



## **NIRB Uuktuutinga Ihivriughikhamut #125652**

### **Izok Lake targeted VMS mineralization in the Slave craton**

**Uuktuutinga Qanurittuq:** New

**Havaap Qanurittunia:** Scientific Research

**Uuktuutinga Ublua:** 2/3/2022 9:04:59 AM

**Period of operation:** from 0001-01-01 to 0001-01-01

**Piumayaat Angirutinga:** from 0001-01-01 to 0001-01-01

**Havauhikhaq Ikayuuqtinga:** Lorraine Lebeau  
Canada-Nunavut Geoscience Office  
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Canada  
Hivayautit Nampanga:: 8672221232, Kayumiktukkut Nampanga::

# QANURITTUT

## Tukihiannaqtunik havaariyaumayumik uqauhiuyun

**Qablunaatitut:** Who: Lorraine Lebeau, Regional Mapping Geoscientist, Canada-Nunavut Geoscience Office (CNGO) What: The Izok Lake camp is currently owned by MMG Limited (mid-tier mining company), and lies on surface-rights Inuit Owned Lands (IOL). The CNGO, in collaboration with the Northwest Territories Geological Survey (NTGS), wishes to stay at the camp from ~July 26th to August 9th, 2022. The CNGO has been granted permission by MMG to stay on the property. This is a small-scale project with 3-4 people, two lead geologists (one from the CNGO, and one from the NTGS) and 1 to 2 assistants. On a daily basis, the geologists and assistants will re-examine the drill core on-site drilled by MMG to gain insight into the mineralization style of the deposit. In addition, the crew will traverse 10-15 km away from the camp to get a sense of the regional geology. There are three days of helicopter time planned with a Bell 206LR. This helicopter will tentatively arrive at the camp from Yellowknife on August 2nd and return to Yellowknife on August 6th. Eight fuel drums will be brought to the camp by a Twin Otter and all drums, full or empty, will be returned to Yellowknife. The helicopter will allow the crew to visit sites outside of the camp, to look at the regional geology around the Izok Lake deposit and have quick visits to the neighboring Gondor and Hood deposits (also owned by MMG). The crew will use small individual sleeper tents, and use the weather havens already in place by MMG for daily office work – nothing permanent will be erected at the camp. Two Twin Otter flights are planned for July 28th to bring the fuel drums to the camp. The Twin Otter will transport the crew to and from camp on July 26th and on August 9th (weather dependent, dates are approximate, plus or minus a couple days). Why: The Izok Lake deposit hosts what are considered critical minerals, specifically zinc, copper, lead, and silver. This deposit lies within a long north-south trending greenstone belt that stretches along the border of Nunavut and the NWT. The Izok Lake deposit has already been drilled at depth, and gaining insight on the mineralization style, will help geologists gain an understanding of the nature of the greenstone belt, how it is mineralized at a regional scale, and how geologists can apply this knowledge to better understand lesser known deposits (e.g., the Gondor and Hood properties in Nunavut, and showings in the NWT to the south) within the Slave geological craton. Completing this research will add value to the entire greenstone belt from Nunavut to the NWT, and help exploration companies target VMS style deposits in the Slave craton. As such, this land may become more attractive for investment and employment opportunities. Where: The Izok Lake camp is approximately 280 km south-southeast of Kugluktuk, and ~360 km northeast of Yellowknife. Coordinates of the Izok Lake camp are 65°41'25N; 112°53'02W. When: This is a planned single year project, to occur from ~July 29th to August 9th, 2022. Timing may change plus or minus a week depending on air support availability and weather.

**Uiviititut:** n/a

**Inuktitut:** n/a

**Inuinnaqtun:** Nunavut Avatilikiyin Katimayit Ajurnanngittumik Havaarijaujukhaq Nainaaqhimajuqlzok Tahiq hivunigijaujuq ujararjuat uunnaktut qagalaaqtut ilaurutalik (VMS) ujaralgit uvani Slave nunanganit utuqqarjuangujut qaanganiittut nunami, 2022Kina: Lorraine Lebeau, Aviktuqhimajumi Nunaujaliqinirnut Qaujihaqti, Kanata-Nunavut Nunaliqiniq qaujihaijuq Havagvia (CNGO)Huna: Una Izok Tahiq najugaat tadjja nanminirijangit ukunanngat MMG Limited (qitiani-ujaraqtarviujuq timinganit), qulaaniittuni pijunnautingit Inuit Nanminirijaat Nunat (IOL). Una CNGO, havaqatigivluniuk ukunanngat Nunatsiarmi Nunaliqinirnut Qaujihaijut (NTGS), niriugijaat najurvingmiittumajut uvannat ~Taaqhivalirvia 26 uvunga Niqiliqivik 9, 2022 mi. Una CNGO naammagijaat atuqtittijut ukunanngat MMG tahamani ujaraqtarvingmiilaaqtut. Una mikijuq-uuktuutigijangit havaaq 3-4 nit inuqaqtut, malruk hivuliqtuijut ujaraliqijuijut (atauhiq uvannat CNGO, unalu aippaattauq NTGS) unalu 1 uvvaluuniit 2 ikajuqtiujut. Ubluq tamaat, ujaraliqijit ikajuqtingillu ihivriuffaarmijukhat hauvikhangit havagvianit hauhimajaujuq ukunanngat MMG naunairiami haffumani ujararnut ilitquhiita ujaqhiurnirnut. Ilagijangillu, havaktit ikaaqpangniaqtut 10-15 km ungahingnia ahinit najurvingnit qanuq naunaijariami nunanganit ujaraliqinirnut. Pingahunit ublunganit halikaaptakktut hannaijariiqhimaajaat aturlugit Bell 206LR. Una halikaapta tikinniarungnaqhijuuq havagviannut Yalunaimit uvani Niqiliqivik 2 utirmilutik Yalunaimut uvani Niqiliqivik 6 mi. Arvinilik pingahut uqhurjuat qattarjuat agjaqtaulutik havagvingnut Twin Otter-kkut tamaat qattarjuat, imaqaqtut imaittulluuniit, utiqtauniaqtut Yalunaimut. Una halikaapta agjaquiqattarlutik havaktit najugaanut hilataaniittut najugaanut, ihivriurlugit nunanganit ujaqqat haniani Izok Tahiq ujararnit pulaaffunnuarlutik uvunga Gondor unalu Hood ujaraqtarviujut (nanminirijaat

ukunanngat MMG). Havaktit atuqhimaniaqtut ahiittut tupinnuanit, atuqhimalugillu hilahiutit uqquumavingit nappariiqhimajut ukunanngat MMG ubluq tamaat havagiami – ahviqtailiniaqtut najugaanit. Malruk Twin Otter-ngnit tingiakkuurlutik hannaijariiqhimaniaqtut uvani Taaqhivalirvia 28 mi agjaqtuilutik uqhurjuaingnit qattarjuit najugaanut. Una Twin Otter agjaqtuinaqtut havaktit uvunga hamannat najugaanit uvani Taaqhivalirvia 26 mi uvanilu Niqiliqivik 9 mi (hila naammakpat, ubluit qanuritikumik, ilalugit uuminngaluuniit ilanngitkumiluuniit qaffinnuit ublunganit). Huuqtauq: Una Izok Tahiq ujaraqtarvik ilittuqtukhaujut qanuq ujararaaluit, haffuminngat qirnarivjaktut qirnariktut, kannujaq, qirnariktut unalu havigalik. Una ujaraqtarvik uvaniittut iluani takkarjuaq tununnganit-hivuraanit ilagijaujut hungajaaqtut ujaralgit tahijaaqtuq hinaanit kiglianit Nunavut unalu Nunatsiarmi. Una Izok Tahiq ujaraqtarvik hauhimagaluaqtuq hitijumik, ilitturnaqhunilu ujarait ilitquhiit, ikajuutauniaqtuq ujaraliqijit kangiqhittaarlugitk ilitquhianit haffumani hungajaaqtut ujarait, qanuq ujaranikhuni uvani nunangani uuktuutigijaat, qanurlu ujaraliqijit ilihimajaamingnit ujarait ilitquhiita hungajaaqtut ujarangit, qanuq ujaranikkamik angijaaqtumik nunanganit, qanuq ujaraliqijit illitturnigijaanganit kangiqhittiaqhimalugit ujaraqtarniagut (haffuminngatut una Gondor unalu Hood nanminiit Nunavut iluani, takukhauvlutik Nunatsiamilu hivuraanut) iluani Slave ujararningit ilaanit. Iniqhimalugit hamna qaujihaqtut taimaa ikajuutauniaramik tamainnut hungajaaqtut ujarangit uvannat Nunavut uvunga Nunatsiami, ikajuutaulunilu nalvaqhiuqtut ujaqqangit hivunigijaat VMS ilitquhirnut ujaraqtarviujut iluani Slave ujararningit ilaanit. Taimaattauq, una nuna takunnarniaqhunilu maniliurahaqtunut havaktittijunullu hailijakhangit. Humi: Una Izok Tahiq najugaat uvaniittukhaujungnaqhijuuq 280 km hivuraanit kivataangani Kugluktuk mi, unalu ~360 km tununngani kivataanit Yalunaimit. Aulapkaqhimaangit haffumani Izok Tahiq najugaat uvaniittut 65°41'14.36" Tununngani; 112°52'43.89" Uataani. Una Hood (66°03'59.83" Tununngani; 112°47'07.40" Uataani); unalu Gondor (65°33'42.71" Tununngani; 111°47'58.09" Uataani) nanminingit pulaaqtaulaaqtut ubluinnaani halikaaptakkut. Qakugu: Una upalungaiqhimaajuq avaliqanngittuq ukiungani havaaq, havaktauniaqtuq uvannat ~Taaqhivalirvia 26 uvunga Niqiliqivik 9 mut, 2022 mi. Hulivikhangit ikaarnigut aallanngulaaqtuq ilalugu naahimaittumik qanuq tingmiaq angmaumanniqqat hilalu naammakkumi.

## **Personnel**

Personnel on site: 4

Days on site: 15

Total Person days: 60

Operations Phase: from 2022-07-26 to 2022-08-09

## Hulilukaarutit

Inigiya	Hulilukaarut Qanurittuq	Nunannga Qanurittaakhaanik	Initurlinga qanuritpa	Initurlinga utuqqarnitat unaluuniit Ingilraaqnitat Uyarannguqtut akhuurninnga	Qanitqiyauyuq qanitqiamut nunallaat kitulluuniit ahiruqtaliyainnit nuna
Izok Lake camp (location of project camp)	Camp	Inuit Owned Surface Lands	The crew for this project will sleep here, and perform 12/15 days of work here. This area has an established infrastructure with several weather havens installed by MMG Resources Inc. MMG has left drill core on site for the exploration of zinc-copper-lead and silver	none	~275 km southeast from Kugluktuk~500km southwest of Cambridge Bay~370 km north-northeast of Yellowknife
Izok Lake greenstone belt	Researching	Inuit Owned Surface Lands	This area will be hiked from the Izok camp site. This area has received mineral exploration attention since the 1970's by prospectors, government surveys, and larger exploration and mining companies. This is an area of caribou migration.	Not indicated as area of archeological/paleontological interest by NPC community priorities and values map	~275 km southeast from Kugluktuk; ~500km southwest of Cambridge Bay; ~370 km north-northeast of Yellowknife
Gondor property	Researching	Inuit Owned Sub-Surface Lands	This area will be visited by helicopter for 1-2 days for this project. Area has been drilled and explored for mineral potential, property owned by MMG Resources.	Not indicated as area of archeological/paleontological interest by NPC community priorities and values map	~300 km from Kugluktuk~500km from Cambridge Bay~370 km from Yellowknife

Hood property	Researching	Inuit Owned Sub-Surface Lands	This area will be visited by helicopter for 1-2 days for this project. Area has been drilled and explored for mineral potential, property owned by MMG Resources.	This area intersects an area with known artifacts. indicated by NPC interactive map of community priorities and values.	~275 km southeast from Kugluktuk; ~500km southwest of Cambridge Bay; ~370 km north-northeast of Yellowknife
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**Nunaliin Ilauyun, Aviktuqhimayuniitunullu Ikayuuhiarunguyun**

Nunauyuq	Atia	Timiuyuq	Upluani Uqaqatigiyaungmata
Kugluktuk	There is no community involvement with such a small scale project	n/a	2022-02-03

# Angiuttauvaktunik

Naunaiqlugu nunanga talvani havauhikhaq ittuq:

Kitikmeot

## Angiuttauvaktunik

Munariniqmut Ayuittiaqtuq	Angirutinga Qanurittuq	Tadja Qanurittaakhaanik	Ublua Tuniyauyuq/Uuktuqtuq	Umikvikhaa Ublua
Nunavut Imaligiyyit Katimayit	requesting NWB approval without a license. Using less than 50 m3 of water daily.	Not Yet Applied		
Nunavunmi Ihivriuqniqmut Timiqutigiyanga	Will request research license	Not Yet Applied		
Kitikmeot Inuit Katimayiingit	Request for access to Inuit Owned Land	Applied, Decision Pending		
Alaanut	MMG Resources Inc. permission to stay at their camp	Active	2022-01-09	

## Project transportation types

Transportation Type	Qanuq Atuqtauniarmangaa	Length of Use
Air	Twin Otter charter plane, Bell206LR helicopter	
Land	walking	

## Project accomodation types

Temporary Camp

# Ihuaqutivaluin Atuqtauyukhan

Hanalrutit atuqtaunahuat (ukuallu ikuutat, pampiutainnik, tingmitinik, akhaluutinik, hunaluuniit)

Hanalrutit Qanurittuq	Qaffiuyut	Aktikkulaanga – Qanurittullu	Qanuq Atuqtauniarmangaa
generator	1	2000kw	power electronics (computers, gps et.c)
Bell206LR helicopter	1	12.92 x 3.14 m	3 days transport accross Izok greenstone belt, to Gondor and Hood properties
Charter Plane Twin Otter	1	15.77 x 19.8 m	transport crew, equipment, fuel to and from Izok camp from Yellowknife
Fire arms (12 gauge shot gun)	2-3	n/a	Emergency use only (wildlife self defense)

## Qanurittuq Urhuqyuaq unalu Qayangnaqtut Hunavaluit Aturninnga

Qanurittuq urhuqyuaq hunavaluit aturninnga:	Urhuqyuaq Qanurittuq	Qaffiuyut qattaryut	Qattaryuk Aktikkulaanga	Atauttimut Qaffiuyut	Ilanga	Qanuq Atuqtauniarmangaa
Aviation fuel	fuel	8	45	360	Gallons	helicopter use
Gasoline	fuel	10	5	50	Gallons	generator
Propane	fuel	2	20	40	Lbs	heater and Coleman stove

## Imaqmik Aturninnga

Ubluq qanuraaluk (m3)	Aturumayain imavaluin utiqittagaani qanuq	Atulirumayain imavaluin utiqittagani humi
0	manually by bucket	Itchen Lake (lake next to camp)

# Iqqakuq

## Ikkakunik Munakgiyauyunik

Havauhikhaq Hulilukaarut	Qanurittuq Iqqakut	Ihumagiyauyuq Qanuraaluktut Atuqtait	Qanuq Iqqakuurniarmangaa	Halummaqtirarnirutikhan piyutin
Researching	Ikulalaaqtun iqqakuuvaluin	~20 lbs	small contained burning	n/a
Researching	Qirnarivyaktuq imaq	<0.15m <sup>3</sup> daily	small amounts will be disposed in sandy land areas for easy infiltration into the earth. Biodegradable soaps will be used.	n/a
Researching	Ikulalimanngittun iqqakuuvaluin	~20 lbs	to be sealed in an animal proof container and transported back to Yellowknife for disposal. e.g., plastics, metals	n/a
Researching	Anaagun (inuin anaaguin)	~50 lbs	burial with shovel	n/a

### Avatiliriniqmut Ayurhauingit:

The land will be left in the state it was before this project. All temporary structures (i.e., sleeper tents), field equipment, garbage, and fuel (empty or full drums) will be returned to Yellowknife. The helicopter (only 3 days) creates noise that can be alarming to wildlife. When the cloud ceiling allows, the helicopter will fly high above the land as to not stress out the wildlife below. If large mammals are spotted (e.g., polar bear, muskox, caribou heard) the helicopter will reroute or fly away from the wildlife to avoid stressing the animals.



# **Additional Information**

## **SECTION A1: Project Info**

## **SECTION A2: Allweather Road**

## **SECTION A3: Winter Road**

## **SECTION B1: Project Info**

Mineral exploration is for research only. We will be research the mineralization of zinc-copper-lead and silver.

## **SECTION B2: Exploration Activity**

logging old drill core left by MMG Resources Inc. Geological mapping of the surrounding Izok Lake greenstone belt. 1-2 day visits to Hood and Gondor properties (which have the same minerals).

## **SECTION B3: Geosciences**

A substantial amount of drill core has been left on the Izok Lake property that is available for observation. This project involves core logging of mineralized zones that will build on previous years of bedrock mapping projects in the greenstone belt from the NTGS, and will act as a baseline for VMS mineralization in greenstone belts of the Slave craton in Nunavut. This work will help evaluate the tectonic setting, volcanic architecture, and facies distribution in volcanogenic massive sulfide (VMS) deposits within the belt. Understanding the fundamental geological processes of the belt will aid in the understanding of the evolutionary processes responsible for mineral endowment across the Slave craton. In addition, this work will assist in the scientific understanding of those involved in policy decisions, including local stakeholders. This work will also build on 3D inversions completed following a 65,000 line-km high-resolution aeromagnetic survey that was flown in 2019 that has provided for the first time, detailed magnetic data of the greenstone belt and surrounding granitoid basement complex.

## **SECTION B4: Drilling**

n/a

## **SECTION B5: Stripping**

n/a

## **SECTION B6: Underground Activity**

n/a

## **SECTION B7: Waste Rock**

n/a

## **SECTION B8: Stockpiles**

n/a

## **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**

### **Qanurittuq Ittunik Avatinga: Avatingalluanga**

The landscape is relatively flat with a height variation in the range of 20-40m. The topography is characterized by low eskers and flat boulder fields or outcrop, soil cover is thin, 1-5 metres thick (MMG Resources Inc. assessment report 085582). Several large lakes are in the vicinity.

### **Qanurittuq Ittunik Avatinga: Inuuhi mayunut Avatinga**

10. The natural vegetation is muskeg with scattered sedges and willows along waterways. Arctic birch, bearberry, Labrador tea, lichen and moss is present in all areas. Animals of the area consist of muskox, caribou, wolves, foxes, Arctic hares, wolverines, grizzly bears, ground squirrels, and ptarmigan. Larger lakes support fish and bird life (citation: MMG assessment report number 085582).

### **Qanurittuq Ittunik Avatinga: Inungit-maniliurutingit Avatinga**

Kugluktuk and Cambridge Bay are the closest communities, Kugluktuk is ~274 km and Cambridge Bay is ~500 km distance from the Izok Lake camp site. Considering the areas of community priorities and values, the Rocking Horse Lake, Contwoyto Lake, Napaktulik Lake, and Itchen Lake are considered areas for fishing, camping, and hunting for caribou, muskox, wolves, and grizzlies. Artifacts have been located around the Napaktulik Lake and Contwoyto Lake areas. There is approximately a 20 km buffer zone around the Contwoyto Lake in which there are outpost camps and historic sites.

### **Miscellaneous Project Information**

n/a

### **Naunaiyainiq ukuninnga Ayurhautingit unalu Piumayaat Iikliyuumiutinahuarutit**

The land will be left in the state it was before this project. All temporary structures (i.e., sleeper tents), field equipment, garbage, and fuel (empty or full drums) will be returned to Yellowknife. The helicopter creates noise that can be alarming to wildlife. When the cloud ceiling allows, the helicopter will fly high above the land as to not stress out the wildlife below. If large mammals are spotted (e.g., polar bear, muskox, caribou heard) the helicopter will reroute or flying away from the wildlife to avoid stressing the animals. - The camp will be left as we found it.

### **Tamatkiumayunik Ihuikgutivaktunik**

It is only a 15 day project for one summer (2022).

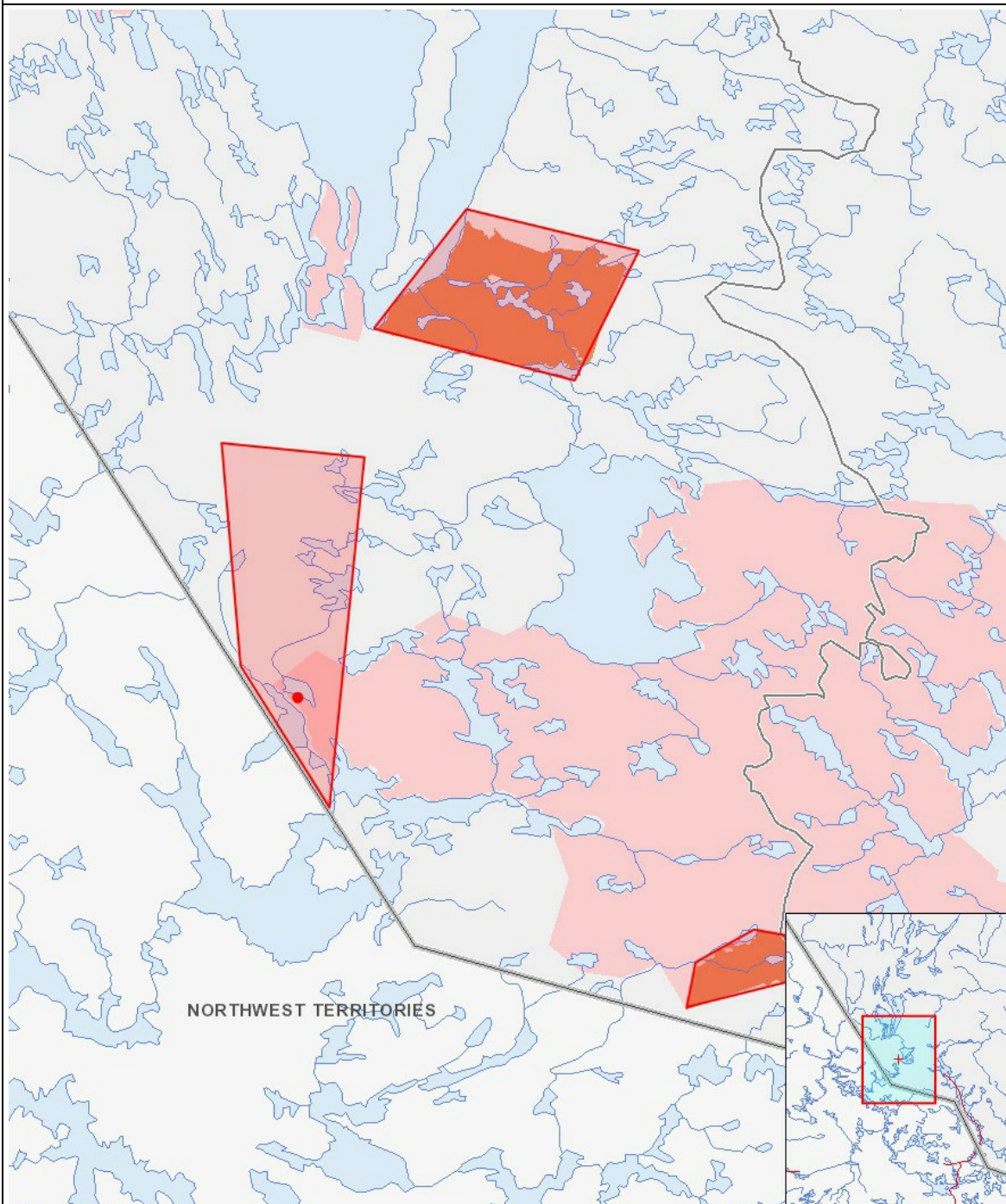
## Impacts

# Ilitariyauniq Avatiliriniqmut Ayurhautingit

Havakvinga																
-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aulapkaininnga																
Researching		-	-	-	-	-	-	-	-	-	M		-	-	-	-
Piiqtauniq																
-		-	-	-	-	-	-	-	-	-	-		-	-	-	-

(P = Nakuuyuq, N = Nakuungittut unalu mikhilimaittuq, M = Nakuungittut unalu mikhittaaqtuq, U = Naluyauyuq)

## Havaariyauyukhamut Nayugaa



### List of Project Geometries

- |   |         |   |
|---|---------|---|
| 1 | polygon | Gondor property                           |
| 2 | polygon | Izok Lake greenstone belt                 |
| 3 | polygon | Hood property                             |
| 4 | point   | Izok Lake camp (location of project camp) |