August 2nd, 2016

Karen Kharatyan
A/Manager of Licensing
Nunavut Water Board
P.O Box 119
Gjoa Haven, NU X0B 1J0

Re: Agnico Eagle Mines – Meliadine Division Response to Saline Pool Final Design and Construction Drawings Comments

Dear Mr. Kharatyan,

As requested, the following information and comments are intended to address comments outlined in the below letters:

- ECCC - July 23, 2016, *2AM-MEL1631 – Agnico Eagle Mines Ltd. – Meliadine Project – Saline Pool Final Design and Construction Drawings;*
- INAC - July 25, 2016*, Review of Saline Water Storage/Transfer Pond Final Design and Construction Drawings Submitted by Agnico Eagle Mines Ltd. Pursuant to Part D, Items 1 and 2 of Nunavut Water Board Water Licence No. 2AM-MEL1631.*

Should you have any questions or require further information, please do not hesitate to contact us at the below.

Regards,

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1) Section 5.1 (Design Objectives and Considerations) states that:
    - 'The maximum operating water elevation in the saline water storage/transfer pond is designed to be lower than the minimum operating water elevation in A54 North (or CP5 North) such that the potential risk of saline water seeping out of the pond into the surrounding ground is minimized.
    - As requested by Agnico Eagle, the pond is designed to primarily store the saline water in the lower zone below the bedrock surface to minimize the contact between the saline water and the overburden soils.
    - The berm is designed to promote permafrost development in the original ground below the center of the berm, which will minimize the potential seepage through its foundation into the pond.

Given that the Proponent indicated above, it is likely that the saline water in the pond will negatively affect the ability of the permafrost to prevent seepage by depressing the freezing temperature and or even slow the rate of permafrost accretion. **The Proponent should discuss and clarify the potential impact of saline water on the accretion of permafrost.**

Agnico Eagle Mines response:

The saline water will be below the crest of bedrock. Based on the design conditions and the thermal analysis, minimal thawing of the bedrock adjacent to the pond base and side slopes will occur. However, this thawing will be localized and will not impact the integrity of the surrounding (original) permafrost bedrock that will contain the saline water. The berm will not be in contact with saline water. The berm is designed to keep the water from CP5 from seeping into the saline pond.

ECCC Comment (continued):

The proponent indicates that operating water elevation in the saline water storage/transfer pond is designed to be lower than the minimum operating water elevation in A54 North (or CP5 North) such that the potential risk of saline water seeping out of the pond into the surrounding ground is minimized. The water elevation in the A54 (CP5) is supposed to range from 65.2 to 66.3 m, and the

designed maximum operating water elevation in the pond ranges from 62.9 m under mean precipitation conditions to 63.4 m under Inflow Design Flood (IDF). Given the proximity (approximately 20 m judging from Figure 2 and its scale) of the CP5 to the saline pond berm, **the Proponent should clarify how the difference in water elevation between the two facilities would prevent seepage between them.**

Agnico Eagle Mines response:

As described in Section 5.9 of the design report, limited quantity of seepage water from the A54/CP5 North into the saline water storage pond is expected under certain conditions. The seepage water into the saline pond has been considered in the design capacity of the saline pond (see Table 5 of the design report). Since the minimum water elevation (65.2 m) in the A54/CP5 North will be higher than the maximum design water elevation (63.4 m) of the saline pond during the life of the saline pond, seepage water from the saline pond into the A54/CP5 is not expected.

2) Section 5.9 (Seepage Evaluation) states that: "*Thermal analyses have indicated that the overburden and bedrock below the center of the berm will become frozen after one winter following berm construction and remain frozen for the zone with an elevation below approximately 65.9 m. Therefore, the seepage through the frozen berm foundation would be limited if the water elevation outside of the berm is lower than 65.9 m*".

Figure A33 show the thermal profile of GT09-21 in Appendix A: Borehole logs of GT09-21 and measured ground temperatures (Golder, 2010). There are two profiles taken at 08-Sep-09 7:10 and 08-Sep-09 22:00 that show higher temperatures in the double digits from top to bottom. Although borehole GT09-21 is some distance away from the saline pond and its protective berm, it is assumed that the ground condition in the borehole area also applies to the ground conditions in and around the saline pond. **The Proponent should clarify what the two temperature profiles represent given the above statement from Section 5.9.**

Agnico Eagle Mines response:

As indicated in the "Record of Borehole: GT09-21" (Page 33 PDF of the design report) and "Record of Thermistor Installation" (Page 33 PDF) in appendix A, the ground temperature cable in GT09-21 was installed on September 8, 2009. The two warm ground temperature profiles were measured on September 8, 2009, shortly after the borehole was drilled and the cable was installed. Due to warm drilling fluid used, the ground temperatures measured shortly after the drilling only represented the thermal disturbance due to drilling. The stabilized ground temperatures measured later more closely represented the original ground thermal conditions without thermal disturbance due to drilling.

Indigenous and Northern Affairs Canada

1) Construction of Interim Dike Geomembrane Line System for Saline Water Storage/Transfer Pond

Comment: The Licensee The Licensee states that,

'To meet a tight construction schedule, a relatively simple design of the berm, without a geomembrane liner system or deep key trench excavation of the berm foundation, is adopted.'

INAC is concerned that without geomembrane liner system, saline water seepage can contaminate groundwater, soil (ground) and surface water bodies due to possible interconnected paths.

Recommendation: INAC recommends that the Licensee install a geomembrane liner to prevent saline water seepage.

Agnico Eagle Mines response:

A geomembrane liner is not required for the saline water storage pond due to the following reasons:

- *As described in Section 3.4 of the design report, the permafrost in the Project area is impermeable to groundwater flow.*
- *The saline pond is designed to primarily store the saline water in the lower zone below the bedrock surface to minimize the contact between the saline water and the overburden soils.*
- *The bedrock (GT09-21 borehole) is fresh, strong greywacke.*

- *The overburden and bedrock below the center of the berm will remain frozen (permafrost) for the zone with an elevation below 65.9 m under design conditions.*

2) Pond Storage Capacity and Contingency Measures

Comment: The extra storage capacity/contingency of the saline water pond has been reported by the Licensee to be 277 to 2,777 cubic meters.

INAC is concerned that the minimum estimated storage capacity (277 cubic meters) is inadequate. The Licensee should provide detailed contingency measures that will be implemented if the pond's estimated storage capacity is exceeded.

Recommendation: The Licensee should ensure adequate storage capacity for the saline water pond. Details on contingency measures that will be implemented if the pond's storage capacity is exceeded should be provided to the NWB.

Agnico Eagle Mines response:

The pond will be constructed to have a capacity of 33,177 m^3 including 23,000 m^3 for saline water and the balance for precipitation, and contingency.

3) Quality Assurance and Quality Control for Construction

Comment: Section 6.5 of the report states that,

'It is recommended that the rock conditions and its stability be assessed during the saline water storage pond rock excavation by a qualified geotechnical engineer to determine the final rock slope geometry. If required, the rock slope should be flattened to reduce the potential risk of local failure or rock falls.'

Recommendation*:* During storage pond rock excavation, final rock slope geometry and stability should be determined by a qualified geotechnical engineer.

Agnico Eagle Mines response:

We agree as per design note on drawing number 65-695-230-208-002. We will finalize in the field with a qualified engineer during construction.

4) Monitoring and Reporting During Construction and Operation

Comment: Section 7.0 of the report recommends that monitoring and inspection of saline water pond during construction and operation essentially includes seepage monitoring, settlement and/or movement monitoring, pore water pressure measurement, pond water level measurement and effluent (seepage) water quality testing, etc.

Recommendation: In addition to annual reporting, the Licensee should report monitoring and inspection activities associated with the Saline Water Storage/Transfer Pond in monthly monitoring report submissions to the NWB during its construction and operation. Monitoring and inspection activities should include but not be limited to seepage monitoring, settlement and/or movement monitoring, pore water pressure measurement, pond water level measurement, water quality testing and monitoring, etc. Any deviances, problems, or issues with the pond should be immediately reported.

Agnico Eagle Mines response:

We agree, however, the current design does not incorporate pore water pressure measurement instrumentation for the saline pond. As noted in the report, the pore water pressure measurement instrumentation will be added if required.

5) Saline Water Management Plan

Comment: Section 4.1 of the report states that,

'Agnico Eagle is evaluating the options for long-term saline water disposal or treatment. If required, a second temporary saline water storage pond can be constructed in 2017 before the long-term saline water disposal or treatment facility is available.'

INAC is concerned that long-term saline water treatment and disposal plan should be finalized in a timely manner to avoid construction of another temporary saline water storage pond.

Recommendation: The Licensee should consider long-term saline water disposal or treatment on priority basis. In addition to the environmental protection, this will evade construction of one or more additional saline water storage/ transfer ponds.

Agnico Eagle Mines response:

Our long term strategy is to discharge to the ocean. However, in the mid-term, we are aggressively looking at saline water treatment system options. It is our intention to protect the environment. However, if required we will construct another pond to protect the environment.