

**Demande de la CNER faisant l'objet d'un examen préalable #125771**  
**Community Geological Mapping of the Kivalliq Corridor**

## DÉTAILS

## Description non technique de la proposition de projet

Anglais: A proposed Churchill-Hydro-Fibre (CKHF) link involves construction of a 1200-km, 150 megawatt transmission line from Gillam, MB to Chesterfield Inlet, NU and west to Baker Lake to bring renewable, sustainable, reliable hydroelectricity to modernize electrical systems and advance the economy of western Hudson Bay communities. A road and upgrade to Rankin's airport are also planned. The geoscience character of the CKHF link corridor, portions of which are poorly known and under explored, should be assessed, updated and integrated by Kivallirmiut to deliver a seamless, modern, time-calibrated, geological map. This will support activities across a region for which access will increase, and on which future land-use decisions can be soundly based. This project targets the southern half of the CKHF corridor, a hard to access, heavily drift-covered region with outdated geological mapping (1969-1978), rare obsolete (K/Ar biotite) age constraints, and no litho-geochemical knowledge with which to correlate units within, and beyond, the region. This NRCan Geological Survey of Canada-led project aims to:

- refine, update, and produce new geological knowledge of bedrock underlying thick glacial cover of lower Nunavut.
- provide a meaningful way to engage Northerners, especially youth, to experience and participate in science, and enable knowledge sharing and knowledge co-production
- strengthen the capacity of communities within the Churchill-Kivalliq corridor to address geoscience opportunities and challenges related to proposed infrastructure developments.

Field methodology in 2023 will involve planning and execution of community-based, helicopter-assisted mapping based from Whale Cove (2-weeks) and Arviat (3-weeks). Compilation maps and Landsat imagery combined with aeromagnetic data will be analyzed with community members to devise a strategy for ground-truthing geophysical anomalies and new data collection. Bedrock mapping will be assisted by interested Northerners, with a focus on youth 20-30 years, carvers and prospectors who will be provided rotational opportunities as paid field assistants. Mapping will involve 10 days (30 hours) of helicopter support from Whale Cove (~July 2-12, 2023) and 10 days (30 hours) from Arviat (~July 18-30, 2023). All equipment needed will fit into a small backpack provided to all field assistants along with a bagged lunch, and will include a hand lens, compass, pen magnet, hammer (to break off a fresh sample) and digital camera. Observations will be recorded on small, hand-held computers with blue-tooth GPS, downloaded daily, and plotted on maps for interpretation on a new bedrock map, on which local assistants will be contributing authors. This community-based mapping approach is being designed in consultation with the priorities of Kivallirmiut. Consultation and engagement began in June 2022 with letters to introduce the activity and initiate Indigenous co-development. A positive response led to constructive in-person meetings (November 19 – December 2, 2022) in Arviat and Whale Cove where fieldwork is planned for July 2023. Activities related to this project are designed to provide a meaningful way to engage Northerners, especially youth, to experience and participate in science, and to enable knowledge sharing and co-production. They are intended to strengthen the capacity of communities within the Churchill-Kivalliq corridor to address geoscience opportunities and challenges related to this region's proposed infrastructure developments.

Français: Cette approche de cartographie communautaire est conçue en consultation avec les priorités de Kivallirmiut. La consultation et l'engagement ont commencé en juin 2022 avec des lettres pour présenter l'activité et lancer le codéveloppement autochtone. Une réponse positive a mené à des réunions constructives en personne (du 19 novembre au 2 décembre 2022) à Arviat et à Whale Cove, où le travail sur le terrain est prévu pour juillet 2023. Les activités liées à ce projet sont conçues pour fournir un moyen significatif d'engager les habitants du Nord, en particulier les jeunes, d'expérimenter et de participer à la science, et de permettre le partage et la coproduction des connaissances. Ils visent à renforcer la capacité des collectivités du corridor Churchill-Kivalliq à saisir les opportunités et les défis géoscientifiques liés aux développements d'infrastructures proposés dans cette région. La méthodologie de terrain en 2023 impliquera la planification et l'exécution d'une cartographie communautaire assistée par hélicoptère à partir de Whale Cove (2 semaines) et d'Arviat (3 semaines). Des cartes de compilation et des images Landsat combinées à des données aéromagnétiques seront analysées avec les membres de la communauté afin de concevoir une stratégie de vérification au sol des anomalies géophysiques et de nouvelle collecte de données. La cartographie du socle rocheux sera assistée par des habitants du Nord intéressés, en mettant l'accent sur les jeunes de 20 à 30 ans, les sculpteurs et les prospecteurs qui se verront offrir des opportunités de rotation en tant qu'assistants de terrain rémunérés. La cartographie impliquera 10 jours (30 heures) de soutien héliporté depuis Whale Cove (~2-12 juillet 2023) et 10 jours (30 heures) depuis Arviat (~18-30 juillet 2023). Tout l'équipement nécessaire rentrera dans un petit sac à dos fourni à tous les assistants de terrain avec un sac à lunch, et comprendra une loupe, une boussole, un stylo magnétique, un marteau (pour casser un échantillon frais) et un appareil photo numérique. Les observations seront enregistrées sur de petits ordinateurs portables avec GPS Bluetooth, téléchargées quotidiennement et tracées sur des cartes pour interprétation sur une nouvelle carte du substratum rocheux, sur laquelle des assistants locaux contribueront aux auteurs.

[illegible]

Operations Phase: from 2023-06-26 to 2023-08-02

## Activités

Emplacement	Type d'activité	Statut des terres	Historique du site	Site à valeur archéologique ou paléontologique	Proximité des collectivités les plus proches et de toute zone protégée
region of proposed bedrock mapping	Researching	Inuit Owned Sub-Surface Lands	includes Crown and IOL. Includes mixed use and limited use (caribou calving grounds)	region likely contains historical markers, inuksuit, hunting and trapping sites that will be left undisturbed	area includes the municipalities of Whale Cove and Arviat
proposed northern fuel cache (8 sealed drums)	Fuel and chemical storage	Inuit Owned Sub-Surface Lands	mixed use	none	152 km WSW of Whale Cove
proposed southern fuel cache (8 sealed drums)	Fuel and chemical storage	Crown	mixed use	none	107 km west of Arviat

### Engagement de la collectivité et avantages pour la région

Collectivité	Nom	Organisme	Date de la prise de contact
Rankin Inlet	Luis Manzo	Kivalliq Inuit Association	2022-11-21
Arviat	Steve England SAO	Hamlet Office	2022-11-24
Arviat	Mike Beauregard	Government of Nunavut Economic Development and Transportation	2022-11-24
Arviat	Nicole Issakiark	Arviat Hunters' & Trappers	2022-11-24
Arviat	Chi-Chi Arinze, Principal & Lyndsay Hines, Guidance Councillor	John Amaguluk High School	2022-11-25
Arviat	Steve England, Hamlet Office	Public Community Meeting with Interpreter	2022-11-25
Whale Cove	Brian Fleming, SAO	Hamlet Office	2022-11-28
Whale Cove	Eva Angoo	Issuark HTO	2022-11-28
Whale Cove	Peter, Science teacher	Inuglak School, Whale Cove	2022-11-29

## Autorisations

Indiquez les zones dans lesquelles le projet est situé:

Kivalliq

### Autorisations

Organisme de régulation	Description des autorisations	État actuel	Date de l'émission/de la demande	Date d'échéance
Institut de recherche du Nunavut	gateway to scientific research in Nunavut, responsible for licensing research in the natural sciences (e.g., geoscience) as required under Nunavut's Scientists Act. Clearinghouse for information on research in Nunavut, providing mentorship, guidance, and support to scientists working throughout the territory.	Applied, Decision Pending		
Indigenous and Northern Affairs Canada	Crown agency to which a permit to undertake geological mapping (land use) needs to be sought	Not Yet Applied		
Kivalliq Inuit Association	The Designated Inuit Organization (DIO) that represents the interests of all Inuit living in the Kivalliq Region. With a mission to represent, in a fair and democratic manner, Inuit of the Kivalliq Region in the development, protection, administration and advancement of their rights and benefits as an aboriginal people, as well as to promote their economic, social, political and cultural well-being through succeeding generations. The KIA's goals include: 1) to preserve Inuit heritage, culture & language; 2) to manage Inuit-owned-lands in the region and provide information to and consult with land claims beneficiaries	Not Yet Applied		

	on land use; 3) to protect Arctic Wildlife & environment, thereby preserving traditional uses for current and future generations; and 4) to assist Inuit in the Kivalliq region in training opportunities.			
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#### Project transportation types

Transportation Type	Utilisation proposée	Length of Use
Air	helicopter transport from the airport for 10 days, returning each evening	
Land	foot traverse and ATV travel in the community	

#### Project accomodation types

Collectivité

## Utilisation de matériel

Équipement à utiliser (y compris les perceuses, les pompes, les aéronefs, les véhicules, etc.)

Type d'équipement	Quantité	Taille – Dimensions	Utilisation proposée
helicopter	10	206L4	days proposed to ferry research scientist and 1-3 community assistants from Whale Cove airport to exposed bedrock localities, and return to hamlet each evening
aircraft	10	206L4	days proposed to ferry research scientist and 1-3 community assistants from Arviat airport to exposed bedrock localities, and return to hamlet each evening

Décrivez l'utilisation du carburant et des marchandises dangereuses

Décrivez l'utilisation de carburant :	Type de carburant	Nombre de conteneurs	Capacité du conteneur	Quantité totale	Unités	Utilisation proposée
Aviation fuel	fuel	32	205	6560	Liters	fuel 206L4 based from Whale Cove airport
Aviation fuel	fuel	40	205	8200	Liters	fuel 206L4 based from Arviat airport
Aviation fuel	fuel	8	205	1640	Liters	8-sealed drum cache located 83 nautical miles WSW of Whale Cove to enhance flexibility, ensure safety
Aviation fuel	fuel	8	205	1640	Liters	8-sealed drum cache located 57 nautical miles W of Arviat to enhance flexibility, ensure safety

Consommation d'eau

Quantité quotidienne (m3)	Méthodes de récupération de l'eau proposées	Emplacement de récupération de l'eau proposé
0	municipal tapwater	Tavani Inn, Whale Cove; NRI bunkhouse, Arviat

# Déchets

## Gestion des déchets

Activités du projet	Type des déchets	Quantité prévue	Méthode d'élimination	Procédures de traitement supplémentaires
Information is not available				

## Répercussions environnementales :

Mapping will involve examination and documentation of exposed bedrock within the Kivalliq region west of Whale Cove and Arviat. Coverage will be via low-impact foot traverses by a 2-3 person team comprising the project proponent (Mary Sanborn-Barrie) and 1 or 2 community members. Transport to the exposures will be by helicopter which will return to Whale Cove (July 2-14) or Arviat (July 16-26) airport each evening. All equipment to be used will fit into a small backpack to be provided to all field assistants along with a bagged lunch. Examination of rock exposures is done using a hand lens, structural compass for measurements, pen magnet, hammer (to break off a fresh sample), and digital camera. Observations and interpretations will be recorded on small, hand-held computers with bluetooth GPS. \*\* No camps, buildings, ditches, trenches, dams, roads or other structures will be constructed \*\* No trace of our mapping will be detectable (very low impact). Positive impacts include employment, training and mentoring, increased knowledge of how the land evolved over time, so that land-use decisions are founded also on understanding of geological history of the region.

# **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 de l'environnement existant : Environnement physique**

Please see the attached Detailed Plan

### **Description de l'environnement existant : Environnement biologique**

### **Description de l'environnement existant : Environnement socio-économique**

July 1 – August 2, 2023 activities are community-based, and include helicopter-assisted mapping carried out by interested residents from the central Nunavut hamlet of Whale Cove (2-weeks) and the lower Nunavut community of Arviat (3-weeks). Compilation maps and Landsat imagery combined with aeromagnetic data will be analyzed with community members. Interested Northerners, with a focus on youth 20-30 years, carvers and prospectors will be provided rotational opportunities as paid field assistants for training and mentoring in geoscience.

### **Miscellaneous Project Information**

Many details and relevant contact information are provided in the attached Detailed Plan with Waste Management and Spill Plan Contingency, with mitigation measures

### **Identification des répercussions et mesures d'atténuation proposées**

Please see the attached Detailed Plan with Waste Management & Spill Contingency Plan with mitigation measures

### **Répercussions cumulatives**

There will be no cumulative effects from this mapping activity, please refer to the attached Detailed Plan with Waste Management & Spill Contingency Plan with mitigation measures

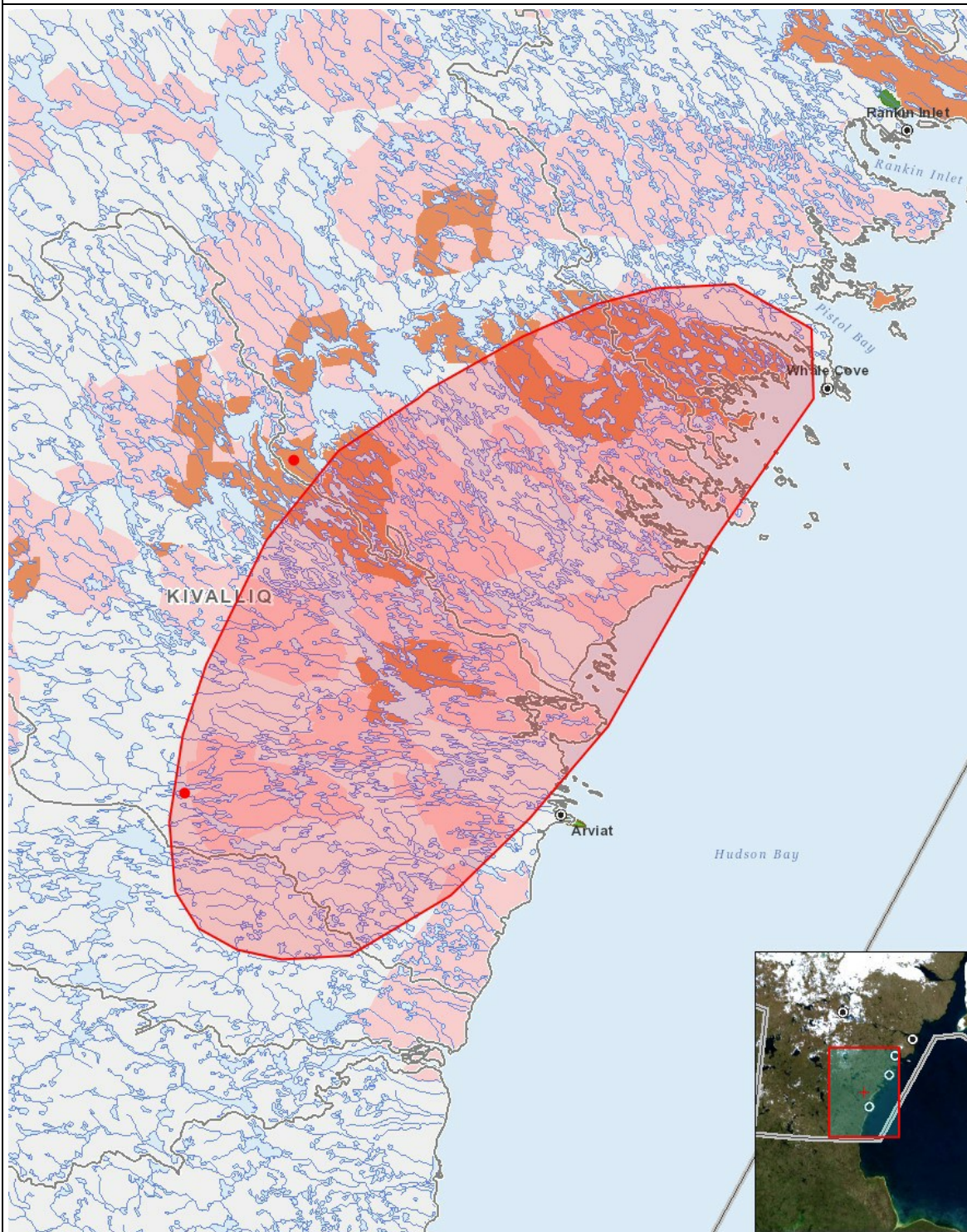
# Impacts

## Identification des répercussions environnementales

		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>Construction</b>																										
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<b>Exploitation</b>																										
Researching		-	-	-	-	-	-	-	-	P	-	-	-	-		-	-	-	-	-		P	P	P	-	-
<b>Désaffectation</b>																										
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(P = Positive, N = Négative et non gérable, M = Négative et gérable, U = Inconnue)

## Site du projet



## Liste des géométries de projet

- |   |         |   |
|---|---------|---|
| 1 | polygon | region of proposed bedrock mapping            |
| 2 | point   | proposed northern fuel cache (8 sealed drums) |
| 3 | point   | proposed southern fuel cache (8 sealed drums) |