



## **NIRB Uuktuutinga Ihivriuqhikhamut #126244**

### **Arctic Ice Thickening Field Test Qikiqtarjuaq**

<b>Uuktuutinga Qanurittuq:</b>	New
<b>Havaap Qanurittunia:</b>	Scientific Research
<b>Uuktuutinga Ublua:</b>	Tuesday, October 21, 2025
<b>Period of operation:</b>	from 2026-02-01 to 2026-07-31
<b>Havauhikhaq</b>	Tom Meijeraan
<b>Ikayuqtinga:</b>	Arctic Reflections Paardenmarkt 1 Delft Zuid Holland 2611PA The Netherlands Hivayautit Nampanga:: +31654670419, Kayumiktukkut Nampanga::





## Hulilukaarutit

Inigiya	Hulilukaarut Qanurittuq	Nunannga Qanurittaakhaanik	Initurlinga qanuritpa	Initurlinga utuqqarnitat unaluuniit Ingilraaqnitat Uyarannuqtut akhuurninnga	Qanitqiyauyuq qanitqiamut nunallaat kitulluuniit ahiruqtaiiyainnit nuna
Operational zone 3 - field test location - chosen after consultation with HTO and Hamlet (field test site will be max 1 km <sup>2</sup> within zone 3)	Researching	Marine	N/A	N/A	The site lies approximately 10 km in a straight line from Qik, but the distance when traveling over the sea ice is about 15 km.
Operational zone 1 - backup location only	Researching	Marine	N/A	N/A	Operational Zone 1 serves as a backup zone and is situated on the sea ice adjacent to the northern tip of Qik. It will remain solely as a fallback option, to be considered only under extraordinary circumstances and only if the HTO determines, immediately prior to the start of the field test, that Zone 1 should take precedence over Zone 3. For clarity, there is no longer a Zone 2, following discussions on potential locations with the HTO and the Hamlet.

## Nunaliin Ilauyun, Aviktuqhimayuniitunullu Ikayuuhiarunguyun

Nunauyuq	Atia	Timiuyuq	Upluani Uqaqatigiyaungmata
Qikiqtarjuaq	Laila Alooki	Qikitarjuaq Research Centre	2025-06-20
Qikiqtarjuaq	Geela Kooneeliusie (SAO)	Municipality of Qikiqtarjuaq	2025-09-10
Qikiqtarjuaq	Pasa Aulaqiaq	Nattivak HTO	2025-06-24

# Angiuttauvaktunik

Naunaiqlugu nunanga talvani havauhikhaq ittuq:

South Baffin

## Angiuttauvaktunik

Munariniqmut Ayuittiaqtuq	Angirutinga Qanurittuq	Tadja Qanurittaakhaanik	Ublua Tuniyauyuq/Uuktuqtuq	Umikvikhaa Ublua
Nunavunmi Ihivriuniquq Timiqutigiyanga	Research License Application - Arctic Ice Thickening Field Test	Applied, Decision Pending	2025-07-24	

## Project transportation types

Transportation Type	Qanuq Atuqtauniarmangaa	Length of Use
Air	We will travel to Qikiqtarjuaq on regular Canadian North flights, and our equipment will be transported using the same airline.	
Water	We will travel from the Qikiqtarjuaq community to our nearby field test location over the sea ice using snowmobiles	

## Project accomodation types

Nunauyuq

# Ihuaqutivaluin Atuqtauyukhan

Hanalrutit atuqtaunahuat (ukuallu ikuutat, pampiutainnik, tingmitinik, akhaluutinik, hunaluuniit)

Hanalrutit Qanurittuq	Qaffiuyut	Aktikkulaanga – Qanurittullu	Qanuq Atuqtauniarmangaa
Pump (EMV-690 ice road pump)	3	166x80x80cm	Pump seawater from below the ice onto the ice to thicken the ice
Drill (10 inch ice auger, electric)	3	129x39x29 cm	Manually drill holes in the ice to allow the pump to extract water
Sled	3	250x100x50cm	The sled is currently still under design and dimensions can still change a bit. The sled is specifically designed to carry a pump and to lower and lift the pump in the hole drilled by the auger.
Smart buoy (SIMB3)	2	244x33x30cm	The SIMB3 is a buoy designed to measure ice thickness and solar reflection
SAMS SIMBA	2	52x46x22cm	The SAMS SIMBA is a snow and ice thickness measurement apparatus. It comes with a thermistor chain that will be installed in the ice and measures water, ice, snow and air temperatures.
Anemometer	1	40x15x10cm	Measure wind speed, wind direction, air temperature
Data logger	2	40x15x10	Device to store and transfer data from anemometer and radiometers
Radiometer (Apogee FN-500)	2	40x40x10cm	Scientific device measuring incoming and outgoing shortwave and longwave radiation (to measure reflection of solar energy by the ice)
Timelapse camera	2	30x30x15	Timelapse camera to take pictures every x hours to see how the ice melts during the melting season and to visually validate and explain the data coming from the scientific instruments
Floating platform	2	150x50x40cm	Floating platform consisting out of 6 plastic floating cubes (50x50x40cm each) assembled together to keep our scientific instruments floating when the ice starts to melt in summer. Each carries 1 SAMS SIMBAs, 1 data logger, 1 radiometer and 1 timelapse camera.
Skidoo	3	330x120x140cm	Snowmobiles will be leased to

			transport of our research group to and from the site of operations and to tow the sleds carrying the pumps.
Mark II Kovacs Ice Corer	1	100x9 cm diameter	An ice corer will be used to collect ice core samples. The samples will be used to measure ice thickness, temperature and salinity

### Qanurittuq Urhuqyuaq unalu Qayangnaqtut Hunavaluit Aturningga

Qanurittuq urhuqyuaq hunavaluit aturningga:	Urhuqyuaq Qanurittuq	Qaffiuyut qattaryut	Qattaryuk Aktikkulaanga	Atauttimut Qaffiuyut	Ilanga	Qanuq Atuqtauniarmangaa
Gasoline	fuel	125	20	2500	Liters	We will use gasoline to power the pumps. To prevent spills, refueling on the sea ice will be done by simply swapping out empty 20-liter steel jerrycans for full ones—eliminating the need to pour or pump fuel on the ice. All jerrycans will be refilled exclusively in the hamlet
Gasoline	fuel	10	20	200	Liters	Gasoline used to operated locally leased snowmobiles

### Imaqmik Aturningga

Ubluq qanuraaluk (m3)	Aturumayain imavaluin utiqittagaani qanuq	Atulirumayain imavaluin utiqittagani humi
0		

# Iqqakuq

## Ikkakunik Munakgiyauyunik

Havauhikhaq Hulilukaarut	Qanurittuq Iqqakut	Ihumagiyauyuq Qanuraaluktut Atuqtait	Qanuq Iqqakuurniarmangaa	Halummaqtirarnirutikhan piyutin
Information is not available				

### Avatiliriniqmut Ayurhautingit:

Due to the limited area (1km<sup>2</sup>) where we plan to thicken the ice, the impact on the physical environment is expected to be minimal and can be compared to the creation of ice roads. A hole is drilled through the ice, after which a pump is placed into the hole to pump water on top of the ice, which will freeze rapidly and leads to thicker ice. Both drilling and pumping will make noise, which could disturb local wildlife and thus also local hunting and trapping activities. To avoid such disruption, the exact field test location will be determined in close collaboration with the Hunters & Trappers Organization just before the beginning of the test. Monitors will continuously assess the site, and all activities will pause if wildlife is observed nearby, resuming only after they've left. Operations are planned for February to avoid disturbance due to artificial light in the polar night. High-flow pumps and electric drills will minimize operational time and noise. Snowmobile traffic will be limited to a single, marked route to reduce disturbance. All waste will be collected and returned to Qikiqtarjuaq daily. Any measurement equipment left on the ice will be properly secured, floatable, GPS-trackable, and clearly marked with our contact information to ensure safe recovery after the test period. Snowmobile refueling will only occur in the village, eliminating spill risks on the sea ice. The gasoline-powered pumps, designed for ice-thickening, hold 20 liters of fuel and require at most one refueling per day. This will be done by swapping full 20-liter steel jerrycans, avoiding the need to pour fuel on the ice. At the end of the season, we will recover all remaining buoys and floating platforms to ensure minimal long-term environmental impact.

# **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**

**Qanurittuq Ittunik Avatinga: Avatingalluanga**

**Qanurittuq Ittunik Avatinga: Inuuhimayunut Avatinga**

**Qanurittuq Ittunik Avatinga: Inungit-maniliurutingit Avatinga**

**Miscellaneous Project Information**

**Naunaiyainiq ukuninga Ayurhautingit unalu Piumayaat Ikikliyuumiutinahuarutit**

**Tamatkiumayunik Ihuikgutivaktunik**

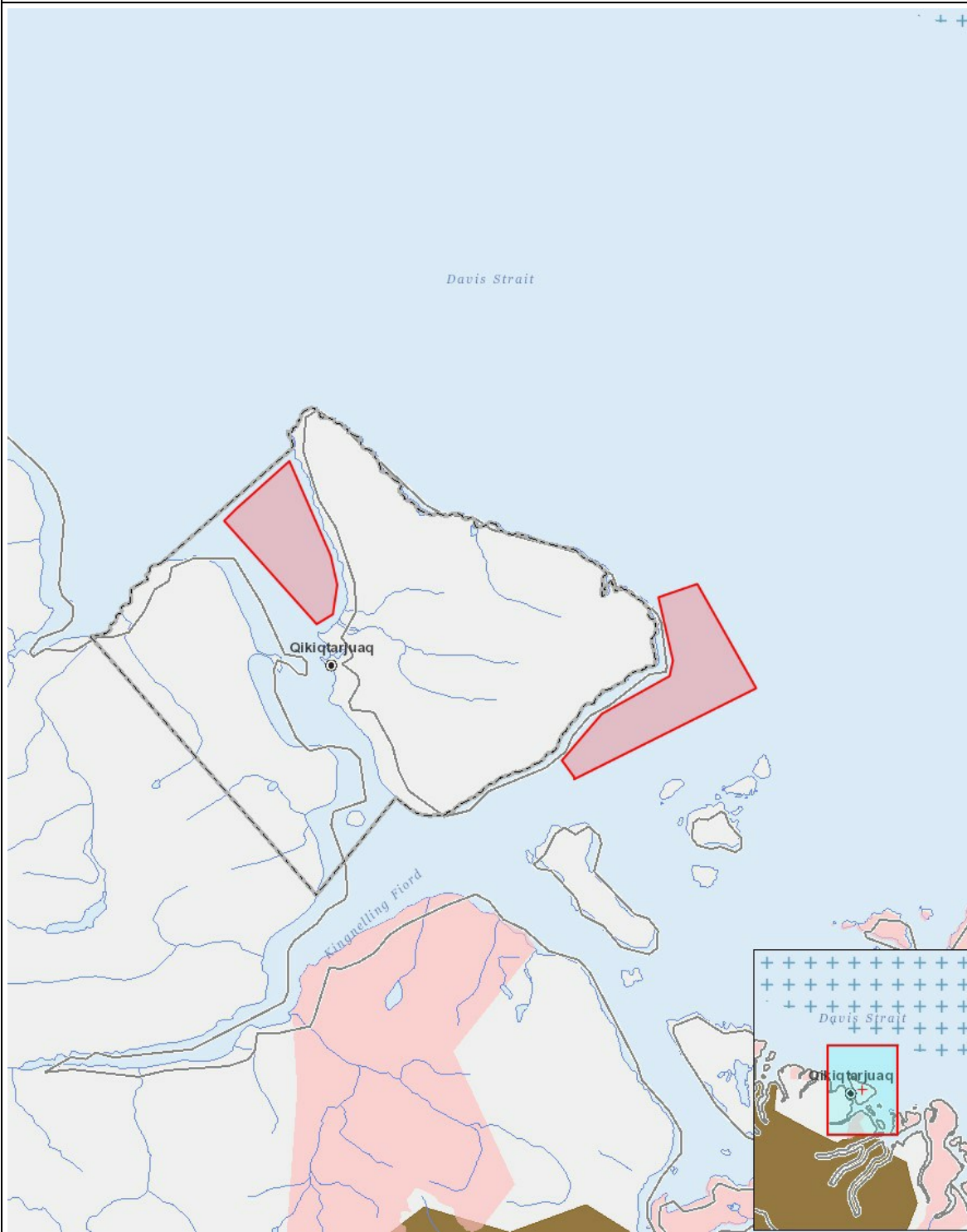
# Impacts

## Ilitariyauniq Avatiliriniqmut Ayurhauingit

	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
<b>Havakvinga</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<b>Aulapkaininnga</b>																									
Researching	-	-	-	-	-	-	-	-	-	-	-	-	M	-	-	-	M	-	-	-	P	-	-	-	-
<b>Piiqtauniq</b>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(P = Nakuuyuq, N = Nakuungittut unalu mikhilimaittuq, M = Nakuungittut unalu mikhittaaqtuq, U = Naluyayuq)

# Havaariyauyukhamut Nayugaa



## List of Project Geometries

- 1 polygon Operational zone 1 - backup location only
- 2 polygon Operational zone 3 - field test location - chosen after consultation with HTO and Hamlet (field test site will be max 1 km<sup>2</sup> within zone 3)