NPC 151061: Vermont State University

Close

Proposal Status: Conformity Determination Issued

Overview Documents

Project Overview

Type of application: Amendment

Proponent name:

Ross Lieblappen

Proponent company:

Vermont State University

Project Description:

The primary objective of this project is to improve characterization of various polar terrains from the microscale and into the nanoscale. Leveraging recent advances in X-ray imaging, researchers aim to connect physical and biological attributes of terrain state, thereby advancing existing basic research of soil, snow, and ice microstructure. By reaching nanoscale resolution, researchers can achieve the critical application of locating and imaging microbes in situ using X-ray computed tomography. Combined with analyzing critical features of the terrain, researchers will be able to significantly improve our understanding of microbially-mediated processes in cold regions. In May 2025, five researchers from Vermont State University will travel to Cambridge Bay for ~2 weeks collecting approximately 6-8 permafrost cores and 6-8 sea ice cores. Each day field sites will be accessed either via truck outside of town for permafrost core collection or via snow machine in Cambridge Bay harbour for sea ice core collection. All cores are about 1 m in length and 7.5 cm in diameter.

Project Schedule

Start Date:

2026-06-15

End Date:

2026-07-03

Project Map

List of project geometries:

Id

Geometry

Location Name

19768

polygon

Sea ice in Cambridge Bay

19769

polygon

Permafrost accessible by road outside of town

19771

polygon

Resolute Bay permafrost accessible by road, ATV, or snow machine

19772

polygon

Eureka permafrost accessible by road, ATV, or snow machine

NPC Planning regions:

No Approved Plan

North Baffin

Project Land Use and Authorizations

Project Land Use:

Scientific Research

Licensing Agencies:

Nunavut Water Board

Nunavut Research Institute

Material Use

Equipment:

Type

Quantity

Type

Use

Drill

2

7 cm

permafrost and sea ice coring drills

Snowmobile

5

2 m x 1 m

Access to coring site

Truck

1

2 m x 1 m

Access to permafrost sites along road

ATV

6

2 m x 1 m

Access to coring site

Fuel Use:

Type

Container

Capacity

Use

Gasoline

1

50

For ATV and drills

Hazardous Material and Chemical Use:

Type

Container

Capacity

Use

Ethanol

1

1

Sterilization

Water Consumption:

Daily Amount (m^2)

Retrieval Method

Retrieval Location

0

Waste and Impacts

Environmental Impacts:

We will be using ATVs and pickup trucks but will have no waste. Anything taken into the field will leave with us. We will fill any coring holes in the ice and ground.

Waste Management:

Waste Type

Quantity Generated

Treatement Method

Disposal Method

No data found