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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: **3BC-ALT1015**

August 5, 2010

Colonel R.C. Baker
Director A4 Construction Engineering
Department of National Defence
1 Canadian Air Division
PO Box 17000 Stn Forces
Winnipeg, MB
R3J 3Y5

Email: Raymond.baker@forces.gc.ca

RE: NWB Licence No. 3BC-ALT1015

Dear Colonel Baker,

Please find attached Licence No. **3BC-ALT1015** issued to the Department of National Defence – 1 Canadian Air Division by the Nunavut Water Board (NWB) pursuant to its authority under Article 13 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada* (Nunavut Land Claims Agreement or NLCA). The terms and conditions of the attached Licence related to water use and waste disposal are an integral part of this approval.

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

If the Licensee contemplates or requires an amendment to this licence, the NWB may decide, in the public 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

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responsibility of the Licensee to ensure that all application materials have been received and acknowledged by the Manager of Licensing.

The NWB strongly recommends that the Licensee consult the comments received by interested persons on issues identified. The NWB notes that, among other items, the Government of Nunavut, Department of Environment requires the Licensee to apply appropriate technologies to ensure complete combustion of wastes, and the use of a dual chamber, controlled air flow incinerator is recommended. This information is attached for your consideration.¹

Sincerely,



Thomas Kabloona
Nunavut Water Board
Chair

TK/dc/pb

Enclosure: Licence No. **3BC-ALT1015**
Comments

cc: Distribution – Qikiqtani

¹ Environment Canada, December 15, 2010; Indian and Northern Affairs Canada, December 22, 2010; Fisheries and Oceans Canada, January 4, 2010; Government of Nunavut – Department of Culture, Language, Elders and Youth, December 14, 2010 and Government of Nunavut – Department of Environment, February 5, 2010.

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DECISION

LICENCE NUMBER: 3BC-ALT1015

This is the decision of the Nunavut Water Board (NWB) with respect to an application dated November 16, 2009 for a new Water Licence made by:

DEPARTMENT OF NATIONAL DEFENCE – 1 CANADIAN AIR DIVISON

to allow for the use of water and disposal of waste during operation and maintenance of the Canadian Forces Station Alert, located on Ellesmere Island within the Qikiqtani Region, Nunavut and generally located at the geographical coordinates as follows:

Latitude: 82° 30' 1"N

Longitude: 62° 20' 37"W

DECISION

After having received a positive land use plan conformity determination² from the Nunavut Planning Commission on February 8, 2010, and following notification of exemption from screening³ by the Nunavut Impact Review Board on February 8, 2010, 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 (NWSRTA)* and Article 13 of the *Nunavut Land Claims 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 comments provided by interested parties, 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 *NWSRTA*, waived the requirement to hold a public hearing, and determined that:

Licence Number 3BC-ALT1015 be issued subject to the terms and conditions contained therein. (Motion #: ~~2010-12-L11~~ 2010-13-L11)

SIGNED this 4th day of August 2010 at Gjoa Haven, NU.



Thomas Kabloona
Nunavut Water Board
Chair

TK/dc/pb

² NPC Conformity Determination, February 8, 2010

³ NIRB Screening Exemption, February 8, 2010

I. INTRODUCTION

Canadian Forces Station (CFS)-Alert is located on the north-eastern tip of Ellesmere Island, approximately 817 km from the geographic North Pole. The nearest communities are Grise Fiord, 780 km to the south and Resolute Bay, 1079 km to the southwest. CFS-Alert was first established in 1958 by the Canadian Military and has since been in continuous operation. In addition to the military installation, Environment Canada has a permanent station on site for various high arctic weather, flora and fauna studies.

CFS-Alert is located within a semi-arid polar climate and is surrounded by hills and valleys. The shoreline is composed primarily of slate and shale with pack ice year round. The daily average temperature is -33.4°C in January and 3.3°C in July.

The facilities at CFS-Alert are designed with a water intake and distribution system via pipe throughout the complex and the waste is collected by a wastewater piping system prior to discharge at the sewage outfall. To keep lines from freezing, bleeders have been installed.

II. PROCEDURAL HISTORY

The Nunavut Water Board (NWB) received a new water licence application from the 1 Canadian Air Division Headquarters (Department of National Defense or DND) on November 16, 2009. Following an internal completeness review of the application, the NWB requested additional information from the Licensee on November 26, 2009.

Following receipt of additional information provided by DND on November 26, 2009, the NWB notified parties on the same day and distributed the file for review. On February 1, 2010, the NWB notified the parties the file name was changed from 3BM-ALT---- to 3BC-ALT---- being specific to a camp operation rather than a municipal activity. Following a thirty (30)-day public review period, and after reviewing all submissions, the new Licence 3BC-ALT1015 has been issued.

III. GENERAL CONSIDERATIONS

The following section outlines the issues identified by the NWB and raised by interested parties during the review period and provides the background on the terms and conditions imposed within the body of the licence.

A. Term of Licence

In accordance with the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* s.45 (Act), the NWB may issue a licence for a term not exceeding twenty-five years. In determining an appropriate term of a water licence, the Board considers a number of factors including, but not limited to; the results of INAC site inspections and the corresponding compliance record of the Applicant, as well as intervener comments provided during the application review process. Given that this is a new application, the NWB has relied mostly on the comments provided by

parties during the review process and prior inspections that have been carried out at the facility.

The applicant has requested a 5 year licence and the NWB finds that a five (5) year term is appropriate in this case. The licence term will allow the Licensee to properly carry out the terms and conditions of the licence, to the satisfaction of the NWB.

B. Annual Reporting

The NWB has imposed on the Licensee, the requirement to produce an Annual Report. These Reports are for the purpose of ensuring that the NWB has an accurate annual update of the Licensee's activities related to water use and waste disposal during a calendar year. This information is maintained on the Public Registry and is available to interested parties upon request. A "*Standardized Form for Annual Reporting*" is to be used by the Licensee and is available from the NWB file transfer protocol (FTP) site under the Public Registry link at the NWB Website.

Website Public Registry:

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

This form provides the basis for annual reporting and format, however individual licences with project specific reporting requirements will need to provide the additional information through appendices.

The NWB requires as part of the 2011 annual report, a site map detailing the location of each monitoring point identified under Part J, Item 1.

C. Water Use

CFS-Alert obtains its water from Upper Dumbell Lake which is approximately 2.5 km from the water treatment plant. At the treatment plant, water is pressure filtered and chlorinated and pumped to two storage reservoirs, each with a capacity of 227 cubic metres.

Although the camp population can vary significantly, due to the requirement to keep lines from freezing up, CFS-Alert employs bleeders throughout its water distribution system and the bleeders keep the water demand fairly stable. The NWB has authorized a volume of One Hundred and Eighty Five (185) cubic metres of water to be used each day from Upper Dumbell Lake.

In review of the application, it was not clear to the NWB whether the water intake is equipped with a proper fish screen of acceptable quality in accordance with the Department of Fisheries and Oceans guidelines. The Licensee is advised that Part C, Item 4 of the Licence requires all water intake hoses to be equipped with a screen of an appropriate mesh size to ensure that fish are not entrained and shall withdraw water at a rate such that fish do not become impinged on the screen.

Due to high per capita water use, the Department of National Defence has committed to reduce bleeder rates by 25% by 2015 and to review water use and sewage production with the goal of

reducing water use.

D. Waste Disposal

Sewage Waste

Camp sewage is collected via a piping system similar to the water system. Waste food is garburated and disposed of along with the sewage. Currently sewage is untreated and discharges to an outfall located 250 metres from the receiving body, Parr Inlet, in an area that has significant slope.

The Licensee had contracted FSC Architects and Engineers to undertake a study in December 2008 to look at various options for sewage treatment. Based on the study, the Licensee has provided conceptual level drawings of an overland flow system that utilizes terraces to trap and delay effluent prior to entering Parr Inlet. This system is intended to not interfere with ongoing avian studies in the sewage treatment area.

In their comments, Environment Canada (EC) raised concerns regarding the operation of the sewage treatment system. For similar projects in Nunavut, the NWB has required that the Licensee submit, for review and approval, an Operation and Maintenance Manual for wastewater treatment facilities. Within ninety (90) days following issuance of the Licence, the Licensee is required to submit for Board Approval, an Operations and Maintenance (O&M) that includes a Plan for the Sewage Treatment Facility as required by Part H, Item 1. The O&M Manual shall be developed in accordance with the *Guidelines for the Preparation of an Operations and Maintenance Manual for Sewage and Solid Waste Disposal Facilities in the Northwest Territories*, (Duong and Kent, 1996) and other regulatory guidelines as deemed appropriate.

The Licensee did not submit proposed Effluent quality discharge criteria for review. This is apparently due to the danger in sampling at the current outfall location and due to the difficulties in sampling within timelines required by QA/QC procedures. To overcome these difficulties, the Licensee has proposed two different ways to determine sewage quality. Option one is with the general knowledge of the inputs to effluent, to link per capita water use, population and systemic water use to determine Engineering normals that can predict raw sewage quality.

The other proposed option is to collect Chemical Oxygen Demand (COD), Carbonaceous Biochemical Oxygen Demand (cBOD) and Biological Oxygen Demand (BOD₅) data to develop a site specific relationship between the two parameters. As COD can be easily assessed, it could potentially be sampled in lieu of cBOD which is more difficult in the north due to timelines between sampling and receipt at an approved laboratory. Standard BOD₅ has been included within the licence conditions. If the Licensee wishes to monitor for COD in lieu of traditional criteria, an amendment application must be submitted, accompanied by site specific information and a report that identifies the relationships between the parameters and the level of certainty in the relationship.

In order to protect the receiving environment, the NWB has included Effluent quality discharge criteria for Total Suspended Solids (TSS) and BOD₅ that are consistent with the *Guidelines for the discharge of treated municipal wastewater in the Northwest Territories*, 1992 (NWT Guidelines) and considering the submission of Environment Canada. Effluent discharge quality has been set based on annual summer release to a marine environment, bay or Fiord, with a wastewater flow representing >600 L/person/day (wastewater collects/freezes for 9-10 months of the year and then discharges via the overland flow, during 2-3 months of the year in the summer while thawing and continuous discharge from the facility takes place). The pH of the discharge is consistent with note (h) of the NWT Guidelines, to be in the range of 6-9. Monitoring for fecal coliform bacteria has not been included within the licence and effluent quality, based on the NWT Guidelines where there is a concern only if the discharge affects a fishery or an area of water contact recreation, none of which were identified during the application process.

Solid Waste

CFS-Alert identified four separate landfills within the application that include the Battery Dump, the Millionaire's Dump, the Main Station Landfill and Dump 3. DND indicated in the application that combustible solid waste is incinerated and the resulting ash (non-combustible residue) is deposited in the Main Station Landfill. For the landfill facilities currently in use, the NWB requires that stamped, as-built engineered drawings be submitted for review and in order to ensure that the facility is properly designed. Also, to ensure that materials are properly segregated and that the landfill is properly maintained, the Licensee is required to submit as part of the O&M Manual mentioned above, an O&M Plan for the Solid Waste Disposal Facilities.

Finally, where there are other landfill areas on site that have reached capacity or are no longer in use, the Licensee is required to submit an Abandonment and Restoration Plan for those facilities.

Landfarm

In response to INAC concerns regarding the reported spills on site, including a considerable spill that occurred in 2006 involving 22,000 litres of JP-8 heating fuel, the applicant provided information indicating that an engineered soil remediation facility (supplementary information, sec.VI, Item 4) or Landfarm is present at the facility. Although no comments were received regarding the facility, a Landfarm facility is required to be included in the licence and any discharges regulated that may directly or indirectly impact freshwaters. A Landfarm Management Plan has been requested as part of the overall Operations and Maintenance Manual for the facility under the Licence. The requirements are detailed under Part H, Item 1(c). Effluent quality limits have been included under Part D as well as monitoring requirements under Part J. The final disposal/use of the treated soils is dependent on its purpose (Treatment Objective) and is to be confirmed with the Government of Nunavut, Department of Environment.

Hazardous Waste

The GN-DOE requested that hazardous materials stored on-site should be clearly marked. This recommendation is intended to help prevent possible injuries to camp personnel and/or damage to the containers. All hazardous waste should be accompanied by hazardous waste manifests with the appropriate information (generator number, carrier number, and receiver number) and removed from site annually to avoid an accumulation of these wastes on-site.

E. Spill Contingency Plan

The Spill Contingency Plan submitted with the renewal application has been approved with this Licence. However, the Plan was noted to be deficient in several areas and must be updated to address minor deficiencies. The Licensee is to submit to the Board for review, within ninety (90) days of issuance of the licence, a revised Spill Contingency Plan.

The NWB also notes that Fuel Storage Facilities on-site consist of an airport fuel tank farm, an upper fuel tank farm and a day fuel tank connected by a pipeline. Section 4 (4.3) of the Spill Contingency Plan indicates that the Fuel Storage Facilities are provided with berms for containment of any spilled materials. Conditions along with effluent limits have been included within the licence for the discharge of contained materials and water accumulation.

F. Abandonment and Restoration Plan

To ensure that all existing end-of-life facilities are reclaimed in an appropriate manner, the NWB includes as a Licence requirement, an Abandonment and Restoration Plan. Following the issuance of the licence, an abandonment and restoration plan is to be submitted within six (6) months for Board approval, to address the closure of the landfills no longer in use, other on-site facilities no longer in use and site debris. The requirement for an abandonment and reclamation plan is included under Part I, Item 1 of the Licence. In addition, the Licensee is required under Part I, Item 2, to submit to the Board for approval, six (6) months prior to the abandonment of the CFS-Alert site or the planned closure of the current Water Supply Facilities and/or Waste Disposal Facilities, an Abandonment and Restoration Plan to address the closure.

G. Monitoring

To ensure consistency with other similar projects licensed in Nunavut, the Board requires that the Licensee establish, implement and report on the Monitoring Program outlined in Part J of the licence.

A Monitoring Plan is required as part of the Operations and Maintenance Manual, considered under Part H, Item 1. This Plan is to include a site map, identifying the locations of the monitoring stations for project facilities as per Part J, Item 1 as well as monitoring stations within the downstream environment of the overland flow system to assess the performance of the system between the Sewage Outfall and the Sewage Treatment Facility final point of discharge, during the licence term.

In addition, the Board has included the requirement for a submission for review of the Board, within ninety (90) days of issuance of the Licence, a Quality Assurance/Quality Control Plan that provides documentation of proper methods for field sampling, preservation, shipping/sample control and is accompanied by an approval letter from an accredited laboratory responsible for the analytical requirements of the Licence. This requirement is detailed under Part J, Item 12.



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

DEPARTMENT OF NATIONAL DEFENCE – 1 CANADIAN AIR DIVISION

(Licensee)

PO BOX 17000, STN FORCES, WINNIPEG, MB, R3J 3Y5

(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: **3BC-ALT1015 TYPE “B”**

Water Management Area: **NUNAVUT 04**

Location: **CFS-ALERT, ELLESMERE ISLAND
QIKIQTANI REGION, NUNAVUT**

Classification: **MUNICIPAL UNDERTAKING**

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

Quantity of Water use not to Exceed: **ONE HUNDRED AND EIGHTY FIVE (185)
CUBIC METRES PER DAY**

Date of Licence Issuance: **AUGUST 4, 2010**

Expiry of Licence: **JULY 31, 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 use of water and the disposal of waste for an undertaking classified as Municipal, as per Schedule II of the *Regulations*, at the Canadian Forces Station Alert, located on the northeast tip of Ellesmere Island, located approximately at Latitude: 82° 30' 1"N and Longitude: 62° 20' 37"W within the Qikiqtani Region, Nunavut.

- a. This Licence is issued subject to the conditions contained herein with respect to the taking of water and the depositing of waste of any type in any waters or in any place under any conditions where such waste or any other waste that results from the deposits of such waste may enter any waters. Whenever new Regulations are made or existing *Regulations* are amended by the Governor in Council under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*, or other statutes imposing more stringent conditions relating to the quantity or type of waste that may be so deposited or under which any such waste may be so deposited, this Licence shall be deemed, upon promulgation of such Regulations, to be subject to such requirements; and
- b. Compliance with the terms and conditions of this Licence does not absolve the Licensee from responsibility for compliance with the requirements of all applicable Federal, Territorial and Municipal legislation.

2. Definitions

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

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

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

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

“Board” means the Nunavut Water Board established under the *Nunavut Land Claims Agreement* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*;

“Fuel Storage Facilities”; means the four 242,500L Diesel Fuel Arctic tanks located at the airfield and associated piping to the Upper Tank Farm comprised of the eight

457,900L tanks and associated piping, which feed a 30,500L day tank, as described in the Application for Water Licence dated November 16, 2009.

“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;

“Greywater” means all liquid wastes from showers, baths, sinks, kitchens and domestic washing facilities, but does not include toilet wastes;

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

“Landfarm”; means the engineered soil remediation facility designed to contain and treat contaminated soils as described in the Response to INAC dated February 15, 2010 and submitted in support of the Application for Water Licence dated November 16, 2009

“Licensee” means the holder of this Licence;

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

“Nunavut 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;

“Overland Flow System” means the proposed treatment method of the engineered facility, as described in the Application dated November 16, 2009 and drawings C1 and C2 of Appendix E, which includes a number of boxed terraces and berms designed to increase the sewage flow travel length and retention time, providing improved treatment;

“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 Outfall” means the location and method of sewage discharge directly to the land prior to the Sewage Treatment Facility;

“Sewage Treatment Facility” means the proposed method of sewage treatment outlined in the application dated November 16, 2009 utilizing an engineered Overland

Flow System as described in drawings C1 and C2 of Appendix E to the application with a final discharge point located prior to entry into Parr Inlet;

“Solid Waste Disposal Facilities” means the facility landfills including the Battery Dump, Millionaire’s Dump, Dump 3 and the Main Station Landfill as described in the Application for Water Licence dated November 16, 2009;

“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;

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

“Treatment Objective” means the treatment objective for the Landfarm which is based on the Canadian Council of Ministers of the Environment (CCME), 2001 *Canada – Wide Standard for Petroleum Hydrocarbon in Soil*, for Industrial land use; or as determined by the Government of Nunavut, Environmental Protection Service based on the 2002 *Environmental Guideline for Site Remediation*;

“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;

“Waste Disposal Facilities” means the Sewage Outfall, Sewage Treatment Facility, Solid Waste Disposal Facilities and the Landfarm;

“Water Supply Facilities” means the facilities described in the Supplementary Information report, Sec. 3 The Water System, Ver. 1.0, dated November 2009 and prepared by FSC Architects and Engineers for Defence Construction Canada, submitted as supplementary information with the Application, consisting of the water intake and pumping system at Upper Dumbell Lake, water filtration and chlorination with storage in two 227m³ Raw Water Tanks. Distribution to the facility is via a single pipe system.

3. Enforcement

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

PART B: GENERAL CONDITIONS

1. The Licensee shall file an Annual Report on the appurtenant undertaking with the Board no later than March 31st of the year following the calendar year being reported, containing the following information:
 - a. A summary report of waste disposal activities;
 - b. A list of unauthorized discharges and a summary of follow-up actions taken;
 - c. An up-to-date copy of the Spill Contingency Plan, including contact information;
 - d. The location of waste deposition in accordance with Part J, Item 2.
 - e. A description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;
 - f. A summary of all information requested and results of the Monitoring Program; and
 - g. Any other details on waste disposal requested by the Board by November 1 of the year being reported.
2. The Licensee shall notify the NWB of any changes in operating plans or conditions associated with this project at least thirty (30) days prior to any such change.
3. The Licensee shall, 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.
4. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
5. The Licensee shall review the Plans referred to in this Licence, as required by changes

in operation and/or technology, and modify the Plan accordingly. Revisions to the Plans are to be submitted in the form of an Addendum to be included with the Annual Report.

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 ensure a copy of this Licence is maintained at the site of operations at all times. Any communication with respect to this Licence shall be made in writing to the attention of:

(a) Manager of Licensing:

Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0
Telephone: (867) 360-6338
Fax: (867) 360-6369
Email: licensing@nunavutwaterboard.org

(b) Inspector Contact:

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

8. 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.
9. The Licensee shall review the Plans referred to in this Licence, as required by changes in operation and/or technology, and modify the Plan accordingly. Revisions to the Plans are to be submitted in the form of an Addendum to be included with the Annual Report.
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 all water for facility use from Upper Dumbell Lake. Total water use shall not exceed one hundred and eighty five (185) cubic metres per day.

2. Streams cannot be used as a water source unless authorized and approved by the Board in writing.
3. If the Licensee requires water in sufficient volume that the source water body may be drawn down the Licensee shall, at least thirty (30) days prior to commencement of use of water, submit to the Board for approval in writing, the following: volume required, hydrological overview of the water body, details of impacts, and proposed mitigation measures.
4. The Licensee shall equip all water intake hoses with a screen of an appropriate mesh size to ensure that fish are not entrained and shall withdraw water at a rate such that fish do not become impinged on the screen.
5. The Licensee shall not remove any material from below the ordinary high water mark of any water body unless authorized.
6. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.
7. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water.

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 deposit incinerator ash and clinker into the Main Station Landfill.
3. The Licensee is authorized to deposit larger metals and bulky wastes in the Millionaire's Dump.
4. The Licensee is authorized to dispose of all acceptable food waste, paper waste and untreated wood products in an incinerator and waste oil is authorized to be disposed of in a waste oil burner, unless otherwise approved by the Board in writing.
5. The Licensee shall not open burn plastics, wood treated with preservatives, electric wire, Styrofoam, asbestos or painted wood to prevent the deposition of waste materials of incomplete combustion and/or leachate from contaminated ash residual, from impacting any surrounding waters, unless otherwise approved by the Board in writing.

6. The Licensee shall backhaul and dispose of all hazardous wastes generated through the course of the operation in an approved waste disposal facility.
7. The Licensee shall maintain records of all waste backhauled and records of confirmation of proper disposal of backhauled waste. These records shall be made available to an Inspector upon request.
8. The Licensee shall direct all Sewage to the Sewage Treatment Facility and Overland Flow System unless otherwise approved by the Board in writing.
9. Discharge at Monitoring Program Station ALT-3 shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample
BOD ₅	80 mg/L
Total Suspended Solids	70 mg/L
Oil and grease	5 mg/L and no visible sheen
pH	between 6 and 9

10. The Licensee shall treat where practicable, Type B Soil, to the Treatment Objective, in the Landfarm, or as otherwise approved by the Board in writing.
11. Effluent discharged from the Fuel Storage Facilities and the Landfarm at monitoring program stations ALT-8, 9, 10 and 11 shall not exceed the following Effluent quality limits:

Parameter	Maximum Concentration of any Grab Sample
Benzene (µg/L)	370
Toluene (µg/L)	2
Ethylbenzene (µg/L)	90
Lead (µg/L)	1
Oil and Grease (mg/L)	15 and no visible sheen
Phenols (µg/L)	20

12. Water from the Fuel Storage Facilities and the Landfarm, that is acceptable for discharge under Part D, Item 11, may be released on land at a location as per Part D, Item 1, or as otherwise designated by an Inspector.
13. If effluent does not meet the Effluent quality limits of Part D, Item 11, it shall be considered hazardous waste and disposed off-site at an approved facility.
14. The Licensee shall provide at least ten (10) days notice to an Inspector, of the intent to discharge effluent from the Fuel Storage Facilities or the Landfarm.

PART E: CONDITIONS FOR CAMPS, ACCESS INFRASTRUCTURES AND OPERATIONS

1. The Licensee shall not store material on the surface or banks of frozen streams or lakes except what is for immediate use.
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. With respect to access road, pad construction or other earthworks, the deposition of debris or sediment into or onto any water body is prohibited. These materials shall be disposed a distance of at least thirty one (31) metres from the ordinary high water mark in such a fashion that they do not enter the water.

PART F: CONDITIONS APPLYING TO MODIFICATIONS AND CONSTRUCTION

1. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply Facilities and Waste Disposal Facilities provided that such Modifications are consistent with the terms of this Licence and the following requirements are met:
 - a. the Licensee has notified the Board in writing of such proposed Modifications at least sixty (60) days prior to beginning the Modifications;
 - b. such Modifications do not place the Licensee in contravention of the Licence or the *Act*;
 - c. 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.
2. The modifications for which all of the conditions referred to above have not been met can be carried out only with written approval of the Board.
3. 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.
4. The Licensee shall, within ninety (90) days following issuance of the Licence, provide to the Board as-built design drawings, signed and stamped by an Engineer for the Solid Waste Disposal Facilities and the Landfarm.

5. The Licensee shall, within ninety (90) days following the construction and commissioning of the Sewage Treatment Facility, provide to the Board, as-built design drawings, signed and stamped by an Engineer.

PART G: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. The Board has approved the Plan entitled “Spill Contingency Plan, Canadian Forces Station Alert, Nunavut” dated March 2009. As a number of deficiencies were noted, the Licensee shall submit to the Board, within ninety (90) days following issuance of the Licence, a revised Plan that addresses the following:
 - a. The Plan should reference the Government of Nunavut, Department of Environment Waste Manifest tracking system used for the movement of hazardous wastes from generator to receiver;
 - b. Plan should include a properly scaled topographical map providing information on the site facilities in relation to water bodies and drainage with emphasis on fuel and waste storage areas, locations of spill kit(s) and related spill response equipment;
 - c. All spills, regardless of volume, are to be reported if the spill:
 - is near or into a water body;
 - is near or into a designated sensitive environment or sensitive wildlife habitat;
 - poses an imminent threat to human health or safety, or
 - poses an imminent threat to a listed species at risk or its critical habitat.
 - d. Section 5.1.6 is to be revised and updated with reporting requirements as in Part G, Item 5 of this Licence;
 - e. Include a copy of the NT/NU Spill Report Form (complete with guide), required to be used in the event of a spill and reporting (available on NWB FTP site); and
 - f. Update the contact information for INAC, GN-DOE and in section 5.5 (see respective submissions and Part G, Item 5 of this Licence).
2. The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project do not enter water. All sumps and fuel caches shall be located at a distance of at least thirty one (31) metres from the ordinary high water mark of any adjacent water body and inspected on a regular basis.
3. 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 motor fluids and other waste and contain potential spills.
4. 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 Spill Contingency Plan;
 - b. Report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to

- the Inspector at (867) 975-4295; and
- c. For each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill (including map), and the measures taken to contain and clean up the spill site.

PART H: CONDITIONS APPLYING TO OPERATIONS AND MAINTENANCE

1. The Licensee shall submit to the Board for approval, within ninety (90) days of issuance of the Licence, an Operations and Maintenance Manual prepared where appropriate, 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”*. The Manual shall take into consideration the comments received during the application review process and contain the following plans:
 - a. Sewage Treatment Facility Operation and Maintenance Plan (to include the management of sludge along the flow path);
 - b. Solid Waste Operation and Maintenance Plan;
 - c. Landfarm Management Plan; prepared in consultation with Environment Canada with respect design, siting, operation, monitoring, sampling and analytical methods, decommissioning and closure as well as record keeping and reporting; and
 - d. Monitoring Program, which shall include the QA/QC Plan as required under Part J, Item 12 and details covering the monitoring program described under Part J of this licence, including maps and any additional monitoring stations to assist in the evaluation of the Sewage Treatment Facility and the recommendations provided in the supplementary application information, sec. 7, with respect to DND’s commitments and compliance proposal.
2. An inspection of all engineered facilities related to the management of water and waste shall be carried out annually in July or August by a Geotechnical Engineer. The engineer’s report shall be submitted to the Board within sixty (60) days of the inspection, including a covering letter from the Licensee outlining an implementation plan addressing each of the Engineer’s recommendations.
3. The Licensee shall perform more frequent inspections of the engineered facilities at the request of an Inspector.

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

1. The Licensee shall submit to the Board for approval, within six (6) months of Licence issuance, an Abandonment and Restoration Plan for any landfills no longer in use, other on-site facilities no longer in use and areas where debris is encountered. The Plan shall

be prepared in accordance with applicable sections of the "Guidelines for Abandonment and Restoration Planning for Mines in the Northwest Territories (1990)".

2. The Licensee shall submit to the Board for approval, six (6) months prior to the abandonment of the CFS-Alert site, or the planned closure of facilities including the current Water Supply Facilities and Waste Disposal Facilities, an Abandonment and Restoration Plan prepared in accordance with applicable sections of the "Guidelines for Abandonment and Restoration Planning for Mines in the Northwest Territories (1990)".
3. The Licensee shall revise the Plan referred to in Part I, Items 1 and 2 if not approved. The revised Plan shall be submitted to the Board for approval within thirty (30) days of receiving notification of the Board's decision.
4. The Licensee shall complete the restoration work within the time schedule specified in the Plan, or as subsequently revised and approved by the Board.
5. Areas that have been contaminated by hydrocarbons shall be reclaimed to meet objectives as outlined in the Government of Nunavut's Environmental Guideline for Site Remediation, January 2002. The use of reclaimed soils from the Soil Remediation Facility may be carried out only upon consultation and approval by the Government of Nunavut, Department of Environment and an Inspector.

PART J: CONDITIONS APPLYING TO THE MONITORING PROGRAM

1. The Licensee shall maintain Monitoring Stations at the following locations:

Monitoring Program Station Number	Description	Status
ALT-1	Water Supply at Raw Water Intake (or Pumphouse)	Active (Volume)
ALT-2	Discharge Point at the Sewage Outfall	Active (Quality)
ALT-3	Final Discharge Point of the Sewage Treatment Facility at weir box or similar structure, prior to entry into Parr Inlet	Active (Quality)
ALT-4	Runoff and leachate from the Main Station Landfill	Active (Quality)
ALT-5	Runoff and leachate from the Battery Dump	Active (Quality)
ALT-6	Runoff and leachate from the Millionaire's Dump	Active (Quality)

ALT-7	Runoff and leachate from Dump 3	Active (Quality)
ALT-8	Discharge from airfield fuel tank farm secondary containment	Active (Quality)
ALT-9	Discharge from upper fuel tank farm secondary containment	Active (Quality)
ALT-10	Discharge from day fuel tank farm secondary containment	Active (Quality)
ALT-11	Discharge from the Landfarm	Active (Quality)

2. The Licensee shall determine, in consultation with the Inspector, the GPS co-ordinates (in degrees, minutes and seconds of latitude and longitude) of all locations where wastes associated with operations and maintenance operations are deposited and have been deposited. Locations shall be reported in the Annual Report.
3. The Licensee shall measure and record in cubic metres at Monitoring Program Station ALT-1, the daily and annual quantities of water utilized for all purposes.
4. The Licensee, for the purposes of determining flow and monitoring requirements under Part J, Items 5 and 6, carry out inspections of the facilities a minimum of once per week during the months of June, July, August and September. Inspection records shall be maintained for review upon request of an Inspector or the NWB.
5. The Licensee shall during periods of flow at Monitoring Program Station ALT-3 (weir box), analyze samples monthly from the Sewage Treatment Facility for the purpose of demonstrating compliance with the parameters listed under Part D, Item 9.
6. The Licensee shall analyze samples collected annually during periods of runoff or seepage at Monitoring Program Stations ALT-4, 5, 6 and 7. Samples are to be analyzed for the following parameters:

TPH (Total Petroleum Hydrocarbons)
PAH (Polycyclic Aromatic Hydrocarbons)
BTEX (Benzene, Toluene, Ethylbenzene, Xylene)

BOD	Faecal Coliforms
pH	Conductivity
Total Suspended Solids	Oil and Grease
Nitrate-Nitrite	Ammonia Nitrogen
Total Phenols	Total Alkalinity
Total Hardness	Calcium
Magnesium	Potassium
Sodium	Sulphate
Total Arsenic	Total Cadmium
Total Copper	Total Chromium

Total Iron
Total Mercury

Total Lead
Total Nickel

7. The Licensee shall measure and record the volume of all soil, from all locations entering the Landfarm at Monitoring Program Station ALT-11.
8. The Licensee shall assess and record the concentration of petroleum hydrocarbon contaminated soil entering the Landfarm (ALT-11) from all sources, as per the CCME *Canada-Wide Standard for Petroleum Hydrocarbons in (PHC) in Soil*.
9. The Licensee shall analyze samples, prior to the release of effluent from the Fuel Storage Facilities and the Landfarm, at Monitoring Program Stations ALT-8, 9, 10 and 11 respectively, for the purpose of demonstrating compliance with the parameters and limits listed under Part D, Item 11.
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 in writing.
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 within ninety (90) days following issuance of the Licence, submit to the Board a Quality Assurance/Quality Control (QA/QC) Plan. The Plan shall include up-to-date field sampling methods to all applicable standards, acceptable to an accredited laboratory as required by Part J, Item 10 and Part J, 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 annually review the QA/QC plan submitted under Part J, Item 12 and modify it as necessary. Revised plans shall be submitted to the NWB with an approval letter from an accredited lab that meets standards set in Part J, Item 10 and 11.
14. The Licensee shall include in the Annual Report required under Part B, Item 1 all data, monitoring results and information required by this Part.