

$\gamma_b \Delta^c \dot{\gamma} \Pi \sigma^b \quad \Lambda_{\text{C}} \kappa \nabla^{\gamma_b} \gamma \sigma \nabla \kappa \nabla^{\alpha} \zeta^{\alpha} \sigma^b$

ᐅᓂᓄᓇᓂᓪᓗᓂᓄᑦ: Metamorphic rocks are a common occurrence in Canada's North and form when a rock is exposed to high temperature and/or high pressure geological processes. Exposure to such conditions is often recorded as distinct modifications to the rock's minerals, structure and/or changes in major and trace element chemistry. Quantifying trace element and precious metal concentrations and understanding how these elements and metals move during metamorphism and deformation, is paramount to understanding ore-forming processes in Canada's North. This project will apply innovative laboratory-based techniques to samples collected during targeted fieldwork north of Rankin Inlet (NU) to study these processes. Within this region that forms the ancient core of North America, preliminary observations and data indicate the presence a new major structure – the Raptor shear zone – which is associated with known mineralization but could have significant mineral potential west of current exploration activity. In order to study the relationship between the metamorphic rocks and fluids, and ore formation, we propose an in-depth investigation of the evolution of this structure and its spatial and genetic relationship to mineralization and rocks in the region. A team of 5 researchers will conduct sampling for two and a half weeks in July 2023. The crew will be set out by helicopter from Rankin Inlet and will conduct daily short hikes along the structure to collect fist-sized rock samples, take photos, and measurements. The research undertaken will result in the creation of detailed geological maps of the bedrock exposed across the area. We are planning on hiring one summer field assistant during fieldwork in 2023 and aim to recruit a Northern student where possible. In addition to creating maps, our research will contribute to the development of geological models for the formation of ore systems in metamorphic rocks, and more in general it will contribute to an understanding of the geological history of the region, and how it relates to other parts of Nunavut. Findings from 2023 fieldwork will be communicated back to the communities impacted (Rankin Inlet and Chesterfield Inlet).

▷ ΔΑΝΩC: N/A

[illegible]

Inuinnaqtun: N/A

Personnel

Personnel on site: 5

Days on site: 17

Total Person days: 85

Operations Phase: from 2023-07-05 to 2023-07-22

$$\Lambda \subset \mathbb{N} \subset \mathbb{Z} \subset \mathbb{Q} \subset \mathbb{R} \subset \mathbb{C}$$

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proposed study area, crew will be based in Rankin Inlet. See attached documents.	Researching	Inuit Owned Surface Lands	This project will apply innovative laboratory-based techniques to samples collected during targeted fieldwork 60-100 km north of Rankin Inlet (NU) along a newly recognized boundary structure (Raptor Shear zone). A team of 5 researchers will conduct sampling for two and a half weeks in July 2023. The crew will be set out by helicopter from Rankin Inlet and will conduct daily short hikes along the structure to collect fist-sized rock samples, take photos, and measurements.	N/A	The boundary structure of interest is located ca. 60-100 km N and NW of Rankin Inlet (which is the crew's base of operations).

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ᕐᓴᓆᗈᕐᓂᕐᓂ	Sheldon Dorey	Hamlet of Baker Lake	2023-02-10
ᕐᓴᓆᗈᕐᓂᕐᓂ	Richard Aksawnee	Hamlet of Baker Lake	2023-02-10
ᕐᓴᓆᗈᕐᓂᕐᓂ	Brian Pudnak	Baker Lake Hunters and Trappers Organization	2023-02-10
Δᕐᓂᓆᕐᓂᕐᓂ	John Ivey	Hamlet of Chesterfield Inlet	2023-02-10
Δᕐᓂᓆᕐᓂᕐᓂ	Tony Amauyak	Hamlet of Chesterfield Inlet	2023-02-10
Δᕐᓂᓆᕐᓂᕐᓂ	Harry Aggark	Aqigiq Hunters and Trappers Organization	2023-02-10
ᓴᕐᓲᕐᓂᕐᓂ	Darren Flynn	Hamlet of Rankin Inlet	2023-02-10
ᓴᕐᓲᕐᓂᕐᓂ	Harry Towtongie	Hamlet of Rankin Inlet	2023-02-10
ᓴᕐᓲᕐᓂᕐᓂ	Andre Aokaut	Kangiqliniq Hunters and Trappers Organization	2023-02-10

Kivalliq

[illegible]

Transportation Type	Transportation Details	Length of Use
Air	Helicopter Bell 206 L3 or L4; 28 flying hours. We requested (PCSP) helicopter support based in Rankin Inlet for daytrips. Helicopter used to set out and pick up the bedrock mapping teams daily. The maximum distance of the outcrops from Rankin Inlet is approximately 60-100km	

മെട്രിക്സ്

Λ⁹δ^c Δ⁹β^cΓ⁹Δ⁹σ^cΔ⁹γ^c Δ^cε^cβ^cΓ^cΔ^cσ^cΔ^cγ^c Δ^cδ^cΔ^c, Γ^cΔ^cΠ^c, β^cε^cΔ^cγ^c, σ^cε^cΔ^c Δ^cβ^cΓ^cΔ^c

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ΔL^{9b} ΔD^{9b} CD^{9b} ΔL^{9b} ΔD^{9b}

ᐅᑦᑐ ᑕᐱᑦᐱ ᐱᐅᑦᐱᐅᑦᐱᐅᑦᐱᐅᑦᐱ	ᑦᐱᐅᑦᐱ ᐱᐅᑦᐱᑕᑦᐱᑕᑦᐱᑕᑦᐱᑕᑦᐱᑕᑦᐱ	ᐱᐅᑦᐱ ᐱᐅᑦᐱᑕᑦᐱᑕᑦᐱᑕᑦᐱᑕᑦᐱᑕᑦᐱ
0	Tap water	Hotel room in Rankin Inlet

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Information is not available				

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No permanent or long-term environmental impacts are expected from the proposed mapping activity. A helicopter (Bell 206 L3 or L4) to transport the crew to each exposure can land without any disruption to the tundra. Established airports will support the helicopter base and spill kits will be available. Fore more detail see attached document

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 11: Municipal Development

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[illegible]

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[illegible]

See attached file

Miscellaneous Project Information

See attached file

[illegible]

See attached file

Cumulative Effects

See attached file

Impacts

$\mathbf{e} \rightarrow \mathbf{e} \Delta^{\mathfrak{b}} \mathbf{C} \triangleright \sigma^{\mathfrak{a}} \mathbf{r}^{\mathfrak{c}} \quad \mathbf{d} \mathfrak{c} \cap \Gamma \triangleright \mathbf{C} \dot{\sigma}^{\mathfrak{c}} \mathbf{D}^{\mathfrak{c}} \quad \mathbf{d}^{\mathfrak{b}} \mathbf{D}^{\mathfrak{b}} \mathbf{C} \triangleright \mathbf{r}^{\mathfrak{c}} \mathbf{L}^{\mathfrak{c}} \mathbf{r}^{\mathfrak{c}}$

[illegible]
$$(P = \langle b \rangle \dot{a} p \cap \langle a \rangle \dot{a} \rangle^c, N = \langle b \rangle \dot{a} p \cap \langle \langle \langle \rangle \dot{a} \rangle \dot{a} \rangle^c \langle \langle \langle \rangle \dot{a} \rangle \dot{a} \rangle^c \langle \langle \langle \rangle \dot{a} \rangle \dot{a} \rangle^c, M = \langle b \rangle \dot{a} p \cap \langle \langle \langle \rangle \dot{a} \rangle \dot{a} \rangle^c \langle \langle \langle \rangle \dot{a} \rangle \dot{a} \rangle^c, U = \langle b \rangle \dot{a} p \cap \langle \langle \langle \rangle \dot{a} \rangle \dot{a} \rangle^c \langle \langle \langle \rangle \dot{a} \rangle \dot{a} \rangle^c, U = \langle b \rangle \dot{a} p \cap \langle \langle \langle \rangle \dot{a} \rangle \dot{a} \rangle^c \langle \langle \langle \rangle \dot{a} \rangle \dot{a} \rangle^c)$$

1 polygon	proposed study area, crew will be based in Rankin Inlet. See attached documents.
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