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NUNAVUT WATER BOARD

NUNAVUT IMALIRIYIN KATIMAYINGI

File No: NWB5PEL0104

August 28, 2001

Attention: Pete Quinn, M. Eng., P. Eng.,
Project Manager, DLCU
Defence Construction Canada,
Place de Ville, Tower B
112 Kent Street, Ottawa, ON K1A 0K3
email: quinnpe@dcc-cdc.gc.ca

RE: NWB Licence No. NWB5PEL0104

Dear Mr. Quinn:

Please find attached Licence No. NWB5PEL0104 issued to Defence Construction Canada by the Nunavut Water Board (**Motion #: 2001-23**) 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.

Sincerely,

Philippe di Pizzo
Executive Director

Enclosure: Licence No. **NWB5PEL0104**

cc: Eva Schulz, UMA Engineering
Paul Smith, DIAND Iqaluit
P. Lavallee, DIAND Inspector
Jack Kaniak, Kitikmeot Inuit Association
Gladys Joudrey, Nunavut Impact Review Board
Josee Gallipeau, Nunavut Wildlife Management Board
L. Ignace, Environment Canada
P. Pacholek, Environment Canada
E. Baddallo, Department of Sustainable Development
J. DeGroot, Department of Fisheries and Oceans

APPROVAL FOR WATER USE AND WASTE DISPOSAL

Pursuant to Article 13 of the *Agreement Between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in right of Canada*, the Nunavut Water Board, hereinafter referred to as the Board, hereby grants to Defence Construction Canada authorization to use water and dispose of waste into water in conjunction with clean-up activities for the site remediation of the Pelly Bay (Cam-4) DEW Line Site, subject to the terms and conditions outlined herein and in the applicable land use permits.

LICENCE NO:	NWB5PEL0104
LICENSEE:	Defence Construction Canada, Place de Ville, Tower B 112 Kent Street, Ottawa, ON K1A 0K3 Pete Quinn, M. Eng., P. Eng., Project Manager, DLCU E-mail: quinnpe@dcc-cdc.gc.ca Phone: (613) 998-9523 Fax: (613) 998-1061
START DATE:	August 28, 2001
EXPIRY DATE:	December 31, 2004
PURPOSE:	Water Use and Waste Disposal Activities Associated with DEW Line Site Clean-Up
LOCATION:	Cam-4 DEW Line Site, Kugaaruk, Nunavut General Latitude: 68°27'; General Longitude: 89°45' NTS Map: 57 A7 1:50,000

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

Original signed by:

Philippe di Pizzo
Executive Director

PART A: SCOPE, JURISDICTION, ENFORCEMENT, AND DEFINITIONS

1. SCOPE

This licence entitles Defence Construction Canada to use water and dispose of waste for the clean-up of CAM-4 Pelly Bay, Nunavut, (68°27'N/89°45'W) for the demolition and disposal of facilities, development of two new waste disposal sites for disposal of site debris and contaminated soils, closure of five existing landfills, and general site grading as described in the application to the Nunavut Water Board dated March 5, 2001.

2. JURISDICTION

This Licence is issued pursuant to the Board's authority under the *Nunavut Land Claims Agreement*.

3. ENFORCEMENT

- a. Subject to Part A, Item 3 (d), failure to comply with the licence will be a violation of the *Northwest Territories Waters Act*, exposing the licensee to the enforcement measures and the penalties provided for in the Act.
- b. Subject to Part A, Item 3 (d), all inspection and enforcement services regarding this licence will be provided by inspectors appointed under the *Northwest Territories Waters Act*.
- c. Subject to Part A, Item 3 (d), inspectors appointed under the *Northwest Territories Waters Act* enjoy-with respect to this licence, and for the purpose of enforcing this licence, and with respect to the use of water and deposit or discharge of waste by the licensee-all powers and privileges and protections that are conferred upon them by the *Northwest Territories Waters Act* or by other applicable law.
- d. To the extent that the *Northwest Territories Waters Act* is, subsequent to the issuance of this licence, replaced with respect to water management in Nunavut by other federal legislation (including, without limitation, a regulation or order referred to in Section 10.10.2 of the *Nunavut Land Claims Agreement*), and to the extent that the other federal legislation is consistent with the *Nunavut Land Claims Agreement*, the other federal legislation shall apply with respect to this licence and the *Northwest Territories Waters Act* shall cease to apply with respect to this licence.

4. DEFINITIONS

In this Licence: **NWB5PEL0104:**

Average Concentration means the concentration as determined in Part B, Item 6 of the Surveillance Network Program to the Board in accordance with the sampling and analysis requirements specified in the Surveillance Network Program;

Board means the Nunavut Water Board established under the Nunavut Land Claims Agreement;

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 35(1) of the *Northwest Territories Waters Act*;

Licensee means the holder of this Licence;

Minister means the Minister of Indian and Northern Affairs Canada;

Waste Water means water and associated waste generated by the operation of contamination and decommissioning activities, but does not include toilet wastes and greywater;

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;

Solid Waste Disposal Facility comprises the area and associated structures designed to contain non-hazardous demolitions/site debris and Tier I soils;

Tier II Soil Disposal Facility comprises the area and associated structures designed to contain Tier II/Type A/Type B soils;

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

Waste means 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 substance contained in it or because it has been treated or changed, by heat or other means;

Waste Disposal Facilities means all facilities designated for the disposal of waste, including the Sewage Disposal Facilities, the Solid Waste Disposal Facilities, and the Bagged Toilet Waste Disposal Facilities;

Water Supply Facility comprises the Water Supply Lake area and associated infrastructure designed to collect, treat and supply water.

PART B: GENERAL CONDITIONS

1. The licensee shall file an Annual Report with the Board no later than March 31 of the year following the calendar year 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 metres of each and all waste discharged;
 - (c) A summary of any construction work, modification and major maintenance work carried out on Water Supply and Waste Disposal Facilities, including all associated structures;
 - (d) Tabular summaries for all data and information generated under the Surveillance Network Program;
 - (e) A summary of any abandonment and restoration work undertaken during the year and an outline of any work anticipated for the next year;
 - (f) A summary of any studies requested by the Board that relate to use of water, the disposal of waste, or reclamation, and a brief description of any future studies planned;
 - (g) A list of unauthorized discharges and summary of follow-up actions taken;
 - (h) An outline of any spill training or communication exercises carried out;
 - (i) Updates or revisions to the approved Operation and Maintenance plans;
 - (j) Any revisions to the approved Contingency Plan;

- (k) A description of any trenches and sumps excavated;
 - (l) A summary of all clean up procedures to date;
 - (m) A public consultation/participation report describing any consultation with local organizations and the residents of the nearby communities;
 - (n) A brief summary of work done to address concerns or deficiencies listed in the inspection reports and/or compliance reports;
 - (o) Any other details on water use or waste disposal requested by the Board by November 1st of the year being reported; and
 - (p) An executive summary in terms understandable to the general public translated into Inuktitut of all plans, reports, or studies conducted under this licence.
2. The Licensee shall comply with the Surveillance Network Program annexed to this Licence, and any amendment to the said Surveillance Network Program as may be made from time to time, pursuant to the conditions of this Licence.
 3. The Surveillance Network Program and compliance dates specified in the Licence may be modified by the Executive Director of the Board.
 4. The Licensee shall install meters or such devices, or use such methods as approved by the Board for measuring the volumes of water used and waste discharged. The meters and measuring devices or methods shall be operated and maintained to the satisfaction of an Inspector.
 5. The Licensee shall, within sixty (60) days of issuance of this Licence, post signs in the appropriate area to inform the public of the Water Supply Facility, any Waste Disposal Facilities, and any contaminated sites and storage facilities, and the necessary signs to identify the stations of the Surveillance Network Program. All postings shall be located and maintained to the satisfaction of an Inspector.
 6. The Licensee shall ensure a copy of this Licence is maintained at the site of operation at all times.

PART C: CONDITIONS APPLYING TO WATER USE

1. The Licensee shall obtain all freshwater for domestic purposes from the unnamed lake known as Water Supply Lake using the Water Supply Facility or as otherwise approved

by the Board.

2. The quantity of water used for all purposes shall not exceed 30 cubic metres per day, or 930 cubic metres per month.
3. All water intake hoses shall be equipped with a screen with a mesh size sufficient to ensure no entrainment of fish.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. Areas designated for waste disposal that may impair the quality, quantity, or flow of water shall not be located within thirty (30) metres of the ordinary high water mark of any body of water, unless otherwise authorized by the Board.
2. The Licensee shall dispose of non-hazardous materials and Tier I soils at the Solid Waste Disposal Facility or as otherwise approved by the Board.
3. The Licensee shall dispose of Tier II/Type A/Type B soils in the Tier II Soil Disposal Facility as described in the Application dated May 5, 2001.
4. All scrap metal, discarded machinery and parts, and other bulky material shall be removed from the site at the completion of the clean-up activities.
5. The Licensee shall discharge and contain all Greywater in a sump designed to hold proposed volumes of sewage and located at least thirty (30) metres from the high water mark of any water body at a site where direct flow into a water body is not possible and no additional impacts are created.
6. The Licensee shall maintain all sumps to the satisfaction of an Inspector.

PART E: CONDITIONS APPLYING TO WATER BODIES

1. The Licensee shall ensure that the construction of roads, stream crossings and any other structures are appropriately designed and constructed to minimize erosion or contamination to water bodies.
2. The Licensee shall ensure that existing creek channels are maintained at their normal width and depth to the extent possible, both during and after construction.
3. Granular materials and rock rip-rap shall be used for the temporary stream crossings, approaches or as may be required for bank stabilization and must be clean and free of contaminants. Such material must not be removed or gathered from below the ordinary

high water mark of any water body.

4. All sites affected by construction or removal activities shall be stabilized, landscaped as necessary, and suitable erosion control measures implemented to minimize sediment deposition into any water body. Land-based geo-textile silt barriers shall be established along the temporary stream crossing approaches and silt fences shall be erected downstream of the construction site, at the request of an Inspector.
5. The licensee shall restore and stabilize all areas affected by the undertaking upon completion of the work to the satisfaction of an Inspector.
6. As-built drawing of the stream crossings shall be stamped by a qualified engineer registered in the Nunavut and submitted to the Board within ninety (90) days of completion of the work.
7. The Licensee shall ensure that:
 - (a) In-stream construction is carried out during low water period;
 - (b) In-stream activity is limited and machinery is prohibited from traveling up the streambed;
 - (c) Fording the streams is kept to a minimum;
 - (d) All machinery and equipment is free of oil, grease and other contaminants before entering any water.
8. Mechanized clearing is not permitted within thirty (30) metres of the normal high water mark of a watercourse in order to maintain a vegetative mat for bank stabilization;
9. Debris from clearing activities should not be dragged or skidded across watercourses and all slash and debris is to be disposed of above the high water mark so that it does not enter the water;
10. The Licensee shall not remove any material from below the ordinary high water mark of any water body;
11. The Licensee shall not do anything that will cause erosion of the banks of any body of water on or adjacent to the land and shall provide necessary controls to prevent such erosion;
12. Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water.

PART F: CONDITIONS APPLYING TO SPILL PREVENTION AND CONTINGENCY PLANNING

1. The Licensee shall ensure that any fuels, chemicals, or wastes associated with this undertaking do not enter any waters. All fuel is to be stored at a location that is a minimum of thirty (30) metres from the ordinary high water mark of any water source, and bermed or otherwise contained in such a manner that these substances do not enter any such water body.
2. The Licensee shall submit to the Board for approval within six (6) months of issuance of this Licence a Spill Contingency Plan based on the Northwest Territories Water Board's Guidelines for Contingency Planning, January 1987.
3. The Licensee shall revise the Spill Contingency Plan referred to in Part F, Item 1, if not acceptable to the Board. The revised Plan shall be submitted to the Board for approval within thirty (30) days after notification.
4. The Licensee shall annually review the Spill Contingency Plan and modify the Plan to reflect changes in operation, technology and personnel. Any proposed modification shall be re-submitted to the Board for approval.
5. If, during the period of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall:
 - (a) Employ the Contingency Plan;
 - (b) Report all spill incidents immediately by calling (867) 920-8130 via the 24-Hour NWT Spill Reporting Line; and
 - (c) Submit to an Inspector a detailed report on each occurrence no later than thirty (30) days after initially reporting the event.

PART G: CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may carry out modifications to Water Supply Facilities, Waste Disposal Facilities or Fuel Storage Facilities without the written approval from the Board, providing that such modifications are consistent with the terms of this Licence, and the Licensee has notified an Inspector of such proposed modifications at least fifteen (15) days prior to beginning the modifications and an Inspector has not rejected the proposed modifications.
2. 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.

PART H: CONDITIONS APPLYING TO OPERATION AND MAINTENANCE

1. The Licensee shall submit to the Board for approval within six (6) months of issuance of this Licence, Operation and Maintenance manuals for all Waste Disposal Facilities. These manuals shall be based on the Government of the Northwest Territories's Guidelines for Preparing an Operation and Maintenance Manual for Sewage and Solid Waste Disposal Facilities, October 1996".
2. The Operation and Maintenance manuals for the Solid Waste Disposal Facility and the Tier II Soil Disposal Facility shall consider, among other things, water management and treatment during construction and operation of these facilities.
3. The Licensee shall implement the manuals specified in Part I, Item 1, as and when approved by the Board.

PART I: CONDITIONS APPLYING TO ABANDONMENT AND RESTORATION

1. The Licensee shall submit to the Board for approval Abandonment and Restoration Plans for the Solid Waste Disposal Facility and the Tier II Soil Disposal Facility at least six (6) months prior to closing any such facilities. These plans shall discuss, among other things, water management and treatment after closure of these facilities.
2. The Licensee shall revise the Abandonment and Restoration Plans referred to in Part I, Item 1, if not acceptable by the Board. Revised Plans shall be submitted to the Board for approval within sixty (60) days after receiving notification that revisions are required.
3. The Licensee shall implement the plans referred to in Part I, Item 1 as and when approved by the Board.
4. The Licensee shall complete all reclamation work within the time schedule specified in the Abandonment and Restoration Plans, unless revisions to the Plans have been approved by the Board.
5. The Licensee shall annually review Abandonment and Restoration Plans and shall modify these Plans to reflect changing operations, technology and the results of reclamation and other studies. The proposed modifications shall be submitted to the Board for approval.
6. The Licensee shall backfill and restore to the satisfaction of the Inspector all sumps back to the natural surrounding contours of the land prior to the expiry of this Licence.

7. The Licensee shall undertake progressive restoration for any components of the project that are no longer required for the Licensee's operations.
8. The Licensee shall complete the abandonment and restoration of the Upper Site Landfill, the Lower Site Landfill, the Abandoned Camp Landfill, the Barrow Lake Landfill, and the USAF Landfill in the manner and implementation schedule described in the Application dated March 5, 2001, ensuring that a minimum of one meter layer of granular fill be placed on the reclaimed landfills in such a way as to avoid ponding or pooling of water and as not to cause erosion, bank instabilities, or slumping.
9. Leachate from the Upper Site Landfill and the Lower Site Landfill, the Abandoned Camp Landfill, the Barrow Lake Landfill, and the USAF Landfill, if produced, shall be contained and not come in contact with any water body.

NWB5PEL0104

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SCHEDULE I

SURVEILLANCE NETWORK PROGRAM

Licence Number: NWB5PEL0104

Effective Date of Licence: August 20, 2001

SNP SAMPLING LOCATIONS, SAMPLING REQUIREMENTS, AND ANALYSIS REQUIREMENT.

Station Numbers	Description	Sampling Requirements	Analysis Requirements	
PEL-1	Raw water intake at the Freshwater Lake. (Unnamed water supply lake)	Monthly and annually	Volume in cubic metres	
PEL-2	Solid Waste Disposal Facility	None	None	
PEL-3	Tier II Soil Disposal Facility (runoff)	As described in the Application or more frequently at the request of an Inspector	pH Major Ions Conductivity PCBs	Total Suspended Solids (TSS) Hardness Total Petroleum Hydrocarbons (TPH) Inorganic Elements by ICP Scan
PEL-4	Upper Site Landfill (runoff)	As described in the Application or more frequently at the request of an Inspector	pH Major Ions Conductivity PCBs	Total Suspended Solids (TSS) Hardness Total Petroleum Hydrocarbons (TPH) Inorganic Elements by ICP Scan
PEL-5	Lower Site Landfill (runoff)	As described in the Application or more frequently at the request of an Inspector	pH Major Ions Conductivity PCBs	Total Suspended Solids (TSS) Hardness Total Petroleum Hydrocarbons (TPH) Inorganic Elements by ICP Scan
PEL-6	Abandoned Camp Landfill (runoff)	As described in the Application or more frequently at the request of an Inspector	pH Major Ions Conductivity PCBs	Total Suspended Solids (TSS) Hardness Total Petroleum Hydrocarbons (TPH) Inorganic Elements by ICP Scan
PEL-7	Barrow Lake Landfill (runoff)	As described in the Application or more frequently at the request of an Inspector	pH Major Ions Conductivity PCBs	Total Suspended Solids (TSS) Hardness Total Petroleum Hydrocarbons (TPH) Inorganic Elements by ICP Scan
PEL-8	USAF Landfill (runoff)	As described in the Application or more frequently at the request of an Inspector	pH Major Ions Conductivity PCBs	Total Suspended Solids (TSS) Hardness Total Petroleum Hydrocarbons (TPH) Inorganic Elements by ICP Scan

B. SNP GENERAL REQUIREMENTS

1. The Licensee shall submit to the Board for approval a Quality Assurance/Quality Control plan which addresses analysis of field blanks and certified reference material, and replicate sampling in order to assess accuracy, precision and field contamination.
2. The plan referred to in Part B, Item 1 of the SNP, shall be implemented as approved by the Board.
3. All 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 as approved by the Board.
4. All analyses shall be performed in a laboratory approved by the Board.
5. The following example is provided to illustrate the procedures for calculating the average concentration. If the effluent stream is sampled weekly for each substance, the following lead values may be obtained:

Week 1	Sample #1	.15
Week 2	Sample #2	.12
Week 3	Sample #3	.10
Week 4	Sample #4	.18
	<i>Running Average = (.15+.12+.10+.18)/4=.137</i>	
Week 5	Sample #5	.20
	<i>Running Average = (.12+.10+.18+.20)/4=.150</i>	
Week 6	Sample #6	.16
	<i>Running Average = (.10+.18+.20+.16)/4=.160</i>	

C. FLOW MEASUREMENT REQUIREMENTS

1. The monthly and annual quantities of water pumped from SNP Station Number PEL-1 for domestic and associated uses shall be measured and recorded in cubic metres.

D. REPORTS

1. The Licensee shall submit to the Board within thirty (30) days following the month being reported, all data and information required by the Surveillance Network Program, including the results of the approved quality assurance plan.

E. MODIFICATIONS TO THE SNP

1. Modifications to the Surveillance Network Program may be made only upon written approval of the Executive Director.

**FIGURE 1 SITE MAP - PROJECT ENVIRONMENTAL IMPACT AREA WITH SNP
STATION**

