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

IMPORTANT
This application fulfills the requirements for the NIRB environmental screening.

Rebecca.Montsion@NRCan-RNCan.gc.ca

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 Tracking Paleoenvironmental Change in the latest Mesoproterozoic (ca. 1.1 billion years old) Bylot Supergroup, Baffin Island

1b. Project Number

Please indicate if applicant has submitted any previous application(s) to NRI related to this project proposal? Yes X No
If yes, please indicate the previous NRI licence number: 02 040 14N-M

Please indicate if applicant has submitted any previous application(s) to NIRB related to this project proposal? Yes X No
If yes, please indicate the previous NIRB project number(s): 14YN015

2. Applicant's full name and mailing address:

Galen Halverson	Phone:	1-514-398-4894
Dept. of Earth and Planetary Sciences, McGill Univ.	Fax:	
3450 University St., Montreal QC, H3A 0E8	Email:	galen.halverson@mcgill.ca

3. Field Supervisor's name and mailing address:

Peter Crockford	Phone:	514-995-4397
Dept. of Earth and Planetary Sciences, McGill Univ.	Fax:	
3450 University St., Montreal QC, H3A 0E8	Email:	Peter.crockford@mail.mcgill.ca

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

Timothy Gibson, Student, McGill University	Malcom Hodgkiss, Student, McGill University
Vivien Cumming, Post-doc, McGill University	Rebecca.Montsion@NRCan-RNCan.gc.ca
Sarah Worndle, Student, McGill University	

SECTION 2: AUTHORIZATION NEEDED

1. Indicate <u>all</u> authorizations associated with the project proposal:

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

2. List the <u>active</u> permits, licenses, or other rights related to the project proposal and their expiry date:

Have applied for permission to the Hunters and Trappers Association (Pond Inlet) as well as permits from the QIA and Nunavut Water Board. I have been informed by DIAND that we do not require a permit for the proposed activity.

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:

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

2. Personnel

Total No. of personnel on: 5

Total No. of days on-site: 18

site _____ _____ **Total No. of Person days (A) × (B) = 90**

_____

3. Timing

Period of operation: **July 16, 2016** *to* **August 2, 2015**

Proposed term of authorization: **July 15, 2015** *to* **August 5, 2015**

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

This project will involve only temporary camps comprising only tents, which will be erected and taken down upon arrival and departure.

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
Camp 1.	**North Baffin**	**N72°54'13.74" W81°23'39.38"**	**48 A15**	**National Park**
Camp 2.	**North Baffin**	**N72°57'28.22" W81°40'10.60"**	**48 A15**	**National Park**
Camp 3.	**North Baffin**	**N73°29'41.22" W83°55'22.72"**	**48 D5**	**Inuit Owned and National Park**
Camp 4.	**North Baffin**	**N73°26'17.22" W82°48'39.86"**	**48 D5-D6**	**National Park**

If the project proposal includes a **camp**, please provide the coordinates of the camp location
Lat (degree/minute) _____ Long (degree/minute) _____
NTS Map Sheet # (if different from above) _____

Camp 1: Pingo Valley North N72°57'28.22" W81°40'10.60": July 16 to 20
Camp 2: Mala River N72°57'28.22" W81°40'10.60": July 20 to 25
Camp 3: Elwin Inlet N72°57'28.22" W81°40'10.60": July 25 to 29
Camp 4: Charles Yorke River N72°57'28.22" W81°40'10.60": July 29 to August 2

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:

Title of Project: Tracking Paleoenvironmental Change in the latest Mesoproterozoic (~1 billion years old) Borden Basin, Baffin Island

Research Leader: Galen Halverson, McGill University

Project Location: The Borden Basin: between Pond Inlet and Arctic Bay (near Milne Inlet)

Timeframe: July 16, 2015 to August 2, 2015

Project Description: This project will entail studying the superbly exposed and well-preserved sedimentary rocks of the Borden Basin in northern Baffin Island. The goal for this year is to establish three camps in different parts of the basin at which we will carry out geological mapping, describe and log the rocks, and collect hand specimens for geochemical analysis. The purpose of this research is to study changes in the global environment around 1 billion years ago, when these rocks of the Borden Basin were formed. Specifically, our research group will investigate changes in seawater chemistry and the diversity of life at the time, as recorded in these strata. This project will complement a similar project on somewhat younger rocks in northwestern Canada. All samples will be fist-sized or smaller and will be collected by hand (with a geological hammer) from rocks on the surface (that is, no digging). This research will be a component of several PhD theses. We have coordinated with the Polar Continental Shelf Program for helicopter transport to and from the field, along with moves between camps. Our camps will comprise only tents and we will have no motorized equipment with us. All waste will be returned to Pond Inlet or Arctic Bay for appropriate disposal. All field party members will have wilderness first aid and firearms safety training.

Methodology: Baffin Island is one of few places in the world where rocks where c. 1 billion-year-old sedimentary rocks are well preserved and accessible. Geological mapping will be carried out on satellite imagery and aerial photos and subsequently compiled in a GIS database. Sedimentary rocks will be logged and described in detail, during which time samples will be collected for subsequent geochemical analysis. These will be performed at McGill University. All samples will be catalogued at McGill University and be made available to other researchers up request so as to minimize the need for return trips to Baffin Island to collect new specimens.

Data: All data will be incorporated in PhD theses and publications arising from the research. Once the data is published, it will be made available to the public via Halverson's website at McGill University or by email request.

Reporting: The results of the research will be incorporated in PhD theses and scientific publications and presented at international conferences. The theses and publications will be made available to NRI and other organizations upon request, either as hard copies or electronically.

SECTION 5: MATERIAL USE

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

Equipment type and number	Size – dimensions	Proposed use
Helicopter	Bell 206L	Drop offs and camp moves
Camp stoves	10x10 cm footprint	Meal preparation
Rifles		Protection against polar bears
Flare Guns		Protection against polar bears

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			
Gasoline			
Aviation fuel			
Propane		25	In a single 25L Jerry Can
Other			
Hazardous Materials and Chemicals		**Total Amount of Hazardous Materials and Chemicals (in Litres)**	

3. Detail daily water consumption rates

Daily amount (in Litres)	Proposed water retrieval methods	Proposed water retrieval location
50	Water from snow melt will be boiled.	We will be collecting water from streams and rivers fed by melting snow. We will also rely on local advice on the best locations to retrieve water. Water will only be used for drinking and cooking.

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

☐ **YES** **[X]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)	5 L/day	burial	
Greywater			
Combustible wastes			
Non-Combustible wastes			
Overburden (organic soil, waste material, tailings)			
Hazardous waste			
Other: Kitchen waste	50 kg	Removal to Pond Inlet and Arctic Bay with helicopter	

2. Will you be incinerating combustible waste, removing all solid waste, and removing the ash generated from incineration?

☐ **YES** **X 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
Pond Inlet		Hunter and Trappers Association	Feb. 28, 2015 sent a letter via email and hard copy
	Solomon Awa	Qikiqtani Inuit Association	Feb. 28, 2015 sent a letter via email and hard copy
		Kivalliq Inuit Association	Feb. 28, 2015 sent a letter via email and hard copy
Arctic Bay	Joeli Qamanirq	Hamlet	February 16, 2015 called and was told to contact Pond Inlet
Pond Inlet		Hamlet Office	Feb. 17, 2015 (no reply)

2. How will the proposed project benefit Nunavut?

This work will increase our understanding of the geological history of northern Baffin Island and Sirmilik National Park.

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

Permission and guidance regarding best practices has been requested from the Pond Inlet Hunters and Trappers Association.

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

While there are no direct traditional knowledge aspects of this work, any information we find regarding historical sites will be shared with local organizations.

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**

3. 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. Please check that the following have been submitted to NRI:

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

Applicant:

	Associate Professor	25 February 2015
Signature	**Title**	**Date**

P.O. Box 1720 Iqaluit, NU, X0A 0H0 • PHONE: 867-979-7279 • FAX: 867-979-7109 • email mosha.cote@arcticcollege.ca