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NUNAVUT WATER BOARD

NUNAVUT IMALIRIYIN KATIMAYIT

OFFICE DES EAUX DU NUNAVUT

APPLICATION FOR APPROVAL FOR THE USE OF WATER OR DEPOSIT OF WASTE WITHOUT A LICENCE

Refer to the Guide to the Approval for the Use of Water or Deposit of Waste Without a License
(Guide) in completing this Application.

APPLICATION NO: (for NWB use only)													
<p>1. APPLICANT CONTACT INFORMATION (name, address)</p> <p>2. John England</p> <p>3. 1-26 Earth Science Building University of Alberta Edmonton, AB, T6G 2E3</p> <p>Phone: (780) 492-5673 _____</p> <p>Fax: (780) 492-2030 _____</p> <p>e-mail: john.england@ualberta.ca</p>	<p>4. APPLICANT REPRESENTATIVE CONTACT INFORMATION if different from Block 1 (name, address)</p> <p>Phone: _____</p> <p>Fax: _____</p> <p>e-mail: _____</p> <p>(Attach authorization letter)</p>												
<p>5. NAME OF THE OWNER OF THE LAND THAT WILL BE USED IN RELATION TO THE WATER TO BE USED OR THE WASTE TO BE DEPOSITED</p> <p>Crown</p>													
<p>6. NAME OF PROJECT (consistent with the name of the project issued by other regulatory agencies)</p> <p>The nature of glacially-derived nutrients, microbes and vegetation around the retreating Teardrop Glacier, Sverdrup pass, Ellesmere Island, Nunavut.</p>													
<p>7. LOCATION OF UNDERTAKING</p> <p>Project Extents (decimal degree format)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">NW</td> <td style="width: 40%;">N 79.183137 _____</td> <td style="width: 40%;">W 80.92606 _____</td> </tr> <tr> <td>NE</td> <td>N 79.274379 _____</td> <td>W 79.554969 _____</td> </tr> <tr> <td>SE</td> <td>N 79.075731 _____</td> <td>W 79.150098 _____</td> </tr> <tr> <td>SW</td> <td>N 79.022275 _____</td> <td>W 80.52806 _____</td> </tr> </table>		NW	N 79.183137 _____	W 80.92606 _____	NE	N 79.274379 _____	W 79.554969 _____	SE	N 79.075731 _____	W 79.150098 _____	SW	N 79.022275 _____	W 80.52806 _____
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SW	N 79.022275 _____	W 80.52806 _____											

Camp Location(s) (decimal degree format)

Sverdrup Pass: 79.133N 79.65W

Name of the Water Management Area in which the Undertaking is located. (Please see Appendix D of the Guide):

63 - Southeastern Ellesmere Island Watershed

8. CLASSIFICATION OF UNDERTAKING - Indicate the classification of undertaking by checking one of the following boxes.

- ☐ Industrial
- ☐ Mining
- ☐ Conservation
- ☐ Municipal

- ☐ Agricultural
- ☐ Recreational
- ☐ Power
- ☒ Other: (describe)

Scientific Research project. Small field research camp with domestic water use and disposal of domestic waste water.

See Appendix C of the Guide for descriptions of classifications of undertakings.

9. DESCRIPTION OF UNDERTAKING AND EQUIPMENT USED – Provide a brief description of the undertaking including a description of any equipment that will be used in using water or depositing waste.

The research program 'The research will investigate the ongoing retreat of Teardrop Glacier, central Sverdrup Pass, Ellesmere Island. The investigation concerns the state of recently exposed vegetation released from the glacier following ice entombment for the past 300-400 years. Additional studies will be conducted on the glacial meltwater exiting Teardrop Glacier in order to measure glacially-derived nutrients and microbes. This will include documenting the concentration and speciation of major nutrients (nitrogen, phosphorus, and carbon); the structure of the microbial community (via 16SRNA sequencing), and determining the diversity and potential for regrowth of the formerly ice-covered vegetation. This research will rely on small sample collections around the recently exposed terrain adjacent to teardrop Glacier and of meltwater emerging from across the ice surface and from beneath the glacier itself.

Field work related to this project will occur over approximately 10 days and will involve collecting up to 20 small samples of water and ice (~1L each), sediment (~10 grams each) and vegetation vouchers (~ 50-100 small moss samples). Water and ice samples will be filtered in the field and the filtrate and filtride collected. Soil and vegetation samples will be collected using sterile spatulas and gloves and will be placed in sterile bags. All samples will be frozen in the field in a small (~1 ft³) portable freezer (powered by a small 1000W generator when needed).

While working in the Sverdrup Pass, every effort will be made to minimize our impacts on the ice and watershed. Our field party conducted a similar project on the subglacial vegetation in 2007 and 2009, and did so without impact. The 2017 field party will consist of 4 people from July 23 to 28 with an additional four people for the last two days of the project. The camp will be evacuated on August 1. Our camp will be minimal in size (sleeping tents and one cook tent) and therefore includes no permanent buildings or structures. Every effort will be made to keep the camp clean. We note that in 2009, C La Farge had to end her project prematurely to remove a supply of carelessly stored (unprotected) food left by an outfitting group. The food had been ingested and plastic wrapping scattered by wolves and was an ongoing hazard to these animals and the environment.

For 2017, a single greywater pit will be dug and buried at the end of the field campaign. Glacier meltwater/ice will be collected from the nearby stream/glacier for domestic use and human waste will be hackhauled to

Resolute Bay at the end of the field campaign. The only fuel on site will include a 5-gallon jerry can of gasoline to power the generator and two 20-lb propane tanks for cook stoves.

Equipment

Transportation:

DHC-6 Twin Otter on wheels for transport to and from the Sverdrup Pass (from Resolute Bay). All transport within the Sverdrup pass will be by foot.

Other equipment:

Portable generator (Honda 1000W) used as an auxiliary power source.

- 10. SCHEDULE** – Applicants are advised that approvals without a license are issued for a one year term.

Proposed Start Date: 07/2017 Proposed Completion Date: 08/2017
(Month/Year) (Month/Year)

- 11. TYPE OF USE OF WATER WITHOUT A LICENCE PROPOSED** - Check the box that applies to the type of water use proposed. If none of the water uses listed below applies to the proposed water use, an application for a water licence will be required. See the NWB's Guide 4 – Completing and Submitting a Water Licence Application for a New Licence.

- ☐ For an undertaking other than a Power undertaking and for a use of water related to the construction of a structure across a watercourse that is less than 5 metres wide at the ordinary high water mark at the point of construction.
- ☐ For an undertaking other than a Power undertaking and for a use of water related to the training of an intermittent watercourse.
- ☐ For an undertaking other than a Power undertaking and for a use of water related to the training of a watercourse that involves the infilling of the watercourse, if the watercourse has no inflow or outflow and a surface area of less than 0.5 hectares.
- ☐ For an undertaking other than a Power undertaking and for a use of water related to the training of a watercourse that involves removal or placement of less than 100 m³ of material.
- ☐ For an undertaking other than a Power undertaking and for a use of water related to the construction of a temporary structure in a watercourse for the purpose of flood control.
- ☐ For an undertaking other than a Power undertaking and for any use of water related to the storage of 2,500 m³ or less.
- ☒ For an undertaking other than a Power undertaking and for any use of water less than 50 m³ per day.

- 12. QUANTITY AND QUALITY OF WATER INVOLVED** - For each type of water use indicated in Block 9, provide the source of water, the estimated quantity to be used in cubic metres per day, and the periods during which water will be extracted.

Type of Water Use indicated in Block 9	Name of water source	Estimated quantity of water to be used in cubic metres per day	Periods during which water will be extracted
Water for domestic use (drinking, cooking, personal hygiene)	Stream water	0.05 cu. m/day	10-day period in July/August 2017

- 13. TYPE OF DEPOSIT OF WASTE PROPOSED** - Check the box that applies to the type of deposit of waste proposed. If none of the deposits of waste listed below apply to the proposed deposit of waste, an application for a water licence will be required. See the NWB's Guide 4 – Completing and Submitting a Water Licence Application for a New Licence.

- ☐ For an Industrial undertaking, for an activity related to hydrostatic testing or cleaning of storage tanks and pipelines, and for any deposit of waste resulting from hydrostatic testing or cleaning of unused storage tanks or pipelines.
- ☐ For an Industrial undertaking, for an activity related to quarrying and gravel washing, and for any deposit of waste that is not deposited to surface water and that results from quarrying or gravel washing above the ordinary high water mark.
- ☐ For a Mining undertaking, for an activity related to exploratory work, any deposit of sewage to a sump.
- ☐ For a Power undertaking, any deposit of sewage to a sump.
- ☐ For an Agricultural undertaking, any deposit of sewage to a sump.
- ☐ For a Recreation undertaking, any deposit of sewage to a sump.
- ☒ For any Other type of undertaking not listed above, other than Municipal, any deposit of sewage to a sump.

- 14. QUANTITY AND QUALITY OF WASTE INVOLVED** – For each type of waste indicated in Block 11, describe the quantity in cubic metres/day, measures to avoid or mitigate adverse impacts, and periods of deposition.

Type of Waste indicated in Block 11	Quantity to be deposited in cubic metres per day	Measures to avoid or mitigate any adverse impacts	Periods during which waste will be deposited
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Sewage	<0.05 m ³ /day	Sewage will be deposited in a hole and buried.	10-day period in July/August 2017
Greywater	<0.01 m ³ /day	Camp dishes and domestic tasks are performed using minimal water. Greywater disposed of in hole and buried.	10-day period in July/August 2017
Solid waste (non-combustible wastes)	<0.01m ³ /day	Backhaul to PCSP Resolute Bay.	10-day period in July/August 2017

15. SIGNATURE

I, NAME John England (print name), certify that the information given on this form is, to the best of my knowledge, correct and complete.

☒ Yes

☐ No

OR

I, _____ (print name), as an authorized representative of the Applicant, _____, certify that the information given on this form is, to the best of my knowledge, correct and complete.

☐ Yes

☐ No

I certify that the Nunavut Planning Commission's land use planning requirements under Article 11 of the Nunavut Land Claims Agreement have been met.

☒ Yes

☐ No

I certify that the Nunavut Impact Review Board's development impact review requirements under Article 12 of the NLCA have been met.

☒ Yes

☐ No

I certify that the proposed water use is of a type set out in column 2 of Schedule 2 of the Regulations that is further specified by column 3, in respect of an undertaking set out in column 1. See list in Block 9.

☒ Yes

☐ NA

☐ No

I certify that the proposed deposit of waste is an activity that is set out and then further specified in columns 2 and 3 of Schedule 3 of the Regulations, in respect of an undertaking that is set out in column 1 of Schedule 3. See list in Block 11.

X Yes

☐ NA

☐ No

I certify that the proposed water use or deposit of waste will not substantially affect the quality, quantity or flow of the watercourse whose waters are used.

X Yes

☐ No

I certify that the proposed water use or deposit of waste will not substantially affect the quality, quantity or flow of waters flowing through Inuit Owned Lands.

X Yes

☐ No

I certify that the proposed water use or deposit of waste will not affect the use of waters by a person who would be entitled to compensation under sections 58 or 60 of the Nunavut Waters Nunavut Surface Rights Tribunal Act (Act) if their use of these waters were to be adversely affected by an applicant for a licence.

X Yes

☐ No

I certify that a licence is not required for another use of water, or deposit of waste in respect of the proposed undertaking.

X Yes

☐ No

I have read and agree to comply with the following conditions outlined in sections 4(3), 5(4), 5(5) and 6 of the Nunavut Waters Regulations:

1. In the case of an applicant who has a mineral right and who intends to use waters or deposit waste in relation to that right, the applicant shall respect the priority conferred on Inuit by section 62 of the *Act* as if that applicant had a licence for the use or deposit.
2. Measures must be taken prior to using water to minimize any alteration to the bed or banks of a watercourse whose waters are to be used, and the measures shall be maintained during the operation of the undertaking.
3. No waste is to be deposited to surface water or within 31 metres of the ordinary high water mark of any body of water.
4. The waste shall not contain more than 15 milligrams per litre of petroleum or petroleum product and must not have a visible hydrocarbon sheen.
5. Prior to the closure or abandonment of the undertaking or end of the period authorized for the use of water or deposit of waste without a licence, whichever occurs first, the site shall be restored — to the extent practicable — to the state in which it was before the water was used or the waste was deposited.^a
6. An applicant who is authorized under the Regulations to use waters or deposit waste without a licence shall:
 - a. maintain accurate and detailed books and records of:
 - i. the quantity of water, in cubic metres, used each day,
 - ii. the quantity, in cubic metres, of waste deposited each day,
 - iii. the type of waste deposited each day,
 - iv. where the waste is deposited,
 - v. the concentration of the substance, or substances, in the deposited solid or liquid that has the effect of making the deposit waste,
 - vi. the methodology used to calculate or determine the information referred to in items (i) to (iv), and
 - vii. the measures that were taken to avoid or mitigate any adverse impacts of the deposit of waste.
 - b. keep the books and records on the site of the undertaking during the period of its operation and make them available during that period to an inspector on request;
 - c. submit to the Board a report containing a summary description and supporting photographs of the restoration of the site of the undertaking within 30 days after the earliest of (i) the day on which the undertaking is closed or abandoned, and (ii) the last day of the period authorized for the use or deposit without a licence;^b and
 - d. keep the books and records for two years after submitting the report describing the restoration of the site of the undertaking.

Notes:

a) A site need not be restored prior to the end of the period authorized for the water use or deposit of waste without a licence, as required by Item 5, if the Board issues a licence for the use of water or deposit of waste on that site prior to the end of that period.

b) An applicant need not submit the report referred to in Item 6 (c), to the Board if the applicant obtains the Board's approval for a use of water or deposit of waste without a licence, or a licence for a use of water or deposit of waste, on the same site within thirty (30) days after the last day of the period authorized for the use or deposit.

☒ Yes

☐ No

I understand that any approval granted by the Board for the use of water or deposit of waste without a licence will be authorized for a period of one year after the day on which the Board approves the Application. The use or deposit is not authorized until the Board approves the Application and it is only valid as long as the applicant is in compliance with the conditions set out in the declaration above.

☒ Yes

☐ No

I understand that if I have answered "No" to any of the above statements a water license is required from the Nunavut Water Board prior to the use of water or deposit of waste.

☒ Yes

☐ No

John England

**Professor
emeritus**



**May 3.
2017**

Name (Print)

Title (Print)

Signature

Date