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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: 1BR-BEA1015

April 6, 2010

Natalie Plato
Director, Contaminated Sites
Indian and Northern Affairs Canada
P.O. Box 2200
Iqaluit, NU X0A 0H0
E-mail: platon@inac-ainc.gc.ca

RE: NWB LICENCE No. 1BR-BEA1015

Dear Ms. Plato:

Please find attached Licence No. **1BR-BEA1015** issued to Indian and Northern Affairs Canada – Contaminated Sites by the Nunavut Water Board **Motion #: 2009-23-L03** 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 sixty (60) days is required from time of acceptance by the NWB. It is the responsibility of the Licensee to ensure that all application materials have been received and acknowledged by the Manager of Licensing.

The NWB strongly recommends that the Licensee consult the comments¹ received by interested persons on issues identified. Among others, Environment Canada commented that Chisasibi Quebec, may not have the proper facilities to receive PHC contaminated soils as stated in the remedial action plan. This information is attached for your consideration.

Sincerely,



Thomas Kabloona
Nunavut Water Board
Chair

TK/dc

Enclosure: Licence No. **1BR-BEA1015**
Comments
NMRIRB²

Cc: Distribution – Qikiqtani

¹ Environment Canada (EC), March 5, 2009 and Indian and Northern Affairs Canada (INAC) – Water Resources Division, March 2, 2009.

² Nunavik Marine Region Impact Review Board (NMRIRB), Screening Decision 7.4.4 (a) (Nunavik Inuit Land Claims Agreement) – May be processed without a review, February 1, 2010.



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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

DECISION

LICENCE NO.: 1BR-BEA1015

This is the decision of the Nunavut Water Board (NWB) with respect to an application, dated November 10, 2008, for a new Licence made by:

INDIAN AND NORTHERN AFFAIRS CANADA – CONTAMINATED SITES

to allow for the implementation of a remedial action plan at two Abandoned Mid-Canada Line Radar Stations, located on Bear Island in the north central section of James Bay within the Qikiqtani Region, Nunavut (at general latitude of 54° 20' N and general longitude 81° 05' W).

DECISION

After having been satisfied that the application was exempt from the requirement for screening by the Nunavut Impact Review Board and with a 7.4.4(a) Screening Decision on February 1, 2010 from the Nunavik Marine Region Impact Review Board (NMRIRB) in accordance with the Nunavik Inuit Land Claims Agreement, 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 *Nunavut Land Claim Agreement* (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 NWNSRTA, decided to waive the requirement to hold a public hearing and determined that:

Licence Number 1BR-BEA1015 be issued subject to the terms and conditions contained therein. (Motion #: 2009-23-L03)

SIGNED this 1st day of April 2010 at Gjoa Haven, NU.

Thomas Kabloona
Nunavut Water Board
Chair

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I. INTRODUCTION

The Bear Island Mid-Canada Line Radar Station (Bear Island Station) included two Doppler radar stations operated from the 1950s to 1965 as part of the former Mid-Canada Early Warning Line. They were abandoned in 1965 and although the majority of the buildings were removed to their foundation, no cleanup operations were carried out. The environmental issues at Bear Island include former landfills and site buildings, as well as abandoned hazardous materials (lead acid batteries, petroleum products, asbestos), barrels and scrap metal.

Bear Island is approximately 5 km long, north to south, by 1.5 km wide. It is a low lying black basalt outcrop, covered with small lakes and ponds, which were created by glacial scouring. Typical plants found in this region include ground cover of dwarf birch, willow, cotton grass, lichen and moss. Seabird activity and bear and fox evidence were noted in the 1995 investigation. The wildlife typically found in this region includes black and polar bears, wolf, red fox, snowshoe hare, raven, osprey, shorebirds, seabirds, waterfowl, seal, walrus and whale.

At Site 413 there is a toppled radar tower and only the building foundation and most of the floor remains. The petroleum, oils and lubricants (POL) tanks have been removed but some piping is still present. The buildings appear to have been equipped with sanitary toilet systems, where the waste was discharged into a deep tank under the building. A partially covered landfill and a surface dump are present at the site, northeast of Site 412. In addition, there is a 3,300 m long pipeline and 2,850 m long electrical cable, which runs through the sites and physical debris is scattered throughout the island. A 1,500 m airstrip (abandoned) is located on the west side of the island, between the two stations; the roads between the two sites are connected via the airstrip. There is a beaching area on the east side of the island in a natural bay, approximately 1 km north of Site 412 and connected to the site by road. The beach area is believed to be where supplies were unloaded for the island and consists of a storage and hut area with a POL site to the south. There is very little of the POL site remaining with the exception of some petroleum piping.

A preliminary environmental assessment of the Bear Island Station was conducted in 1995 by the Environmental Sciences Group (ESG) of Royal Roads Military College. Surface soil, vegetation and water samples, were collected, from various locations on the island to investigate possible contamination. Chemical contamination at Bear Island was reported to be minimal and mostly confined to localized areas. Physical debris, however, is ubiquitous and abundant. An environmental site delineation and material inventory was completed over two days in 2001 by Earth Tech Canada, using the ESG report as a template for gathering and compiling more specific information on Bear Island. Soils contaminated with arsenic, cadmium, copper, chromium, lead, selenium and zinc were identified in a number of areas at the Main Doppler Detection Building Site 412, Barrel Cache Area, Beach Area and Northern Doppler Detection Building Site 413. Earth Tech reported an estimated 354 m³ of soil contaminated with metals, which exceeds the CCME Environmental Soil Quality Guidelines for residential/parkland use. The volume of hydrocarbon-contamination on site, according to the Canada Wide Standards for

Petroleum Hydrocarbons in Soil, is approximately 85 m³ located around the landfill site northeast of the main site.

INAC augmented the work carried out in previous years with a detailed site investigation in the summer of 2007. At the same time, a geotechnical investigation was completed to identify suitable borrow source material and potential locations for non hazardous landfills. An archaeological assessment was also completed to identify areas of potential cultural or historical significance.

The Licensee will undertake a Remedial Action Plan that includes the following:

- Accessing site via sealift;
- Establishing a camp to support site operations;
- Existing site infrastructure will be demolished and demolition wastes will be segregated into hazardous and non-hazardous materials;
- Hazardous materials and soil to be disposed of at an off-site licensed disposal facility;
- Metal/BCP/hydrocarbon contaminated soil areas will be disposed at an off-site licensed disposal facility;
- Hydrocarbon impacted soil areas to be excavated, containerized and shipped off-site to a licensed disposal facility;
- A Non-Hazardous Waste Landfill (NHWL) to be constructed;
- Existing landfills/dumps to be remediated;
- Barrel consolidation including either incinerating or shipping contents off site for disposal, empty drums to be crushed and disposed in the NHWL;
- Scattered surface debris and partially buried debris to be collected and disposed in NHWL;
- Roads and airstrip will be re-constructed and repaired as required; and
- Several borrow sources will be developed and the material used to assist in the remediation work.

Following completion of the Remedial Action Plan, the site will then enter a 25 year long term monitoring phase to ensure remediation efforts were successful.

II. PROCEDURAL HISTORY

On November 19, 2008 a water licence application was filed with the Nunavut Water Board by Indian and Northern Affairs Canada – Contaminated Sites for water use and waste disposal activities associated with the implementation of a remedial action plan for Bear Island. The application included the following documents:

- Application Form;
- Supplementary Questionnaire;
- Letter to NIRB Regarding Bear Island Jurisdiction;

- Executive Summary (English);
- Executive Summary (Inuktitut);
- Remedial Action Plan;
- Site Maps & Drawings;
- Environmental Screening;
- Preliminary Spill Contingency Plan;
- Project Schedule;
- Archaeological Impact Assessment
- List of Additional Documents; and
- Supplementary Information to be Provided

On November 28, 2008 the Nunavut Planning Commission confirmed the application was for a project outside an approved land use plan and a conformity determination would not be required. As the application was outside the Nunavut Settlement Area and located in the Nunavut Marine Region as established under the Nunavik Inuit Land Claims Agreement (NILCA), Nunavut Impact Review Board screening was not required. On February 1, 2010, the Nunavik Marine Region Impact Review Board issued a 7.4.4(a) Screening Decision under the NILCA, which allowed the project to proceed without a review.

The NWB issued notice of the application on February 2, 2009 and again on May 7, 2009. Comments were received from Environment Canada and Indian and Northern Affairs Canada – Water Resources Division. Following review of the application and submissions received, the Board has issued Licence No. 1BR-BEA1015.

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 has taken into consideration the Long Term Monitoring Program put forward by the applicant and the request for a five (5) year licence term, two years for remediation activities and three for early stage long term monitoring is appropriate. This duration will allow the Licensee to properly carry out the terms and conditions of the licence and implement the Remedial Action Plan, to the satisfaction of the NWB.

B. 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. A

standard form for annual reporting can be downloaded from the NWB ftp site at <http://nunavutwaterboard.org/ftp/> in the administration folder.

C. Water Use

The Licensee has requested the use of twenty cubic metres per day in support of camp operations and for the cleaning of drums. As such, twenty (20) cubic metres per day is authorized to be extracted from lakes on Bear Island, stored in the reservoir and used for camp operations and barrel rinsing.

D. Deposit of Waste

The Licensee is authorized construct, operate and close a Non-Hazardous Waste Landfill and to deposit into the NHWL wastes from sources such as camp operations, surface debris collection, existing landfill remediation, Tier I Contaminated Soils, compressed gas cylinders and double bagged asbestos wastes.

All other hazardous wastes, Tier II Contaminated Soils, Petroleum Hydrocarbon Contaminated Soils, POL's that do not meet incineration criteria and lead painted products shall be backhauled for approval in a currently approved facility designed to contain or treat the respective waste product.

Prior to discharge, all sewage will be directed to and treated in the Sewage Disposal Facilities, which is comprised of two independently operated sewage lagoons. All sewage will be required to meet the effluent standards listed in Part D, Item 10 prior to discharge at Monitoring Program Stations BEA-2a and BEA-2b. Although the Licence is not as stringent as the limits under the "Guidelines for Effluent Quality and Wastewater Treatment at Federal Establishments", the Licensee is encouraged to attempt to meet the higher standards.

Effluent resulting from barrel rinsing activities that occur in the Waste Handling Facility shall be collected and contained in a series of lined lagoons. The effluent shall be treated to standards listed under Part D, Item 12 and discharged at Monitoring Program Station BEA-3. If the effluent cannot be treated to such levels, it shall be considered hazardous waste and be backhauled for proper disposal.

E. Operations and Maintenance

The Licensee shall submit for Board approval within sixty (60) days following issuance of the Licence, an operations and maintenance plan (O&M Plan) for the Sewage Disposal Facilities. The O&M Plan shall include 95% complete For-Construction Drawings of the Sewage Disposal Facilities stamped and signed by an Engineer, identify final discharge locations BEA-2a and BEA-2b identified on a map, include the monitoring program for the facility and provide abandonment and restoration information including sludge disposal instructions. This requirement is detailed under Part E, Item 1.

F. Construction and Modifications

The Licensee shall submit for review at least ninety (90) days prior to construction of the Non-Hazardous Waste Landfill and Material Processing Area; stamped and signed 95% complete For Construction drawings of the respective facility.

G. Spill Contingency Planning

The Licensee is required to submit for approval a complete Spill Contingency Plan within sixty (60) days following issuance of the Licence. As the requested Licence duration extends into the long term monitoring phase, the Plan shall also have a section to address spills during the long term monitoring following remediation of the site. The Plan shall address comments received by Environment Canada and INAC – Contaminated site during the application review process. The requirements for the Plan are included under Part I of this licence for spill response and reporting.

H. Abandonment and Restoration

The Board has approved the Plan entitled “Bear Island Mid-Canada Line Radar Station, Remedial Action Plan” revised September, 2008. The Licensee shall implement site remediation activities in accordance with the approved Plan and the conditions of this Licence.

I. Monitoring

A QA/QC plan is to be provided to the Board with a cover letter from the analyzing lab stating that the plan is acceptable. All results of monitoring are to be provided to the NWB with an analysis as part of the annual report.

The Licensee shall submit to the Board approval prior to March 31, 2012, a Long Term Monitoring Plan.



NUNAVUT WATER BOARD WATER LICENCE

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

INDIAN AND NORTHERN AFFAIRS CANADA – CONTAMINATED SITES

(Licensee)

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

(Mailing Address)

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

Licence Number/Type: 1BR-BEA1015 TYPE "B"

Water Management Area: NUNAVUT 04

Location: BEAR ISLAND MID-CANDA LINE RADAR STAION
JAMES BAY, QIKIQTANI REGION (54° 20" N and 81° 05" W)

Classification: INDUSTRIAL UNDERTAKING

Purpose: DIRECT WATER USE AND WASTE DISPOSAL
DURING REMEDIAL ACTIVITIES

Quantity of Water use not
to Exceed: TWENTY (20) CUBIC METRES PER DAY

Date of Licence Issuance: APRIL 1, 2010

Expiry of Licence: MAY 1, 2015

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

Thomas Kabloona
Nunavut Water Board
Chair

PART A: SCOPE, DEFINITIONS AND ENFORCEMENT

1. Scope

This Licence allows for the implementation of a remedial action plan at the Bear Island Mid-Canada Line Radar Stations during an Industrial Undertaking, located on Bear Island in James Bay, approximately 160 km northwest of Chisasibi, QC and 300 km south of Sanikiluaq within the Qikiqtani Region, Nunavut (at general latitude of 54° 20" N and general longitude 81° 05" 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: **1BR-BEA1015**

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

“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

“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;

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

“Licensee” means the individual or organization to which Licence 1BR-BEA1015 Type “B” is issued or assigned;

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

“Non-Hazardous Waste Landfill” (NHWL) comprises the landfill and adjacent monitoring wells and associated structures designed to contain wastes from camp operations, surface debris collection, existing landfill remediation, Tier I Contaminated Soils, compressed gas cylinders and double bagged asbestos wastes as detailed in preliminary drawings 421391-C07 and 421391-C08;

“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;

“Sewage” means all toilet wastes and greywater;

“Sewage Disposal Facilities” means the two independently operated sewage lagoons with a minimum capacity of 45 days or half the duration of the construction season and a maximum fluid depth that does not exceed one metre and sited a minimum of 100 metres from drainage paths as described in the new application received November 19, 2008;

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

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

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

“Type A Soil” means soil contaminated with hydrocarbons in which the primary

petroleum product present in the soil as determined by laboratory analysis consists of lubricating oil and grease (F3 – F4 Fractions);

“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 (F1 – F2 Fractions);

“Waste” means waste as defined in Section 85 (1) of the *Act*;

“Waste Handling Facility” means an area designated for the handling of wastes and washing of old barrels and designed to contain and direct all effluent to a lined lagoon. Additional lined lagoons and treatment equipment are included which are designed to treat effluent to acceptable levels prior to discharge;

“Water Supply Facility” means the reservoir designed to hold approximately 300 cubic metres of water and associated intake structure described in an e-mail submitted in support of the application on February 19, 2010;

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. Licensee shall file an Annual Report on the appurtenant undertaking with the Board no later than March 31 of the year following the calendar year being reported which shall contain the following information:
 - a. The monthly and annual quantities (in cubic metres) of fresh water obtained from all sources;
 - b. The monthly and annual quantities (in cubic meters) of treated sewage discharged;
 - c. The monthly and annual quantities (in cubic metres) of material deposited in the NHWL;

- d. A summary of all waste backhauled for disposal at approved facilities under Part D, Item 6;
 - e. A summary of all contaminated soil and hazardous wastes backhauled;
 - f. A summary of any construction work, modification and major maintenance work (including as-built diagrams) carried out on the NHWL, Waste Handling Facility and Sewage Disposal Facility, including all associated structures;
 - g. Tabular summaries for all data and information generated under the “Monitoring Program”;
 - h. An analysis of data collected during the “Monitoring Program” and a brief description of any future studies planned by the Licensee;
 - i. A summary of remediation work undertaken during the year and an outline of work anticipated for the following year;
 - j. 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;
 - k. A list of unauthorized discharges and summary of follow-up actions taken;
 - l. Any revisions to the approved “Bear Island Mid-Canada Line Radar Station, Remedial Action Plan” revised September, 2008 for Board approval;
 - m. Any revisions to the site specific Spill Contingency Plan, submitted under Part I, Item 2, which may require Board approval;
 - n. 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;
 - o. A public consultation/participation report describing consultation with local organizations and the residents of the nearby communities;
 - p. A brief summary of work done to address concerns or deficiencies listed in the inspection reports and/or compliance reports prepared by an Inspector;
 - q. An executive summary in English, French and Inuktitut of all plans, reports, or studies conducted under this Licence; and
 - r. 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 by the Monitoring Program under Part K.
4. The Licensee shall, for all Plans submitted under this Licence, include a proposed timetable for implementation. Plans submitted, cannot be undertaken without subsequent written Board approval and direction. The Board may alter or modify a Plan if necessary to achieve the legislative objectives and will notify the Licensee in writing of acceptance, rejection or alteration of the Plan.

5. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
6. Every Plan to be carried out pursuant to the terms and conditions of this Licence shall become a part of this Licence, and any additional terms and conditions imposed upon approval of a Plan by the Board become part of this Licence. All terms and conditions of the Licence should be contemplated in the development of a Plan where appropriate.
7. The Licensee shall, within thirty (30) days of arrival on site, post signs in the appropriate areas identifying the locations of the Water Supply Facilities, Solid 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:**
Manager of Field Operations
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445
9. The Licensee shall submit one 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 assignable as provided for in Section 44 of the *Act*.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain water for camp use and barrel washing from lakes proximal to the Water Supply Facility, up to a maximum of twenty (20) cubic meters per day.
2. 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.
3. The Licensee shall not remove any material from below the ordinary high water mark of any water body.
4. 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.
5. The Licensee shall implement sediment and erosion control measures to prevent the deposition of dust and/or sediment into fresh water, arising from contractor activities or on-site vehicular travel.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Licensee shall locate areas designated for waste disposal at a minimum distance of thirty one (31) metres from the ordinary high water mark of any water body such that the quality, quantity or flow of water is not impaired, unless otherwise approved by the Board in writing.
2. The Licensee is authorized to dispose of all acceptable food waste, paper waste and untreated wood products in an incinerator.
3. The Licensee shall utilize the Non-Hazardous Waste Landfill (NHWL) for the disposal of wastes from camp operations, surface debris collection, existing landfill remediation, Tier I Contaminated Soils, compressed gas cylinders and double bagged asbestos wastes.
4. The Licensee shall dispose of any material coated with Polychlorinated Biphenyl (PCB) - amended paints or lead painted products, hazardous materials, Tier II Contaminated Soils, Petroleum Hydrocarbon Contaminated Soils and POL's that do not meet incineration criteria off site at a currently approved treatment facility, in accordance with the application received by the Board by the Applicant on November 19, 2008.
5. The Licensee shall provide to the Board, documented authorization from any community

in Nunavut receiving wastes from the project, prior to backhauling any wastes for storage or disposal.

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. These records shall be made available to an Inspector upon request. The Licensee shall not transport hazardous wastes prior to registering with the Government of Nunavut as a waste generator and utilizing the prescribed manifests.
7. The Licensee shall direct all sewage to the Sewage Disposal Facilities as described in the application or as otherwise approved by the Board in writing.
8. During camp setup and construction of the sewage lagoon, the Licensee may contain all camp Sewage in a sump. The sump shall be located at a distance of at least thirty one (31) meters above the ordinary high water mark of any water body, treated with lime and covered with native material to achieve the pre-existing natural contours of the land prior to abandonment. The location shall be included in the Annual Report, as per Part B Item 1.
9. The Licensee shall provide notice to an Inspector at least ten (10) days prior to initiating discharge from the Sewage Disposal Facilities.
10. All waste discharged from the Final Discharge Point of the Sewage Disposal Facilities at Monitoring Program Stations BEA-2a and BEA-2b shall not exceed the following effluent quality limits:

Parameter	Maximum Allowable Concentration
BOD	80 mg/L
Total Suspended Solids	100 mg/L
Fecal Coliforms	1×10^4 CFU/100mL
pH	6.0 to 9.0
Oil and Grease	no visible sheen

11. The Licensee shall collect and temporarily store all effluent resulting from barrel cleaning activities, in lined lagoons located at the Waste Handling Facility.
12. All discharge from the Waste Handling Facility and contact water within the NHWL at Monitoring Program Stations BEA-3 and BEA-4, shall meet the following wastewater discharge limits prior to being released:

Parameter	Maximum Allowable Concentration (µg/L)
pH	6 to 9 (pH units)
Oil and Grease	5000
Arsenic (total)	100
Cadmium (dissolved)	10
Chromium (dissolved)	100
Cobalt (dissolved)	50
Copper (dissolved)	200
Lead (dissolved)	50
Mercury (total)	0.6
Nickel (dissolved)	200
Iron	1000
PCB (total)	1000
Zinc (total)	500
Phenols	20
Benzene	370
Toluene	2
Ethylbenzene	90

13. If the effluent referred to in Part D, Item 10 and Item 12 does not meet the wastewater discharge limits, it shall be considered hazardous waste and require disposal off-site at an approved facility.
14. The discharge location for all treated effluents described in Part D, Items 10 and 12, shall be located at a minimum of thirty one (31) metres from the ordinary high water mark of any water body and where direct flow into a water body is not possible and no additional impacts are created.
15. All pump out water from excavation and borrow pits shall be pumped to an area as described in Part D, Item 14, or as otherwise approved by the Board in writing.
16. The Licensee shall provide, proper storage, treatment and disposal at an approved facility for any hazardous waste materials, including waste oil generated through the demolition and remediation activities, unless otherwise approved by the Board in writing.
17. The Licensee shall not mix or blend soils that exceed the maximum levels of Tier II criteria for the expressed purpose of attaining the specific limits of Tier I as listed under Table No.1.

PART E: CONDITIONS APPLYING TO THE UNDERTAKING

1. The Licensee shall submit to the Board for approval within sixty (60) days following issuance of the Licence, an Operations and Maintenance Plan for the Sewage Disposal Facilities that includes but is not limited to:
 - a. 95% complete For-Construction Drawings of the Sewage Disposal Facilities stamped and signed by an Engineer;
 - b. Final discharge locations BEA-2a and BEA-2b identified on a map;
 - c. Monitoring Program; and
 - d. Abandonment and Restoration information including sludge disposal instructions.
2. The Licensee shall, upon the failure of any constructed facilities, repair such facilities immediately to the appropriate standards as recommended by an Engineer.
3. The Licensee shall implement proper handling, storage and transportation procedures for hazardous materials during clean-up activities.
4. The Licensee shall minimize disturbance to terrain, permafrost and drainage during extraction of granular material, development and closure of landfills, movement of contractor's equipment and personnel around the site and removal of site debris.
5. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.
6. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water.
7. The Licensee shall design and construct all stream crossings to minimize erosion and/or deposition of waste into water.
8. The Licensee shall ensure that existing creek channels are maintained at their normal width and depth to the extent possible, during and after site remediation.
9. Granular materials and rock rip-rap used for any temporary stream crossings, approaches or as may be required for bank stabilization must be obtained from a source approved by an Inspector, and be clean and free of contaminants. Such material must not be removed or gathered from below the ordinary high water mark of a creek, stream or from any water body.
10. All sites affected by remediation activities shall be stabilized, landscaped as necessary, and suitable erosion control measures implemented to minimize sediment deposition into watercourses located on or adjacent to the site.

11. The Licensee shall restore and stabilize all areas affected by the undertaking upon completion of the work.
12. The Licensee shall not deposit any waste in any body of water, or on the banks thereof, which may impair the quality, quantity, or flow of water.
13. The Licensee shall dispose of all scrap metal, discarded machinery and parts, and other bulky material in a manner that conforms to the Plans submitted to the Board.

PART F: CONDITIONS FOR CAMPS, ACCESS INFRASTRUCTURES AND OPERATIONS

1. 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.
2. 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.
3. Winter lake and stream crossings, including ice bridges, shall be constructed entirely of water, ice or snow, and shall be removed prior to spring break-up.
4. With respect to access road, pad construction, demolition or other earthworks, the deposition of debris or sediment into any water body is prohibited. These materials shall be disposed of above the ordinary high water mark in such a fashion that they do not enter the water.

PART G: CONDITIONS APPLYING TO DRILLING OPERATIONS

1. The Licensee is authorized to drill for the purpose of installing monitoring wells and thermistors.
2. The Licensee shall not conduct any land based drilling within thirty one (31) metres of the ordinary high water mark of any water body, unless otherwise approved by the Board in writing
3. The Licensee shall 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 one (31) metres from the ordinary high water mark of any adjacent water body, where direct flow into a water body is not possible and no additional impacts are

created

PART H: CONDITIONS APPLYING TO CONSTRUCTION AND MODIFICATIONS

1. The Licensee shall provide to the Board for review, ninety (90) days prior to construction, detailed designs for the NHWL and Waste Handling Facility, complete with “For Construction Drawings”, signed and stamped by an Engineer. These designs shall consider, siting, operation, monitoring, sampling and analytical methods, decommissioning and closure options and plans for the proposed Facilities.
2. The Licensee shall provide to the Board, within ninety (90) days of completion of construction, as-built drawings of the facilities referred to in this Licence. These plans and drawings shall be stamped by an Engineer.
3. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply Facilities, NHWL, Sewage Disposal Facilities and Waste Handling Facility 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.
4. Modifications for which all of the conditions referred to in Part H, Item 3 have not been met can be carried out only with written approval from the Board.
5. 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 and signed by an Engineer.

PART I: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. The Licensee shall submit for Board approval, within sixty (60) days of issuance of this Licence, a site specific Spill Contingency Plan prepared in accordance with the *Consolidation of Spill Contingency Planning and Reporting Regulations R-068-93*. The Licensee shall take into consideration the comments received by INAC and EC during the review of the application.

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 one (31) metres above the ordinary high water mark of any adjacent water body and inspected on a regular basis. The Licensee is encouraged to use some form of secondary containment on fuel and chemical storage facilities associated with this undertaking.
4. The Licensee shall 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.
5. If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:
 - a. Employ the Approved Spill Contingency Plan;
 - b. Report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to the INAC Manager of Field Operations at (867) 975-4295; and
 - c. Submit to the INAC 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 J: CONDITIONS APPLYING TO ABANDONMENT, RECLAMATION AND CLOSURE

1. The Board has approved the recommended options identified within the Plan entitled “*Bear Island Mid-Canada Line Radar Station Remedial Action Plan*” revised September 2008, submitted with the application filed with the Board on November 19, 2008.
2. The Licensee shall complete all reclamation work for the temporary camp facilities and waste disposal activities, not included under Part J, Item 1 of this Licence, 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. All disturbed areas shall be stabilized and re-vegetated as required, upon completion of work, and restored as practically as possible to a pre-disturbed state.

PART K: CONDITIONS APPLYING TO THE MONITORING PROGRAM

1. The Licensee shall submit to the Board for approval by March 31, 2012, a Post-Closure Monitoring Plan for the site that includes the long term monitoring of Waste Disposal Facilities addressing water quality monitoring, stability and the requirement for thermal monitoring and ground water monitoring.
2. The Licensee shall maintain Monitoring Program Stations at the following locations:

Monitoring Program Station Number	Description	Status
BEA-1	Raw water intake at the Water Supply Facilities	Active (Volume)
BEA-2a	Final Discharge Point from the Sewage Disposal Facilities, Lagoon 1	Active (Volume and Water Quality)
BEA-2b	Final Discharge Point from the Sewage Disposal Facilities, Lagoon 2	Active (Volume and Water Quality)
BEA-3	Final Point of Discharge from the Waste Handling Facility	Active (Water Quality)
BEA-4	Final Point of Discharge from the Non-Hazardous Waste Landfill	Active (Water Quality)
BEA-5	Monitoring Well up-gradient from the Non-Hazardous Waste Landfill	Active (Water Quality)
BEA-6	Monitoring Well located south of the Non-Hazardous Waste Landfill	Active (Water Quality)
BEA-7	Monitoring Well located southwest of the Non-Hazardous Waste Landfill	Active (Water Quality)
BEA-8	Monitoring Well located west of the Non-Hazardous Waste Landfill	Active (Water Quality)

3. The Licensee shall measure and record in cubic metres, the daily quantities of water withdrawn from lakes for use in the Water Supply Facilities, Monitoring Program Station BEA-1.
4. The Licensee shall measure and record in cubic metres, the daily quantities of effluent discharged from the Sewage Disposal Facilities at monitoring stations BEA-2a and BEA-2b.

5. The Licensee shall determine the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where sources of water are utilized for all purposes.
6. The Licensee shall determine the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where wastes associated with camp operations are deposited.
7. The Licensee shall monitor compliance with respect to Part D Item 10, by collecting a representative composite sample once at the beginning of discharge upon initial release and prior to the end of discharge, from the Final Discharge Point of the Sewage Treatment Facility, Monitoring Program Station BEA-2a and BEA-2b:
8. The Licensee shall monitor compliance with respect to Part D Item 12, by collecting a representative composite sample from a minimum of 5% of the total volume to be released from the Final Discharge Point of the Waste Handling Facility and Non-Hazardous Waste Landfill, Monitoring Program Stations BEA-3 and BEA-4.
9. The Licensee shall monitor groundwater quality proximal to the NHWL at Monitoring Program Stations BEA-5, BEA-6, BEA-7 and BEA-8. Parameters to be sampled for shall include, but not be limited to those listed under Part D, Item 12.
10. 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.
11. All analyses shall be performed in a laboratory accredited according to ISO/IEC Standard 17025. The accreditation shall be current and in good standing.
12. The Licensee shall submit to the Board for information, ninety (90) 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). The Plan shall be acceptable to an accredited laboratory as required by Part K, Item 10 and Part K, Item 11. The Plan shall include a covering letter from the accredited laboratory confirming acceptance of the Plan for analyses to be performed under this Licence.
13. 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.

Table No.1
(From INAC Abandoned Military Site Remediation Protocol)
DEW Line Clean-up Criteria (DCC)^a

Substance	DCC Tier I^{bc} (mg/L)	DCC Tier II^d (mg/L)
Arsenic	-	30
Cadmium	-	5.0
Chromium	-	250
Cobalt	-	50
Copper		100
Lead	200	500
Mercury	-	2.0
Nickel	-	100
Zinc	-	500
PCB's	1.0	5.0

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

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

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

d. Soils containing one or more substrates in excess of DCC II must be containerized - i.e. removed in a manner which precludes contact with the Arctic ecosystem.