ᓄᓇᕗᒻ ᐊᐅᑎᓕᓇᖅᑐᓂ ᑲᑎᒪᖅᖃᖅᑎᑦᑎᔪᓂ ᑐᓴᖏᓐᓇᑦᑐᓂ ᖃᐅᔨᓴᓐᓂᒃ ᖁᑎᖅᑕᐅᓚᖏᑦ #125455

Sea-ice monitoring to support resilient transportation infrastructure, community economic development and youth training in Gjoa Haven and Taloyoak, Nunavut

ᑐᓴᖏᓐᓇᑕᐅᔪᑦ ᖁᓕᓐᓂᐅᓪᓗᒍ:	New
ᐱᓕᓇᐊᓇᓴᐅᔪᒪᔨᑦ ᖁᓕᓐᓂᐅᓪᓗᒍ:	Marine Based Activities
ᐅᖃᓪᓗᒡᓗ ᑐᓴᖏᓐᓇᑎᓕᐊᓂᐅᔪᓂᒃ:	3/21/2019 12:55:22 PM
Period of operation:	from 0001-01-01 to 0001-01-01
ᑲᔪᓯᑲᐃᓕᕆᐅᓂᐊᖏᓂᕆᔨᐅᔪᓂᒃ:	from 0001-01-01 to 0001-01-01
ᐱᓕᓇᐊᖏᑲᕈᒪᔪᖅ:	Connie Baines Hamlet of Gjoa Haven P.O. Box 200 Gjoa Haven Nunavut X0B 1J0 Canada ᐅᖏᑲᓕᐅᑎᑦ: 867.360.7141, ᓯᑲᔪᓵᑦ: 867.360.6309

ᑐᓴᐅᒪᔭᒃᓴᑦ

ᖃᓄᐃᓪᓘᑎᓂᒃ ᐱᓕᕆᐊᖃᖅᓂᐊᕆᐊᖅᒐᖕᓂᒃ

ᖃᓪᓗᓈᑎᑐᑦ: This project represents collaboration between Gjoa Haven and Taloyoak and the social enterprise SmartICE to bring sea-ice monitoring services and training to their communities over a period of three ice seasons between 2019 and 2022. Our communities are clearly feeling the impacts of climate change, particularly on the formation and break-up of landfast sea-ice. Travel safety, access to country foods, and the ability to participate in economic, cultural and family activities are particularly affected, with significant repercussions for physical and mental well-being. Providing sea-ice monitoring services to the communities will help mitigate travel risk and support climate change adaptation actions. Sea-ice monitoring services and training will be introduced to Gjoa Haven and Taloyoak through the following sequence of steps: 1. Respectful engagement of the community, including youth and Elders, 2. Creation of a community sea-ice user group to manage local SmartICE operations, consisting of representation from key community organizations and sea-ice users, 3. Procurement and deployment of stationary and mobile sea-ice sensors, 4. Hiring and training of SmartICE operators, 5. Establishment of operational space and community data sharing portal, 6. Training youth to work with Elders to document Inuit Quajimajatuqangit of local sea-ice conditions and use, 7. Co-development with Economic Development Officers of a sustainability plan for community-operated SmartICE services. The monitoring and communication of sea-ice conditions along community travel routes in Gjoa Haven and Taloyoak, using both Inuit knowledge and sensor data, will provide improved understanding of how ice travel routes are being impacted by climate change and how the community can modify ice travel to reduce their risk. They also provide greater opportunities to maintain and develop community-based economic and recreational activities that rely on safe and predictable sea ice around and between the two communities.

ᐅᐃᕖᑎᑐᑦ: Not applicable to the region.

ᐃᓄᒃᑎᑐᑦ: Characters will not display properly in this field. A summary is provided in the attachments.

Inuinnaqtun: Not applicable to the project area.

Personnel

Personnel on site: 6

Days on site: 30

Total Person days: 180

Operations Phase: from 2019-03-30 to 2022-03-29

ᐱᓪᓇᐊᓇᔨᐅᓂᐊᖅᑐᑦ

ᓇᒥ	ᖁᓄᐃᑦᑐᑎᑦ ᐱᓪᓇᐊᖅᖁᓂᐊᖅᐸ	ᑭᒃᑯᑦ ᓄᓇᕗᒻᒥᓂ	ᑐᓴᐅᒪᔨᒃᓴᑦ ᓄᓇᐅᑦ ᖁᓄᖅ ᐊᑐᓚᐅᓪᓗᐅᔪᖅᑐᖅᑕᐅᖅᓯᒪᔨᓇᐊᖅᑲᓐᓂᒃ	ᐃᑦᓴᖅᓂᑕᖅᖁᔨᓴᐅᔪᖅᐸ ᐃᓄᐃᓄᑦ ᓇᔨᖅᑕᐅᖅᑲᑦᑕᖅᓂᕐᒧᑦ ᑕᐃᑦᓯᒪᓂᑐᖅᑲᓪᓚᖅᑐᖅ	ᖁᓄᓐᓂᖅᐸᖅ ᓄᓇᓕᕆᔨᐅᔨᖅ ᐊᒃᒪᓗ ᓴᓪᒥᒃᑭᕆᔨᐅᔪᖅ ᓄᓇᓕᒻ
Sea-Ice Monitoring Area	Marine Based Activities	Marine	N/A, this type of monitoring activity has not taken place on the site previously	N/A, project activities will take place on sea-ice	Monitoring activities will be based out of the communities of Gjoa Haven and Taloyoak and provide sea-ice monitoring services along traditional community trails in the surrounding areas. Monitoring activities will take place on sea-ice and will not take place in protected areas.
Sea-Ice Monitoring Path 1	Marine Based Activities	Crown	N/A, this type of monitoring activity has not taken place on the site previously	N/A, project activities will not impact any known archaeological or paleontological sites.	Monitoring activities will be based out of the communities of Gjoa Haven and Taloyoak and provide sea-ice monitoring services along traditional community trails in the surrounding areas. Monitoring activities will not take place in protected areas.
Sea-Ice	Marine Based	Inuit	N/A, this type of	N/A, project activities	Monitoring

Monitoring Path 2	Activities	Owned Surface Lands	monitoring activity has not taken place on the site previously	will not impact any known archaeological or paleontological sites.	activities will be based out of the communities of Gjoa Haven and Taloyoak and provide sea-ice monitoring services along traditional community trails in the surrounding areas. Monitoring activities will not take place in protected areas.

ᓄᓇᓕᐅᑦ ᐃᓕᐅᖏᑕᐅᓂᖅᓱᒃ ᓄᓇᓖᑦᓗ ᐊᕐᓇᑲᖏᓪᓗᒍᖏᓂᖅᓱᒃᓄᑦ ᐃᑲᔪᑕᐅᔪᓐᓇᖅᑐᑦ

ᓄᓇᕗᒻᒥᖅ	ᐊᑎᑦ	ᑲᑐᔾᔨᐊᖏᑎᑎᒋᔭᒻᒥᖅ	ᖁᓕᖏᓐᓂᒃ ᑐᑭᓯᒪᓕᕆᔨᒃᑯᑦ
ᐅᖅᓯᖅᑐᖅ	Joanni Sallerina	Mayor - Hamlet of Gjoa Haven	2019-02-22
ᐅᖅᓯᖅᑐᖅ	Ben Putugaq	Hunters and Trappers Association	2019-02-25
ᑕᓗᖏᔪᐊᖅ	Simon Qingnaqtuq	Mayor - Hamlet of Taloyoak	2019-02-13
ᑕᓗᖏᔪᐊᖅ	Jimmy Oleekatalik	Spence Bay Hunters and Trappers Association	2019-02-22

ᓇᐃᔭᖅᑎᑦ ᐱᒍᖏᓐᓄᐅᑎ ᐊᖏᖅᑕᐅᓕᕆᔨᑦ

ᓄᑦᑎᐊᖅᑐᓂᒃ ᐱᓕᓇᐊᓇᖅᓴᐅᓂᐊᖅᑐᑦ ᑎᑎᕐᒃᓗᑎᑦ:

Kitikmeot

ᓇᐃᔭᖅᑎᑦ ᐱᒍᖏᓐᓄᐅᑎ ᐊᖏᖅᑕᐅᓕᕆᔨᑦ

ᑲᓴᒪᑎᔨᐅᔪᑦ ᐊᐱᒃᑐᒍᓕᕆᓂᖅᑐᓂᓂ ᒪᓕᑲᕐᓇᖅᓯᓂᒃ ᐱᕐᔪᕐᓇᖅᓯᓂᓚᓗ ᒃᒪᒋᑦ ᐱᔪᓐᓇᖅᑐᒥᒃ ᓇᐃᔭᖅᑎᓂᓚᐅᑎᓂᒃ ᓇᐃᔭᖅᑎᑦᓯᓗᒃᑐᑦ	ᖃᓄᐃᓂᑐᑦᓯᓇᐅᓂᖅ ᓇᐃᔭᖅᑎᑦᓯᐊᑕᐅᔪᖅ ᐱᔪᓐᓇᖅᑐᒥᖅ ᐊᖏᖅᑕᐅᓕᕆᔨᖅ ᐊᖏᖅᑕᐅᓕᕆᔨᖅᑐᑦ	ᐃᓐᓇ ᖃᓄᐃᓕᓴᖅᓯᒪᓂᖅ	ᐅᖃᓕᒫᑦ ᑐᓂᔭᖅ/ ᑐᓴᕐᓂᑐᐊᓇᐅᔭᖅᓯᒪᔪᖅ	ᑭᓚᖃᖅᖃᐊᖅᓯᒪ
ᓄᓇᕗᑦ ᖃᐅᔨᓴᖃᓚᓇᔨᓐᓄᑦ	Through application to the Nunavut General Monitoring Plan, NRI licensing has been recommended for this project.	Not Yet Applied		

Project transportation types

Transportation Type	ᓯᓇᒍᑦ ᐊᑐᓴᐅᓂᐊᖅᐸ	Length of Use
Water	Travel across sea-ice using snowmobiles	

Project accomodation types

ᐊᓯᖏᓐᓄ,

ᐊᑐᓚᐅᓂᐊᖅᑐᖅ

ᐱᖃᑦ ᐊᖏᕈᓴᖅ ᐊᑐᖅᑕᐅᓂᐅᓴᓴᖅ ᐃᓕᖅᓭᐅᑎᓄᕈᑦ ᐃᑯᑕᐃᑦ, ᒥᓪᓄᐊᑭᑎᑦ, ᖃᖏᑕᓯᖅ, ᓄᓇᓭᐅᑦ ᐊᓯᖏᑦᓴ

ᐊᖏᕈᓴᖅ ᐱᖃᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᖅ ᖃᖅᓄᐃᑦᑐᓂᖏᖅ	ᖃᖅᑕᓭᐅᒡᒐᑦ	ᐊᖏᕈᓂᖏᑦ - ᐳᖅᑐᓂᖏᑦ	ᓭᓇᒧᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᐸ
Snowmobiles	2	128 in x 47 in x 50 in	A snowmobile will be used in each community to tow a qamutik containing the mobile ice-thickness sensing equipment.
Gas-Powered Drill	2	12 in x 12 in x 4 in	Drills are used to operate ice augers to support ice-thickness measuring activities
SmartBUOY	2-4	120 in x15 in	SmartBUOY stationary sensor deployed in ice to monitor thickness.

ᑎᑎᕆᐅᓭᓇᓗᒍ ᐅᖅᓯᓴᐃᐸᑦ ᐊᑦᑕᓇᖅᑐᖅᑕᓂᓪᓗ ᐊᑐᖅᑕᐅᓂᐊᕐᓂᖏᑦ

ᓭᓇᒧᑦ ᐅᖅᓯᓴᕐᒪᑐᐊᖅ ᐊᑐᖅᑕᐅᓂᐊᖅᐸ	ᖃᖅᓄᐃᑦᑐᑦᑕᓂᓇᐅᔭᖅ ᐅᖅᓯᓴᕐᒪᑐᐊᖅ	ᖃᖅᑕᓭᐅᒡᒐᑦ ᐅᖅᓯᓴᕐᒪᖃᖅᐅᑎᑦ	ᐃᓐᓴᕐᓂᐅᑦ ᐃᒪᖅᖅᑎᑐᓴᕐᓇᓂᖏᓐᓄᑦ	ᑲᑎᒪᓂᓗᒍ	ᐃᓐᓴᕐᓂᐃᑦ ᐊᒥᓱᓂᖏᑦ	ᓭᓇᒧᑦ ᐊᑐᖅᑕᐅᓂᐊᖅᐸ
Gasoline	fuel	120	25	3000	Liters	Fueling snowmobiles and gas powered, hand-operated ice augers

ᐃᒪᖅ ᐊᑐᖅᑕᐅᓯᒪᖅᑐᖅ

ᐅᓪᓗ ᑕᒪᖅ ᐊᑐᖅᑕᐅᓂᐊᖅᑐᖅ	ᖃᖅᓄᖅ ᐃᒥᖅᑕᖅᑕᖅᓂᐊᖅᐸᑦ	ᓄᑭᑦ ᐃᒥᖅᑕᖅᑕᖅᓂᐊᖅᐸᑦ
0		

ᐊᑲᑕᔪᑦ

ᐊᑲᑕᔪᓕᓂᐊᕐᓂᖅ

ᐱᓕᓇᐊᓇᔭᐅᔨᒪᔨᒍᑦ ᐱᓕᓇᐊᓇᔭᐅᓂᐊᖅᑐᖅ	ᖃᓄᐃᐃᑦᑐᖅ ᐊᑲᑕᔪᖅ	ᖃᓄᐃᑎᒋ ᐊᑲᑕᔪᑦ ᓴᖅᑭᐊᓂᐊᖅᑐᓇᔭᐅᕐᓂᑦ	ᖃᓄᐃᓂᖅ ᐊᑲᑕᖅᑕᐅᓂᐊᖅᓯ	ᓴᓗᒪᖅᓴᐅᑎᑲᓴᓱᓂᐅᓂᐊᖅᑐᑦ
Marine Based Activities	ᐊᑲᑕᔪᑦ ᐃᓱᐊᓪᓚᑕᐅᔨᓐᓇᖅᑐᑦ	minimal	Operators will retrieve any waste generated during monitoring activities (food, garbage, wood, etc.) and return material to the communities.	N/A
Marine Based Activities	ᐊᑲᑕᔪᑦ ᐃᓱᐊᓪᓚᑕᐅᔨᓐᓇᖅᓯᕆᑦᑐᑦ	None	N/A	Additional trips to the ice have been budgeted and planned in order to ensure retrieval of SmartBUOY equipment.

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The project will involve operating both stationary and mobile ice sensing equipment on the existing sea-ice surrounding the communities of Gjoa Haven and Taloyoak. Since activities will take place on sea-ice, potential for environmental impacts is limited. The equipment used has very low energy requirements, similar to a cell-phone. For the SmartBUOY technology, batteries contained within the unit are used, while the SmartQAMUTIK is powered from the snowmobile. All monitoring will be conducted in a non-destructive manner without lasting impacts and all reasonable precautions, as informed by SmartICE's Emergency Management Plan, will be taken by operators to ensure safe operation of the equipment and to avoid any unforeseen impacts. As a general practice, operators will return any waste generated and additional trips at the end of the ice season have been budgeted and planned for in order to ensure retrieval of the SmartBUOY equipment.

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

N/A

SECTION H2: Disposal At Sea

N/A

SECTION I1: Municipal Development

ᐃᒃᓗ ᐊᕐᑎᐅᕆ ᖃᓄᐃᑦᑐᑦᓯᓇᐅᓂᖅ: ᓄᓇᕆ ᖃᓄᐃᑦᑐᓂᖅ

ᐃᒃᓗ ᐊᕐᑎᐅᕆ ᖃᓄᐃᑦᑐᑦᓯᓇᐅᓂᖅ: ᐅᒪᔨᖏᑦᖃᖏᓂᖅ

ᐃᒃᓗ ᐊᕐᑎᐅᕆ ᖃᓄᐃᑦᑐᑦᓯᓇᐅᓂᖅ: ᐃᓄᓕᓇᓂᖏᓕᖅᓴᑦ-ᐱᕐᓕᐊᔨᓕᓇᓂᖏᓕᖅᓴᑦ

Miscellaneous Project Information

ᓄᓗᓄᐃᖅᑕᐅᓂᖅᑐᑦ ᐊᖑᖅᑕᐅᔪᒪᔨᑦ ᖃᓄᐃᑦᑐᓂᖅᑐᑦ ᐸᓯᐅᒥᔨᔪᖅᑕᐅᓂᐊᖏᓂᖅᑐᑦᓗ

Cumulative Effects

Impacts

ᓄᓗᓄᐃᖅᑕᐅᓂᖅᑎᑦ ᐊᐢᑎᑎᒥᐅᑕᓂᑐᑦ ᐊᑲᑐᖅᑕᐅᓯᒪᔪᑦ

	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
ᓴᓇᓂᖅ																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-
ᐅᔨᕋᑲᑦᓂᖅ																									
Marine Based Activities		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		P	-	-	-	-
ᐃᑐᑦᑎᓇᓂᖅ																									
-		-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

(P = ᐊᑲᐅᓯᑭᑎᓵᓄᖅᑐᑦ, N = ᐊᑲᐅᖅᑭᔨᓵᑕᐅᓵᓄᖅᑐᑦ ᐸᓪᐅᒥᔨᓵᓯᖅᑐᑕᐅᓵᓄᖅᑐᑦᓗ, M = ᐊᑲᐅᖅᑭᔨᓵᑕᐅᓵᓄᖅᑐᑦ ᐸᓪᐅᒥᔨᓵᓯᖅᑐᑕᐅᓵᓄᖅᑐᑦᓗ, U = ᖃᐅᐅᔾᒪᓵᓄᖅᑭᑐᖅ)

ᓇᒋᒪᖃᕐᓂᖅ ᐱᓕᓇᐊᓇᖅᑐᑦᖠᖅ

List of Project Geometries

1	polygon	Sea-Ice Monitoring Area
2	polyline	Sea-Ice Monitoring Path 1
3	polyline	Sea-Ice Monitoring Path 2