

Preliminary Screening Report Form

<p>Preliminary screener: MVLWB</p> <p>Reference / File number: MV2016S016 – Amendment 2 – March 7, 2019</p> <p>TITLE: Drilling and Soil Testing, Giant Mine, NT</p> <p>ORGANIZATION: Department of Indian Affairs and Northern Development</p> <p>MEETING DATE: March 7, 2019</p>	<p>EIRB</p> <p>Reference number:</p>
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Type of Development:
(CHECK ALL THAT APPLY)

- | | |
|-------------------------------------|--|
| <input type="checkbox"/> | New |
| <input checked="" type="checkbox"/> | Amend, EIRB Ref. # |
| <input checked="" type="checkbox"/> | Requires permit, licence, or authorization |
| <input type="checkbox"/> | Does not require permit, licence, or authorization |

Project Summary:

The current drilling and soil testing activities include the following:

- Drilling using a mud rotary drill, diamond drilling and down-the-hole drilling methodologies;
- Boring using an auger
- Excavating test pits
- Supporting activities such as storage of fuel and use machinery

The proposed amendments include:

- Under-ice drilling on Baker Pond
- Under-ice drilling on Yellowknife Bay
- Temporary access trail on Yellowknife Bay for equipment relocation
- Removal of potential ice dams on Baker Creek

Scope:

This Permit entitles the Permittee to conduct the following land-use operation:

- conduct soil investigations;
- conduct drilling;
- conduct test pitting;
- use and storage of fuel, and
- use of machinery.

Land Use Eligibility - Section 18 Mackenzie Valley Land Use Regulations:
18(b)

Type of Disposition	Disposition Number(s)
----------------------------	------------------------------

- | | |
|---|---------------|
| <input type="checkbox"/> Mineral Claims | |
| <input type="checkbox"/> Prospecting Permit (s) | |
| <input type="checkbox"/> Mineral Leases | |
| <input type="checkbox"/> Oil and Gas: EL/SDL/PL | |
| <input type="checkbox"/> Quarry Permit | |
| <input type="checkbox"/> Timber Permit | |
| <input checked="" type="checkbox"/> Other: | Reserve R662T |

Principal Activities (related to scoping) (CHECK ALL THAT APPLY)

- | | | |
|---------------------------------------|--|--|
| <input type="checkbox"/> Construction | <input type="checkbox"/> Exploration | <input type="checkbox"/> Decommissioning |
| <input type="checkbox"/> Installation | <input type="checkbox"/> Industrial | <input type="checkbox"/> Abandonment |
| <input type="checkbox"/> Maintenance | <input type="checkbox"/> Recreation | <input type="checkbox"/> Aerial |
| <input type="checkbox"/> Expansion | <input type="checkbox"/> Municipal | <input type="checkbox"/> Harvesting |
| <input type="checkbox"/> Operation | <input type="checkbox"/> Quarry | <input type="checkbox"/> Camp |
| <input type="checkbox"/> Repair | <input type="checkbox"/> Linear / Corridor | <input type="checkbox"/> Scientific/ |

- Research
 - Water Intake
 - Other: Geotechnical Program – Drilling and Soil and Sediment Testing
- Sewage
- Solid Waste

Principal Development Components (related to scoping) (CHECK ALL THAT APPLY)

- | | |
|---|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Access Road <ul style="list-style-type: none"> <input type="checkbox"/> construction <input type="checkbox"/> abandonment/removal <input type="checkbox"/> modification e.g., widening, straightening <input type="checkbox"/> Automobile, Aircraft or Vessel Movement <input type="checkbox"/> Blasting <input type="checkbox"/> Building <input type="checkbox"/> Burning <input type="checkbox"/> Burying <input type="checkbox"/> Channelling <input type="checkbox"/> Cut and Fill <input checked="" type="checkbox"/> Cutting of Trees or Removal of Vegetation <input type="checkbox"/> Dams and Impoundments <ul style="list-style-type: none"> <input type="checkbox"/> construction <input type="checkbox"/> abandonment/removal <input type="checkbox"/> modification <input type="checkbox"/> Ditch Construction <input type="checkbox"/> Drainage Alteration <input type="checkbox"/> Drilling other than Geoscientific <input type="checkbox"/> Ecological Surveys <input type="checkbox"/> Excavation <input type="checkbox"/> Explosive Storage <input checked="" type="checkbox"/> Fuel Storage <input type="checkbox"/> Topsoil, Overburden or Soil <ul style="list-style-type: none"> <input type="checkbox"/> fill <input type="checkbox"/> disposal <input type="checkbox"/> removal <input type="checkbox"/> storage | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Waste Management <ul style="list-style-type: none"> <input type="checkbox"/> disposal of hazardous waste <input type="checkbox"/> waste generation <input type="checkbox"/> sewage <input type="checkbox"/> disposal of sewage <input checked="" type="checkbox"/> Geoscientific Sampling <input type="checkbox"/> Trenching <input checked="" type="checkbox"/> Diamond drill <input checked="" type="checkbox"/> Borehole core sampling <input type="checkbox"/> Bulk soil sampling <ul style="list-style-type: none"> <input type="checkbox"/> gravel <input type="checkbox"/> hydrological Testing <input type="checkbox"/> Site Restoration <ul style="list-style-type: none"> <input type="checkbox"/> fertilization <input type="checkbox"/> grubbing <input type="checkbox"/> planting/seeding <input type="checkbox"/> reforestation <input type="checkbox"/> scarify <input type="checkbox"/> spraying <input type="checkbox"/> re-contouring <input type="checkbox"/> Slashing and removal of vegetation <input checked="" type="checkbox"/> Soil Testing <input type="checkbox"/> Stream Crossing/Bridging <input type="checkbox"/> Tunnelling/Underground <input type="checkbox"/> Other: |
|---|---|

NTS topographic map sheet numbers:
85J/08

Latitude / longitude and UTM system:
Minimum Latitude & Longitude are 62°28'54" N & 114°19'12" W
Maximum Latitude and Longitude are 62°32'38" N & 114°22'34" W

Nearest community and water body:
Nearest Community: Yellowknife, NT
Nearest Water Body: Baker Creek/Great Slave Lake

Land Status (consultation information)

- Free Hold/Private Commissioner's/Territorial Lands Federal Crown Land Municipal Land

Transboundary/Transregional Implications

- British Columbia Alberta Saskatchewan Yukon
 Nunavut National Park Inuvialuit Settlement Region
 Wek'èezhii Gwich'in Sahtu

Type of transboundary implication: Impact / Effect Development

Public concern: _____
(Describe.)

Physical - Chemical Effects

Impact

1) Ground Water

water table alteration

Mitigation

Artesian flows may be encountered when drilling. The proponent will immediately cap any holes in which artesian flow is encountered and the INAC Inspector will be notified.

water quality changes

Drilling wastes may impact the groundwater quality as there may be the potential spills of chemicals and fuel. The proponent indicates that:

- Water will be primarily used in the drilling program. If additives are required in the drilling muds, only environmentally benign materials such as bentonite clays or polymers will be used.
- Any rinse water used in down-the-hole drilling (see Project Description) will be captured by the underground water management system which intercepts water flowing through underground workings and directs it to surface for treatment.
- Maintaining spill kits at each work site will ensure small spills can be cleaned up immediately and impacts are localized and temporary.
- Development of and training in the use of a spill contingency plan will ensure spills are responded to effectively, in a timely manner, and appropriate notifications are made.
- Double-walled tanks are used at the main fuel tank farm
- Drill stems that enter underground chambers and slopes will be rinsed in-hole to prevent arsenic dust from reaching the surface.
- All refuelling activities will take place a minimum of 100 m from waterbodies.
- equipment used on ice will be inspected prior to each use and stored off-ice at the end of each day.
- a sample-catcher will be used at the base of the lead sample rod for under-ice drills to prevent core from escaping upon extraction
- TSS and turbidity monitoring in Yellowknife Bay with identified action levels and responses identified. If action levels are triggered, metals analysis will be completed to quantify risk (i.e. arsenic resuspension).

infiltration changes

other:

The addition of the submersible pumps can be used if there is a large flux of water in the underground.

N/A

Impact

2) Surface Water

flow or level changes

Mitigation

water quality changes

The use of equipment on/near ice, drilling and excavating soil test pits especially near the banks of Baker Creek and/or under ice drilling may result in the operational releases of drill wastes to or sedimentation of the water. Mitigation includes:

- Activities near Baker Creek will take place during low flow periods and above the high water mark.
- Recirculation of drilling fluids to minimize generation of liquid waste.
- Drill cuttings will be collected and disposed of in the Northwest Pond Hazardous Waste Area (Figure 4 in Project Description).
- Standard erosion and sedimentation control measures including matting, fencing and berms (e.g., sandbags) will be used as required to prevent wastes from entering the creek.
- All refuelling activities will take place a minimum of 100 m from waterbodies.
- equipment used on ice will be inspected prior to each use and stored off-ice at the end of each day.
- a sample-catcher will be used at the base of the lead sample rod for under-ice drills to prevent core from escaping upon extraction
- TSS and turbidity monitoring in Yellowknife Bay with identified action levels and responses identified. If action levels are triggered, metals analysis will be completed to quantify risk (i.e. arsenic resuspension).

Also refer to water quality changes under Groundwater above.

water quantity changes

drainage pattern changes

Removal of vegetation at drill targets and the excavation of test pits may affect, in very localized areas, surface water flows. The Proponent proposes the following for mitigation:

- Most of the drilling activities will occur in previously disturbed locations and vegetation will not be encountered.
- In areas such as the banks of Baker Creek where vegetation may be encountered, the vegetation will be chopped and laid on the ground surface in such a manner that the debris will not enter the creek.
- The footprint of areas requiring removal of vegetation will be minimized.
- Excavated soils will be returned to the test pits and mounded to prevent later ponding on the surface.

temperature

wetland changes/loss

other:

N/A

Impact

Mitigation

3) Noise

noise in/near water

noise increase

Noise levels may increase at the site temporarily while this activity is conducted. Mitigation includes:

- Contractors on site must have appropriate personal protective equipment, including ear plugs, to protect their health.
- Heavy machinery will be equipped with standard Industrial noise suppression devices. Increases in noise levels will be short term and will be outweighed by the positive effects that collecting the geotechnical and design information will have on remediation design and risk mitigation.

other:

N/A

Impact

Mitigation

4) Land

geologic structure changes

soil contamination

Soils could become contaminated from chemical spills. Mitigation includes the development of a spill contingency plan, and the use of appropriate spill kits/procedures. See water quality Groundwater above for more information on mitigation.

buffer zone loss

soil compaction and settling

Soils could become compacted from the use of heavy machinery. Much of the land this operation will occur on has been previously disturbed by over 50 years of mining activity. No mitigation.

destabilization/erosion

See above under soil compaction and settling. Standard erosion and sedimentation control measures including matting, fencing and berms (e.g., sandbags) will be used as required to prevent wastes from entering the creek.

permafrost regime alteration

explosives/scarring

other:

N/A

Impact

5) Non-renewable natural resources

Mitigation

resource depletion

other:

N/A

Impact

6) Air/climate/atmosphere

Mitigation

other:

Emissions from combustion engines and dust generated from drilling and heavy equipment use will be released to the atmospheric environment. Drilling into arsenic trioxide chambers may result in arsenic trioxide dust plumes exiting drill holes. The Proponent will do the following to prevent this:

- Contractors brought to site are responsible for using well-maintained equipment, which will help to minimize combustion engine emissions.
- Overall impacts to air quality will be outweighed by the positive effects that collecting the geotechnical and design information will have on remediation design and risk mitigation.
- Drilling into arsenic trioxide chambers will follow modified procedures to prevent arsenic trioxide plumes. The modified drilling procedures include:
 - The use of Down-the-Hole drilling which uses air rather than water.
 - The air will be turned off when drilling reaches within one metre above the chamber so that there is no force to blow dust up the drill hole.

N/A

BIOLOGICAL ENVIRONMENT

Impact

1) Vegetation

Mitigation

species composition

species introduction

toxin/heavy accumulation

other: Linear Migration routes, habitat fragmentation

N/A

Impact

2) Wildlife and Fish

Mitigation

effects on rare, threatened or endangered species

fish population changes

Fish habitat in the general area of the proposed drilling activities in Yellowknife Bay includes potential spawning habitat for Slimy Sculpin, occurring in the shallow gravel areas at the shoreline, as well as rearing and foraging habitat for a variety of other resident species throughout the bay. Slimy Sculpin typically spawn in late April and May. Timing of the proposed drill program mitigates effects to spawning habitat: the drill program is scheduled to occur in March when the shallow gravel areas will be frozen; the substrate is less susceptible to disturbance when frozen and covered with landfast ice.

Baker Creek is potential over-winter habitat for Whitefish and cisco, however, it is very limited since the majority of the creek freezes to the substrate during the winter without any hydraulic connection to the downstream environment. Any impacts would be minimal and localized.

- waterfowl population changes
- breeding disturbance
- population reduction
- species diversity change
- health changes
- behavioural changes

The presence of machinery and people on site may disturb terrestrial species that might otherwise be on site. Wildlife disturbances will be short term and temporary, and domestic waste will be managed so as not to attract wildlife.

- habitat changes / effects
- game species effects
- toxins/ heavy metals
- forestry changes
- agricultural changes
- other:
- N/A

Interacting Environment

Impact

Mitigation

1) Habitat and Communities

- predator-prey
- wildlife habitat/ecosystem composition changes
- reduction/removal of keystone or endangered species
- removal of wildlife corridor or buffer zone
- other:
- N/A

Impact

Mitigation

2) Social and Economic

- planning/zoning changes or conflicts
- increase in urban facilities or services use
- rental house

airport operations/capacity changes

human health hazard

The proposed activities could impact human health, in particular that of the workers on site. Mitigation includes proper training and protective gear (e.g. eye protection, hard hats, etc.) for those on site, following current procedures related to arsenic trioxide dust, and having well maintained equipment.

impair the recreational use of water or aesthetic quality

affect water use for other purposes

affect other land use operations

quality of life changes

public concern

Residents of nearby Yellowknife that are not aware of what is going on at the site may become concerned about the proposed activities. INAC circulates a Giant Mine update newsletter to members of the nearby communities (titled 'What's Happening at Giant Mine?'). In this publication, which is also available on line, activities occurring on site are explained in brief. There is also a phone number residents can call to get information and reach the Giant Mine Remediation Project Office staff. As well, this application was circulated to our distribution list for review and comment and INAC had also conducted some community engagement prior to this to explain the proposed activities. No mitigation proposed.

other:

The socioeconomic impacts accruing from the remediation program are expected to be largely positive. To enhance regional socio-economic benefits, all contractors bidding on the remediation project will be required to submit an Aboriginal Opportunity Considerations (AOC). Each AOC will specify the commitment of the contractor to Aboriginal employment, subcontracting and training. ABPs with greater commitments to Aboriginal content will receive higher scores. The AOC commitments will be enforced through contractual obligations. No mitigation.

N/A

Impact

3) Cultural and Heritage

Mitigation

effects to historic property

Some consider the Giant Mine site to be historic property. The proposed program will be undertaken on this historic site. However, this work need to be done in order to ensure public safety and to optimize the clean-up of this contaminated site. No mitigation. Also see below for further information.

increased economic pressure on historic properties

change to or loss of historic resources

change to or loss of archaeological resources

A search of the Prince of Wales Northern Heritage Centre's Archeological Sites Database in April 2012 revealed the presence of four prehistoric sites within the Giant Mine lease area. In addition, a number of on-site buildings have been identified as having potential heritage value. The Proponent lists the following:

- None of the buildings identified as having potential heritage value will be disturbed by the proposed activities.
- All proposed activities will take place in areas previously disturbed by over 50 years of mining activity.
- Contractors will be informed that encountering cultural sites is possible and will be instructed to not disturb any artefacts or sites that may be of cultural value. The Yellowknives Dene First Nation and the Prince of Wales Northern Heritage Centre will be contacted immediately for direction if a cultural resource is suspected.
- An AIA has recently been completed to support the Type A Water Licence Process. Previously documented sites have been revisited and plans to maintain several buildings are underway with the Yellowknife Historical Society.

Drilling and test pitting activities associated with this authorization should have no impacts on

archaeological resources.

increased pressure on archaeological sites

change to or loss of aesthetically important sites

effects to aboriginal lifestyle

other:

N/A

- Pursuant to Schedule 4.1 of the **Northwest Territory Métis Nation (NWTMN)** Interim Measures Agreement, the MVLWB determined that written notice was given to the NWTMN and that a reasonable period of time was allowed for NWTMN to make representations with respect to the application.
- Pursuant to subsection 1.6, paragraphs (a) and (b) of the **Akaiicho Territory Dene First Nations (ATDFN)** Interim Measures Agreement, the MVLWB determined that written notice was given to the ATDFN and that a reasonable period of time was allowed for ATDFN to make representations with respect to the Application.

Preliminary Screener / Referring Body Information

Alternatives North
Bathurst Inlet Lodge
CanNor NWT Region
Dene Nation
Deninu K'ue First Nation
Environment and Climate Change Canada
Fisheries and Oceans Canada Fisheries Protection Program, Triage Group
Fort Resolution Metis Council
Forward Mining
General Public - O'Reilly, Kevin
Giant Mine Oversight Board
GNWT – ECE
GNWT – ENR
GNWT – ENR - North Slave Region
GNWT – ENR - South Slave Region
GNWT – Health
GNWT – INF
GNWT – ITI
GNWT – Lands
GNWT – Lands - Hay River Region
GNWT – Lands – North Slave Region
GNWT – MACA
Golder Associates
Hamlet of Fort Resolution
INAC – CARD
INAC – NWT Inspectors
Katlodeeche First Nation
Lutsel K'e Dene First Nation - Chief or Wildlife, Lands and Environment
Mackenzie Valley Environmental Impact Review Board
MVLWB
North Slave Metis Alliance
Northwest Territory Metis Nation
NWT & Nunavut Chamber of Mines
NWT – OROGO
Salt River First Nation
Snap Lake Environmental Monitoring Agency – SLEMA
Tlicho Government
Town of Fort Smith
West Point First Nation
WLWB
Wood
Workers' Safety and Compensation Commission
Yellowknives Dene First Nation

Reasons For Decision

(List all reasons and supporting rationales for preliminary screening decision)

DECISION

The Mackenzie Valley Land and Water Board (the Board) is satisfied that the preliminary screening of Amendment Application MV2016S0016, DIAND-GIANT, Geotechnical Investigations, Giant Mine, NT has been completed in accordance with section 125 of the *Mackenzie Valley Resource Management Act (MVRMA)*.

The Board is satisfied that communities and First Nations affected by the Application have been notified and provided adequate time to provide comment on the Application as required by land claim and self government agreements, the MVRMA, policy directions relating to Interim Measures Agreements, and any other applicable legislation and agreements.

Having reviewed all relevant evidence on the Public Registry, including the submissions of the Applicant, the written comments received by the Board and any Staff Reports prepared for the Board, the Board has decided that in its opinion:

- The proposed development will not have a significant adverse impact on the environment; and
- The proposed development is not a cause of public concern.

The Board is also of the opinion that the Application can proceed through the regulatory process and that any impacts of the development on the environment can be mitigated through the imposition of the terms and conditions in the attached Land Use Permit.

As a result, the Board, having due regard to the facts and circumstances, the merits of the submissions made to it, and to the purpose, scope, and intent of the MVRMA and the Mackenzie Valley Land Use Regulations has decided that this Land Use Permit be issued subject to the terms and conditions contained therein.

Preliminary Screening Decision	
<input type="checkbox"/>	Outside Local Government Boundaries
<input type="checkbox"/>	The development proposal might have a significant adverse impact on the environment, <i>refer it to the EIRB.</i>
<input type="checkbox"/>	<i>Proceed with regulatory process and/or implementation.</i>
<input type="checkbox"/>	The development proposal might have public concern, <i>refer it to the EIRB.</i>
<input type="checkbox"/>	<i>Proceed with regulatory process and/or implementation.</i>
<input checked="" type="checkbox"/>	Wholly Within Local Government Boundaries
<input type="checkbox"/>	The development proposal is likely to have a significant adverse impact on air, water or renewable resources, <i>refer it to the EIRB.</i>
<input checked="" type="checkbox"/>	<i>Proceed with regulatory process and/or implementation.</i>
<input type="checkbox"/>	The development proposal might have public concern, <i>refer it to the EIRB.</i>
<input checked="" type="checkbox"/>	<i>Proceed with regulatory process and/or implementation.</i>

Preliminary Screening Organization

Mackenzie Valley Land and Water Board

March 7, 2019

Signatures

Mavis Cli-Michaud, Chair