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Richard Dwyer

Manager of Licensing
Nunavut Water Board
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July 11th, 2022

Re: Review of Modification – Madrid East Naartok Portal 2AM-DOH1335.

Dear Richard Dwyer, the KIA had reviewed AEM's Modification – Madrid East Naartok Portal.

Enclosed are our geotechnical engineering consultant's comments on the modification for Madrid East Naartok Portal. To date KIA does not anticipate any material changes to the security for Madrid North due to the modification at Naartok East portal.

The footprint and amount of equipment at Naartok East portal is comparable to the previous design, however KIA has several outstanding questions that were provided to AEM during our review which have not been answered to date. These questions and our geotechnical engineering consultant's comments are presented as follows:

DOCUMENTS REVIEWED

As part of this scope of work, BGC Engineering Inc. (BGC) reviewed the following documents prepared by AEM and provided to BGC by KIA:

- Agnico Eagle (2022, March 30). Notice of Activity – Development of the Naartok East Portal. Letter to KIA.
- Agnico Eagle (2022, June 10). Type A Water Licence 2AM-DOH1335 Modification – Madrid East Naartok Portal. Letter to Nunavut Water Board.
- Agnico Eagle (2022, June). Hope Bay Project, Doris, and Madrid Water Management Plan.



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- Agnico Eagle (2022, March). Hope Bay Project, Waste Rock, Ore, and Mine Backfill Management Plan.

PROPOSED CHANGES TO MADRID NORTH MINE PLAN

Based on a review of the project documentation, BGC's understanding of the proposed changes are summarized by the following:

- AEM stopped development of the Madrid North (MN) portal due to adverse ground conditions.
- AEM is proposing to construct a new portal (the Naartok Portal) within the mined-out Naartok East Crown Pillar (NECP) that was excavated in the MN project area in 2019-2020.
- The MN waste rock pile pad will need to be expanded to accommodate temporary storage of additional waste rock.
- All waste rock will be backfilled underground at closure, consistent with the previously documented waste rock management plan.
- An additional rock fill pad will be required to support associated infrastructure needed at the NECP.
- Waste rock pads are constructed of geochemically stable rock that will be left in place and graded to promote positive surface drainage at closure.
- The NECP excavation was originally planned to be backfilled with waste rock and covered with stockpiled overburden soon after mining activities were complete. The relocation of the portal into the NECP excavation will delay this backfilling until later in the mine life.
- Contact water from the NECP area will be directed to a sump (also located in the crown pillar pit) and either used as brine for mining activities or conveyed to the Tailings Impoundment Area (TIA) at Doris.
- AEM does not anticipate that additional closure cost related security would need to be posted in respect of the proposed modification to the MN mine plan.



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BGC REVIEW COMMENTS

The most significant changes to the MN mine plan as it relates to the closure cost estimate is the required expansion of the waste rock pad. Previous closure plans issued for the project have noted that the waste rock would be transported to the underground mine workings during operation and used as back fill and the remnant waste rock pad (constructed from approved quarry rock) would be graded to ensure positive drainage. Given the proposed expansion, more grading of the waste rock pad may be required at closure than previously anticipated in the closure cost estimate. To determine if this would result in a material change to the closure cost, additional detail on the surface area of the new waste rock pad is required. This level of detail is not available in any of the project documents that were reviewed. It is also uncertain if the proposed expansion of the waste rock facility will have any impacts on the hydrology of the local watershed, including the MN Contact Water Pond (CWP).

The delayed backfilling of the NECP excavation is also a significant change from the previous plan outlined in the Final Environmental Impact Statement (FEIS). Given the relocation of the MN portal to the NECP excavation, it is uncertain when the backfilling of the excavation will occur.

Given BGC's understanding of the proposed modifications to the mine plan for MN it is possible that they do not result in a material change to the closure cost estimate for the MN site, as suggested by AEM in the March 30, 2022, letter. BGC requests AEM address the following requests to be able to confirm this assessment:

- What is the increase in the area of the rockfill pads of the MN site associated with the expansion of the waste rock pad and the rockfill pad required for the infrastructure at the NECP area?
- Given the proposed expansion of the waste rock facility from 0.646 MT to 1.3MT, what is the impact on the hydrology of the local water shed that would be reporting to the MN CWP. Is there any impact to the volume of water reporting to



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the MN CWP during the design storm event? Do the impacts to the hydrology of the local water shed require any design or operational changes to the MN CWP?

- What is the revised schedule for backfilling of the NECP excavation? If left until the end of mine life, what is AEM's rationale for not considering backfilling of the excavation as a closure cost? What is the volume of rockfill required for backfilling the NECP excavation and what are the costs of backfilling the excavation? Given the upper slopes of the excavation consist of frozen overburden, what contingency measures will be implemented if permafrost degradation occurs during the extended period prior to backfilling?

The answering of our engineering consultant's questions above would help in the final determination of any material change of security required for the Naartok East portal. The KIA would appreciate AEM's response to these questions so a conclusive determination of security can be made.

Thank you

John Roesch, P.Eng.

Senior Hope Bay Project Officer
Kitikmeot Inuit Association, Department of Lands and Environment

Cc Geoff Clark, Director, KIA, Department of Lands and Environment.