### **Glossary of Terms and Definitions**

The following terms are utilized in this document following the definitions provided in the Mine Site Reclamation Guidelines for the Northwest Territories (INAC 2007), the Guidelines for the Closure and Reclamation of Advanced Mineral Exploration and Mine Sites in the Northwest Territories (AANDC/MVLWB, 2013) and the Meliadine Gold Project Type "A" Water Licence 2AM-MEL1631.

This Appendix includes discipline-specific technical terms and key closure and reclamation planning terms (Adapted from SLI, 2018).

**Abandonment:** The permanent dismantlement of a facility so it is permanently incapable of its intended use. This includes the removal of associated equipment and structures.

Acid Base Accounting (ABA): Acid base accounting; a static test that defines the amounts, and relative balance, of potentially acid-generating and acid-neutralizing (or base) minerals in a sample.

Acid Rock Drainage (ARD): Acid rock drainage/metal leaching. The production of acidic leachate, seepage or drainage from underground workings, open pits, ore piles, waste rock or construction rock that can lead to the release of metals to groundwater or surface water during the life of the Project and beyond closure.

Active layer: The layer of ground above the permafrost which thaws and freezes annually.

Adaptive management: A management plan that describes a way of managing risks associated with uncertainty and provides a flexible framework for mitigation measures to be implemented and actions to be taken when specified thresholds are exceeded.

**Advanced mineral exploration:** Any appurtenant undertaking in which the proponent requires a Type A or Type B water licence in order to carry out the proposed activities.

All-Weather Access Road (AWAR): The all-weather access road and associated water crossings between the Hamlet of Rankin Inlet and the Meliadine Gold Project mine site.

Aquatic Effects Monitoring Plan (AEMP): A monitoring program designed during the Environmental Impact Statement stage of the Project to determine the short and long-term effects in the aquatic environment resulting from the Project, to evaluate the accuracy of impact predictions, to assess the effectiveness of planned impact mitigation measures and to identify additional impact mitigation measures to avert or reduce environmental effects. An overarching "umbrella" program that conceptually provides an opportunity to integrate results of individual, but related, monitoring programs in accordance with the Water Licence.

**Backfill:** Material excavated from a site and reused for filling the surface or underground void created by mining.

**Background:** An area near the site under evaluation not influenced by chemicals released from the site, or other impacts created by onsite activity.

**Baseline:** A surveyed condition and reference used for future surveys.

**Berm:** A mound or wall, usually of earth, used to retain substances or to prevent substances from entering an area.

**Best management practices:** Any program, technology, process, operating method, measure, or device that controls, prevents, removes, or reduces pollution and impact on the environment.

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### **Glossary of Terms and Definitions**

**Biodiversity:** The variety of plants and animals that live in a specific area.

Bioremediation: The use of microorganisms or vegetation to reduce contaminant levels in soil or water.

Borrow pit: A source of fill or embanking material.

**Canadian Council of the Minister of Environment (CCME):** The organizations of Canadian Ministers of Environment that set guidelines for environmental protection across Canada such as the Canadian Water Quality Guidelines for the Protection of Freshwater Aquatic Life.

**Care and maintenance:** A term to describe the status of a mine when it undergoes a temporary closure. In respect of a mine, means the status of the facility when the License ceases production or commercial operation temporarily for an undefined period of time.

**Closure:** When a mine ceases operation without the intent to resume mining activities in the future.

Closure criteria: Details to set precise measures of when the objective has been satisfied.

**Closure goal**: The guiding statement that provides the virion and purpose of reclamation. Attainment of the closure goal happens when the proponent has satisfied all closure objectives. By its nature, the closure goal is a broad, high-level statement and not directly measurable.

**Closure objectives:** Statements that describe what the selected closure activities are aiming to achieve; they are guided by the closure principles. Closure objectives are typically specific to project components, are measurable and achievable, and allow for the development of closure criteria.

**Closure options:** A set of proposed alternatives for closing and reclaiming each mine components. The closure options are evaluated to determine the selected closure activity, which must be approved by the NWB.

**Closure principles:** The four core closure principles are 1) physical stability, 2) chemical stability, 3) no long-term active care requirements, and 4) future use (including aesthetics and values). The principles guide the selection of closure objectives.

**Commercial operation:** In respect of a mine, an average rate of production that is equal to or greater than 25% of the design capacity of the mine over a period of ninety consecutive days.

**Construction**: Activities undertaken to construct or build any components of, or associated with, the development of the Meliadine Gold Project.

Contact water: Any water that may be physically or chemically affected by mining activities.

**Contaminant:** Any physical, chemical, biological or radiological substance in the air, soil or water that has an adverse effect. Any chemical substance with a concentration that exceeds background levels or which is not naturally occurring in the environment.

**Contouring:** The process of shaping the land surface to fit the form of the surrounding land.

**Core Receiving Environmental Monitoring Program (CREMP):** A monitoring program designed to determine the short and long-term effects in the aquatic environment resulting from the Project, to evaluate the accuracy of impact predictions, to assess the effectiveness of planned impact mitigation measures and to identify additional impact mitigation measures to avert or reduce environmental effects.

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### **Glossary of Terms and Definitions**

**Cumulative Effects**: The combined environmental impacts that accumulate over time and space as a result of a series of similar or related actions or activities.

**Decommissioning**: The process of permanently closing a site and removing equipment, buildings and structures. Rehabilitation and plans for future maintenance of affected land and water are also included.

Deleterious substances: A substance as defined in section 34(1) of the Fisheries Act.

**Dike:** Retaining structure designed for water control to enable safe open pit mining and for containing tailings impoundments.

Discharge: The release of any water or waste to the receiving environment.

**Disposal:** The relocation, containment, treatment or processing of unwanted materials. This may involve the removal of contaminants or their conversion to less harmful forms.

**Domestic waste:** All solid waste generated form the accommodations, kitchen facilities and all other site facilities, excluding those hazardous wastes associated with the mining and processing of ore.

**Drainage:** The removal of excess surface water or groundwater from land by natural runoff and permeation, or by surface or subsurface drains.

**Effluent:** Treated or untreated liquid waste material that is discharged into the environment from all site water management facilities or from a structure such as a settling pond or a treatment plant.

**End land use:** The allowable use of disturbed land following reclamation. Municipal zoning and/or approval may be required for specific land uses.

**Engagement:** The communication and outreach activities a proponent is required to undertake with affected communities and Aboriginal organizations/governments prior to and during the operation of a project, including closure and reclamation phases.

**Engineered structure:** Any facility, which was designed and approved by a Professional Engineer registered with the Association of Professional Engineers, Geologists and Geophysicists of Nunavut.

**Environment:** The components of the Earth, and includes: land, water and air, including all layers of the atmosphere; all organic and inorganic matter and living organisms; and the interacting natural systems that include the aforementioned components.

**Environmental assessment:** An assessment of the environmental effects of a project that is conducted in accordance with the Canadian Environmental Assessment Act and its regulations.

**Environmental management system:** A management system that incorporates environmentally and socially responsible practices into the project operations.

**Erosion:** The wearing away of rock, soil or other surface material by water, rain, waves, wind or ice; the process may be accelerated by human activities.

**Explosives:** Gunpowder, blasting powder, nitroglycerine, gun-cotton, dynamite, blasting gelatine, gelignite, fulminates of mercury or of other metals and every other substance made, manufactured or used with a view to producing a violent effect by explosion.

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### **Glossary of Terms and Definitions**

**Final discharge point:** In respect of an effluent, an identifiable discharge point of a mine beyond which the operator of the mine no longer exercises control over the quality of the effluent (Metal Mining Effluent Regulations).

Fish habitat: Areas used by fish for spawning, nursery, rearing, foraging and overwintering.

**Geotechnical Engineer:** A professional engineer registered with the Association of Professional Engineers, Geologist and Geophysicists of Nunavut and whose principal field of specialization with the engineering properties of earth materials in dealing with man-made structures and earthworks that will be built on a site. These can include shallow and deep foundations, retaining walls, dams, and embankments.

Geothermal analysis: The analysis of temperature below the ground surface.

Glacial till: Unsorted and unlayered rock debris deposited by glacier.

**Greywater:** The component of effluent produced from domestic use (i.e. washing, bathing, food preparation and laundering), excluding sewage.

**Ground thermal regime:** Temperature conditions below the ground surface; a condition of heat losses and gains from geothermal sources and the atmosphere.

**Groundwater:** All subsurface water that occurs beneath the water table in rocks and geologic formations that are fully saturated. Water that occupies pores and fractures in rock and soil below the ground surface in a liquid or frozen state.

Habitat: The place where animal or plant naturally lives and grows.

**Hazardous materials/waste:** A contaminant which is a dangerous good that is no longer used for its original purpose and is intended for recycling, treatment, disposal or storage. Materials or contaminant which are categorized as dangerous goods under the Transportation of Dangerous Good Act (1992) and/or that is no longer used for their original purpose and is intended for recycling, treatment, disposal or storage.

**Humidity cell test (HCT):** A type of kinetic test in which a small sample (about 1 kg) is placed in an enclosed chamber in a laboratory, alternating cycles of moist and dry air is constantly pumped through the chamber, and once a week the sample is rinsed with water; chemical analysis of rinse water yields concentrations of elements and other parameters used to calculate reaction rates.

**Hydrology:** The science that deals with water, its properties, distribution and circulation over the Earth's surface.

**In situ treatment:** A method of managing or treating contaminated soils, sludges and waters "in place" in a manner that does not require the contaminated material to be physically removed or excavated from where it originated.

Incinerator: The dual chamber, high temperature facility designed with the capacity to service the camp.

**Interim Closure and Reclamation Plan (ICRP):** A conceptual detailed plan on the reclamation of mine components which will not be closed until the end of the mining operations, and operational detail for components which are to be progressively reclaimed throughout the mine life.

**Kinetic test:** A geochemical procedure for characterizing the chemical status of a sample through time during continued exposure to a known set of environmental conditions, such as a humidity cell.

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### **Glossary of Terms and Definitions**

Land owner: The responsible authority with administrative control and ownership of a type of land classified as crown land, commissioners land or Inuit Owned Land.

- a. Crown land is a land belonging to Her Majesty or in respect of which Government has the power of disposition. In Nunavut, this power rests with Aboriginal Affairs and Northern Development Canada (AANDC).
- b. Commissions land is a land belonging to the Commissioner for the Government of Nunavut; which typically is a land within an established municipality administered by a Municipal Corporation and/or the Department of Community Government and Services (CGS).
- c. Inuit Owned Land (IOL) are those lands vested in the Designated Inuit Organization (DIO) pursuant the Nunavut Land Claims Agreement. For this Project the DIO is the Kivalliq Inuit Association.

#### Land use permit:

- a. For Crown land a Class A Permit or Class B Permit as required by the Territorial Land Use Regulations SOR/82-217, s.1; SOR/88-169, s.2 administered by AANDC Lands Department.
- b. For IOL's- Land Use Licence I, II or III or Commercial Lease I, II, III as defined by the DIO.
- c. For Commissioners land a permit or lease as required by the Municipal Land Administration Policy.

**Landfarm:** The lined, engineered facility designed to treat petroleum hydrocarbon contaminated snow and soil that may be generated during mining activities using bioremediation.

**Landfill:** An engineered waste management facility at which waste is disposed by placing it on or in land in a manner that minimizes adverse human health and environmental effects.

**Leachate:** Water or other liquid that has washed (leached) from a solid material, such as a layer of soil or water; leachate may contain contaminants.

**Long-term active care:** A post-closure mine site is in long-term active care when sustained monitoring and maintenance of active facilities is required (e.g., for more than 25 years). This should be avoided whenever possible.

Metal leaching: The mobilization of metals into solution under neutral, acidic or alkaline conditions.

Migration: The movement of chemicals, bacteria, and gases in flowing water or vapour.

Mine design: The detailed engineered designs for all mine components stamped by a design engineer.

Mine plan: The plan for the development of the mine, including the sequencing of the development.

**Mine water:** Any water, including groundwater, which is pumped or flows out of any underground workings or open pit.

**Mitigation:** The process of rectifying an impact by repairing, rehabilitating or restoring the affected environment, or the process of compensating for the impact by replacing or providing substitute resources or environments.

**Monitoring:** Observing the change in geophysical, hydrogeological or geochemical measurements over time.

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### **Glossary of Terms and Definitions**

**No net loss:** A term found in Canada's Fisheries Act. It is based on the fundamental principle of balancing unavoidable losses of fish habitats with habitat replacement on a project-by-project basis in order to prevent depletion of Canada's fisheries resources.

**Non-contact water:** The runoff originating from areas unaffected by mining activity that does not come into contact with developed areas.

**Nunavut Land Claims Agreement:** The "Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada," including its preamble and schedules, and any amendments to that agreement made pursuant to it.

**Objectives:** Objectives describe what the reclamation activities are aiming to achieve. The goal of mine closure is to achieve the long-term objectives that are selected for the site.

**Operations:** The set of activities associated with mining, ore processing and recovery of gold; excluding construction and decommissioning activities.

**Operator:** The person who operates, has control or custody of, or is in charge of a mine or recognized closed mine.

**Ore:** Rock that is considered economic according to the parameters used in the ore reserve estimate. Ore will be processed at the mineral processing plant after it is mined from the Project underground mine and open pits.

**Overburden:** A general term referring to soil and broken rock, lying above ore and mine rock, that can usually be removed without blasting; at mines in soft sedimentary rock like coal, overburden can be synonymous with mine rock.

**Passive long-term care:** Occasional monitoring, coupled with infrequent maintenance or repairs that takes place following reclamation in the post closure phase of the mine site. Many mine sites require ongoing passive care, which can be an acceptable practice.

**Passive Treatment:** Treatment technologies that can function with little or no maintenance over long periods of time.

**Permafrost:** Permafrost is defined as ground that remains at or below 0°C for at least two years. Permafrost does not necessarily contain ice; rather, the definition is based solely on temperature criteria of the mineral or organic parent material.

**Permafrost Aggradation:** A naturally or artificially caused increase in the thickness and/or area extent of permafrost.

**Permanent Closure:** Final closure of the mine site after mining has ceased, when no further exploration, mining, or processing activities are anticipated at the site.

**Permeability:** The ease with which gases, liquids, or plant roots penetrate or pass through soil or a layer of soil. The rate of permeability depends upon the composition of the soil.

**pH:** A measure of the alkalinity or acidity of a solution, related to hydrogen ion concentration; a pH of 7.0 being neutral.

**Piezometer:** An instrument used to monitor pore water pressure.

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### **Glossary of Terms and Definitions**

**Pore water pressure:** The pressure of groundwater held within the spaces between sediment particles.

**Pore water:** The groundwater present within the spaces between sediment particles.

Post-closure: The period of time after active closure of the mine.

**Potentially acid generating (PAG):** Rock with an NP/AP ratio less than 2 as determined by static tests, as defined by MEND (2009). PAG rock can also be operationally defined based on the results of static testing such as ABA and NAG testing.

**Progressive Reclamation:** Actions that can be taken during mining operations before permanent closure, to take advantage of cost and operating efficiencies by using the resources available from mine operations to reduce the overall reclamation costs incurred. It enhances environmental protection and shortens the timeframe for achieving the reclamation objectives and goals.

**Project:** The Meliadine Gold Project as outlined in the Final Environmental Impact Statement. It comprises two (2) open pit mines, an underground mine, an All Weather Private Access Road from Rankin Inlet to the mine site, and site facilities in the Hamlet of Rankin Inlet (Itivia Harbor).

Proponent: Applicant for, or a holder of, a water licence and/or land use permit.

**Quarry:** The areas of surface excavation for extracting rock material for use as construction materials along the All Weather Private Access Road and facilities at the mine site.

**Receiving environment:** The aquatic and terrestrial environments that receive any discharge resulting from the Project.

**Reclaim Pond:** The pond located within the active zone of the Tailings Storage Facility, designed to contain process (tailings related) water, and where water in the pond will be used to satisfy mill process water make up requirements.

**Reclamation:** The process of returning a disturbed site to its natural state or one for other productive uses that prevents or minimizes any adverse effects on the environment or threats to human health and safety.

**Reclamation Research:** Literature reviews, laboratory or pilot-scale tests, engineering studies, and other methods of resolving uncertainties. Proponents conduct reclamation research to answer questions pertaining to environmental risks; the design of reclamation research plans aims to provide data and information which will reduce uncertainties for closure options, selected closure activities, and/or closure criteria.

**Rehabilitation:** Activities to ensure that the land will be returned to a form and productivity in conformity with a prior land use plan, including a stable ecological state that does not contribute substantially to environmental deterioration and is consistent with surrounding aesthetic values.

**Remediation:** The removal, reduction, or neutralization of substances, wastes or hazardous material from a site in order to prevent or minimize any adverse effects on the environment and public safety now or in the future.

**Restoration:** The renewing, repairing, cleaning-up, remediation or other management of soil, groundwater or sediment so that its functions and qualities are comparable to those of its original, unaltered state.

Re-vegetation: Replacing original ground cover following a disturbance to the land.

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### **Glossary of Terms and Definitions**

**Ripping:** A method of loosening rock or soil using steel tynes attached to the rear of a bulldozer. The tynes are lowered into the ground and as the bulldozer moves forwards the soil or blocks of rock are displaced by the tynes.

**Risk assessment:** Analysis of potential threats and options for mitigation for a given site, component, or condition. Risk assessments consider factors such as risk acceptability, public perception of risk, socioeconomic impacts, benefits, and technical feasibility. It forms the basis for risk management.

Runoff: Water that is not absorbed by soil and drains off the land into bodies of water.

Salvageable Materials: Decommissioned materials which can be sold or reused elsewhere.

**Scarification:** Seedbed preparation to make a site more amenable to plant growth. This is typically conducted with a grader.

**Security deposit:** Funds held by the Crown or land owner that can be used in the case of abandonment of an undertaking to reclaim the site, or carry out any ongoing measures that may remain to be taken after the abandonment of the undertaking.

**Sediment:** Solid material, both mineral and organic, that has been moved by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

**Seepage:** Any water that drains through or escapes from any structure designed to contain, withhold, divert or retain water or waste. Seepage also includes any flows that have emerged through open pits, runoff from rock storage facilities, ore stockpile areas, quarries, and landfill or landfarm areas.

Seismic: Relating to an earthquake or to other tremors of the Earth, such as those caused by large explosions.

**Selected closure activity:** The closure and reclamation activity chosen from the closure options for each Project component.

Sewage: All toilet wastes and greywater.

**Stakeholders:** Industry, federal agencies, the territorial government, Aboriginal organizations/governments, land owners, affected communities, and other parties with an interest in a project.

Sump: An excavation in impermeable soil for the purpose of catching or storing water or waste.

**Surface water:** Natural water bodies such as river, streams, brooks, ponds and lakes, as well as artificial watercourses, such as irrigation, industrial and navigational canals, in direct contact with the atmosphere. Sustainable development: Industrial development that does not detract from the potential of the natural environment to ensure benefits for future generations.

Tailings: Material rejected from a mill after most of the recoverable valuable minerals have been extracted.

Tailings Storage Facility: The facility designed to permanently contain the solid fraction of the mill tailings.

**Taliks:** Unfrozen zones that can exist within, below, or above permafrost layers. They are usually located below deep water bodies.

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### **Glossary of Terms and Definitions**

**Temporary closure:** When a mine ceases operations with the intent to resume mining activities in the future. Temporary closures can last for a period of weeks, or for several years, based on economical, environmental, political, or social factors.

Total dissolved solids: A measure of the amount of dissolved substances in a waterbody.

**Total suspended solids:** A measure of the particulate matter suspended in the water column.

**Traditional knowledge:** A cumulative, collective body of knowledge, experience, and values built up by a group of people through generations of living in close contact with nature. It builds upon the historic experiences of a people and adapts to social, economic, environmental, spiritual and political change. The practical knowledge that has been gathered through the experience of living in close contact with nature and has been passed along or communicated orally and handed down from generation to generation.

**Turbidity:** The degree of clarity in the water column typically reflected as the amount of suspended particulate matter in a waterbody.

**Type A water licence:** A Type A water licence is required if the use is of a type set out in column 2 of Schedule 2 and satisfies a criterion set out in column 5 in respect of an undertaking set out in column 1 of the Nunavut Water Regulations SOR/2013-69

(Note: despite definition of Type B water licence item a), a Type A licence is the appropriate licence for a use of waters if a Type A licence is required for another use of waters, or a deposit of waste, in respect of the same undertaking.)

Type B water licence: A Type B water licence required if

- a) The use is of a type set out in column2 of Schedule 2 and satisfies a criterion set out in column 4 in respect of an undertaking set out in column 1, or
- b) The use satisfies the criterion set out in paragraph 4(1)(a) but does not satisfy one or more criterion set out in paragraphs 4(1)(b) to (d) of the Nunavut Water Regulations SOR/2013-69.

**Waste rock:** All rock materials, except ore and tailings that are produced as a result of mining operations. All unprocessed rock materials that are or were produced as a result of mining operations and have no current economic value.

**Wastewater:** The water generated by site activities or originates on-site that requires treatment or any other water management activity.

Wastewater treatment system: A tertiary treatment plant designed to remove organic material and nutrients.

**Watershed:** A region or area bordered by ridges of higher ground that drains into a particular watercourse or body of water.

Water table: The level below where the ground is saturated with water.

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### List of Acronyms, Abbreviations, Units and Symbols

List of Acror	nyms and Abbreviations	
AANDC	Aboriginal Affairs and Northern Development Canada (formerly known Northern Affairs Canada)	as Indian and
ABA	Acid-Base Accounting	
AEMP	Aquatic Effects Monitoring Plan	
Agnico Eagl	e Agnico Eagle Mines Limited	
ARD	Acid Rock Drainage	
ANFO	Ammonium Nitrate/Fuel Oil	
AWAR	All-weather Access Road	
BIF	Banded Iron Formation	
CCME-WQG	Canadian Council for Ministers of the Environment Water Quality Guidelines	5
CIRNAC	Crown-Indigenous Relations and Northern Affairs Canada	
CLARC	Community Lands and Resources Committee	
CLEY	Culture, Language, Elders and Youth	
CGS	Community and Government Services	
Comaplex	Comaplex Mines Corporation	
СР	Collection Pond	
CRA	Commercial, Recreational and Aboriginal	
CRP	Closure and Reclamation Plan	
D-CP	Water Retention Dike	
DFO	Fisheries and Oceans Canada	
ECCC	Environment and Climate Change Canada	
EMPP	Environmental Management and Protection Plan	
EWTP	Effluent Water Treatment Plant	
FCRP	Final Closure and Reclamation Plan	
FEIS	Final Environmental Impact Statement	
Golder	Golder Associates Ltd.	
GN	Government of Nunavut	
GWMP	Groundwater Management Plan	
HADD	Harmful Alteration Disruption or Destruction	
Meliadine Interim C	osure and Reclamation Plan – Update 2020	Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### List of Acronyms, Abbreviations, Units and Symbols

	НСТ	Humidity Cell Test	
	нто	Hunters and Trappers Organizations	
	IDF	Inflow Design Flood	
	INAC	Indian and Northern Affairs Canada	
	ISQG	Interim Sediment Quality Guidelines	
	KIA	Kivalliq Inuit Association	
	Licence	Type A Water Licence 2AM-MEL1631	
	LSA	Local Study Area	
	MDMER	Metal and Diamond Mining Effluent Regulations	
	MEND	Mining Environment Neutral Drainage	
	Mine	Meliadine Gold Project	
	ML	Metal Leaching	
	MMER	Metal Mining Effluent Regulations	
	MVLWB	Mackenzie Valley Land and Water Board	
	NIRB	Nunavut Impact Review Board	
	NLCA	Nunavut Land Claims Agreement	
	non-PAG	non-Potentially Acid-Generating	
	NPR	Net Potential Ratio	
	NRC	Natural Resources Canada	
	NWB	Nunavut Water Board	
	NWR	Nunavut Water Regulations	
	NWNSRTA	Nunavut Waters and Nunavut Surface Rights Tribunal Act	
	PAG	Potentially Acid-Generating	
	Project	Meliadine Gold Project	
	PEL	Probable Effect Level	
	RO	Reverse Osmosis	
	RSA	Regional Study Area	
	SD	Support Document	
	SFE	Shake Flask Extraction	
	SSWQO	Site Specific Water Quality Objectives	
Μ	eliadine Interim Clos	ure and Reclamation Plan – Update 2020	Original -V.00
20	)20/07/30	674942-4000-4EER-0002	Technical Report

### List of Acronyms, Abbreviations, Units and Symbols

STP	Sewage Treatment Plant
SWTP	Saline Water Treatment Plant
TDS	Total Dissolved Solids
TEMMP	Terrestrial Environment Management and Monitoring Plan
TSF	Tailings Storage Facility
TSS	Total Suspended Solids
WMP	Water Management Plan
WRSF	Waste Rock Storage Facility
WRTP	Waste Rock Transfer Pad
WTP	Water Treatment Plant

Meliadine Interim Closu	re and Reclamation Plan – Update 2020	Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### List of Acronyms, Abbreviations, Units and Symbols

### List of Units and Symbols

%	percent
0	degrees
°C	degrees Celsius
°C/m	degrees Celsius per metre
Bgs	below ground surface
cm/s	centimetre per second
dBA	decibels
g	gravity
H:V	horizontal to vertical
ha	hectares
km	kilometre
km/h	kilometres per hour
km²	square kilometres
kPa	kilopascal
m	metres
m²	square metres
m²/year	cubic metre per year
m <sup>3</sup>	cubic metres
m³/day	cubic metres per day
m³/hour	cubic metre per hour
m³/s	cubic metre(s) per second
m³/year	cubic metre per year
masl	metres above sea level
mg	milligram
mm	millimetres
mm/hour	millimetres per hour
mm/year	millimetres per year
mg/L	milligrams per litre
mg/kg	milligrams per kilogram

Meliadine Interim Closu	re and Reclamation Plan – Update 2020	Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### List of Acronyms, Abbreviations, Units and Symbols

M-m3	million cubic metres
M-m³/year	million cubic metre per year
Mt	million tonnes
t	tonnes
t/m³	tonne per cubic metre
tpd	tonnes per day
μm	micrometre

Meliadine Interim Closu	re and Reclamation Plan – Update 2020	Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

## Appendix C Record of Engagement

This is a table that outlines all engagement specific to closure that has occurred to date. No issue has been identified. Progressive reclamation work planned or completed is presented in the ICRP.

#### Engagement specific to closure

In 2018, reclamation work occurred at the Itivia quarry. Agnico Eagle proceeded to the reclamation according to the quarry conditions by removing all equipment and material, stabilizing and gently sloping the walls. Once the reclamation work was completed, a GN Regional Lands Administrator and a Hamlet foreman inspected the quarry and confirmed that they were satisfied with the current state of the Itivia quarry site.

	Meliadine Interim Closure and Reclamation Plan – Update 2020	
2020/07/30 674942-4000-4EER-0002 Technical Report	2020/07/30	

# **Appendix D**

### **Lessons Learned from Other Projects**

This summary table present lessons form similar projects that would have direct application for the Meliadine closure and reclamation. This table will be updated during further states of the Project, during the next revision of the interim Closure and Reclamation Plan and for the Final Closure and Reclamation Plan.

Development	Activity Which Led to Lesson	Lesson Learned	Adaptive Management Result
Ekati and Diavik diamond mine sites	Re-vegetation	Standard re-vegetation methods may need adaptation for northern areas	Re-vegetation studies would be completed to assess the potential for vegetation to establish in disturbed areas or on rockfill covers
Ekati, Diavik and Snap Lake mine sites	Open pit mining	Wildlife injury or mortality may occur by entering the open pit	A rock berm(s) will be constructed around the open pits
Ekati, Diavik and Snap Lake mine sites	Mine site infrastructure	Wildlife injury or mortality may occur by entering the mine site facilities	Disturbed areas will be re- contoured at closure reducing hazards to wildlife
Meadowbank mine site	Landfill located within WRSF	Birds or wildlife injury or mortality by entering the landfill	Landfill will be located within the WRSF1 and covered at closure reducing hazards to birds and wildlife

(Modified from SLI, 2018)

#### Reference to similar projects:

DDMI (Diavik Diamond Mines Incorporated), 2019. Interim Closure and Reclamation Plan, Version 3, Yellowknife, December 2019.

Golder Associate Ltd., 2016. Whale Tail Interim Closure and Reclamation Plan, Report N° 1541520, Report to Agnico Eagle Mines Limited, June 2016.

Agnico Eagle Mines Limited, 2015. Meliadine Gold Project Preliminary Closure and Reclamation Plan, Version 1.0, 6513-CRP-01, April 2015.

SNC-Lavalin, 2018. Meadowbank Interim Closure and Reclamation Plan (ICRP) – Update 2018, 654769-5000-4EER-0001, June 2018.

Meliadine Interim Closu	re and Reclamation Plan – Update 2020	Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

## Appendix E Reclamation Research Plans

### Tundra Revegetation / Restoration Study

Agnico Eagle in partnership with the University of Saskatchewan started a tundra revegetation / restoration study in the summer of 2018. Both past mineral exploration drilling and proposed operations have and will impact the tundra environment at Meliadine; with over 3000 drilling sites in the regional area and further drilling and mine site development expected, there is a strong need for site-specific tundra restoration techniques. Seeding and fertilization is commonly used in many revegetation efforts.

(Agnico Eagle Mines Limited, 2018. Meliadine Gold Project 2018 Annual Report, 87 p., 2018.)

#### Marine Environmental Reconnaissance Surveys into Melvin Bay

With the objective to eventually discharge excess groundwater effluent into Melvin Bay, Golder was retained by Agnico Eagle to conduct marine environmental reconnaissance surveys in Melvin Bay to establish appropriate reference areas and collect preliminary baseline data on physical properties of the water column, water and sediment quality, benthic substrate, benthic communities and marine mammal occurrence.

(Agnico Eagle Mines Limited, 2018. Meliadine Gold Project 2018 Annual Report, 87 p., 2018.)

#### Contribution to Regional Monitoring

Caribou are an important part of Inuit life, providing food, fuel (from caribou fat), and materials for clothing, tools and traditional crafts. The Kivalliq Region includes the major summer range and calving grounds for some of Canada's largest caribou herds. The Qamanirjuaq caribou herd in particular uses the Project area and Agnico Eagle has committed to supporting the GN Department of Environment's caribou satellite-collaring program for the Qamanirjuaq herd.

Agnico will also be working with raptor researcher Dr. Alastair Franke from the University of Alberta to document presence of raptors in the Meliadine area. Dr. Franke's Arctic Raptors group will be tracking changes that may occur as a result of mining activity and sharing results across the scientific community through publications.

(Agnico Eagle Mines Limited, 2015. Meliadine Gold Project, Type A Water Licence Main Application Document, 334p., April 2015.)

2020/07/30 674942-4000-4EER-0002 Technical Report	Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
	2020/07/30	674942-4000-4EER-0002	Technical Report

### Appendix F Meliadine Site Photos



Photo 01: Meliadine mine site with Portal #1 entrance view (August 2016)



Photo 02: Meliadine Process Facility Complex (February 2019)

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

### Appendix F Meliadine Site Photos



Photo 03: Meliadine site complex, looking southeast (June 2019)



Photo 04: Meliadine site complex, looking northwest (June 2019)

Source: https://www.agnicoeagle.com/English/operations-and-development-projects/operations/meliadine/default.aspx

Meliadine Interim Closu	re and Reclamation Plan – Update 2020	Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

## **Appendix G**

Monitoring water quality stations

Meliadine Interim Closu	re and Reclamation Plan – Update 2020	Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report



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Figure 7: Water Quality Monitoring Locations at Itivia



Note – MEL-12 is located to the Northwest along the Bypass road but could not be effectively included in this map due to its distance from Itivia.

(AEM, 2020c)





## Appendix H Regulatory Instruments

Issued By	ID	Description	Issue	Expiry
KIA	KVPL11D01	Production lease	2017/06/30	2029/06/30
KIA	KVCA07Q08	Tiriganiaq/Westmeg/Meliadine quarry permit	2018/07/19	2021/09/12
KIA	KVCA11Q01	Exploration road quarries	2018/04/19	2021/04/19
KIA	KVRW11F02	Exploration road right-of-way	2012/04/19	2027/06/29
KIA	n/a	Water Compensation Agreement	2016/02/11	2031/03/31
NWB	2BB- MEL1424	Bulk Sampling and exploration drilling water license	2009/07/31	2024/07/21
NWB	2AM- MEL1631	Mining undertaking water license	2016/04/01	2031/03/31
NIRB	006	Project certificate (Meliadine Phase 1)	2015/02/26	N/A
NIRB	006	Project certificate (Amendment 1)	2019/02/26	N/A
NIRB	16QN071	Screening decision (Itivia Quarry)	-	-
GN-NAD	102631	Land lease, laydown Itivia		2021/07/01
GN-CGS	01-600-23	Quarry permit – site D	2019/07/16	2020/07/01
GN-CGS	L-51809T	Right-of-Way permit AWAR on Municipal land	2017/06/01	2027/05/31
GN-CGS	L-51808T	Right-of-Way Lease Bypass Road km 2-7	2017/06/01	2027/05/31
GN-NAD	102893	Right-of-way lease bypass road km 1-2	2017/07/01	2027/07/01
GN-ENV	2019-058	Wildlife Research Permit	2019/08/06	2020/09/30
CIRNAC	55K/16-42-2	Saline Effluent Discharge and Diffuser Lease		15 years after issued

Meliadine Interim Closure and Reclamation Plan – Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report



**Permafrost Map** 

Meliadine Interim Closure and Reclamation Plan - Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report



![](_page_25_Picture_2.jpeg)

![](_page_26_Figure_0.jpeg)

## **Appendix J**

Meliadine Geology, Seismic Zone, Groundwater Flow and Bathymetry

Meliadine Interim Closure and Reclamation Plan - Update 2020		Original -V.00
2020/07/30	674942-4000-4EER-0002	Technical Report

![](_page_28_Figure_0.jpeg)

![](_page_29_Picture_0.jpeg)

![](_page_29_Figure_1.jpeg)

AGNICO EAGLE Meliadine Mine - Local Geology Map

![](_page_30_Figure_1.jpeg)

### 2015 National Building Code Seismic Hazard Calculation

INFORMATION: Eastern Canada English (613) 995-5548 français (613) 995-0600 Facsimile (613) 992-8836 Western Canada English (250) 363-6500 Facsimile (250) 363-6565

Site: 63.023N 92.218W

User File Reference: Meliadine Mine Site

2019-11-25 14:04 UT

Requested by: SNC-Lavalin (for Agnico Eagle Mines Limited)

Probability of exceedance per annum	0.000404	0.001	0.0021	0.01
Probability of exceedance in 50 years	2 %	5 %	10 %	40 %
Sa (0.05)	0.047	0.027	0.017	0.005
Sa (0.1)	0.067	0.039	0.026	0.009
Sa (0.2)	0.066	0.042	0.028	0.011
Sa (0.3)	0.057	0.037	0.026	0.009
Sa (0.5)	0.047	0.031	0.021	0.007
Sa (1.0)	0.028	0.018	0.012	0.004
Sa (2.0)	0.013	0.008	0.005	0.001
Sa (5.0)	0.003	0.002	0.001	0.000
Sa (10.0)	0.001	0.001	0.001	0.000
PGA (g)	0.037	0.022	0.015	0.005
PGV (m/s)	0.035	0.022	0.014	0.004

**Notes:** Spectral (Sa(T), where T is the period in seconds) and peak ground acceleration (PGA) values are given in units of g (9.81 m/s<sup>2</sup>). Peak ground velocity is given in m/s. Values are for "firm ground" (NBCC2015 Site Class C, average shear wave velocity 450 m/s). NBCC2015 and CSAS6-14 values are highlighted in yellow. Three additional periods are provided - their use is discussed in the NBCC2015 Commentary. Only 2 significant figures are to be used. These values have been interpolated from a 10-km-spaced grid of points. Depending on the gradient of the nearby points, values at this location calculated directly from the hazard program may vary. More than 95 percent of interpolated values are within 2 percent of the directly calculated values.

### References

National Building Code of Canada 2015 NRCC no. 56190; Appendix C: Table C-3, Seismic Design Data for Selected Locations in Canada

Structural Commentaries (User's Guide - NBC 2015: Part 4 of Division B) Commentary J: Design for Seismic Effects

**Geological Survey of Canada Open File 7893** Fifth Generation Seismic Hazard Model for Canada: Grid values of mean hazard to be used with the 2015 National Building Code of Canada

See the websites www.EarthquakesCanada.ca and www.nationalcodes.ca for more information

![](_page_31_Picture_13.jpeg)

![](_page_31_Picture_15.jpeg)

![](_page_32_Figure_0.jpeg)

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Associates CHECK DW 20 Jan. 2013 REVIEW DW 20 Jan. 2013 FIGURE 7.3	-1

![](_page_33_Figure_0.jpeg)

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![](_page_35_Figure_0.jpeg)

![](_page_36_Figure_0.jpeg)

![](_page_37_Figure_0.jpeg)

#### LEGEND

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GEOTECHNICAL BOREHOLE WITH THERMISTOR (2011)

GEOTECHNICAL BOREHOLE WITH THERMISTOR (2009)

HYDROGEOLOGICAL TESTING BOREHOLE WITH THERMISTOR (2009)

HISTORIC GEOTECHNICAL BOREHOLE WITH THERMISTOR

F ZONE GEOTECHNICAL BOREHOLE WITH THERMISTOR (2009) DISCOVERY GEOTECHNICAL BOREHOLE WITH THERMISTOR (2009) DEPOSIT OUTLINE

TOPOGRAPHIC CONTOUR (1.0 m INTERVAL ABOVE SEA LEVEL) BATHYMETRIC CONTOUR (0.5 m INTERVAL AS DEPTH) WATERCOURSE WATERBODY

869

### REFERENCE

BASE DATA OBTAINED FROM AGNICO EAGLE MINES LIMITED (AEM). DATUM: NAD 83 PROJECTION: UTM ZONE 15

![](_page_37_Figure_12.jpeg)

![](_page_38_Figure_0.jpeg)