



New

## Mineral Exploration

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▷ΔΛΠΔ: Description sommaire de la campagne de forage Turquetil — Esker 2021-2022Ce programme de travail proposé consiste en des opérations de forage héliportées menées par MPH Consulting Limited sur le territoire visé par l'AEM Huckleberry-0002 du gisement aurifère de Turquetil et de la concession existante F46702 de la venue aurifère d'Esker. Le programme de forage sera mené depuis le camp minier du lac Henik de la compagnie Eskimo Point Lumber Supply/Airport Services Ltd., où seront hébergés le personnel et un hélicoptère (voir la Carte de localisation générale). Les deux zones ont fait l'objet de plusieurs campagnes de forage dans le passé, notamment en 1993 à Turquetil et en 2004 à Esker. Des travaux antérieurs ont permis de trouver de l'or en surface et dans le sous-sol grâce à des forages. Le programme proposé vise à confirmer et à exploiter, si possible, les zones de minéralisation aurifère identifiées.Zones des opérations 2021-2022 (voir la Carte de localisation détaillée des opérations de forage) : M. John

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Post-Closure Phase: from 2023-06-30 to 2023-07-01

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Turquetil Drilling Operations Area	Drilling	Inuit Owned Sub- Surface Lands	Site was drilled in 1976, 1978, 1988 and 1993.	unknown but will contact Prince of Wales Nunavut Archeological office for any information they have for the site.	Site is 140km northwest of Arviat. Site is approximately 30km from Qamanirjuaq CPMA.
Esker Drilling Operations Area	Drilling	Inuit Owned Surface Lands	Site was previously drilled in 1997, 2002 and 2004.	Unknown but will contact Prince of Wales Archeological office for any information they have for the site.	Site is 187km northwest of Arviat. Site is approximately 100km from Qamanirjuaq CPMA.

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ᐱᐅᔪᔪᑦ	Steve England	Hamlet of Arviat	2021-01-25

$\epsilon \Delta^{\alpha} j^{\beta} \wedge J^{\alpha} e^{\beta} \dot{N} \quad \nabla^{\alpha} r^{\beta} C D P L \dot{\chi}^{\gamma}$

$a_1 r^0 r^2 \sigma^b$   $\Lambda_{C-L} q_L^e \Delta D \sigma^d \gamma^c$   $\Pi \Pi \gamma^f \omega^c:$

Kivalliq

$\epsilon \Delta^{\frac{a}{2}} r^c \wedge J^{\frac{b}{2}} e^{D\dot{N}} \nabla^{\frac{c}{2}} r^{\frac{d}{2}} C D P L R^c$

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## Project transportation types

Transportation Type	Transportation Assets	Length of Use
Air	helicopter for operations, fixed wing for support	

## Project accomodation types

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◀▷↳◀<sup>96</sup>▷<sup>96</sup>

Λ<sup>9</sup>δ<sup>c</sup> 4<sup>9</sup>π<sup>2</sup> 4<sup>9</sup>π<sup>2</sup>CDσ<sup>2</sup>δ<sup>2</sup>γ<sup>2</sup> Δ<sup>2</sup>ε<sup>2</sup>γ<sup>2</sup>δ<sup>2</sup>π<sup>2</sup>γ<sup>2</sup> Δ<sup>2</sup>δ<sup>2</sup>Δ<sup>2</sup>, Γ<sup>2</sup>γ<sup>2</sup>4<sup>9</sup>π<sup>2</sup>δ<sup>2</sup>, ε<sup>2</sup>ε<sup>2</sup>LC<sup>2</sup>γ<sup>2</sup>, σ<sup>2</sup>ε<sup>2</sup>δ<sup>2</sup> 4<sup>9</sup>π<sup>2</sup>γ<sup>2</sup>γ<sup>2</sup>

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Drill	1	4799 lbs	One helicopter-portable Multi-Power Discovery 1 drill rig supplied and operated by Foraco International SA (Kelowna Branch)
AStar350 B2 Helicopter	1	11m	Will be used to move the drill from site to site, as well crew shifts from Henik Lake Camp

[illegible][illegible]
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Drilling	ᐃᑦᑕᑦᑕ ᐃᑦᑕᑕᑕᑕᑕᑕᑕᑕᑕ	1 cubic metre per week	back hauled to Henik Lake Camp	incineration
Drilling	ᐃᑕᑕᑕᑕ ᐃᑕᑕᑕᑕᑕᑕᑕᑕᑕᑕᑕ	<40 cubic metres per day	sump where particulate matter will settle	none
Drilling	ᐃᑦᑕᑦᑕ ᐃᑦᑕᑕᑕᑕᑕᑕᑕᑕᑕᑕᑕ	1 cubic meter per week	back-hauled to Arviat or Churchill/Thompson Mb.	commercial disposal

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Minimal environmental impacts from drilling



# **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**

Provide the number of drill holes and depths (provide estimates and maximums where possible). Approximately 10-20 diamond drill holes. Each hole to a maximum depth of 250 metres. Discuss any drill additives to be used. See MSDS sheets attached (Appendix 3 - Fuel Spill Contingency Plan). Describe method for dealing with drill cuttings. All drill sludges will be collected in a hand dug collection sump or natural depression located no less than 31 metres from the ordinary high water mark of any water body. These sludges will be allowed to settle. All land based artesian holes (drill holes which produce water after completion) will be documented, plugged and sealed with grout. As virtually 95% of the rock cored is brought to the surface and transported to camp (and then to the laboratory), the volume of drill waste created for a 100 meter long hole is only 0.14 cubic meters. Describe method for dealing with drill water. As above. Describe how drill equipment will be mobilized. The drill will be moved by helicopter between hole locations. All crews will also be shuttled daily between camp and work areas by helicopter. The foot print of each drill pad will be kept to a minimum size of approximately 10 metres by 10 metres. Pad construction will involve the placement of two parallel wooden timbers (6" x 6" x 10-12') onto the ground on which the frame of the drill and shack will be placed. The only ground clearing needed for this type of drill set-up will involve the removal of any larger, protruding boulders by hand. Absorbant matting will be used to collect any oils and lubricants which may be sourced from operating the drill. Drip trays will be used at all fueling and refueling areas. Once drilling at a particular site is completed the timbers will be removed for use at the next drill site. All used absorbant matting, garbage and fuel drums will be backhauled off the property and transported to Arviat and/or Churchill or Thompson, MB to be disposed of in an approved disposal facility. Describe how drill holes will be abandoned. All drill cuttings, water return and sludge will be disposed of in a properly constructed sump or natural depression no closer than 31 metres from the ordinary high water mark of any waterbody. Any drill collars that cannot be removed will be cut to ground level. All garbage and equipment and empty drums will be removed and the area reclaimed to as near as possible its original state.

## **SECTION B5: Stripping**

## **SECTION B6: Underground Activity**

## **SECTION B7: Waste Rock**

## **SECTION B8: Stockpiles**

## **SECTION B9: Mine Development**

## **SECTION B10: Geology**

## SECTION B12: Mill

## SECTION D1: Facility

## SECTION D3: Facility Operation

## SECTION E1: Offshore 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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The Turquetil-Esker project is situated in barren lands or tundra along the northern reaches of the tree line and is underlain by permafrost. Relief is moderate, less than 20 metres. Vegetation consists of black spruce, dwarf shrubs, heaths, sedges, grasses, moss and lichens. In areas of better drainage the ground is covered by dwarf birch and willow shrubs however the majority of the property is vegetated by cotton grass tussocks and wet sedge meadows. Overall bedrock exposure is less than 5%, restricted to higher elevations and/or on the edges of the larger lakes. Outcrop surfaces are often ice scoured and not uncommonly polished. Frost-heaved bedrock and shattered sub-crop are common. Flat to undulating muskeg and boulder fields are frequent throughout the property. Continental glaciation has affected the entire region. Glacial deposits vary in thickness and consist of reworked till veneer, ground moraines, and flattened eskers. Glacial transport is generally east-south-east. Landforms, relief and drainage have been strongly influenced by the effects of several periods of glaciation, post-glacial fluvial activity and freeze/thaw processes. The area is generally covered by ice and snow from late September to early July.

Summer is brief, extending only from mid-July to late August. Temperatures range from highs of approximately 25°C in summer to lows that can exceed -45°C in the winter, with average temperatures of 10o C and -30o C, respectively. Daylight varies from virtually 24 hours in summer to less than a few hours in the winter.

The natural vegetation comprises muskeg with scattered sedges. An extensive cover comprising crowberry, Labrador tea, lichen and moss is present in nearly all areas. The local fauna includes ptarmigan, caribou, wolves, foxes, arctic hares, wolverines, grizzly and polar bears, ground squirrels and the occasional muskox. Most of the larger lakes contain fish and support bird life.

As the project area is located on remote sites northwest of Arviat all socio-economic impacts will be positive. MPH will continue its practice of purchasing all goods and services from local supplies whenever possible. The camp will be serviced weekly from the community of Arviat. MPH will also encourage all contractors operating on the project to hire locally.

$a \rightarrow e \Delta^{fb} CD\sigma^{\alpha f c} \quad d b \gamma^{fb} CDPL^f c \quad f_b \Delta^c \dot{C} \sigma^{\alpha f c} \quad < \text{CDP}^f \gamma^f \gamma^{fb} CD\sigma^f \sigma^{\alpha f c} >$

the laboratory), the volume of drill waste created for a 100 meter long hole is only 0.14 cubic meters.<sup>8</sup>All sumps will be backfilled and contoured when operations are complete.<sup>9</sup>Only environmentally acceptable and approved muds and additives (as per DIAND regulations) are to be used during drilling operations.<sup>10</sup> Drill holes to be plugged and permanently sealed if artesian flow is encountered.<sup>11</sup> All fuel caches will be located a minimum of 30 meters from the normal high water mark. Spill kits will be present at all fuel caches and drilling operations.<sup>12</sup> MPH possesses and maintains a current Emergency Response Plan including a Fuel Spill Contingency Plan that all employees and contractors are required to adhere to. These policies also include safety, emergency, fire and medi-vac procedures and are described in detail in MPH's Safety Manual/Field Guide.

### **Cumulative Effects**

In total, the residual environmental effects of MPH's entire program on the Esker/Turquetil property are expected to be negligible. No other mineral exploration activities or other industrial development projects are currently known or planned for the area, which eliminates the potential for cumulative environmental effects. All potential environmental effects associated with this proposed program are minor, localized effects that can be mitigated. No significant residual impacts to the environment are expected to occur as a result of the implementation of this program. As a result there are no significant contributions resulting from the project that could be considered to be cumulative. However, while individually no significant effects are anticipated, it is the role of the cumulative environmental effects assessment to consider the additive and synergistic effects of overall residual environmental effects, in combination with all existing or known planned activities within the vicinity of Turquetil-Esker project area. No other mineral exploration activities or other industrial development projects are currently known or planned for the area, which minimizes the potential for cumulative effects. No known environmental issues are known to exist in the project area from historic exploration campaigns. As a result, based on CEAA's premises, the proposed MPH's exploration program on the Turquetil-Esker project is not expected to result in a cumulative effect.

## Impacts

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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																			

$$(P = \langle \text{b d} \underline{\text{a}} \text{ p n r}^{\text{a}} \text{ q}^{\text{b}} \rangle^{\text{c}}, N = \langle \text{b d}^{\text{b}} \text{ r}^{\text{r}} \text{ c d r}^{\text{a}} \text{ q}^{\text{b}} \rangle^{\text{c}} \langle \text{c d r}^{\text{r}} \text{ r}^{\text{b}} \rangle^{\text{b}} \langle \text{d r}^{\text{a}} \text{ q}^{\text{b}} \text{ r}^{\text{c}} \rangle^{\text{c}}, M = \langle \text{b d}^{\text{b}} \text{ r}^{\text{r}} \text{ c d r}^{\text{a}} \text{ q}^{\text{b}} \rangle^{\text{c}} \langle \text{c d r}^{\text{r}} \text{ r}^{\text{b}} \rangle^{\text{b}} \langle \text{d r}^{\text{a}} \text{ q}^{\text{b}} \rangle^{\text{c}}, U = \text{b d r l}^{\text{a}} \text{ q}^{\text{b}} \text{ r}^{\text{c}} \rangle^{\text{b}})$$

1	polygon	Esker Drilling Operations Area
2	polygon	Turquetil Drilling Operations Area

- |   |         |                                    |
|---|---------|------------------------------------|
| 1 | polygon | Esker Drilling Operations Area     |
| 2 | polygon | Turquetil Drilling Operations Area |

