



NIRB Application for Screening #126180

Water quality and sediment collection near Chesterfield Inlet, Whale Cove, Rankin Inlet, Baker Lake, Arviat, Nauyasat and Coral Harbour

Application Type: New

Project Type: Scientific Research

Application Date: Tuesday, May 20, 2025

Period of operation: from 2025-06-03 to 2029-03-03

Project Proponent: Olga Francisco
Prairie Scientific Inc.
16 Symington Lane N
Nauyas MB R5T 0J1
Canada
Phone Number:: 204-228-2082, Fax Number::

DETAILS

Non-technical project proposal description

English: Please see attached

French: Please see attached

Inuktitut: Please see attached

Inuinnaqtun: n/a

Personnel

Personnel on site: 4

Days on site: 168

Total Person days: 672

Operations Phase: from 2025-06-03 to 2029-03-03

Activities

Location	Activity Type	Land Status	Site history	Site archaeological or paleontological value	Proximity to the nearest communities and any protected areas
Arviat, Whale Cove, Rankin Inlet, Chesterfield Inlet, Baker Lake	Sampling sites	Inuit Owned Surface Lands	n/a	n/a	20-30km
Naujaat	Sampling sites	Inuit Owned Surface Lands	n/a	n/a	20-30km
Coral Harbour	Sampling sites	Inuit Owned Surface Lands	n/a	n/a	20-30km

Community Involvement & Regional Benefits

Community	Name	Organization	Date Contacted
Information is not available			

Authorizations

Indicate the areas in which the project is located:

Authorizations

Regulatory Authority	Authorization Description	Current Status	Date Issued / Applied	Expiry Date
Nunavut Water Board	APPLICATION FOR APPROVAL FOR THE USE OF WATER OR DEPOSIT OF WASTE WITHOUT A LICENCE	Applied, Decision Pending		
Nunavut Research Institute	Nunavut Research Institute - Research License Application 2025	Applied, Decision Pending		

Project transportation types

Transportation Type	Proposed Use	Length of Use
Water	Boat	
Land	ATV, snowmobile	

Project accomodation types

Community

Material Use

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

Equipment Type	Quantity	Size - Dimensions	Proposed Use
Boat	1	20 feet	Transportation to site
Ekman Dredge	4	6x6x6in	Sediment sample collection
Auger	1	4ftx10in	Water and sediment sample collection
ATV	4	7x4ft	Transportation to site
Snowmobile	4	11x4ft	Transportation to site
Plastic Bucket	1	5L	Water sample collection
Cooler	1	5x2x2ft	Fish sample storage
Cooler	4	3x1x1ft	Water and sediment sample storage
Ice Packs	10	6x4x1in1	Keep water, sediment, and fish samples cool
Sample Bottle Kits	200 Kits	500mLx1, 250mLx2, 125mLx1, 100mLx2, 40mLx1 bottles per kit	Water sample storage
EXO Probe	1	25x3in	Water parameter data collection
Camera	1	1x3x2in	Pictures of sites
Garmin GPS	1	2x1x4in	Locating sites
Recorder	1	3x1in	Interviews with Elders
Notebook	1	5x7in	Recording data
Nitrile Gloves	4 boxes	Medium and Large Glove Sizes	Handling water and sediment samples
Beta Bottle	1	4L	Water sample collection
Secchi Disk	1	7in	Measuring water turbidity
Shovel	1	12x2x2in	Sediment sample collection
Steel Bowl	1	18x18x6in	Sediment sample processing
Ziploc Bags	100	17x12in	Sediment sample storage
Fishing Rod	2	5ft	Fish sample collection
Fishing net	4	50m	Fish sample collection

Detail Fuel and Hazardous Material Use

Detail fuel material use:	Fuel Type	Number of containers	Container Capacity	Total Amount	Units	Proposed Use
Gasoline	fuel	2	20	40	Liters	Transportation to and from sites for ATVs, snowmobiles and boat
Lugols Solution	hazardous	1	0.05	0.05	Liters	Water sample preservation
Nitric Acid	hazardous	1	0.001	0.001	Liters	Water sample

						preservation
Sulfuric Acid	hazardous	1	0.001	0.001	Liters	Water sample preservation
Hydrochloric Acid	hazardous	1	0.001	0.001	Liters	Water sample preservation

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
Waste disposal	Other, Food Waste	Lunch eaten during field trip	Community waste disposal bins	None
Sampling sites	Other, Nitrile Gloves	100 pairs	Community waste disposal bins	None

Environmental Impacts:

To our knowledge, there are no known environmental impacts from the use of our equipment and sampling activities on land, water and wildlife.

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

The sampling sites are all located within the Kivalliq region and were selected based on cultural significance for community members and are frequently used for fishing, camping, swimming, hunting, and collecting drinking water. Sites can be accessed on gravel roads by ATV in the summer and over snow and ice by snowmobile in the winter. The landscape can be described as Arctic tundra, mostly flat with rock outcrops. Permafrost and snow cover the region most of the year, only thawing in the summer months. The sampling sites in Arviat are located at: Maguse Lake, Amittuquyak/Amitturjuaq (Elizabeth Lake), Timmiaquvirvik (Goose Lake), Dion Lake, Fire Lake, Akkanaarjuk (Wolf Creek), and Iqalutsiuvijuaq (Disappointment Lake) within the Maguse watershed. The sites in Whale Cove are also located in the Wilson watershed from: Qamanaarjuk (White Rock Lake), Qatauyaktalik, and Anowtalik. In Chesterfield Inlet, First Lake, Amaruqtalik (Third Lake), Tasialuk (Fourth Lake), and Checkers Lake were selected from the Chesterfield Inlet watershed. The sampling sites in Rankin Inlet include the following water systems from the Wilson watershed: Ijyigalik on Meliadine River, Meliadine Lake, and Diana River. Iqalugaarjuup Nunanga Territorial Park is located nearest the Meliadine River sampling site (approximately 5 km away). This park is used by Elders and Rankin Inlet community members to collect drinking water and berries, camping, hiking, picnicking, and fishing. Caribou migrate through the park twice per year. Archaeological artifacts such as stone structures from the Thule and modern Caribou Inuit are still found in the park. The sites in the Baker Lake area are located in the Baker Lake watershed and are as follows: Qamanugituaq (Prince River Bridge, Bridge to Nowhere), Nasaqtalik (White Hills Lake), and Baker Lake. Inuujaarvik Territorial Park is a campground located near Baker Lake and is important to community members as a gathering place and for traditional fishing, hunting, and storytelling. The nearest sampling site to the park is approximately 5 km away.

Description of Existing Environment: Biological Environment

Vegetation in the Kivalliq region consists mostly of small, cold-adapted tundra vegetation such as lichen, moss, grasses, shrubs, and berries. Large mammals include caribou, polar bears, grizzly bears, muskoxen, wolves, and wolverines. The barren-ground caribou (Napaqtuqangituqmiut Tutungit) can be found in the sampling site areas. They have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as threatened in 2016 and under the Species at Risk Act (SARA) as "under consideration for addition." There are four known herds in these areas: Ahiak, Qamanirjuaq, Wager Bay, and Lorillard. Grizzly bears (Akłait), Polar bears (Nanuq), and wolverines (Qavvik) have been assessed by COSEWIC and SARA as special concern. Small wildlife include Arctic foxes, lemmings, siksiqs (Arctic ground squirrels), short-tailed weasels, Arctic hares, and migratory birds (sandhill cranes, snow geese, ptarmigans, horned larks, Lapland longspurs, etc.). Harris's sparrow (Qupanuarjuk or Qupanuaq) has been assessed by COSEWIC as special concern in 2017 and is "under consideration for addition" by SARA. Additional sightings have been observed of the Hudsonian Godwit (Sigguraujaquqtujuq or Siguraujaqrkutujua) in areas of the sampling sites and are considered threatened by COSEWIC in 2019 and are "under consideration for addition" by SARA. The peregrine falcon (Kiggaviarjuk or Kigavik) was not considered to be at risk by COSEWIC in 2017, but was of special concern by SARA in 2012. The red-necked phalarope (Aupaluktuq

Saurraq or Aupaqtuq Saarvaq) and the short-eared owl (Siutikituq Ukpik) have been assessed as special concern by both COSEWIC and SARA. Fish species in the lakes and rivers sampled include lake trout, Arctic char, Northern pike, Arctic grayling, whitefish species, and ninespine stickleback.

Description of Existing Environment: Socio-economic Environment

Community members in the Kivalliq region rely on Traditional Lands for subsistence harvesting such as berry and drinking water collection, caribou hunting, and fishing for lake trout and Arctic char. The sampling sites were selected based on cultural significance for community members. Sampling sites are located approximately 20 to 30 km away from communities. Elders have reported increased human activity at sites near Arviat, Baker Lake, and Whale Cove, such as more cabins, boats, and overfishing, leading to changes in land use patterns.

Miscellaneous Project Information

None

Identification of Impacts and Proposed Mitigation Measures

To our knowledge, there are no known impacts from sampling activities on the community, their traditional hunting/fishing areas, and the environment.

Cumulative Effects

To our knowledge, there are no known impacts from sampling activities on the community, their traditional hunting/fishing areas, and the environment.

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																										
Sampling sites		U	U	U	-	U	U	U	U	U	U	U	U	U		U	U	U	U	U		U	U	U	U	U
Decommissioning																										
-		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-

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

Project Location



List of Project Geometries

- | | | |
|---|----------|--|
| 1 | polyline | Arviat, Whale Cove, Rankin Inlet, Chesterfield Inlet, Baker Lake |
| 2 | polyline | Naujaat |
| 3 | polyline | Coral Harbour |