SIKA AT WORK
MELIADINE GOLD MINE

RANKIN INLET, NUNAVIK, CANADA

KING

BUILDING TRUST

Sika®

MELIADINE MINE

PROJECT DESCRIPTION

The Meliadine Gold project is located in the Kivalliq District of Nunavut in northern Canada, approximately 25 km northwest of Rankin Inlet on the west coast of Hudson Bay. A private all-weather access road constructed by Agnico Eagle connects Rankin Inlet to the Meliadine project.

Meliadine is part of a cluster of mines that includes the Meadowbank and Amaruq mining projects that represent an important growth platform for Agnico Eagle, the owner and operator of the projects. Over CAD 1.6B will be invested in Nunavut for these mining projects and auxilary infrastructure, employing over 2.000 employees at the different mining camps.

Seven Gold deposits have been identified at the Meliadine project of which Tiriganiaq is the most significant. Gold mineralization in these seven deposits is mostly mesothermal quartz-vein-dominated gold systems in strongly sheared and complexly folded host rocks of Archean turbidites, iron formation and volcanic rocks. Within each deposit are many gold-bearing lodes of quartz vein stockwork, laminated veins and sulphidized iron formation with strike lengths of up to 3 km.

Initially, Agnico Eagle will mine the Tiriganiaq deposit, including the Wesmeg 650 lode, from two open pits and an underground mine. The current mine plan outlines a phased

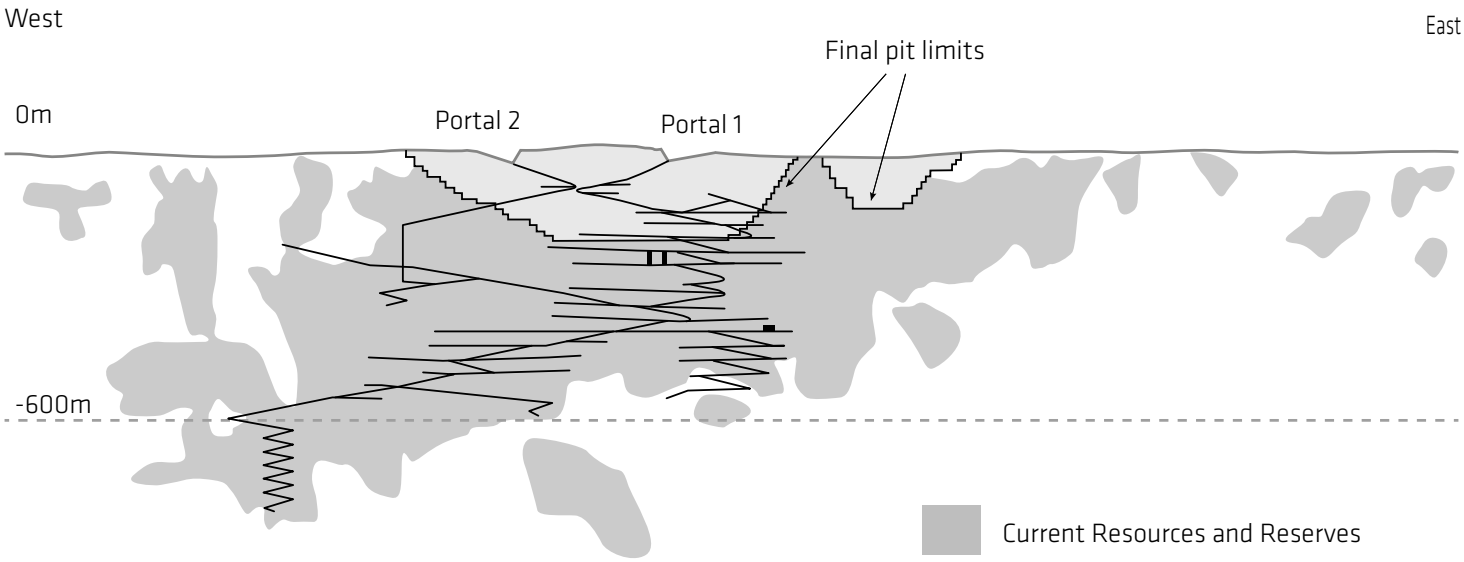
Map of eastern Canada, showing the Sika-King production facilities and the remote location of the Agnico Eagle mine sites in Nunavut

approach with Phase1 mill capacity expected to be around 3.750 tons per day. The mill capacity in Phase 2 is expected to increase to 6.000 tons per day, with ore being sourced from both, underground and open pits starting in year 4 and with ore being sourced entirely from underground during the first years. First ore from Meliadine was processed in 2019 and the mine should produce around 400.000 ounces of Gold annually over the 14 year life of mine. Preliminary mining methods consist of longitudinal and transverse long-hole stoping with pastefill on a 25m level spacing.

EFFICIENT MINE DEVELOPMENT

The Meliadine mine site is extremely remote and faces extreme weather conditions, particularly during the winter months. Construction challenges in such remotness and harsh climate conditions are many-fold and with only limited sealifts available to supply the site during the summer months, the logsitics plays a key role for whatever will be used at the site and how products are stocked, stored and applied all year round. Sika had to fully comply with the complex logistics shedule and warehousing limitations and had to elaborate a special set-up to supply the Meliadine mine site with shotcrete and a wide range of construction solutions in order to allow rapid mine development at this site.

Final, mixed Sigunit L500 AF shotcrete accelerator that has been produced at the mine site blending Sigunit P-10 AF powder with water



Tiriganiaq longitudinal section showing the dual ramp access and the two open pits. Mineralization is to a large extent open towards depth (modified from Agnico Eagle).

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SIKA SOLUTION

In order to provide the required shotcrete quantity where and when needed for the underground development of the Tiriganiaq deposit, Agnic Eagle opted for the proven King MS-W1 UG dry to wet shotcrete solution. Ready-bagged shotcrete mixes are supplied to the site and are hauled underground, loaded into agitator trucks and the mix is blended with water. In order to accelerate the mix, proven Sika Sigunit technology is used that allows rapid early strength gain for the shotcrete at moderate accelerator dosage. Such high early strengths allow for rapid mine development and short re-entry time.

As the delivery of bulk, liquid chemicals to the site is not possible due to the risk of freezing and limited, heated storage, Sika provides a unique solution to blend instant shotcrete accelerator at the site whenever needed, avoiding heated storage and the risk of freezing as the product is delivered as a dry powder to the site. This Sika Sigunit P-10 AF powder technology has proven to be a unique solution at many remote mine sites globally.

In order to produce the liquid Sika Sigunit shotcrete accelerator at the site, Sika-King provided a custom made, on site production unit to the Meliadine mining team. Furthermore, Sika-King supplies a full range of other products to the site. For construction in permafrost ground, Agnico Eagle relies on the King Nordic TC grout for their automated, Sandvik cable bolters. King Nordic Grout is used for piling and general construction purposes. Dry-mix shotcrete is used frequently at various sites of Agnico Eagle in Nunvaut such as the King MS-D3 UG dry-mix shotcrete. All of the dry-mix shotcrete is sprayed using Sika-Aliva Al-252 shotcrete units.

REQUIREMENTS

- Steady shotcrete production all year around
- Cope with limited storage capacity (especially heated storage)
- Rapid early strength for the wet-mix shotcrete
- A minimum dosage of accelerator
- On site production of accelerator
- High performing cable grout that can be used in permafrost ground

SELECTION OF SIKA PRODUCTS

- King MS-W1 UG — Dry to wet shotcrete mix
- Sika Sigunit P-10 AF — Powder shotcrete accelerator that can be blended with water and produced at the mine site
- King MS-D3 UG — Dry-mix shotcrete
- King Nordic TC — Cable grout for permafrost ground
- King PC-S10 UG — Ready bagged concrete mix
- Sika Aliva AL-252 — Dry-mix shotcrete unit
- Equipment for the production of Sigunit L-500 with Sigunit P-10 AF manufactured by Sika-King Shotcrete Equipment

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1 Front: Overlooking the Tiriganiaq portal at Meliadine (source: Agnico Eagle)
3 On site production of Sika Sigunit L500 using the Sika King accelerator production unit at the Meliadine mine site.
6 Wet-mix shotcrete spraying using the King MS-W1 UG "dry to wet" mix and the Sika Sigunit L500 AF shotcrete accelerator
7 The Meliadine mine camp in winter
8 Producing the Sika-King shotcrete accelerator at the Meliadine site

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