

# SCIENTIFIC RESEARCH LICENCE APPLICATION

## LAND, FRESHWATER & MARINE BASED RESEARCH

NRI strongly recommends that applicants review the following documents prior to submitting an application: *Scientific Research Licencing Guidelines* and *Negotiating Research Relationships in Inuit Communities: A Guide for Researchers*.

For more information about the Nunavut Research Institute (NRI) please visit our web site [www.nri.nu.ca](http://www.nri.nu.ca)

### IMPORTANT

This application fulfills the requirements for the NIRB environmental screening.  
Please be advised that your application will not be processed until the application form, project summary, and maps are received.

### SECTION 1: APPLICANT INFORMATION

**1a. Project Title** PolarDARN, Polar Dual Aurora Radar Network

**1b. Project Number**

Please indicate if applicant has submitted any previous application(s) to NRI related to this project proposal? Yes ☐ No ☒

If yes, please indicate the previous NRI licence number: \_\_\_\_\_

Please indicate if applicant has submitted any previous application(s) to NIRB related to this project proposal? Yes ☐ No ☒

If yes, please indicate the previous NIRB project number(s):

04YN076 – Similar project for PolarDARN Rankin Inlet

**2. Applicant's full name and mailing address:**

Dr. Kathryn A. McWilliams

Department of Physics and Eng. Physics

116 Science Place, SK, S7N 5E2

Phone: (306) 966-6605

Fax: (306) 966-6400

Email: [kathryn.mcwilliams@usask.ca](mailto:kathryn.mcwilliams@usask.ca)

**3. Field Supervisor's name and mailing address:**

Mr. Jan Wiid

Department of Physics and Eng. Physics

116 Science Place, SK, S7N 5E2

Phone: (306) 966-6453

Fax: (306) 966-6400

Email: Jan.wiid@usask.ca

**4. Other Personnel list (name, position, affiliation)**

To be named: Clyde River based technical assistant

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### SECTION 2: AUTHORIZATION NEEDED

**1. Indicate all authorizations associated with the project proposal:**

\_\_\_\_\_

<input type="checkbox"/>	Regional Inuit Association (RIA)	<input type="checkbox"/>	Canadian Launch Safety (CLS)
<input type="checkbox"/>	Nunavut Water Board (NWB)	<input type="checkbox"/>	Environment Canada (EC)
<input type="checkbox"/>	Nunavut Planning Commission (NPC)	<input type="checkbox"/>	Department of Environment (GN)
<input type="checkbox"/>	Department of Indian And Northern Development (DIAND)	<input type="checkbox"/>	Department of National Defense (DND)
<input type="checkbox"/>	Department of Fisheries and Oceans (DFO)	<input checked="" type="checkbox"/>	Hamlet
<input checked="" type="checkbox"/>	Community Government & Services (CG&S)	<input type="checkbox"/>	Parks Canada (PC)
<input checked="" type="checkbox"/>	Nunavut Research Institute (NRI/GN)	<input type="checkbox"/>	Canadian Wildlife Service (CWS)
<input type="checkbox"/>	Department of Culture, Language, Elders, and Youth (CLEY/GN)	<input type="checkbox"/>	Other (please specify):

**2. List the active permits, licences, or other rights related to the project proposal and their expiry date:**

Radio Licence – Licence number 5131247, Call sign, VX9GIP, Expiry: March 31 2013  
 Nunavut Land Lease agreement: L-44534B, File No.: 701-SK-071, Expiry, March 31, 2022  
 Transport Canada, Aeronautical Obstruction Clearance, File No.: 2011-162  
 NAV CANADA approval, File No.: 11-0345  
 Municipality of Clyde River, Motion #: RCM 02-11-005

**3. Have you applied for all authorizations required to conduct the project proposal activities?**

☐ X -YES

☐ NO

## SECTION 3: PROJECT PROPOSAL DESCRIPTION

**1. Indicate the activities related to the project proposal:**

<input type="checkbox"/>	Temporary camp (to be removed at end of field season)	<input type="checkbox"/>	Soil disposal/ soil storage
<input checked="" type="checkbox"/>	Permanent camp (to remain for life of authorization)	<input type="checkbox"/>	Incineration of combustible wastes and removal of non-combustible wastes
<input type="checkbox"/>	Construction of recreational or safety cabin	<input type="checkbox"/>	River/ stream/ lake crossing or work/ bridge
<input type="checkbox"/>	Temporary fuel storage (to be removed at end of field season)	<input type="checkbox"/>	Drainage alteration
<input type="checkbox"/>	Permanent fuel storage (to remain for life of authorization)	<input type="checkbox"/>	Geoscientific sampling by diamond drilling
<input checked="" type="checkbox"/>	Placement of structures for life of permit (other than camp or cabin – i.e. scientific instruments)	<input type="checkbox"/>	Geoscientific sampling by soil sampling
<input type="checkbox"/>	Placement of permanent structures (other than camp or cabin – i.e. scientific instruments)	<input type="checkbox"/>	Geoscientific sampling by trenching
<input type="checkbox"/>	Air surveys (i.e. geophysical, wildlife)	<input type="checkbox"/>	Geoscientific sampling by borehole core
<input type="checkbox"/>	Use of aircraft/watercraft/land vehicle for personnel drop-off and pick-up to project location	<input type="checkbox"/>	Blasting
<input checked="" type="checkbox"/>	Use of on-site mechanized vehicles (i.e. atv, snowmobile, truck, zodiac)	<input type="checkbox"/>	Channeling
<input type="checkbox"/>	Sewage or grey water disposal via sump	<input type="checkbox"/>	Excavation
<input type="checkbox"/>	Hazardous waste storage or disposal	<input type="checkbox"/>	Hydrological testing
<input type="checkbox"/>	Solid waste disposal	<input type="checkbox"/>	Abandonment and restoration
<input type="checkbox"/>	Chemical storage	<input type="checkbox"/>	Site restoration (fertilization/ grubbing/ scarification/ spraying/ recontouring)
<input type="checkbox"/>	Explosives storage	<input checked="" type="checkbox"/>	Research
<input type="checkbox"/>	Soil testing	<input type="checkbox"/>	Ecological survey
		<input type="checkbox"/>	Harvesting
		<input type="checkbox"/>	Removal of vegetation for scientific purposes
		<input type="checkbox"/>	Other:

**2. Personnel**

Total No. of personnel on site = (A)	4	Total No. of days on-site = (B)	21	<b>Total No. of Person days</b>
	1		7	<b>(A)×(B) = 84 = Construction</b>
				<b>7 = Annual maintenance</b>

### 3. Timing

Period of operation: 01 August 2012 to 31 March 2022  
Proposed term of authorization: 01 August 2012 to 31 December 2015

Please outline the phases of the proposed project (construction/ operation/ decommissioning) including the timing and scheduling of each phase.

Construction : 01 July 2012 to 31 July 2012  
Operation: 01 August 2012 to 31 March 2022

### 4. Location(s) of data collection:

Location Name	Region North Baffin, South Baffin, Kivalliq, Kitikmeot	Co-ordinates Lat (degree / minute), Long (degree / minute)	NTS Map Sheet #	Land Status Crown, Commissioners', Inuit Owned
Clyde River	North Baffin	70/29/12, 68/30/18	55K/16	Hamlet, Rankin Inlet

If the project proposal includes a **camp**, please provide the coordinates of the camp location

Lat (degree/minute) 70/29/12 Long (degree/minute) 68/30/18  
NTS Map Sheet # (if different from above) 27F/8

The Nunavut Impact Review Board may require additional location information in a subsequent Project Specific Information Requirement (PSIR) submission. This may take the form of a digital Geographic Information Systems (GIS) file.

## SECTION 4: NON-TECHNICAL PROJECT PROPOSAL DESCRIPTION

Please attach a non-technical description of the project proposal, no more than 500 words, in English and Inuktitut (+Inuinnaqtun, if in the Kitikmeot). The project description should outline the following:

- Project Title
- Researcher's Name and Affiliation
- Project Location
- Timeframe
- Project Description
  - purpose
  - goals & objectives
  - method of transportation
  - any structures that will be erected (permanent / temporary)
  - restoration / abandonment plans
- Methodology
  - collection protocol
  - collection mechanisms
  - indicate why specific communities or individuals were selected for your research
- Data

- short term & long term use of data
- other uses of data
- Reporting
  - How will the research results be communicated to the individual participants, communities, regional and Nunavut organizations?
  - Will the research result in a publication?

## SECTION 5: MATERIAL USE

### 1. List equipment (including drills, pumps, aircrafts, vehicles etc.):

Equipment type and number	Size – dimensions	Proposed use
16 Light construction HF antennas	245m array, 15m high	Transmit and receive, 8-20MHz RF
4 Light construction HF antennas	60m array, 15m high	Receive only, 8-20MHz RF
41 Delhi 18 support towers	0.1m base, 15m high	Support structures for HF antennas
Two 20ft metal containers	1.8mX6mX2m	Housing of equipment electronics
Power line poles	Quantity 9	Provide power access for site

### 2. Detail fuel and hazardous material use:

Fuel	Number of Containers and Capacity of Containers	Total Amount of Fuel (in Litres)	Proposed Storage Methods
Diesel	None		
Gasoline	None		
Aviation fuel	None		
Propane	None		
Other	None		
Hazardous Materials and Chemicals		Total Amount of Hazardous Materials and Chemicals (in Litres)	
None		0	

### 3. Detail daily water consumption rates

Daily amount (in Litres)	Proposed water retrieval methods	Proposed water retrieval location
None	N.A	N.A

### 4. Have you applied for a Class A License with the Nunavut Water Board?

☐ YES

☒ NO

## SECTION 6: WASTE DISPOSAL AND TREATMENT METHODS

### 1. List the types of waste:

Type of waste	Projected amount generated	Method of Disposal	Additional treatment procedures
Sewage (human waste)	None		
Greywater	None		
Combustible wastes	None		
Non-Combustible	None		

wastes			
Overburden (organic soil, waste material, tailings)	None		
Hazardous waste	None		
Other:	None		

**2. Will you be incinerating combustible waste, removing all solid waste, and removing the ash generated from incineration? Not Applicable**

☐ YES

☐ NO

## SECTION 7: COMMUNITY INVOLVEMENT & REGIONAL BENEFITS

**1. List the community representatives that have been contacted and provide the minutes of the meetings if available:**

Community	Name	Organization	Date Contacted
Clyde River	Steven Aipellee	Municipality of Clyde River	Various, starting Dec 2009
Clyde River	Robert Kautuk	Municipality of Clyde River	Various, starting June 2004
Clyde River	Troy Jenkins	Municipality of Clyde River	Various, starting June 2004
Cape Dorset	Ken Wasylyshen	Regional Lands Administrator	Various, starting August 2005
Cape Dorset	Nathaniel Joanasie	Lands Administrator Intern	Various, starting July 2004
Cape Dorset	Art Stewart	Manager Transportation Programs Qikiqtaaluk Region	Various, starting June 2004
Cape Dorset	Adule Chris	Regional Community Planner	Various, starting August 2004
	Kim Davis	Transport Canada	March 2004
	Christopher Csatos	NAV CANADA	February 2004
	Tony Beck	Industry Canada	Various, starting May 2004
Iqaluit	Alex Guilbeault	Qulliq Energy Corporation	Various, starting February 2004

**2. How will the proposed project benefit Nunavut?**

2.1 The project will employ a technical assistant for technical services and maintenance as required.

2.2 The construction of a powerline will lead to the availability of power to be extended to an area where there is none. This will greatly benefit the feasibility for development of the immediate and surrounding area when we vacate the research site.

2.3 Instead of using a Satellite Internet Service Provider (ISP) we plan to make use of the local ISP, Ilisaqivik Society, Clyde River, NU. This gives us the opportunity to support the local industry and business.

2.4 During the construction and implementation phase( 6 weeks ), plus the annual maintenance visit of one week, the details of the benefit to the local economy will be as described below in § 3.

**3. Please describe the nature of local services and/or logistic support that will be required from local communities, eg. Equipment, accommodations, outfitting, translations...**

3.1 Logistic support of three types will be required. (A) Transportation: we will be renting a pickup truck from the Clyde River Municipality for the construction period and an ATV from Atsiqtaq ATV rentals for annual maintenance trips. (B) Accommodation: we will be making use of the Quammaq Hotel for all our accommodation needs. (C) Equipment: should we need equipment that is not site specific we will rent it from the Clyde River Municipality.

3.2 The following services will be required (A) Power: we will make use of the local power company, Qulliq Energy Corporation, for site power, which includes the addition of a new section of power line to be built. (B) Internet: we plan to make use of the local Nunavut Broadband wireless service available through Ilisagvik Society. (C) Translation: for all our translation needs we use the services from Iqaluit based translator, Jeanie Eeseemailee.

**4. Describe and attach documentation regarding community support or concerns for the proposed project:**

4.1 Community support was given in the form of successful applications for:

- 1) Land Lease L-44534B,
- 2) Clyde River Council approval, Motion # RCM 02-11-00

**5. Is there a traditional knowledge component to this research project? If yes, please explain:**

5.1 Yes. The scientific research that is possible with the radar at Clyde River will provide valuable knowledge about the behaviour and prediction of the aurora. There is extensive traditional knowledge that pertains to the aurora, and we will use the radar to develop empirical and physical models that make it possible to predict its occurrence and its behaviour. The radar at Clyde River makes measurements in a region known as the polar cap. The polar cap is directly connected to interplanetary space by the Earth's magnetic field. This direct connection is important to the study of "space weather," which is the study of how near-Earth space affects the Earth's atmosphere. With the better understanding of space weather, we can also better understand the influence on, as well as the prediction of, low altitude weather.

## SECTION 8: GENERAL QUESTIONS

**1. Do you give NRI permission to publish project information in the Nunavut Research Institute Annual Compendium of Research Undertaken in Nunavut?**

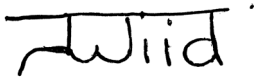
☒ **X YES**

☐ **NO**

**2. In addition to the application form, applicants are required to submit additional information in an electronic format to the Manager, Research Liaison, [cfilion@nac.nu.ca](mailto:cfilion@nac.nu.ca). Please check that the following have been submitted to NRI:**

- ☒ **Project Summary** -in English and Inuktitut (+Inuinnaqtun, if in the Kitikmeot)
- ☒ **NTS Maps** of the project

**Applicant:**



**Signature**

SuperDARN Research Engineer  
**Title**

20 June 2012  
**Date**