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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No.: **3BC-BAR1013**

July 5, 2010

Alexandre Langlois, Ph.D.
Département de Géomatique Appliquée
Université de Sherbrooke
Sherbrooke, Québec J1K 2R1
Email: a.langlois2@usherbrooke.ca

RE: NWB Licence No. 3BC-BAR1013

Dear Alexandre Langlois,

Please find attached Licence No. **3BC-BAR1013** issued to Université de Sherbrooke, Département de Géomatique Appliquée 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*. 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* and the *Nunavut Waters and Nunavut Surface Rights Tribunal Act*. However, the expiry or cancellation of a licence does not relieve the holder of the Licence 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 comments received by interested persons on issues identified. Among others, the Government of Nunavut, Department of Culture, Language, Elders and Youth have included terms and conditions for the Licensee to follow. This information is attached for your consideration.¹

Sincerely,



Thomas Kabloona
Nunavut Water Board
Chair

TK/dc/rqd

Enclosure: Licence No. **3BC-BAR1013**
Comments

Cc: Qikiqtani Distribution List
Alain Royer

¹ Indian and Northern Affairs Canada (INAC), June 4, 2010; Environment Canada (EC), May 28, 2010 and Government of Nunavut – Department of Culture, Language, Elders and Youth (GN-CLEY), April 28, 2010

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DECISION

LICENCE NUMBER: 3BC-BAR1013

This is the decision of the Nunavut Water Board (NWB) with respect to an application dated January 20, 2010 for a new Water Licence made by:

**UNIVERSITÉ DE SHERBROOKE,
DÉPARTEMENT DE GÉOMATIQUE APPLIQUÉE**

to allow for the use of water during camp operations in support of research activities at the Barnes Ice Cap Project located at the summit of the Barnes Ice Cap approximately 150 west of the Hamlet of Clyde River, within the Qikiqtani Region, Nunavut generally located at the geographical coordinates as follows:

Latitude: 70°0'N Longitude: 73°30'W (Camp)

DECISION

After having been satisfied that the application was in conformity with the North Baffin Regional Land Use Plan¹ and exempt from the requirement for screening as described within Schedule 12-1(2) by the Nunavut Impact Review Board² in accordance with Article 12 of the *Nunavut Land Claim Agreement (NLCA)*, the NWB decided that the application could proceed through the regulatory process. In accordance with S.55.1 of the *Nunavut Waters and Nunavut Surface Rights Tribunal Act (NWNSRTA)* and Article 13 of the *NLCA*, public notice of the application was given and interested persons were invited to make representations to the NWB.

After reviewing the submission of the Applicant and considering the representations made by interested persons, the NWB, having given due regard to the facts and circumstances, the merits of the submissions made to it and to the purpose, scope and intent of the *NLCA* and of the *NWNSRTA*, waived the requirement to hold a public hearing, and determined that:

Licence No. 3BC-BAR1013 be issued subject to the terms and conditions contained therein. (Motion #: 2010-11-L06)

SIGNED this 5th day of July 2010 at Gjoa Haven, NU.



Thomas Kabloona
Nunavut Water Board, Chair
TK/dc/rqd

¹ NPC Confirmation Determination, February 17, 2010

² NIRB Screening Exemption, May 18, 2010



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

UNIVERSITÉ DE SHERBROOKE, DÉPARTEMENT DE GÉOMATIQUE APPLIQUÉE
(Licensee)

UNIVERSITÉ DE SHERBROOKE, SHERBROOKE, QC, J1K 2R1
(Mailing Address)

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

Licence Number/Type: 3BC-BAR1013 TYPE "B"

Water Management Area: NUNAVUT 05

Location: BARNES ICE CAP PROJECT
QIKIQTANI REGION, NUNAVUT

Classification: MUNICIPAL UNDERTAKING

Purpose: DIRECT WATER USE

Quantity of Water use not
to Exceed: TEN (10) CUBIC METRES PER ANNUM

Date of Licence Issuance: JULY 5, 2010

Expiry of Licence: JUNE 30, 2013

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 for a research camp Municipal Undertaking classified as per Schedule II of the *Regulations* at the Barnes Ice Cap Project (Monitoring Arctic Temperature and Snow Cover Trends Using Satellite Remote Sensing), located at the summit of the Barnes Ice Cap, approximately 150 km west of the Hamlet of Clyde River 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*;

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

“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*;

“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;

“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;

“Spill Contingency Plan” means a Plan developed to deal with unforeseen petroleum and hazardous materials events that may occur during the operations conducted under the Licence;

“Sump” means an excavation in impermeable soil for the purpose of catching or storing water or waste;

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

“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.

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 water use fees of \$30, payable to the Receiver General for Canada, shall be sent to the Board annually for the right to the use of water in accordance with Section 9 of the *Regulations*.
2. 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 water use and waste disposal activities;
 - b. A list of unauthorized discharges and a summary of follow-up actions taken;
 - c. Any revisions to the Spill Contingency Plan, as required by Part B, Item 7, submitted in the form of an Addendum;
 - d. A description of all progressive and or final reclamation work undertaken, including photographic records of site conditions before, during and after completion of operations;
 - e. A summary of all information requested and results of the Monitoring Program;
 - f. Any other details on water use or waste disposal requested by the Board by November 1 of the year being reported; and
 - g. For the first year being reported following issuance of this licence, provide accurate Camp GPS coordinates in latitude and longitude in degrees, minutes and seconds.
3. 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.
4. The Licensee shall install flow meters or other such devices, or implement suitable methods required for the measuring of water volumes as required under Part J, Item 1.

5. 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.
6. The Licensee shall, for all Plans submitted under this Licence, implement the Plan as approved by the Board in writing.
7. 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.
8. 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.
9. 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, INAC
Nunavut District, Nunavut Region
P.O. Box 100
Iqaluit, NU X0A 0H0
Telephone: (867) 975-4295
Fax: (867) 979-6445
10. 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.
11. 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.
12. 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 camp use and glacier cores from ice in the Barnes Ice Cap. The use of water for drilling purposes is not authorized. Total water use shall not exceed ten (10) cubic metres per annum.
2. The Licensee shall not remove any material from below the ordinary high water mark of any water body unless authorized.
3. The Licensee shall not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion.
4. Sediment and erosion control measures shall be implemented prior to and maintained during the undertaking to prevent entry of sediment into water.

PART D: CONDITIONS APPLYING TO WASTE DISPOSAL

1. The Licensee shall not deposit any waste under the terms and conditions of this Licence with the exception of ice shavings from ice core drilling.
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 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.
4. The Licensee shall provide to the Board, documented authorization from the community of Iqaluit prior to the backhauling and disposal of any waste.
5. The Licensee shall backhaul and dispose of all hazardous wastes, waste oil and non-combustible waste generated through the course of the operation at an approved waste disposal site.
6. 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.
7. The Licensee shall dispose of all toilet wastes through incineration, chemical or composting toilets. Any remaining residue generated through the course of the operation shall be backhauled and disposed of in an approved waste disposal site.

PART E: 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 including the immediate banks 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. The Licensee should minimize disturbance by locating ice bridges in an area that requires the minimum approach grading and the shortest crossing route. Stream crossings shall be removed or the ice notched prior to spring break-up.
4. 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 DRILLING OPERATIONS

1. The Licensee is authorized to mechanically drill for ice cores in the Barnes Ice Cap.
2. The Licensee shall not use any drilling additives or mud while drilling on the Barnes Ice Cap.

PART G: CONDITIONS APPLYING TO MODIFICATIONS

1. The Licensee may, without written consent from the Board, carry out Modifications to the Water Supply 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. such Modifications are consistent with the NIRB Screening Decision;
 - d. 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;
 - e. the Board has not rejected the proposed Modifications; and
 - f. modifications for which all of the conditions referred to above have not been met can be carried out only with written approval from the Board.

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. These plans and drawings shall be stamped by an Engineer.

PART H: CONDITIONS APPLYING TO SPILL CONTINGENCY PLANNING

1. The Board has approved the Spill Contingency Plan dated June 14th, 2010 that was submitted to the NWB on June 16, 2010.
2. The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project from entering water. All fuel caches shall be located at a distance of at least thirty one (31) metres from the ordinary high water mark of any liquid 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 approved 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, and the measures taken to contain and clean up the spill site.

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

1. The Licensee shall complete all restoration work prior to the expiry of this Licence.
2. The Licensee shall carry out progressive reclamation of any components of the project no longer required for the Licensee's operations.
3. The Licensee shall remove from the site, all infrastructure and site materials, including all fuel caches, drums, barrels, buildings and contents, docks, water pumps and lines, material and equipment prior to the expiry of this Licence.
4. All roads and airstrip, if any, shall be re-graded to match natural contour to reduce erosion.
5. The Licensee shall remove any culverts and restore the drainage to match the natural channel. Measures shall be implemented to minimize erosion and sedimentation.

6. Areas that have been contaminated by hydrocarbons from normal fuel transfer procedures 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 for the purpose of back fill or general site grading may be carried out only upon consultation and approval by the Government of Nunavut, Department of Environment and an Inspector.
7. The Licensee shall contour and stabilize all disturbed areas to a pre-disturbed state upon completion of work.

PART J: CONDITIONS APPLYING TO THE MONITORING PROGRAM

1. The Licensee shall measure and record, in cubic metres, the daily quantities of water utilized for camp, and research purposes.
2. The Licensee shall provide 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.
3. The Licensee shall include in the Annual Report required under Part B, Item 2 all data, monitoring results and information required by this Part.