



## Application for Water Licence Renewal

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Month/Day/Year

P.O. BOX 119  
GJOA HAVEN, NUNAVUT  
XOB 1J0  
TEL: (867)360-6338  
FAX: (867)360-6369

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NUNAVUT IMALIRIYIN KATIMAYIT  
NUNAVUT WATER BOARD  
OFFICE DES EAUX DU NUNAVUT

## DOCUMENT MANAGEMENT

Original Document Date: April 2010

### DOCUMENT AMENDMENTS

	Description	Date
(1)	Updated for public distribution as separate document from NWB Guide 7	June 2010
(2)	Updated NWB logos and reformatted table to allow rows to break across page	May 2011
(3)		
(4)		
(5)		
(6)		
(7)		
(8)		
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GJOA HAVEN, NU X0B 1J0

TEL: (867) 360-6338

FAX: (867) 360-6369

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## APPLICATION FOR WATER LICENCE RENEWAL

Your application may be classified as a **renewal** only if all operations remain the same as previously licensed and only the term of the licence requires change. If your application contemplates:

- a change to the volume of water authorized for use;
- a new activity related to water use or waste disposal;
- a new component related to water use or waste disposal;
- a change in predicted environmental impacts(s); and/or
- a change to any term or condition of the original licence

your application is **NOT** classified as a renewal but rather an amendment and will require submission of an Application for Water Licence Amendment. Licensees applying for combined renewal / amendment are also referred to the Application for Water Licence Amendment.

The applicant is referred to the NWB's Guide 7: Licensee Requirements Following the Issuance of a Water Licence for more information about this application form.

**EXISTING LICENCE NO:** 3BC-GCS1212

### 1. LICENSEE CONTACT INFORMATION

Is the licensee the same as that referred to on the existing licence?

☒ Yes ☐ No

If No, a licence assignment must be completed and approved by the NWB. **A renewal will only be issued in the name of the current licensee in the absence of assignment of the licence.**

If the licensee is the same, but the name of the licensee has changed, attach a certificate of name change.

Name: Shawn Marshall

Address: Department of Geography, University of Calgary  
ES 356 - 2500 University Dr NW  
Calgary AB, T2N 1N4

Phone: 403-220-7516 \_\_\_\_\_

Fax: 403-282-6561 \_\_\_\_\_

e-mail: shawn.marshall@ucalgary.ca \_\_\_\_\_

**2. LICENSEE REPRESENTATIVE CONTACT INFORMATION – If different from Block 1.**

(Attach authorization letter.)

**3. NAME OF PROJECT:**

Is the name of the project the same as that considered in the existing water licence?

X Yes ☐ No

Indicate the name of the project including the name of the location:

Glacier-Climate Studies on the Prince of Wales Icefield, Ellesmere Island

**4. LOCATION OF UNDERTAKING**

Is the location of the undertaking the same as that considered in the existing water licence?

X Yes ☐ No

**Project Extents**

NW:	Latitude: ( 78 ° 03 ' 30 " N)	Longitude: ( 81 ° 55 ' " W)
NE:	Latitude: ( 78 ° 03 ' 30 " N)	Longitude: ( 81 ° 05 ' " W)
SE:	Latitude: ( 78 ° 02 ' 00 " N)	Longitude: ( 81 ° 05 ' " W)
SW:	Latitude: ( 78 ° 02 ' 00 " N)	Longitude: ( 81 ° 55 ' " W)

**Camp Location(s)**

Latitude: ( 78 ° 02 ' 12 " N) Longitude: ( 81 ° 28 ' 54 " W)

**5. MAP**

Are the locations of the main components of the undertaking the same as those considered in the existing licence?

X Yes ☐ No

Attach a topographical map, indicating the main components of the undertaking.

NTS Map Sheet No.: 49E Map Name: Strathcona Fiord Map Scale: 1:250,000

**6. NATURE OF INTEREST IN THE LAND**

Is the nature of the interest in the land the same as that considered in the existing water licence?

X Yes ☐ No

Check any of the following that are applicable to the proposed undertaking (at least one box under the 'Surface' header must be checked).

**Sub-surface**

☐ Mineral Lease from Nunavut Tunngavik Incorporated (NTI)  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

☐ Mineral Lease from Indian and Northern Affairs Canada (INAC)  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

**Surface**

X Crown Land Use Authorization from Indian and Northern Affairs Canada (INAC)  
Date (expected date) of issuance: May 2013 Date of expiry: August 2013

☐ Inuit Owned Land (IOL) Authorization from Kitikmeot Inuit Association (KIA)  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

☐ IOL Authorization from Kivalliq Inuit Association (KivIA)  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

☐ IOL Authorization from Qikiqtani Inuit Association (QIA)  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

☐ Commissioner's Land Use Authorization  
Date (expected date) of issuance: \_\_\_\_\_ Date of expiry: \_\_\_\_\_

X Other NIRB12YN016 (informed that no renewal needed)  
NRI 02 015 13R-M, renewed in March 2013

Date (expected date) of issuance: March 5, 2013 Date of expiry: Dec 31, 2013

Is the name of the entity(s) holding authorizations the same as that considered in the existing water licence?

X Yes ☐ No

If No, a licence assignment must be completed and approved by the NWB.

Name of entity(s) holding authorizations:

*Note that for spring 2013 activities we will only be on the glacier (crown), and we will not be working, camping, or travelling on the Inuit-owned lands (QIA) in front of the glacier. This is a change from 2012, so we have not sought QIA permission this year as per 2012 (Q12X010).*

**7. NUNAVUT PLANNING COMMISSION (NPC) DETERMINATION**

Is the undertaking located in the same land use planning area as that considered in the existing licence?

X Yes ☐ No

Indicate the land use planning area in which the project is located.

X North Baffin	<input type="checkbox"/> Keewatin
<input type="checkbox"/> South Baffin	<input type="checkbox"/> Sanikiluaq
<input type="checkbox"/> Akunnig	<input type="checkbox"/> West Kitikmeot

Was a land use plan conformity determination required from NPC prior to the issuance of the existing water

licence?

☒ Yes ☐ No

If Yes, indicate date issued and attach copy. March 28, 2012

Does the proposed renewal change the original NPC conformity determination or the need to obtain one?

☐ Yes ☒ No

If Yes, indicate date issued (or expected) and attach a copy. \_\_\_\_\_

If No, provide written confirmation from NPC confirming that a land use plan conformity review is not required.

## 8. NUNAVUT IMPACT REVIEW BOARD (NIRB) DETERMINATION

Was a screening determination required from NIRB prior to the issuance of the existing water licence?

☒ Yes ☐ No

If Yes, indicate date issued and attach copy. \_May 2, 2012\_\_\_\_\_

Does the proposed renewal change the original NIRB screening determination or the need to obtain one?

☐ Yes ☒ No

If Yes, indicate date issued (or expected) and attach a copy. \_\_\_\_\_

If No, provide written confirmation from NIRB confirming that a screening determination is not required.

## 9. DESCRIPTION OF UNDERTAKING

Is the description of the undertaking the same as that considered in the existing water licence?

☒ Yes ☐ No

List and attach plans and drawings or project proposal.

Our spring 2013 fieldwork is a subset of what we undertook in 2012 (i.e. contained within the 2012 project description, but with reduced activities in 2013).

### *Scientific Research.*

Forecasts of glacier and ice sheet response to climate change require an understanding of ice-atmosphere interactions and feedbacks, and the proposed project will examine these on the Prince of Wales (POW) Icefield, Ellesmere Island. We are doing this through measurements of meteorological conditions, energy balance fluxes and melt rates from the icefield. We are working on the southwest margin of the icefield, on an outlet glacier informally named `Vendom Glacier`.

Automatic weather stations were deployed along an elevation transect on this glacier in 2012, from 400 m to 1000 m altitude, to quantify the meteorological gradients and energy fluxes. The transect spans 600 m of elevation from the icefield margin area to near the snowline (equilibrium line altitude). These instruments will be installed in May 2012 and are recording 30-minute data of humidity, temperature, wind, solar radiation, and snow depth. These measurements are being done in conjunction with snow and ice melt measurements, through poles drilled into the ice and through snowpits.

In May 2013 we will collect data from these stations, dismantle and remove them. We will base from a

glacier camp to be accessed by twin otter (on skis). We will also be collecting snow samples for chemical analysis (water isotopes).

#### 10. OPTIONS

Are the alternative methods and locations that were considered to carry out the project the same as those considered in the existing water licence?

☒ Yes ☐ No

Provide a brief explanation of the alternative methods or locations that were considered to carry out the project.

In 2012 we proposed the glacier camp as an alternative to working from the front of the glacier, and this in fact turned out to be logistically simpler. The landing strip in front of the glacier was not easily accessed in spring, so in May 2012 we established our glacier camp in the same place proposed for this season. We know that this site works, so last year's backup plan will be 'plan A' this year.

#### 11. CLASSIFICATION OF PRIMARY UNDERTAKING

Is the primary undertaking the same as that considered in the existing water licence?

☒ Yes ☐ No

Indicate the primary classification of undertaking by checking one of the following boxes.

- |   |  |
|---|--|
| <input type="checkbox"/> Industrial   | <input type="checkbox"/> Agricultural  |
| <input type="checkbox"/> Mining and Milling (includes exploration/drilling/exploration camps) |  |
| <input type="checkbox"/> Conservation   |  |
| <input type="checkbox"/> Municipal (includes camps/lodges)                                    | <input type="checkbox"/> Recreational  |
| <input type="checkbox"/> Power  | <input checked="" type="checkbox"/> Miscellaneous (describe below):<br>__scientific research__ |

See Schedule II of the *Northwest Territories Waters Regulations* for Description of Undertakings.

#### 12. WATER USE

Is the type(s) of water use(s) the same as that considered in the existing water licence?

☒ Yes ☐ No

Check the appropriate box(s) to indicate the type(s) of water use(s) being applied for.

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> To obtain water for camp/ municipal purposes |   |
| <input type="checkbox"/> To obtain water for industrial purposes                 | <input type="checkbox"/> To divert a watercourse                    |
| <input type="checkbox"/> To cross a watercourse                                  | <input type="checkbox"/> To modify the bed or bank of a watercourse |
| <input type="checkbox"/> To alter the flow of, or store water                    | <input type="checkbox"/> Flood control                              |
| <input type="checkbox"/> Other: _____  |   |

### 13. QUANTITY OF WATER INVOLVED

Is the source of water the same as that considered in the existing licence? ☒ Yes ☐ No

Name of water source(s): snowmelt from the surface of the glacier, drawn from our camp site  
(show location(s) on map)

Is the quality of the water source and its available capacity the same as that considered in the existing licence?  
☒ Yes ☐ No

Describe the quality of the water source(s) and the available capacity(s): \_\_\_\_\_

High quality freshwater (snowmelt); capacity greatly exceeds our needs for camp sustenance  
(cooking, drinking water)

Is the overall estimated quantity of water to be used the same as that considered in the existing licence?  
☐ Yes ☒ No - a bit less (2 people instead of 4 this year)

Provide the overall estimated quantity of water to be used: \_\_\_\_\_ 0.02 m<sup>3</sup>/day

Are the quantity(s) of water to be used from each source the same as those considered in the existing licence?

☐ Yes ☒ No - less water needed this year, and to be drawn entirely from the snowpack  
(only a May field season, so no July stream withdrawals)

Provide the estimated quantity(s) of water to be used from each source: \_\_\_\_ 0.02 m<sup>3</sup>/day \_\_\_\_\_

Are the quantity(s) of water to be used for each purpose the same as those considered in the existing licence?  
☒ Yes ☐ No

Provide the estimated quantities to be used for each purpose (camp, drilling, etc.): \_\_ Camp (100%) \_\_\_\_

Are the method(s) of extraction the same as those considered in the existing licence? ☒ Yes ☐ No

Describe the method(s) of extraction: \_\_\_\_ shovel some snow from the glacier surface \_\_\_\_\_

Are the quantity(s) of water returned to source(s) the same as those considered in the existing licence?  
☒ Yes ☐ No

Estimated quantity(s) of water returned to source(s): \_\_\_\_\_ 0.01 \_\_\_\_\_ m<sup>3</sup>/day

Are the quality(s) of water(s) returned to source(s) the same as those considered in the existing licence?  
☒ Yes ☐ No

Describe the quality(s) of water(s) returned to source(s): \_\_\_\_\_

Half of the water will be consumed for cooking, drinking; some greywater from cooking, dishes will be returned to the glacier surface (filtered and poured into a snowpit)

#### 14. WASTE

Are the type(s) of waste(s) to be generated and/ or deposited the same as those considered in the existing licence?

☒ Yes ☐ No

Check the appropriate box(s) to indicate the types of waste(s) generated and deposited.

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Sewage       | <input type="checkbox"/> Waste oil                      |
| <input checked="" type="checkbox"/> Solid Waste  | <input checked="" type="checkbox"/> Greywater           |
| <input type="checkbox"/> Hazardous               | <input type="checkbox"/> Sludges                        |
| <input type="checkbox"/> Bulky Items/Scrap Metal | <input type="checkbox"/> Contaminated soil and/or water |
| <input type="checkbox"/> Animal Waste            |   |
| <input type="checkbox"/> Other (describe): _____ |   |

#### 15. QUANTITY AND QUALITY OF WASTE INVOLVED

Are the quantity(s) of the types of wastes involved the same as those considered in the existing licence?

☒ Yes ☐ No

Are the composition(s) of the types of wastes involved the same as those considered in the existing licence?

☒ Yes ☐ No

Are the method(s) of treatment for the types of waste involved the same as those considered in the existing licence?

☒ Yes ☐ No

Are the method(s) of disposal for the types of waste involved the same as those considered in the existing licence?

☒ Yes ☐ No

For each type of waste indicated in Block 14, describe its composition, quantity in cubic meters/day, method of treatment and method of disposal.

Type of Waste	Composition	Quantity Generated	Treatment Method	Disposal Method
garbage	Paper, plastics, organics	0.03 m <sup>3</sup> /day	n/a	Shipped out at end of season
Human waste		0.001 m <sup>3</sup> /day	Portable toilet	Shipped out at end of season
greywater	From cooking, dishes	0.01 m <sup>3</sup> /day	filtered	Poured into the snowpit on the glacier surface

**16. OTHER AUTHORIZATIONS**

In addition to the sub-surface and surface land use authorizations provided in Block 6, are the same authorizations required as considered in the existing licence?

X Yes ☐ No

For each provide the following:

Authorization: Research and land use permits

Administering Agency: Nunavut Research Institute, NIRB, PCSP, NSERC

Project Activity: Glacier-climate research

Date (expected date) of issuance: May 2013 Date of expiry: December 2013

**17. PREDICTED ENVIRONMENTAL IMPACTS OF UNDERTAKING AND PROPOSED MITIGATION MEASURES**

Are predicted environmental impacts of the undertaking and proposed mitigation measures the same as those considered in the existing water licence?

X Yes ☐ No

No permanent structures are needed. We will establish a temporary (tent) camp on the glacier and all equipment and supplies will be flown in and out in May 2013. Camp will consist of three tents, we will cook from propane-burning Coleman stoves, and we will drink local water (snow melt). We will be using a portable backcountry toilet, and all waste will be flown out. Travel on-site will be on foot and ski, pulling pulks to transport gear on the glacier. We will remove all instrumentation on completion of the study.

**18. WATER RIGHTS OF EXISTING AND OTHER WATER USERS**

Are the effects of the undertaking on any known persons or property including those that hold licences for water use in precedence to the application, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders, and holders of other rights of a similar nature, the same as those considered in the existing water licence?

X Yes ☐ No

Provide the names, addresses and nature of use for any known persons or properties that may be adversely affected by the proposed undertaking, including those that hold licences for water use in precedent to the application, domestic users, in-stream users, authorized waste depositors, owners of property, occupiers of property, and/or holders of outfitting concessions, registered trapline holders, and holders of other rights of a similar nature.

Advise the Board if compensation has been paid and/or agreement(s) for compensation have been reached with any existing or other users.

No concerns here; to our knowledge, no impacts on anyone.

**19. INUIT WATER RIGHTS**

Are the effects of the undertaking on the quality, quantity or flow of waters flowing through Inuit Owned Land (IOL) the same as those considered in the existing water licence?

X Yes ☐ No

Advise the Board of any substantial affect of the quality, quantity or flow of waters flowing through Inuit Owned Land (IOL), and advise the Board if negotiations have commenced or an agreement to pay compensation for any loss or damage has been reached with one or more Designated Inuit Organization (DIO).

No impacts on water quality or quantity; no research or travel on Inuit-owned lands in 2013.

**20. CONSULTATION** - Provide a summary of any consultation meetings including when the meetings were held, where and with whom. Include a list of concerns expressed and measures to address concerns.

No consultation meetings held, other than summer 2012 consultation with KIA; we are very small scale and far removed from settlements.

**21. SECURITY INFORMATION**

Is the financial security assessment the same as that considered in the existing water licence?

X Yes ☐ No

Is the estimate of the total financial security for final reclamation the same as that considered in the existing water licence?

X Yes ☐ No

Provide an estimate of the total financial security for final reclamation equal to the total outstanding reclamation liability for land and water combined sufficient to cover the highest liability over the life of the undertaking. Estimates of reclamation costs must be based on the cost of having the necessary reclamation work done by a third party contractor if the operator defaults. The estimate must also include contingency factors appropriate to the particular work to be undertaken.

Where applicable, the financial security assessment should be prepared in a manner consistent with the principals respecting mine site reclamation and implementation found in the *Mine Site Reclamation Policy for Nunavut*, Indian and Northern Affairs Canada, 2002.

No reclamation necessary.

**22. FINANCIAL INFORMATION**

Is the statement of financial security the same as that considered in the existing water licence?

X Yes ☐ No

Provide an updated statement of financial security.

If the applicant is a business entity please answer the questions below:

Is the list of the officers of the company the same as those considered in the existing water licence?

☒ Yes    ☐ No

Provide a list of the officers of the company.

Any financial liability, e.g. accidents, will be the responsibility of the principal researcher, Shawn Marshall, University of Calgary, and the supporting federal science agency, Polar Continental Shelf Project, which is providing logistics.

Is the Certificate of Incorporation or evidence of registration of the company name the same?    n/a

☐ Yes    ☐ No

Attach a copy of the Certificate of Incorporation or evidence of registration of the company name.

### 23.    **STUDIES UNDERTAKEN TO DATE**

List and attach updated studies, reports, research etc.

I carried out glacier-climate and ice core research on Prince of Wales Icefield in previous seasons: 2001-2003, 2005, and 2007. Publications arising from this research (available on request):

MSc thesis of Vivian Wasiuta (2007) and PhD thesis of Tara Moran (2011).

BSc Honours thesis project of Erik Haag (2012)

Moran, T.A., S.J. Marshall and M.J. Sharp, 2011. Isotope thermometry in melt-affected ice cores. *Journal of Geophysical Research*, 116 (F02010), doi:10.1029/2010JF001738.

Gardner, A.S., M.J. Sharp, R.M. Koerner, C. Labine, S. Boon, S.J. Marshall, D.O. Burgess, and D. Lewis, 2009. Near-surface temperature lapse rates over Arctic glaciers and their implications for temperature downscaling. *Journal of Climate*, 22, 4281-4298.

Mair, D., D. Burgess, M.J. Sharp, J. Dowdeswell, T. Benham, S.J. Marshall, and F. Cawkwell, 2009. Mass balance of the Prince of Wales Icefield, Ellesmere Island, Nunavut, Canada. *Journal of Geophysical Research*, 114, F02011.

Marshall, S.J. and M.J. Sharp, 2009. Temperature and melt modelling on the Prince of Wales Icefield, Canadian High Arctic. *Journal of Climate*, 22 (6), 1454-1468.

Moran, T.A. and S.J. Marshall, 2009. Effects of meltwater percolation on stable isotope stratigraphy in a high Arctic snowpack. *Journal of Glaciology*, 55 (194), 1012-1024.

Marshall, S.J., M.J. Sharp, D.O. Burgess and F.S. Anslow, 2007. Near-surface temperature lapse rate variability on the Prince of Wales Icefield, Ellesmere Island, Nunavut: Implications for regional-scale temperature downscaling. *International Journal of Climatology*, 27 (3), 385-398.

Wasiuta, V.L., A.-L. Norman and S.J. Marshall, 2006. Spatial patterns and seasonal variation of snowpack sulphate isotopes of the Prince of Wales Icefield, Ellesmere Island. *Annals of Glaciology*, 43, 390-396.

Provide a compliance assessment and status report including a response to any inspector's reports. The licensee must contact the NWB for licence specific direction in completing the assessment and report.

If in non-compliance, a licence may not be issued until compliance is achieved. If in non-compliance, attach

plans/reports for consideration. Application will not be processed if significant issues of non-compliance exist.

*A research update from 2012 activities is attached.*

## 24. PROPOSED TIME SCHEDULE

Is the time schedule for all phases of development (construction, operations, closure and post closure) the same as that considered in the existing licence?

☐ Yes    ☒ No

Indicate the proposed start and completion dates for each applicable phase of development (construction, operation, closure, and post closure).

### Construction

Proposed Start Date: \_\_\_\_\_ Proposed Completion Date: \_\_\_\_\_  
(month/year) (month/year)

### Operation

Proposed Start Date: \_\_\_\_\_ May/2013 \_\_\_\_\_ Proposed Completion Date: \_\_\_\_\_ May 2013 \_\_\_\_\_  
(month/year) (month/year)

### Closure

Proposed Start Date: \_\_\_\_\_ Proposed Completion Date: \_\_\_\_\_  
(month/year) (month/year)

### Post - Closure

Proposed Start Date: \_\_\_\_\_ Proposed Completion Date: \_\_\_\_\_  
(month/year) (month/year)

For each applicable phase of development indicate which season(s) activities occur.

### Construction

☐ Winter    ☐ Spring    ☐ Summer    ☐ Fall    ☐ All season

### Operation

☐ Winter    ☒ Spring    ☐ Summer    ☐ Fall    ☐ All season

### Closure

☐ Winter    ☐ Spring    ☐ Summer    ☐ Fall    ☐ All season

### Post - Closure

☐ Winter    ☐ Spring    ☐ Summer    ☐ Fall    ☐ All season

## 25. PROPOSED TERM OF LICENCE

On what date does the existing licence expire? Dec 31, 2012 \_\_\_\_\_

Indicate the proposed term of the renewal (maximum of 25 years): 1 month

Requested date of renewal issuance: \_\_\_\_\_ 05/2013 \_\_\_\_\_ Requested Expiry Date: \_\_\_\_\_ 06/2013 \_\_\_\_\_  
(month/year) (month/year)

(The requested date of renewal issuance must be at least three (3) months from the date of application for a type B water licence and at least one (1) year from the date of application for a type A water licence, to allow for processing of the water licence application. These timeframes are approximate and do not account for the time to complete any pre-licensing land use planning or development impact requirements, time for the applicant to prepare and submit a water licence application in

accordance with any project specific guidelines issued by the NWB, or the time for the applicant to respond to requests for additional information. See the NWB's *Guide 5: Processing Water Licence Applications* for more information)

## 26. ANNUAL REPORTING

Is the annual report template expected to be the same as that considered in the existing licence?

☒ Yes ☐ No

If not using the NWB's *Standardized Form for Annual Reporting*, provide details regarding the content of annual reports and a proposed outline or template of the annual report.

Final reporting to NRI and PCSP is done annually, including translation to Inuktitut. I would propose that a copy of this report, due in Fall 2012, be sent on to NWB to summarize the research/operations results and to confirm completion of the study and cleanup of the site. I am happy to comply with any additional reporting requests for the NWB.

## 27. CHECKLIST

The following must be included with the application for renewal for the water licensing process to begin.

Completed Application for Water Licence Renewal form.

☒ Yes ☐ No If no, date expected \_\_\_\_\_

Updated plans, including designs and reports (see Block 23).

☒ Yes ☐ No If no, date expected \_\_\_\_\_

Updated security assessment (see Block 21).

☒ Yes ☐ No If no, date expected \_\_\_\_\_

Updated financial statement (see Block 22).

☒ Yes ☐ No If no, date expected \_\_\_\_\_

Compliance Assessment / Status Report (see Block 23).

☒ Yes ☐ No If no, date expected \_\_\_\_\_

English Summary of Renewal Application.

☒ Yes ☐ No If no, date expected \_\_\_\_\_

Inuktitut and/or Inuinnaqtun Summary of Renewal Application.

☐ Yes ☒ No If no, date expected \_\_\_\_requested for April 10, 2013\_\_\_\_

Application fee of \$30.00 CDN (Payee Receiver General for Canada).

☐ Yes ☒ No If no, date expected: Sent by mail, expected April 8, 2013

Water Use Fee Deposit of \$30.00 CDN (Payee Receiver General for Canada). The actual water use fee

will be calculated by the NWB based upon the amount of water authorized for use in accordance with the Regulations at the time of issuance of the licence.

☐ Yes

☒ No

If no, date expected: Sent by mail, expected April 8, 2013

**28. SIGNATURE**

I, Shawn Marshall (print name)

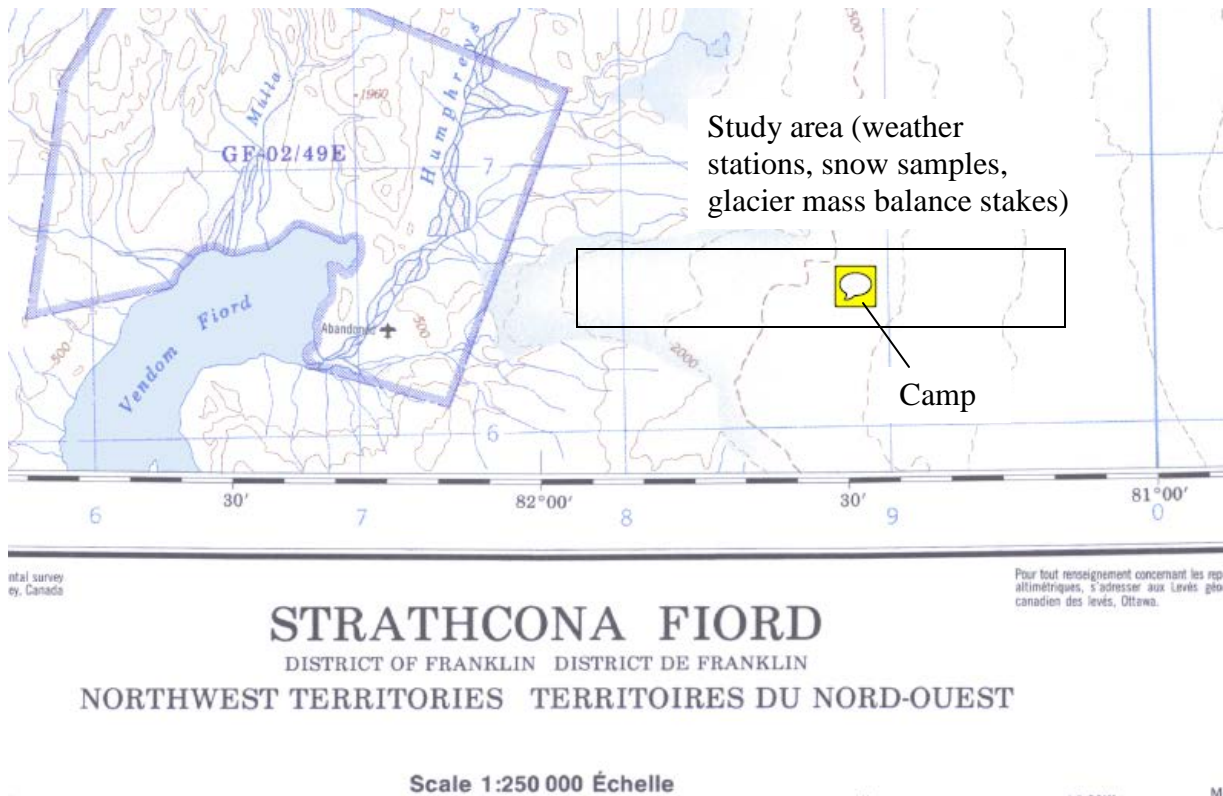
certify that the application requires no changes to water use or waste disposal as previously authorized and that the information given on this form is, to the best of my knowledge, correct and complete.



Signature

Date: March 30, 2013

### Excerpt from NTS Map Sheet (49E, 1:250,000)



The rectangle indicates our study area on the glacier, where we have a transect of weather stations and glacier mass balance stakes drilled into the ice. Data will be collected and all stations and poles will be removed in May 2013.