should minimize disturbance by locating ice bridges in an area that requires the minimum approach grading and the shortest crossing route. Stream crossings shall be removed or the ice notched prior to spring break-up.
17. 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 (30) metres from the ordinary high water mark so that they do not enter the water.

PART F: CONDITIONS APPLYING TO DRILLING OPERATIONS

1. The Licensee shall not conduct any land based drilling within thirty (30) metres of the ordinary high water mark of any water body, unless otherwise approved by the Board in writing.
2. The Licensee is authorized to drill and install monitoring wells in accordance with the requirements as identified in the Application submitted to the Board by the Licensee on September 6, 2007 and proposed in the drawings H-L133/1-9101-117, 119, 123 and 125;
3. The Licensee shall ensure that all drill waste, including water, chips, muds and salts (CaCl₂) in any quantity or concentration, from land-based drilling, shall be disposed of in a properly constructed sump or an appropriate natural depression located at a distance of at least thirty (30) 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 G: CONDITIONS APPLYING TO CONSTRUCTION AND MODIFICATIONS

1. The Licensee shall provide to the Board, within ninety (90) days of completion of construction, as-built plans and drawings of the facilities referred to in this Licence. These plans and drawings shall be stamped by an Engineer. For the Waste Disposal Facilities that are to remain on-site following completion of remediation activities, final as-built drawings, stamped and signed by an Engineer, shall be submitted to the Board within ninety (90) days of completion.
2. 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. 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
 - d. the Board has not rejected the proposed Modifications.
3. Modifications for which all of the conditions referred to in Part G, Item 2 have not been met can be carried out only with written approval from the Board.
4. The Licensee shall provide as-built plans and drawings of the Modifications referred to

in this Licence within ninety (90) days of completion of the Modification. These plans and drawings shall be stamped by an Engineer.

PART H: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. The Licensee shall submit, thirty (30) days prior to commencing project activities, a site specific and standalone Spill Contingency Plan prepared in accordance with the *Spill Contingency Planning and Reporting Regulations* developed under Section 34 of the *Environmental Protection Act*, Nunavut. The Licensee shall include contingency measures with respect to a failure or spill from the Sewage Disposal Facility.
2. The Licensee shall review the Plan referred to in this Part as required by changes in operation and/or technology and modify the Plan accordingly. Revisions to the Plan are to be submitted in the form of an addendum to be included with the Annual Report, unless directed otherwise by the Board.
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 (30) metres above the ordinary high water mark of any adjacent water body and inspected on a regular basis.
4. The Licensee shall use secondary containment on fuel and chemical storage facilities associated with this undertaking.
5. The Licensee shall use secondary containment or surface liners for all fuel transfers on the project site.
6. The Licensee shall ensure that any equipment maintenance and servicing be conducted only in designated areas and shall implement special procedures (such as the use of drip pans) to manage fluids, waste and contain potential spills.
7. If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:
 - i. Employ the Approved Spill Contingency Plan;
 - ii. Report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 or Environment Canada's 24-hour pager at (867) 766-3737 and to the DIAND Water Resources Inspector at (867) 975-4295; and
 - iii. Submit to the DIAND Water Resources Inspector on each occurrence, a detailed report including the GPS location, no later than thirty (30) days after initially reporting the event.

PART I: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION OR TEMPORARY CLOSING

1. The Licensee shall undertake the abandonment and restoration of the site as described in the document entitled *Defence Construction Canada Project Description for the Clean Up of the FOX-2, Longstaff Bluff DEW Line Site* (August 2007).
2. The Licensee shall complete all restoration work, prior to the expiry of this Licence.
3. The Licensee shall backfill and restore, all temporary containment sumps, to the pre-existing natural contours of the land.
4. Upon completion of work, all disturbed areas shall be scarified, stabilized, and restored as practically as possible to a pre-disturbed state.
5. Where possible, the Licensee shall re-vegetate disturbed areas using native vegetation.
6. All culverts shall be removed and the drainage opened up to match the natural channel. Measures shall be implemented to minimize erosion and sedimentation.

PART J: CONDITIONS APPLYING TO THE MONITORING PROGRAM

1. The Licensee shall undertake the water quality and thermal monitoring measures described in the Application submitted to the Board by the Applicant on September 6, 2007.
2. The Licensee shall, for the purposes of monitoring impacts to water, install ground water monitoring wells in the vicinity of the constructed Landfarm Facility and Solid Waste Disposal Facilities, at a minimum of one background and three down-gradient of each facility, as described in the application submitted to the Board by the Applicant on September 6, 2007.
3. The Licensee shall maintain Monitoring Program Stations at the following locations:

Monitoring Program Station Number	Description	Status
LON-1	Raw water supply intake at the Water Supply Lake	Active (Volume)
LON-2	Sewage pumped to the Sewage Disposal Facility	Active (Volume)
LON -3	Final Discharge Point from the Sewage Disposal Facility	Active (Water Quality)
LON -4	Final Discharge Point from the Construction Wastewater containment area	Active (Water Quality)

LON -5	Final Discharge Point from the Landfarm Facility	Active (Water Quality)
LON -6	Runoff and leachate from the Solid Waste Disposal Facilities.	Active (Water Quality)
LON -7	Runoff and leachate from the Tier II Soil Disposal Facility	Active (Water Quality)
LON -8	Monitoring well(s) installed up-gradient of the Land Farm Facility	Active (Water Quality)
LON -9	Monitoring wells installed down-gradient of the Land Farm Facility	Active (Water Quality)
LON-10	Monitoring well(s) installed upgradient of the Hangar Non-hazardous Waste Landfill	Active (Water Quality)
LON-11	Monitoring wells installed downgradient of the Hangar Non-hazardous Waste Landfill	Active (Water Quality)
LON-12	Monitoring well(s) installed upgradient of the Station Area Non-hazardous Waste Landfill	Active (Water Quality)
LON-13	Monitoring wells installed downgradient of the Station Area Non-hazardous Waste Landfill	Active (Water Quality)
LON -14	Surface water from the excavated landfill areas (Airstrip Landfill-Lobe A; Airstrip West Landfill; and Upper Site Landfill-Lobe B)	Active (Water Quality)

4. The Licensee shall provide the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all Monitoring Program Station Numbers and other locations where monitoring is undertaken.
5. The Licensee shall determine the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where wastes associated with camp operations and remediation activities are deposited.
6. The Licensee shall measure and record in cubic metres the daily quantities of water utilized for camp operations, for all purposes at the intake of the Water Supply Facility, Monitoring Program Station LON-1.
7. The Licensee shall measure and record in cubic metres the daily quantities of Sewage pumped to the Sewage Disposal Facility at Monitoring Program Station LON-2.
8. The Licensee shall monitor for compliance purposes, Effluent from the Sewage Disposal Facility at Monitoring Program Station LON-3 in accordance with the parameters and discharge criteria of Part D, Item 9.

9. The Licensee shall monitor for compliance purposes, Effluent from Monitoring Program Stations LON-4 to LON-7 in accordance with the parameters and discharge criteria of Part D, Item 11.
10. The Licensee shall monitor impacts from the Landfarm Facility and Solid Waste Disposal Facilities by collecting representative samples from all monitoring wells installed under Part J, Item 2 at Monitoring Program Stations LON-8 through LON-13. Samples shall be analyzed for parameters listed under Part D, Item 11.
11. The Licensee shall visually inspect the Solid Waste Disposal Facilities and the Tier II Soil Disposal Facility on a weekly basis during on-site activities, for signs of ponding and subsidence. The results of the inspections shall be reported in the Annual Report required under Part B Item 1.
12. The Licensee shall monitor surface water in the locations of the existing landfills at Monitoring Program Station(s) LON-14 to verify that contaminants are not entering the water bodies. Samples shall be analyzed for parameters listed under Part D, Item 11.
13. All sampling, sample preservation and analyses shall be conducted in accordance with methods prescribed in the current edition of *Standard Methods for the Examination of Water and Wastewater*, or by such other methods approved by the Board in writing.
14. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
15. The Licensee shall review the Plan, entitled “*Quality Assurance (QA) and Quality Control (QC) Plan for the Collection of Water Samples at the FOX-2 (Longstaff Bluff) DEW Line Site, revised September 2005*”, within sixty (60) days following issuance of the Licence, identifying changes in operation and/or technology and modify the Plan accordingly. Revisions to the Plan, if required, are to be submitted in the form of an addendum to the Analyst for approval, unless directed otherwise by the Board in writing.
16. The Licensee shall submit to the Board for approval, upon completion of the undertaking and a minimum of three (3) months prior to the expiry of the Licence, a Post-closure Monitoring Plan for the site, that includes the long-term monitoring of the Solid Waste Disposal Facilities addressing water quality monitoring, stability and the need for thermal monitoring and ground water monitoring.