NIRB Application for Screening #126244
Arctic Ice Thickening Field Test Qikiqtarjuaq

Application Type: New

Project Type: Scientific Research

Application Date: Tuesday, October 21, 2025

Period of operation: from 2026-02-01 to 2026-07-31

Project Proponent:

Tom Meijeraan
Arctic Reflections
Paardenmarkt 1
Delft Zuid Holland 2611PA
The Netherlands
Phone Number:: +31654670419, Fax Number::

DETAILS

Non-technical project proposal description

English: ** Project Summary ** The Arctic is warming faster than other parts of the world, causing sea ice to melt earlier each year. This affects wildlife, the climate, and the way people in Nunavut travel and hunt. One cause of this melting is that darker ocean water absorbs more heat than bright white ice. When sea ice disappears, the ocean warms even faster. To help reduce this warming, our team from Arctic Reflections is testing a method called Arctic Ice Thickening. The idea is simple: in winter, we pump seawater onto the ice surface, just like the way ice roads are constructed. The cold air freezes the water and makes the ice thicker. Thicker ice may last longer in the spring and summer, helping to prolong the sea ice cover.Our research will take place near Qikiqtarjuaq in winter 2026 and 2027. We want to find out:•Does the method work in Nunavut conditions?•How much does the ice actually thicken?•How long does the thicker ice last?•Does it affect local wildlife or the environment? ** Justification for the Study ** If Arctic Ice Thickening works, it could help keep sea ice in place longer—supporting local travel routes, hunting, and wildlife and preventing the ocean from warming even faster. It's a low-tech idea based on traditional ice road building, but we're testing it for a new purpose: slowing down sea ice loss. With the results of this field test, we hope to better understand if this could be part of a solution to Arctic climate challenges. ** Where, When, and How Long ** The field test will happen on the sea ice to the south east of Broughton Island, south of Qikiqtarjuaq. The exact spot will be chosen in collaboration with the Hunters & Trappers Organization, staying away from areas where animals are known to gather.We plan to do most of the work in February 2026 and 2027, when there is enough daylight and the ice is thick and safe. The work will take about 4–5 weeks each year, including setup, pumping, and cleanup. Monitoring of the ice will continue until summer, using equipment that can float and be tracked by GPS. ** Research Methods ** Our team (6-8 people) will:•Use snowmobiles and sleds to carry pumps and equipment•Drill holes in the ice and pump seawater onto the surface•Repeat this over an area of about 1 km2•Monitor ice thickness using smart sensors, weather stations, and visual checks, both of the thickened area as for non-thickened ice for comparison reasons•We will work only during the day, to avoid disturbing wildlife. All travel to and from the site will use the same marked path. Waste will be brought back each day. Refueling of snowmobiles will only happen in Qikiqtarjuaq, not on the ice. For the pumps we will only have to replace jerrycans to refuel to avoid spills. ** Sharing Results in Nunavut ** We are committed to working closely with the Qikiqtarjuaq community. Wildlife monitors/guides and field ice observers will be hired during the project. We plan to:•Share our results with the Qikiqtarjuaq Hunters & Trappers Organization•Provide summaries in plain language and visual formats•Visit Qikiqtarjuaq before the start of the field test for further community consultation and afterwards to present findings and hear community feedback•Make our data available to Nunavut researchers and decision-makers and investigate if we can make all ice thickness data available via the Siku platform to the local community.

French: This project does not take place in the city of Iqaluit. If French translation is still required, please contact me directly. Thank you.

Inuktitut: ᐱᓕᕆᐊᒧᑦ ᓇᓗᓇᐃᔭᖅᓯᒪᓂᖏᑦᐅᑭᐅᑕᖅᑐᖅ ᓱᑲᑦᑐᒥᑦ ᐅᖅᑰᓯᕙᓪᓕᐊᓂᖃᖅᑐᖅ ᓴᓂᐊᓂ ᐊᓯᖏᓐᓂ ᓯᓚᕐᔪᐊᒥᑦ, ᓯᑯᖓᓂ ᐊᐅᔅᓴᖃᐃᓐᓂᖅᓴᐅᑎᑦᑎᓪᓗᓂ ᐊᕐᕌᒍᑕᒫᑦ. ᑖᓐᓇ ᐊᑦᑐᐃᓂᖃᖅᑐᖅ ᐆᒪᔪᓂᑦ, ᓯᓚᖓᓂ, ᐊᒻᒪ ᐃᓄᖏᓐᓂ ᓄᓇᕗᒻᒥ ᐊᐅᓪᓚᕐᓂᖏᓐᓄᑦ ᐊᒻᒪ ᐊᖑᓇᓱᐊᕐᓂᖏᓐᓄᑦ. ᐃᓚᖏᔭᖓ ᐱᔾᔪᑎᒋᔭᖓ ᐊᐅᑉᐸᓪᓕᐊᓂᖓᓄᑦ ᕿᕐᓂᓂᖅᓴᐅᓂᖓᓄᑦ ᐃᒪᖓ ᐆᓇᖅᑐᓂᑦ ᐱᖃᑦᑕᓂᖅᓴᐅᓪᓗᓂ ᓴᓂᐊᓂ ᖃᑯᖅᑕᓂ ᓯᑯᖓᓂ. ᓯᑯᕋᐳᓐᓂᑎᓪᓗᒍ, ᐃᒪᖓᓂ ᐅᓇᖅᓯᓴᕋᐃᓐᓂᖅᓴᐅᔪᖅ.ᐃᑲᔪᕐᓗᒍ ᑖᓐᓇ ᐅᖅᑰᓯᕙᓪᓕᐊᓂᖓ, ᐱᓕᕆᔩᑦ ᐅᑭᐅᑕᖅᑐᒥ ᑕᑯᔅᓴᐅᓂᖏᓐᓄ ᖃᐅᔨᓴᖅᑐᑦ ᐊᑐᖅᑕᐅᔪᒥᑦ ᑕᐃᔭᐅᔪᖅ ᐅᑭᐅᑕᖅᑐᒥ ᓯᑯᖓ ᐃᔾᔪᓯᕙᓪᓕᐊᓂᖓ. ᐃᓱᒪᒋᔭᐅᔪᖅ ᐱᒡᒐᓇᖏᑦᑐᖅ: ᐅᑭᐅᒃᑯᑦ, ᒥᓪᓗᐊᑎᑦᑎᔪᑦ ᐃᒪᕿᑦ ᓯᑯᒧᑦ ᖄᖓᓅᖅᑲᖅᑐᒍ, ᐊᔾᔨᑐᐃᓐᓇᖓᑎᑐᑦ ᓯᑯᒃᑯᑦ ᐊᑐᕆᐊᓕᐅᓂᕐᒥᑦ. ᓂᓪᓕᓇᖅᑐᖅ ᖁᐊᖅᑎᑎᓪᓗᓂ ᐃᒪᖓᓂ ᐊᒻᒪ ᓯᑯᖓᓂ ᐃᔾᔨᓂᖅᓴᐅᑎᑦᑎᓪᓗᓂ. ᐃᔾᔨᓂᖅᓴᐃᑦ ᓯᑯᐃᑦ ᐊᑯᓂᐅᓂᖅᓴᐅᔪᓐᓇᖅᑐᑦ ᐅᐱᕐᖔᔩᒃᑯᑦ ᐊᒻᒪ ᐊᐅᔭᒃᑯᑦ, ᐃᑲᔪᖅᑐᑎ ᐊᑯᓂᐅᓂᖅᓴᕐ ᓯᑯᖃᖅᑐᓂ.ᖃᐅᔨᓴᕐᓂᖃᓂᐊᖅᑐᒍᑦ ᖃᓂᒋᔭᖓᓂ ᕿᑭᖅᑕᕐᔪᐊᖅ ᐅᑭᐅᖓᓂ 2026 ᐊᒻᒪ 2027. ᖃᐅᔨᔪᒪᔭᕗᑦ:•ᐊᑐᖅᑕᐅᓂᖓ ᐱᔪᓐᓇᕐᒪᖔᖅ ᓄᓇᕗᒻᒥ ᖃᓄᐃᓐᓂᓴᔭᖏᓐᓂ?•ᖃᓄᑎᒋ ᓯᑯᖓ ᐃᔾᔨᓯᒃᑕᖅᑲ?•ᖃᓄᑎᒋ ᓯᑯᖓ ᐃᔾᔨᓂᖅᓴᐅᔪᖅ ᐊᑯᓂᐅᓂᖃᖅ? •ᐊᑦᑐᐃᓂᖃᖅᑳ ᐆᒪᔪᓂᑦ ᐅᕝᕙᓘᓐᓃᑦ ᐊᕙᑎᖓᓂ?ᐱᔾᔪᑎᖏᑦ ᖃᐅᔨᓴᓂᕐᒧᑦᐅᑭᐅᑕᖅᑐᒥ ᓯᑯᖓ ᐃᔾᔨᕙᓪᓕᐊᓂᖓ ᐱᔪᓐᓇᖅᑐᖅ, ᐊᑯᓂᐅᓂᖅᓴᖅ ᓯᑯᖃᖅᑎᑎᔪᓐᓇᖅᑐᖅ—ᐃᑲᔪᕐᓂᖃᖅᑐᖅ ᓄᓇᓕᒻᒥ ᐊᐅᓪᓚᕐᕕᐅᕙᑦᑐᑦ ᐊᖅᑯᑎᖏᓐᓂ, ᐊᖑᓇᓱᐊᕐᓂᕐᒧᑦ, ᐊᒻᒪ ᐆᒪᔪᓂᑦ ᐊᒻᒪ ᐃᒪᖓᓂ ᐅᖅᑰᓯᕙᓪᓕᐊᖏᑎᑦᑎᓂᖅᓴᐅᓪᓗᓂ ᓱᑲᑦᑐᒥᑦ. ᐱᒡᒐᓇᖏᑦᑐᖅ ᐃᓱᒪᒋᔭᐅᓂᖓ ᑐᓐᖓᕕᒋᓗᒋᑦ ᓯᒃᑯᑦ ᐊᑐᕆᐊᓕᐅᖃᑦᑕᖅᑐᓂᑦ, ᑭᓯᐊᓂ ᖃᐅᔨᓴᕐᓂᖃᖅᑐᒍᑦ ᓄᑖᒧᑦ ᐱᔾᔪᑎᖃᖅᑐᒧᑦ: ᓱᒃᑯᐃᓪᓕᑎᒋᐊᕐᓗᒍ ᓯᑯᖃᕈᓐᓃᕐᓂᖓ. ᖃᓄᐃᓐᓂᓴᔭᖏᓐᓂ ᑕᕝᕙᓂ ᖃᐅᔨᓴᕐᓂᐅᔪᒥᑦ, ᑐᑭᓯᑎᐊᕈᒪᓂᖅᓴᐅᓂᐊᖅᑐᒍᑦ ᑕᒪᓐᓇ ᐃᓚᒋᔪᓐᓇᕐᒪᖔᒍ ᐋᖅᑭᒍᑎᐅᓗᓂ ᐅᑭᐅᑕᖅᑐᒥ ᓯᓚᖓᓄ ᐊᔅᓱᕈᕈᑕᐅᔪᓂᑦ.ᓇᒥ, ᖃᖓ, ᐊᒻᒪ ᖃᓄᑎᒋᖃᐅᔨᓴᕐᓂᖃᓂᐊᖅᑐᑦ ᓯᑯᖓᓂ ᐱᖓᓐᖓᓂ ᕿᑭᖅᑕᕐᔪᐊᖅ, ᐅᐊᓐᓇᖓᓂ ᕿᑭᖅᑕᕐᔪᐊᖅ. ᓇᒥᓂᓪᓚᕆᒃ ᓂᕈᐊᖅᑕᐅᓂᐊᖅᑐᖅ ᐱᓕᕆᖃᑎᒌᖕᒋᑦ ᐆᒪᔪᓂᐊᑎᒃᑯᑦ ᑲᑐᔾᔨᖃᑎᒌᖏᑦ, ᐅᐸᑦᑕᐅᑦᑕᐃᓕᒪᒍᑎ ᓇᒦᓐᓂᖏᓐᓄᑦ ᐆᒪᔪᐃᑦ ᑲᑎᙵᕙᖕᓂᖏᓐᓂ.ᐸᕐᓇᓯᒪᔪᒍᑦ ᐃᖅᑲᓇᐃᔮᕐᓂᖅᓴᐅᓂᐊᖅᑐᑎ ᕕᕝᕗᐊᕆ 2026 ᐊᒻᒪ 2027,

ᖃᐅᒪᖃᑦᑕᓂᖅᓴᐅᑎᓗᒍ ᐊᓚᒪ ᓱᑯᖏᑐ ᐃᓵᔪᓂᖅᑎᑦᓗᒍ ᐊᓚᒪ ᐊᑦᑕᓇᖅᑎᓂᓇᒍ. ᐃᖅᑲᓇᐃᔨᖏᔪᖅ ᐊᑯᓂᐅᓂᖃᖅᐸᓗᓂᓂᐊᖅᑐᖅ 4-5 ᐱᓇᓯᐊᐳᔪᓂᑦ ᐊᖅᑭᔭᒍᒫᒃ, ᐱᖃᓯᐅᑎᑦᓗᒍ ᐋᖅᑭᓯᓇᑕᐅᓂᖓᑦ, ᒥᑦᓗᐊᖅᑎᑕᐅᓂᖓᑦ, ᐊᓚᒪ ᓴᓗᒪᓴᖅᑕᐅᓂᖏᓐᓄᑦ. ᖃᐅᔨᓴᖃᑦᑕᔪᓂᖅ ᓱᑯᖏᓐᓂ ᑲᔪᓯᓂᐊᖅᑐᖅ ᐊᐅᖃᑭᕐᕋᐊᔪᓂᖏᓐᓄᓄᑦ, ᐊᑐᔪᓗᒍ ᓱᓇᵇᑯᑦᓂᓂ >ᑦᑕᔪᓇᖅᑐᓂᑦ ᐊᓚᒪ ᖃᐩᒧᐊᑎᑕᐅᓱᒪᔪᑯᑦ ᖃᐅᔨᒪᔨᐅᓗᒍ.ᖃᐅᔨᓴᓂᔪᑦ ᐊᑐᖅᑕᐅᔪᑦᐱᓕᕆᔨᐅᑦ (6-8 ᐃᓄᐃᑦ) ᐃᒪᐃᓐᓂᐊᖅᑐᑦ:•ᐊᑐᔪᓗᒍ ᖃᒧᑕᐅᔭᓂᑦ ᐊᓚᒪ ᖃᒧᑎᐅᓐᓄ ᒥᔪᓗᓇᖅᑐᑦ ᐅᓱᔭᐅᓗᒍ ᒥᔪᓗᓇᖅᑎᑦ ᐊᓚᒪ ᓱᓇᵇᑯᑦᓂ•>ᑐᑦᓗᒍ ᓱᑯᖏᓂ ᐊᓚᒪ ᐃᒪᖏᓂ ᒥᔪᓗᐊᑎᑦᑎᓗᒍ ᓱᑯᔪ ᖃᖏᓐᓄᑦᓂ•ᐊᑐᵇᓐᓂᖃᑦᑕᔪᓗᒍ ᑕᒪᓐᓇ ᐊᖏᓂᖅᐸᓗᑦᑐᒥ 1 ᑭᓯᒦᑕᐃᑦ ᑭᔪᑉᑕᑦᑐᓂ•ᖃᐅᔨᓴᖃᑦᑕᔪᓗᒍ ᓱᑯᔪ ᐃᓵᔪᓂᖏᓐ ᐊᑐᔪᓗᒍ ᖃᐅᔨᓴᐅᑎᓂᑦ, ᓱᓯᖏᓐᓇ ᖃᐅᔨᓴᐅᑎᓂᑦ, ᐊᓚᒪ ᑕ�posᐅᓗᒍ ᖃᐅᔨᓴᖃᑦᑕᐅᓗᒍ, ᐃᓵᔪᓂᖅᑎᑕᐅᓱᒪᒥᑦ ᓴᓂᐊᓂ ᐃᓵᔪᓂᖅᑎᑕᐅᓱᒪᖏᑦᑐᓂ ᓱᑯᖏᓂ ᐊᑦᔨᑦᓵᔭᐊᖅᑎᑕᐅᓂᖓᑦᓄᓂ ᐱᔨᔪᓂᖅᑐᑦ ᐃᓵᔪᓂᖅᑎᑕᐅᓱᒪᒥᑦ ᐊᓚᒪ ᓄᔪᖅᑕᐅᔪᑦᐱᓕᕆᔨᐅᑦ. ᐊᑦᑕᓇᐃᐃᑦ ᐅᑎᐅᔨᖅᐅᖃᖅᑎᑦᑕᓂᐊᖅᑐᑦ ᖃᐅᔨᑕᒪᑦ. ᒥᑦᓗᐊᖅᑎᓄᑦ ᐊᑭᔨᔪᖅᑕᑐᐊᓱᖃᑦᑕᓂᐊᖅᑐᑦ ᐅᑦᓗᐃᓄᓴᐃᑦᑐᒥ, <ᕆᓚᐃᑦᑕᐃᓕᓪᓚᓗᒍ ᐅᒪᓪᓕᑦᓂᒥᓂᐊᖅᑐᖅ. ᐊᐅᑦᓪᓕᓐᓄᑦᓯᒪᓕᕆᓂᖅ ᐊᑐᖃᑎᑦᑕᓂᐊᖅᑐᑦ ᓄᓇᓕᖅᑐᖅᓄᑦᓂᓇᖅᑐᑦ. ᐊᑦᑕᓇᐃᐃᑦ ᐅᑎᐅᔨᖅᐅᖃᖅᑎᑦᑕᓂᐊᖅᑐᑦ ᖃᐅᔨᑕᒪᑦ ᖃᒧᑕᐅᔭᓂᑦ ᐅᑦᓗᐃᓄᓴᐃᑦᑐᒥ. ᐅᖃᓱᖅᑕᐅᖃᖅᑎᑦᑕᓂᐊᖅᑐᑦ ᖃᐅᔨᑕᒪᑦ ᐅᑦᓗᐃᓄᓴᐃᑦᑐᒥ ᑭᓱᓕᖅᑐᑦ ᐃᓵᔪᓂᖅᑎᑕᐅᓱᒪᒥᑦ ᐅᑦᓗᐃᓄᓴᐃᑦᑐᒥ 5 ᐃᓕᓴᖃᐅᑦ ᐅᖃᓪᓚᐅᓂᔪᑦ ᑯᐃᑎᑦᑎᑦᑕᐃᓕᓚᓂᔪᑦ.ᑐᓂᔨᐅᓂᖓᑦ ᖃᓄᐃᓕᓂᖓᑦ ᓄᓇᓗᒫᒃᑯᖓᓂᖅᓱᒪᔪᑯᑦ ᐃᖅᑲᓇᐃᔨᖃᑎᑎᑦᑎᓐᓂᑦ ᖃᑭᑦᑕᖅᔪᐊᖅ ᓄᓇᓕᖓᓐ. ᐅᒪᔪᓂᑦ ᖃᐅᔨᓴᖅᑎᑦ/ᐊᐅᓕᑭᔨᓵᑦ ᐊᓚᒪ ᓱᑯᒥ ᖃᐅᔨᓴᖅᑎᑦ ᐃᖅᑲᓇᐃᔨᖅᑎᑕᐅᓂᖅᑐᖅᓂᑦ ᐱᓕᓗᐊᖅᑐᓂᑦ. <ᖅᓇᓱᒪᔪᑦ ᐃᒪᐃᓐᓂᐊᓕᑕ:•ᑐᑐᓂᑦᑕ ᖃᓄᐃᓐᓂᖅᑎᑕᐅᓱᒪᖏᑦᑐᓂ ᑭᑭᖅᑕᖅᔪᐊᖅ ᐅᒪᔪᓂᖅᑎᑕᐅᓱᒪᒥᑦ ᑲᑎᑦᑎᓐᓂᖅᑐᑦ ᐃᖅᑲᓇᐃᔨᖅᐃᓂᖅᑐᑦ ᐊᓚᒪ ᓱᑯᒥ ᖃᐅᔨᓴᖅᑎᑦ ᐃᖅᑲᓇᐃᔨᖅᑎᑕᐅᓂᖅᑐᖅᓂᑦ ᐊᑦᑕᓇᐃᐃᑦ ᐃᖅᑲᓇᐃᔨᖅᑎᑕᐅᓱᒪᒥᑦ ᐱᓕᓗᐊᖅᑐᓂᑦ ᐊᓚᒪ ᖃᐅᔨᓴᖅᑎ

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Operational zone 3 - field test location - chosen after consultation with HTO and Hamlet (field test site will be max 1 km2 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.

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
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

Authorizations

Indicate the areas in which the project is located:

South Baffin

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Nunavut Research Institute	Research License Application - Arctic Ice Thickening Field Test	Applied, Decision Pending	2025-07-24	

Project transportation types

Transportation Type	Proposed Use	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

Community

Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
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 wil 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

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
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

Water Consumption

Daily amount (m3)	Proposed water retrieval methods	Proposed water retrieval location
0		

Waste

Waste Management

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

Environmental Impacts:

Due to the limited area (1km2) 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

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

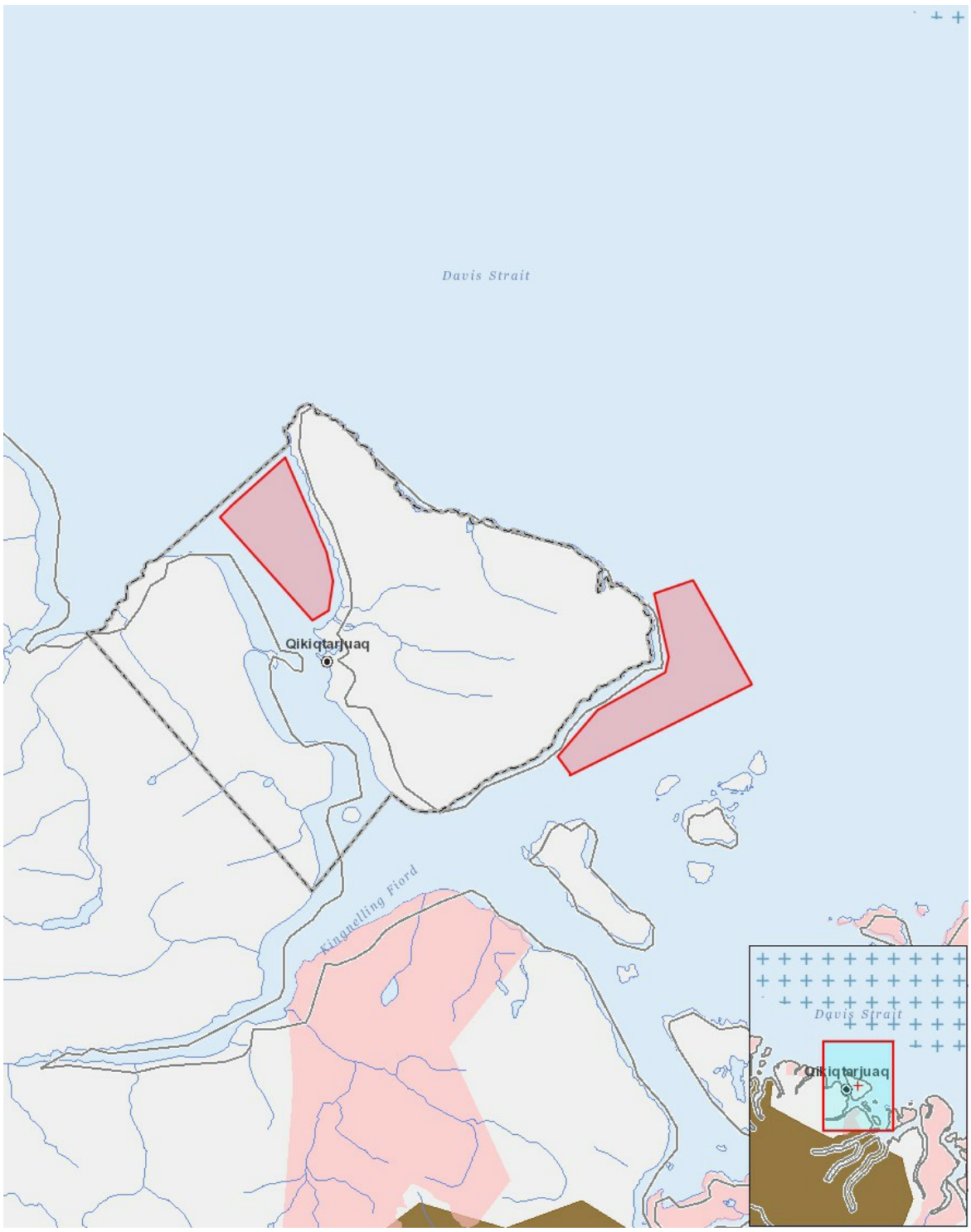
Impacts

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																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
Operation																									
Researching		-	-	-	-	-	-	-	-	-	-	-	M		-	-	-	M	-		-	P	-	-	-
Decommissioning																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = Positive, N = Negative and non-mitigatable, M = Negative and mitigatable, U = Unknown)

Project Location



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 km2 within zone 3)