



areas: Tiriganiaq, Wolf, Wesmeg, F Zone, Pump, Discovery, and the community of Rankin Inlet.

The main base of operations is proposed at the Tiriganiaq deposit which would include open pit and underground mining, ore processing, power plant, warehousing, administration, personnel accommodation, and all associated facilities to support these activities. The final gold product would be transported off site via air to the Royal Canadian Mint.

AEM proposed development at five (5) other deposits: Wolf, Wesmeg, F Zone, Pump and Discovery throughout the life of the Project. Both open pit and underground mining are proposed for these deposits. Discovery is the only deposit that would have satellite fuel storage.

At Rankin Inlet, the existing Itivia dock is proposed to receive materials barged from Canada's eastern ports during the open water season. A fuel storage/tankfarm and laydown area would be constructed adjacent to the Rankin Inlet airport. This area would serve as a transfer and storage facility for materials and supplies (i.e., fuel, reagents, supplies etc.) en route to the Meliadine mine site. The existing Rankin Inlet Airport would be used to bring personnel from the south and any materials that cannot be barged. Materials brought in by air would be moved directly to site.

The proposed activities for Phase 2 of the all-weather road include an expansion of the road constructed in Phase 1 (if the NLCA 12.10.2(b) exception currently under consideration is granted) into a two lane road, open to the public. In addition, AEM proposes to construct an 9.4 kilometre spur road south of Meliadine Lake to the Discovery deposit.

The proposed operational mine life is ten (10) years, with a four (4) year pre-operational construction phase and a post-operational decommissioning period of approximately three (3) years. The potential development of additional deposits in the project area could extend the operating life of the Project. Progressive reclamation will be undertaken for land, water and equipment no longer needed for the Project as well as the continuous management of hazardous wastes and contaminated soil and water bodies.

Project Components

a. Tiriganiaq/Main Mine site

Activities: The main base of the operations will be at the Tiriganiaq site, which will include overburden removal; open pit and underground mining; blasting; ore transportation; dewatering and diking of waterbodies; quarrying activities; ore processing; tailings disposal; warehousing; refuelling; power generation and heat recovery; administration; and personnel accommodations.

Facilities (during operation): open pit; ramp/portal and underground mine; explosives storage; waste rock pad; ore storage pads; haul roads; mill facility; water treatment facilities; water storage facility; wastewater (sewage) facilities; tailings management facilities; hazardous material handling and storage facility; solid waste landfill or incinerator; fuel storage; re-fuelling stations; warehouse; main maintenance shop; main

administration complex; dry facilities; power plant; assay lab; waste management equipment; and accommodation complex.

b. Development of five other mineral deposits/mine sites (Wolf, Pump, Wesmeg, F Zone, and Discovery)

Activities: overburden removal; open pit and underground mining; blasting; quarrying activities; ore transportation; dewatering and diking of waterbodies (where required); and fuelling (where required).

Facilities (during operations): open pit mine; ramp/portal and underground mine; waste rock/overburden management areas; all-weather haul roads, satellite fuel area(s) where required; dikes and/or water diversion (where required); and water intake facilities.

c. Rankin Inlet Tank Farm and Storage Facility

Activities: construction of tank farm and laydown area; use of existing Itivia dock for unloading; transfer of fuel to tankfarm; storage of fuel; transfer of materials to laydown area; storage of materials in laydown area; trucking of materials to site.

Facilities (during operations): floating pipeline (when required), spud barge (when required); fuel storage tanks; storage facility; laydown area; and satellite administration office.

d. Road infrastructure connecting Rankin Inlet to the Meliadine area

Note: AEM has proposed a two-phase approach for an all-weather access road between Rankin Inlet and the Meliadine Mine site. Phase 1 is being considered as a separate application and therefore, Phase 2 is the only road component that will be considered within the scope of this project.

Activities: Construction of Phase 2 of the all-weather road; construction of a spur road from the all-weather road to the Discovery deposit in phases; quarrying activities; road maintenance; dust management; and traffic management.

Facilities (during operation): Three gates (two manned and one unmanned); quarries, and one emergency shelter.

e. Mobilization and Shipping

Activities: unloading of fuel, reagents and supplies barged; transfer of materials to laydown area.

Facilities (during operation): Spud barge to be installed when required.

f. Abandonment, Decommissioning and Reclamation

Activities: removal of infrastructure and equipment from site; reclamation of disturbed areas; and natural revegetation.

Facilities (during operation): select infrastructure and monitoring equipment.

2) Anticipated ecosystemic and socio-economic impacts of the Project

The assessment of the potential for ecosystemic and socio-economic impacts caused by the proposed project components and activities in the above section and extending through all the Meliadine project phases should refer to the environmental and socio-economic factors listed below. The scope of potential impacts caused by the project components, activities, and undertakings to environmental and socio-economic factors shall take into account the appropriate temporal boundaries and spatial boundaries and is expected to draw upon relevant information from scientific sources and traditional knowledge.

- a) **Air quality**
- b) **Climate and meteorology**
- c) **Noise and vibration**
- d) **Terrestrial environment**, including
 - i. Terrestrial ecology
 - ii. Landforms and soils
 - iii. Permafrost and ground stability
- e) **Geology** (including geochemistry)
- f) **Hydrology** (including water quantity) **and hydrogeology**
- g) **Groundwater and surface water quality**
- h) **Sediment quality**
- i) **Freshwater aquatic environment**, including
 - i. Aquatic ecology
 - ii. Aquatic biota including representative fish as defined in the *Fisheries Act*, aquatic macrophytes, benthic invertebrates and other aquatic organisms
 - iii. Habitat including fish habitat as defined in the *Fisheries Act*
- j) **Vegetation**
- k) **Terrestrial wildlife and wildlife habitat**, including
 - i. Representative terrestrial mammals that is caribou, caribou habitat, migration, and behaviour, muskoxen, wolverine, grizzly bears, polar bears, wolves and less conspicuous species that may be maximally exposed to contaminants
 - ii. Wildlife migration routes and crossings
- l) **Birds and their habitat**, including
 - i. Raptors
 - ii. Migratory birds
 - iii. Seabirds
- m) **Marine Environment**, including
 - i. Marine ecology
 - ii. Marine water and sediment quality
 - iii. Marine biota including fish and Species at Risk
 - iv. Marine habitat
- n) **Marine Wildlife**
- o) **Socio-Economic Factors**, including
 - i. Economic development and opportunities
 - ii. Employment
 - iii. Education and training
 - iv. Contracting and business opportunities

- v. Benefits, royalties and taxation
- vi. Population demographics
- p) Traditional activity & knowledge** including
 - i. Harvesting
 - ii. Land use
 - iii. Food security
 - iv. Language
 - v. Cultural and commercial harvesting
- q) Non-traditional land use and resource use**
- r) Cultural, archaeological and palaeontological resources**
- s) Individual and community wellness, including family and community cohesion**
- t) Community infrastructure and public service**
- u) Governance and leadership**
- v) Health and safety** including worker and public safety
- w) Residual and Cumulative Effects**
- x) Transboundary Effects**

3) Anticipated Effects of the Environment on the Project

The scope of the assessment will include the potential anticipated effects of the arctic environment on the project throughout the project's life. The scope of factors will include:

- a) Climate and Meteorology
- b) Permafrost
- c) Geotechnical hazards (including slope movement, differential or thaw settlement, frost heave, and ice scour)
- d) Subsidence
- e) Flooding
- f) Unfavourable geological conditions

4) Steps which the proponent proposes to take including any contingency plans, to avoid and mitigate adverse impacts

The scope of the assessment will include any contingency plans or risk management plans to avoid and mitigate adverse impacts caused by the proposed project components and activities and these plans should extend through all the project phases. These plans shall take into account the appropriate temporal boundaries and spatial boundaries and are expected to draw upon relevant information from scientific sources and traditional knowledge and should include, but not be limited to:

- a) Emergency and spill response
- b) Hazardous materials management
- c) Accidents and malfunctions
- d) Regulatory requirements
- e) Mitigation measures

5) Steps which the Proponent proposes to take to optimize benefits of the project, with specific consideration being given to expressed community and regional preferences as to benefits

The scope of the assessment will include steps which the Proponent proposes to take to optimize benefits of the project, and should include, but not be limited to:

- a) Compensation and benefits
- b) Health benefits
- c) Human health and well-being
- d) Employment
- e) Education and training
- f) Land use
- g) Contracting and business opportunities
- h) Any non-confidential details from the Inuit Impact Benefits Agreement

6) Steps which the Proponent proposes to take to compensate interests adversely affected by the project

The scope of the assessment will include the steps which the Proponent proposes to take to compensate interests adversely affected by the project including all non-confidential Inuit Impact Benefit Agreement process and content details.

7) The monitoring programs proposed by the Proponent to identify and manage ecosystemic and socio-economic interests potentially affected by the project

The scope of the assessment will include any programs that will be established to monitor the potential ecosystemic and socio-economic impacts caused by the proposed project components and activities.

8) The interests in lands, waters and other resources which the Proponent has secured or seeks to secure

The scope of the project under review will include any interests in lands, waters and other resources which the Proponent has secured or seeks to secure based on the proposed works and activities or undertakings that constitute the Meliadine project proposal.

Nunavut Impact Review Board	Project Certificate
Nunavut Planning Commission	Conformity Determination under the Keewatin Regional Land Use Plan
Nunavut Water Board	Type 'A' Water Licence
Kivalliq Inuit Association	Land Use Licences, leases, easements, rights-of-ways and various other permits
Government of Nunavut-Community and Government Services	Quarry approval and Right-of-Way approval
Government of Canada – Department of Culture, Language Elders & Youth	Class 2 Permit for Heritage Sites
Nunavut Research Institute	Socio-economic & Traditional Knowledge Research Licence
Aboriginal Affairs and Northern Development Canada	Class 'A' Land Use Permit, rights-of-ways, Mineral Lease
Environment Canada	Schedule 2 Amendment to Metal Mining Effluent Regulations
Fisheries and Oceans Canada	Section 32 and Section 35(2) of the <i>Fisheries Act</i>
Natural Resources Canada	Explosive Manufacturing Licence
Transport Canada	Navigable Water Permit and Oil Pollution Prevention/Emergency Plan as per the <i>Canada Shipping Act</i>
Workers Safety & Compensation Commission	Explosive magazine permit renewal

9) Options for implementing the Project

The scope of the assessment will include project alternatives including alternatives to individual components/activities, alternate timings and development options, as well as presenting the “no go” option as it pertains to the overall Project.

10) Any other relevant matters

The scope of the assessment will include any other matters that the NIRB considers relevant, including:

- a) Technical innovations previously untested in the Arctic including new technology for mine design, operation, and tailings containment;
- b) Traditional knowledge;
- c) Statement of consultation principles and practices;
- d) Significant effects analysis;
- e) Sustainability analysis; and
- f) Interactions between Valued Ecosystem Components and Valued Socio-Economic Components.