



## **NIRB Application for Screening #125646**

### **Tree River Geoscience Project 2022**

**Application Type:** New

**Project Type:** Scientific Research

**Application Date:** 12/20/2021 4:04:36 PM

**Period of operation:** from 0001-01-01 to 0001-01-01

**Proposed Authorization:** from 0001-01-01 to 0001-01-01

**Project Proponent:** Jesse Reimink  
503 Deike Building  
University Park Pennsylvania 16802  
USA  
Phone Number:: 18148656666, Fax Number::

## DETAILS

### Non-technical project proposal description

- English: • Who: A scientific collaboration between Professor D. Graham Pearson of the University of Alberta and Dr. Jesse Reimink of Penn State University in the United States. Additional personnel involved include a PhD student from Penn State, and possibly regional geoscience experts from: the University of Alberta, Laurentian University, or the Nunavut Geoscience Office, as well as a float plane pilot. • What: We will conduct field sampling of ancient basement rocks exposed on the surface. We will be residing at the Plummer's Tree River Lodge and Kugluktuk for the duration of our project and will be flying a Bush Hawk float plane up to 80 km from this location during the day. We will land the Bush Hawk on small lakes, and hike to outcrops near the lakes. Once at outcrops of scientific interest, we will use small hand hammers to take geological samples for research (~1 kg samples) of the rocks of scientific interest. We will be sampling for 8-10 days and expect to collect ~100 samples of rocks in this time period. The sampling will be spread out and will largely be focused on going back to sample locations that have been described by previous Geological Survey of Canada bedrock mappers, projects that took place in the 1980's. Our crew will consist of three to five geologists and a float plane pilot. • Why: Sedimentary rocks exposed in this region contain mineral grains that are extremely old. With the advanced scientific laboratories currently in use at the University of Alberta, we are able to learn a lot about how the very ancient Earth operated by analyzing tiny mineral grains that are found in these sediments. We will be collecting rock samples that contain these tiny mineral grains, extracting the grains, and analyzing their chemical signatures. Our results will be published in peer-reviewed scientific journals. Hopefully, we will learn a lot about how the ancient Earth operated by analyzing these ancient mineral grains.
- French: NA
- Inuktitut: NA
- Inuinnaqtun: • Kina: Naunaiyaut havaqatiriigunmi uumanga D. Graham Pearson-mit Ilihaqvikiyuamit Alberta-mi, Dr. Jesse Reimink-milu Penn State-mi Ilihaqvikiyuamit Amialigat Nunagiyaanit. Ilagiarutit havaktuni ilauiyuni ilaqaqtuq PhD-nigiamini ilihagtuq Penn State-mit, nunamilu nunamiutaliqiyit ayugitut uvanga, Ilihaqvikiyuamit Alberta-mit, Laurentian-mit Ilihaqvikiyuamit, uvaluniit Nunavumi Nunamiutanik Naunaiyainit Titiraqvianik, unalu qayalikmik. • Hunauk: Maniqami naunaiyainiaqtugut igilraat tungaviuyunik uyaqai takuukhauliqtunik qaagani nunap. Hiniktaqviquaqniaqtugut Plummer-p Qugluaqtualukmi Aguniaqtitiviani Kugluktumilu atuqhimaqtulugu havaariyaqt tikminiaqtugulu Bush Hawk-mi qayalikmi tikmiaqmi 80-kilaamitanik umanga inigiyauyumit ubluani. Miniaqtugut mikiyuni tahiqli, pihuklutalu uyaraqtuniqnut haniani tattit. Uyaraktuniqmugarupta naunaiyaivikhamut, atuqniaqtugut mikiyunik kautauyanik nunami naunaiyagakhanik ilituqhaqtakhanik (~1-kilogram-guyut naunaiyagakhat) uyaqanik naunaiyagakhanik. Naunaiyainiaqtugut 8-mit qulinut ubluni nahuriyugulu katitiriami ~100-nik naunaiyagakhanik uyaqanik talvuuna. Naunaiyainiq hiamayaktauniaqtugut ihumagiyaauluaqniaqtulu utiriami naunaiyariagani inigiyauyut uqautauyut kiguliqmi Nunaliqijutunik Naunaiyautimi Kanatami qaiqtunik nunauiyutqinit, havaat atuqhimayut 1980 ukiut atuqtilugit. Havaktivut pigahunit talimanut nunamiutaliqiyit ilauniaqtut qayalikmiklu tikmialikmik. • Huuq: Qaliriiktuuyaaqtut uyaqat hatqigtut uvani nunami piquaqtut uyaraktaakhanik utuqaquyaguyunik. Ihuaqhivaaliqtuni naunaiyautimi ilituqhautit taja atuqtauyuuq Ilihaqvikiyuami Alberta-mi, ilitpaliahimayugut amihunik qanuq igilraat Hilaqyuaq aulaniganik ilituqhaqhugit mikanuit uyaraktaakhani ilagiyait naniyauhimayut ukunai hiuraliani. Katitiriniaqtugut uyaqanik naunaiyagakhanik piquaqtunik mikanuanik uyaraktaakhanik avugiinik, ahivaqtiqlugit avugiinigit, ilituqhaqlugilu hunavaluqaqniginik nalunairutunik. Naluhuiqtavut takuupkaqtitauniqtut havaqatinik ihivriuniginik naunaiyautinik uqauhiini. Ihumami, iliniaqtugut amihunik qanuq taimaniraaluk Nunaqyuaq aulaniqaqmagaa ilituqhaqniginik ukua igilraat uyaraktaakhani ilaliutihimayut.

### Personnel

Personnel on site: 4

Days on site: 12

Total Person days: 48

Operations Phase: from 2022-07-15 to 2022-07-25

## Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Sampling Region of Interest #1	Researching	Crown	NA	NA	NA
Sampling Region of Interest #2	Researching	Crown	NA	NA	NA
Tree River Lodge Base Camp #4	Camp	Crown	NA	NA	NA
Sampling Region of Interest #3	Researching	Inuit Owned Surface Lands	NA	NA	NA
Sampling Region of Interest #5	Researching	Inuit Owned Surface Lands	NA	NA	NA
Sampling Region of Interest #6	Researching	Inuit Owned Sub-Surface Lands	NA	NA	NA

## Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Information is not available			

# Authorizations

Indicate the areas in which the project is located:

Kitikmeot

## Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Kitikmeot Inuit Association	Have applied - awaiting decision	Applied, Decision Pending		
Government of Nunavut, Nunavut Research Institute	Have applied - awaiting decision	Active		

## Project transportation types

Transportation Type	Proposed Use	Length of Use
Air	Float Plane	

## Project accomodation types

Permanent Camp

Community

Other,

## Material Use

Equipment to be used (including drills, pumps, aircraft, vehicles, etc)

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Hand hammers	3	1x10x3	We will use handheld rock hammers to sample basement rocks
Bush Hawk on floats	1	1	We will utilize a BushHawk on floats for transport to and from field areas.

## Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Aviation fuel	fuel	2	55	110	Gallons	Aviation fuel is required for flying to remote locations

## Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
1	Drinking water will be gathered from streams and lakes in the region	

# Waste

## Waste Management

Project Activity	Type of Waste	Projected Amount Generated	Method of Disposal	Additional treatment procedures
Information is not available				

## Environmental Impacts:

No environmental impacts will be produced. We will remove all garbage and will take only small research rock samples.

# **Additional Information**

**SECTION A1: Project Info**

**SECTION A2: Allweather Road**

**SECTION A3: Winter Road**

**SECTION B1: Project Info**

**SECTION B2: Exploration Activity**

**SECTION B3: Geosciences**

**SECTION B4: Drilling**

**SECTION B5: Stripping**

**SECTION B6: Underground Activity**

**SECTION B7: Waste Rock**

**SECTION B8: Stockpiles**

**SECTION B9: Mine Development**

**SECTION B10: Geology**

**SECTION B11: Mine**

**SECTION B12: Mill**

**SECTION C1: Pits**

**SECTION D1: Facility**

**SECTION D2: Facility Construction**

**SECTION D3: Facility Operation**

**SECTION D4: Vessel Use**

**SECTION E1: Offshore Survey**

**SECTION E2: Nearshore Survey**

**SECTION E3: Vessel Use**

**SECTION F1: Site Cleanup**

**SECTION G1: Well Authorization**

**SECTION G2: Onland Exploration**

**SECTION G3: Offshore Exploration**

**SECTION G4: Rig**

**SECTION H1: Vessel Use**

**SECTION H2: Disposal At Sea**

**SECTION I1: Municipal Development**

**Description of Existing Environment: Physical Environment**

**Description of Existing Environment: Biological Environment**

**Description of Existing Environment: Socio-economic Environment**

**Miscellaneous Project Information**

**Identification of Impacts and Proposed Mitigation Measures**

**Cumulative Effects**



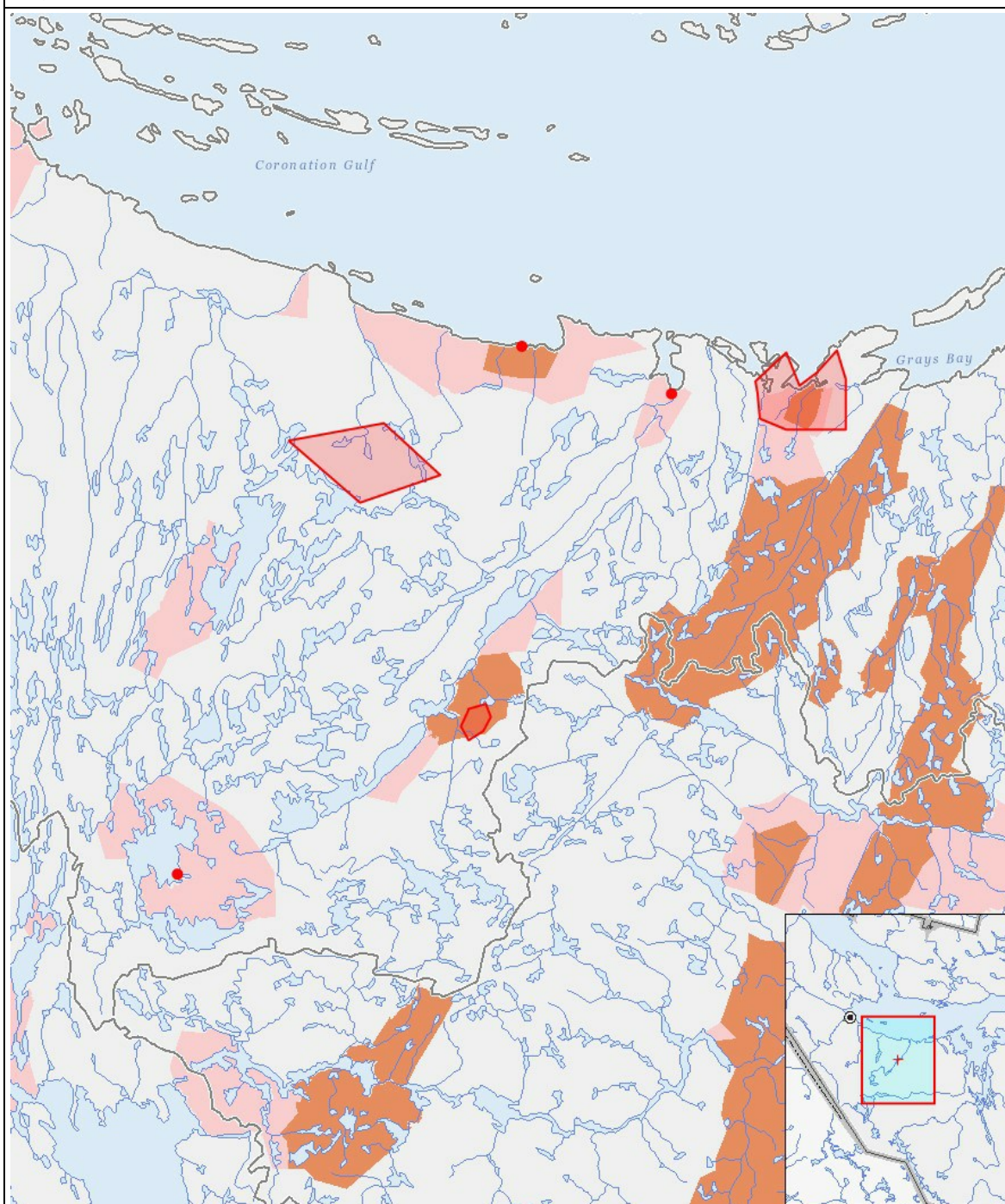
# Impacts

## Identification of Environmental Impacts

		PHYSICAL	Designated environmental areas	Ground stability	Permafrost	Hydrology / Limnology	Water quality	Climate conditions	Eskers and other unique or fragile landscapes	Surface and bedrock geology	Sediment and soil quality	Tidal processes and bathymetry	Air quality	Noise levels	BIOLOGICAL	Vegetation	Wildlife, including habitat and migration patterns	Birds, including habitat and migration patterns	Aquatic species, incl. habitat and migration/spawning	Wildlife protected areas	SOCIO-ECONOMIC	Archaeological and cultural historic sites	Employment	Community wellness	Community infrastructure	Human health
Construction																										
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Operation																										
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Decommissioning																										
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(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

## Project Location



## List of Project Geometries

1	polygon	Sampling Region of Interest #1
2	polygon	Sampling Region of Interest #2
3	polygon	Sampling Region of Interest #3
4	point	Tree River Lodge Base Camp #4
5	point	Sampling Region of Interest #5
6	point	Sampling Region of Interest #6