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NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN KATIMAYINGI  
OFFICE DES EAUX DU NUNAVUT

File No.: **1BR-FOD0813**

July 23, 2008

Mr. Douglas Craig, M.Sc.  
Environmental Officer  
Defence Construction Canada  
Constitution Square, Suite 1720  
350 Albert Street.  
Ottawa, ON K1A 0K3  
Email: [eva.schulz@uma.aecom.com](mailto:eva.schulz@uma.aecom.com)  
Email: [Douglas.Craig@dcc-cdc.gc.ca](mailto:Douglas.Craig@dcc-cdc.gc.ca)

**RE: NWB LICENCE No. 1BR-FOD0813**

Dear Mr. Craig:

Please find attached Licence No. **1BR-FOD0813** issued to Defence Construction Canada by the Nunavut Water Board **Motion #: 2008-04-L08** 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*. 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 thirty (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.

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 and operate 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 Administrative Officer

TK/tla/sl

Enclosure: Licence No. **1BR-FOD0813**  
Comments: EC and NIRB

Cc: Qikiqtani Distribution List



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NUNAVUT WATER BOARD  
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OFFICE DES EAUX DU NUNAVUT

## DECISION

### LICENCE NUMBER: 1BR-FOD0813

This is the decision of the Nunavut Water Board (NWB) with respect to an application for a Licence renewal and amendment dated October 30, 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-3 Dewar Lakes Distant Early Warning Line Site (DEW Line Site), which is located in the central area of Baffin Island within the Qikiqtani Region of Nunavut at general latitude 68°40' and general longitude 71°14'W.

### DECISION

After having been satisfied that the application did not require conformity with an approved Land Use Plan and that it had been screened and approved by the Nunavut Impact Review Board in accordance with Article 12 of the NLCA, 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* (NWNSTRTA) 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 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 NWNSTRTA, decided to waive the requirement to hold a public hearing and determined that:

**Licence Number 1BR-FOD0813 be issued subject to the terms and conditions contained therein. (Motion #: 2008-04-L08)**

SIGNED this 18<sup>th</sup> day of July 2008 at Gjoa Haven, NU.

Thomas Kabloona, A/Chief Administrative Officer

## TABLE OF CONTENTS

<b>DECISION.....</b>	<b>I</b>
<b>TABLE OF CONTENTS .....</b>	<b>II</b>
A.    TERM OF THE LICENCE.....	2
B.    WATER USE.....	2
C.    DEPOSIT OF WASTE .....	3
D.    ANNUAL REPORT .....	4
E.    SPILL CONTINGENCY PLANNING.....	4
F.    ABANDONMENT AND RESTORATION (A&R).....	4
G.    MONITORING .....	5
<b>LICENCE 1BR-FOD0813.....</b>	<b>6</b>
<b>PART A:    SCOPE, DEFINITIONS AND ENFORCEMENT .....</b>	<b>7</b>
<b>PART B:    GENERAL CONDITIONS .....</b>	<b>11</b>
<b>PART C:    CONDITIONS APPLYING TO WATER USE.....</b>	<b>14</b>
<b>PART D:    CONDITIONS APPLYING TO WASTE DISPOSAL .....</b>	<b>14</b>
<b>PART E:    CONDITIONS APPLYING TO THE UNDERTAKING.....</b>	<b>17</b>
<b>PART F:    CONDITIONS APPLYING TO DRILLING OPERATIONS .....</b>	<b>18</b>
<b>PART G:    CONDITIONS APPLYING TO CONSTRUCTION AND MODIFICATIONS.....</b>	<b>19</b>
<b>PART H:    CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING .....</b>	<b>20</b>
<b>PART I:    CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION .....</b>	<b>21</b>
<b>PART J:    CONDITIONS APPLYING TO THE MONITORING PROGRAM.....</b>	<b>21</b>

## **I. INTRODUCTION**

The FOX-3, Dewar Lakes DEW Line site is located in the central area of Baffin Island in the Nunavut Territory. The site is approximately six (6) km northwest of Dewar Lakes, near which an airstrip was built to access the site. There is no direct sea access to this site. The nearest communities are Hall Beach and Igloolik, approximately 400 km west of the site, and Clyde River located approximately 250 km to the northeast.

The FOX-3 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 provide clean-up of 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-3 underwent a site investigation in 2006. 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 airlift and/or sea;
- Set up a temporary construction camp;
- Demolition of existing site facilities and infrastructure;
- Hazardous materials 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 existing landfills;
- Quarrying seven (7) borrow areas to obtain construction and cover material;
- 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; and
- Site monitoring including long term monitoring requirements.

A temporary camp will be set up at the 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. Annual site monitoring activities are planned for the first five years after remediation. Long term intermittent monitoring of site landfills, once every five years or as required, will be undertaken upon completion of clean-up activities and continue for 25 years, at which time the Monitoring Program will be re-evaluated.

## **II. PROCEDURAL HISTORY**

Licence 1BR-FOD0606 was issued to Defence Construction Canada (“DCC”) on May 16, 2006 for the FOX-3 Dewar Lake DEW Line Site following the review of an application submitted December 13, 2005 and the additional information provided on January 25, 2006. This Licence was issued to allow DCC, through their consultants, to carry out site investigation work and preliminary scoping prior to developing final design and logistics plans for the clean up of the site. The Licence expired on October 1, 2006.

On October 30, 2007, an application for a water licence renewal and amendment was filed with the Nunavut Water Board by DCC, for water use and waste disposal activities associated with camp operations and site remediation activities at the FOX-3 Dewar Lake DEW Line Site.

On November 26, 2007 the Nunavut Planning Commission (NPC) informed the NWB that the location of the proposed undertaking described in the Application was outside the North Baffin Regional Land Use planning boundary and therefore an NPC conformity decision was not required.

On December 7, 2007 the Nunavut Impact Review Board completed its screening of Application pursuant to Article 12 of the NLCA.

After having provided notice of the Application to the Qikiqtani distribution list, the only party to provide comments to the NWB was Environment Canada on November 27, 2007.

## **III. GENERAL CONSIDERATIONS**

### **A. Term of the 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 fifteen (15) m<sup>3</sup> per day. Water requirements for construction use are expected to be forty (40) m<sup>3</sup> 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 five (55) m<sup>3</sup> per day.

### **C. Deposit of Waste**

#### **Sewage**

Sewage will be discharged into a two 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. Grey water from camp operations is also discharged into the sewage lagoon.

The Board, having considered the submission of the Applicant and comments received from EC, has set the terms and conditions in the Water Licence, which govern the disposal of sewage and grey water during the proposed undertaking.

#### **Solid Waste**

The Licensee has indicated that camp solid waste will be incinerated and that any non-combustible residual waste will be buried in an on-site landfill. Additionally, pre-existing landfills will be remediated.

Non-hazardous demolition waste and excavated soils meeting Tier I and Type A criteria as outlined in the Application will be placed in appropriately designed engineered landfills. 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, off-site at licensed facilities.

The Licensee will develop engineered Tier II soil disposal facilities to dispose of Tier II soils according to the criteria outlined in Table 5 of the document entitled *Defence Construction Canada Clean Up of the FOX-3, Dewar Lakes DEW Line Site*, (October 2007). Tier II disposal facilities utilize a double-containment system consisting of permafrost to limit leachate generation and synthetic liners to prevent migration of contaminants into the surrounding environment.

The Board, having duly considered the submission of the Applicant and comments received from EC, 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, land farm operation,

contaminated soil treatment areas, and decontamination procedures. Such Construction Wastewater will be collected and temporarily stored in preparation for future disposal following sampling.

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 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 Licensee 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 (A&R)**

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 report “*Defence Construction Canada Clean Up of the FOX-3, Dewar Lakes DEW Line Site* (October 2007)” submitted with the Licensee’s Water Licence Application Supporting Documents on October 30, 2007 is approved by the Board for remediation of the site. Other conditions for restoration have



been included under Part I of this Water Licence.

### **G. Monitoring**

The NWB has provided a Monitoring Program to be undertaken by the Licensee. It includes compliance monitoring points and other locations proposed by the Licensee to monitor the quantity and quality of water discharged to the environment. The NWB notes that within the submission from EC, a request was included to have the Licensee monitor the quality of surface and groundwater in the vicinity of the landfill lobes at the airstrip given their proximity to water bodies. The NWB agrees with this recommendation and has included a requirement under Part D for the Licensee to submit a Monitoring Plan in conjunction with the Monitoring Program provided in Part J for revision of the Table under Part J, Item 3 and monitoring requirements. The Monitoring Program has also included monitoring stations for upstream and downstream of the Macbeth River.

## LICENCE 1BR-FOD0813

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 (DCC)**

(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 for a period subject to restrictions and conditions contained within this licence:

**1BR-FOD0813**

Licence Number

**NUNAVUT 05**

Water Management Area

**FOX-3 DEWAR LAKES DEW LINE SITE, QIKIQTANI REGION, NUNAVUT**

Location

**WATER USE AND WASTE DISPOSAL**

Purpose

**INDUSTRIAL – TYPE “B”**

Classification of Undertaking

**FIFTY-FIVE (55) CUBIC METRES *PER DAY***

Quantity of Water Not to Exceed

**JULY 18, 2008**

Date of Licence

**JULY 30, 2013**

Expiry Date of Licence

Dated this 18<sup>th</sup> day of July 2008 at Gjoa Haven, NU.



Thomas Kabloona, A/Chief Administrative 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 at the FOX-3 Dewar Lakes DEW Line site, located approximately 250 km southwest of the Hamlet of Clyde River in the central part of Baffin Island, within the Qikiqtani Region, Nunavut (at general latitude 68°40' and general longitude 71°14'W).

- i. 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;
- ii. 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-FOD0813

**“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 waters 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*;

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

**“Construction Wastewater”** means water 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 by the operation of 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 Licensee on October 30, 2007 and as shown on Drawing 107 - Station Area Site Plan, Drawings 116 and 117;

**“Licensee”** means the individual or organization to which Licence 1BR- FOD0713 Type “B” is issued or assigned;

**“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 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;

**“Solid Waste Disposal Facility”** comprises the Non-Hazardous Waste Landfill as described in the document *Defence Construction Canada Clean Up of the FOX-3, Dewar Lakes DEW Line Site* (October 2007) submitted with the Application filed October 30, 2007 designed to contain solid waste and as shown on Drawing 107, Station Area Site Plan and Drawings 118 and 119;

**“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 Table 5 of the document *Defence Construction Canada Clean Up of the FOX-3, Dewar Lakes DEW Line Site* (October 2007) submitted with the Application filed October 30, 2007;

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 within the types and ranges defined in the document *Defence Construction Canada Clean Up of the FOX-3, Dewar Lakes DEW Line Site* (October 2007) submitted with the Application filed October 30, 2007;

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 October 30, 2007 and as shown on Drawing 108 - Middle Site Area Site Plan, Drawings 120, 121 and 122;

**“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 Facilities”** comprises 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 Facilities, Solid Waste Disposal Facilities, the Tier II Soil Disposal Facility and Landfarm Facility, as described in the Application for Water Licence filed by the Licensee on October 30, 2007.

### 3. **Enforcement**

- i. 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*;
- ii. All inspection and enforcement services regarding this Licence will be provided by Inspectors appointed under the *Act*; and
- iii. 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 quantities (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 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 1<sup>st</sup> of the year being reported
2. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with this project at least thirty (30) days prior to any such change.
  3. The Licensee shall install flow meters or other such devices, or implement suitable methods required for the measuring of water volumes as required by the Monitoring Program 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 the Water Supply Facilities, Solid Waste Disposal Facilities, Landfarm Facility, 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](mailto:licensing@nunavutwaterboard.org)
  - (b) **Inspector Contact:**  
Water Resources Officer  
Nunavut District, Nunavut Region  
P.O. Box 100  
Iqaluit, NU X0A 0H0  
Telephone: (867) 975-4298  
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  
Fax: (867) 669-2718
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 water for all purposes from Water Supply Lake at Monitoring Program Station FOD-1, up to a maximum of fifty-five (55) cubic metres per day.
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 or 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 there is no entrainment of fish 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.

### **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 an 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 Program Station FOD-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
Faecal Coliforms	10,000 CFU/100mL

10. The Licensee shall collect and temporarily store, in preparation for disposal following sampling, all site Construction Wastewater including Contact Water, Demolition Rinse Wastewater and water from dewatering contaminated areas.
11. All Construction Wastewater referred to in Part D, Item 10 and the uncontaminated aqueous content of barrels in accordance with section 5.12 of the document *Defence Construction Canada Clean Up of the FOX-3, Dewar Lakes DEW Line Site* (October 2007) shall not exceed the following Effluent quality limits prior to being released onto land:

Parameter	Maximum Allowable Concentration (µg/L)
pH	6 to 9 (pH units)
Oil and Grease	5000
Arsenic (total)	100
Cadmium (dissolved)	10
Chromium (dissolved)	100
Cobalt (dissolved)	50
Copper (dissolved)	200
Lead (dissolved)	50
Mercury (total)	0.6

Parameter	Maximum Allowable Concentration (µg/L)
Nickel (dissolved)	200
PCB (total)	1000
Zinc (total)	500

12. The discharge location for all treated effluents described in Part D, Items 9 and 11 shall be located at a minimum of thirty (30) 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 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 areas that do not meet the Effluent quality limits of Part D, Item 11, shall be pumped to an area as described in Part D, Item 10.
15. The Licensee shall dispose of barrels and their contents in accordance with section 5.12 of the document *Defence Construction Canada Clean Up of the FOX-3, Dewar Lakes DEW Line Site* (October 2007) and 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 Facility.
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 and operated in accordance the Plans submitted to the Board by the Licensee on October 30, 2007.
19. The Licensee shall not mix or blend soils that exceed the maximum levels of Tier II criteria for the expressed purpose of decreasing contaminant levels.
20. The Licensee shall determine the toxicity of incineration ash in accordance with the *Transportation of Dangerous Goods Act*. Ash determined to be toxic shall be collected, contained and shipped off-site to a licensed disposal facility. 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*, off-site at a licensed facility, in accordance with

the application submitted to the Board by the Licensee on October 30, 2007.

22. The Proponent shall recover and recycle material wherever practical.
23. The Licensee shall provide to the Board for Approval, within the ninety (90) days of issuance of this Licence, a Monitoring Plan to address the need for both surface water and groundwater quality monitoring of the landfill sites that require remediation in close proximity to water bodies, in order to verify the success of remediation activities. The Plan is to provide recommendations for additional water quality monitoring stations and parameters in addition to those identified in Part D, Item 11, to be added to the current Monitoring Program Stations of Part J, Item 3. An implementation and monitoring schedule is to be provided.

## **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 *Defence Construction Canada Clean Up of the FOX-3, Dewar Lakes DEW Line Site* (October 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 Sewage Disposal Facility, Solid Waste Disposal Facility, 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*”. Options for the handling and treatment if required, of excess water collected as a result of excavation of the Airstrip Landfill lobes adjacent to the Macbeth River, or any other excavations, are to be considered.
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. 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.
8. The Licensee shall design and construct all stream crossings to minimize erosion and/or deposition of waste into water.
9. The Proponent shall not construct or disturb any stream, lakebed or the banks of any definable water course unless authorized by the Department of Fisheries and Oceans.
10. Granular materials must not be removed or gathered from below the ordinary high water mark of a creek, stream or from any water body.
11. 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.
12. The Licensee shall use water and not Calcium Chloride as a dust suppressant on site.
13. 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.
14. 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.
15. 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.
16. Winter lake and stream crossings, including ice bridges, shall be constructed entirely of water, ice or snow. The Licensee shall 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 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 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 October 30, 2007.
3. The Licensee shall ensure that all drill waste, including water, chips, muds and salts ( $\text{CaCl}_2$ ) 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, within thirty (30) days of issuance of this Licence, 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 take into consideration the comments received by interested parties during the review of the application and 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 24hr 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**

1. The Licensee shall undertake the abandonment and restoration of the site as described in the document *Defence Construction Canada Clean Up of the FOX-3, Dewar Lakes DEW Line Site* (October 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 revegetate 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 Licensee on October 30, 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, at a minimum, of one up-gradient and one down-gradient of the Landfarm Facility, as described in the document *Defence Construction Canada Clean Up of the FOX-3, Dewar Lakes DEW Line Site* (October 2007).
3. The Licensee shall maintain Monitoring Program Stations at the following locations:

<b>Monitoring Program Station Number</b>	<b>Description</b>	<b>Status</b>
FOD-1	Raw water supply intake at the Water Supply Lake	Active (Volume)
FOD-2	Sewage pumped to the Sewage Disposal Facility	Active (Volume)
FOD-3	Final Discharge Point from the Sewage Disposal Facility	Active (Water Quality)
FOD-4	Final Points of Discharge from the	Active

	Construction Wastewater containment areas.	(Water Quality)
FOD-5	Final Point of Discharge from the Landfarm Facility.	Active (Water Quality)
FOD-6	Runoff and leachate from the Solid Waste Disposal Facility.	Active (Water Quality)
FOD-7	Runoff and leachate from the Tier II Disposal Facility	Active (Water Quality)
FOD-8	Monitoring well(s) installed up-gradient of the Landfarm Facility	Active (Water Quality)
FOD-9	Monitoring well(s) installed down-gradient of the Landfarm Facility	Active (Water Quality)
FOD-10	Macbeth River, upstream of the Airstrip Landfill site and debris area	Active (Water Quality)
FOD-11	Macbeth River, downstream of the Airstrip Landfill site and debris area.	Active (Water Quality)

4. The Licensee shall provide the GPS coordinates (in degrees, minutes and seconds of latitude and longitude) of all locations of all Monitoring Program Stations and other location 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 FOD-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 FOD-2.
8. The Licensee shall monitor for compliance purposes, Effluent from the Sewage Disposal Facility at Monitoring Program Station FOD-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 FOD-4 to FOD-7 in accordance with the parameters and discharge criteria of Part D, Item 11.
10. The Licensee shall monitor impacts from the Landfarm Facility by collecting representative samples from all monitoring wells installed under Part J, Item 3 at Monitoring Program Stations FOD-8 and FOD-9. Samples shall be analyzed for parameters listed under Part D, Item 11.

11. The Licensee shall visually inspect all Solid Waste Disposal Facility and Tier II Soil Disposal Facility on a weekly basis for signs of ponding and subsidence.
12. The Licensee shall establish representative monitoring stations, FOD-10 and FOD-11, to be located within the Macbeth River, upstream and downstream of all Airstrip landfill activities and proposed disturbance. Samples shall be collected prior to beginning seasonal remediation activities and at the end of seasonal remediation activities, 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.
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 submit to an Analyst for approval, at least thirty (30) days prior to release of any Effluent, a Quality Assurance/Quality Control Plan that conforms to the guidance document "*Quality Assurance (QA) and Quality Control (QC) Guidelines For Use by Class "B" Licensees in Collecting Representative Water Samples in the Field and for Submission of a QAQC Plan*" INAC (1996).
16. 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.
17. 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 Facility addressing water quality monitoring, stability and the need for thermal monitoring and ground water monitoring.