Environmental Protection Operations Directorate
Prairie & Northern Region
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Yellowknife, NT X1A 2P7

ECCC File: 6100 000 008/015
NWB File: 2AM-WTP1826

October 12, 2018

Via email at: licensing@nwb-oen.ca

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Mr. Dwyer:

RE: 2AM-WTP1826 – Agnico Eagle Mines Ltd. – Whale Tail Project – Waste Rock Management Plan

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned waste rock management plan and is submitting comments via email. ECCC's specialist advice is provided based on our mandate, in the context of the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act*.

The following comments are provided:

1. **Water Management During Closure**

   Comment

   According to the Waste Rock Management Plan, the contact water management system for the Whale Tail Waste Rock Storage Facility (WRSF), which includes the WRSF Dike and WRSF Pond, will remain in place until mine closure activities are completed and monitoring results demonstrate that water quality conditions from the Whale Tail WRSF are acceptable for discharge with no further treatment required. Water quality will be monitored as per the Whale Tail Pit Water License requirements. Once water quality meets the discharge criteria established through the water licensing process, the contact water management system will be decommissioned to allow the surface runoff and seepage water from the Whale Tail WRSF to naturally flow to the outside environment.

ECCC notes that untreated contact water from the Project, including the Whale Tail WRSF, will have to consistently meet discharge criteria over a sufficient period of time to provide confidence in the consistency of discharge and seepage quality.

ECCC Recommendation

ECCC recommends the Proponent ensure that untreated contact water consistently, over a sufficient period of time, meets discharge criteria in order to provide confidence in discharge and seepage quality.

2. Closure and Post-Closure

Comment

As per Section 2.5, the most recent set of climate model projections (CMIP5) predict an Arctic-wide year 2100 multi-model mean temperature increase of +13 degrees Celsius in late fall and +5 degrees Celsius in late spring under the Intergovernmental Panel on Climate Change (IPCC) “business as usual scenario” (RCP8.5). IPCC climate change mitigation scenario RCP4.5 results in a year 2100 multi-model Arctic wide prediction of +7 degrees Celsius in late fall and +3 degrees Celsius in late spring. The Proponent concludes that, due to the short duration of the proposed Project, climate change related effects to the Project are likely negligible.

ECCC notes that although the Project operations are of relatively short duration, the remaining structures will be there in perpetuity.

Per Section 9.5, a series of subsurface thermistors will be installed to monitor the temperature within the Whale Tail WRSF as freezing progresses. The thermistors will be monitored regularly throughout the operational period as well as during closure and post-closure according to the Whale Tail Water Licence and as described in the Thermal Monitoring Plan. The results will be used to evaluate the predicted thermal response of the facility, and will allow for revision of the thickness of the final cover if required.

ECCC concurs with ongoing monitoring and evaluation of closure plans for the WRSF.

ECCC Recommendation

ECCC recommends that the Waste Rock Management Plan include a description of the effects that climate change under the "business as usual" scenario could have on the chemical and physical stability of the Whale Tail WRSF and on seepage water quality and quantity, during closure and post-closure.

3. Onset of Acid Rock Drainage (ARD)/Metal Leaching (ML)

Comment

As per Section 5.1, "*The ore and waste rock from the central greywacke and chert units are PAG. Chert and central greywacke represent 21% of waste rock to be generated by mining (19.1 Mt). They are silicified and, compared with the other greywacke waste rock, have a lower buffering capacity and/or a slightly higher sulphur content which results in a PAG classification of this material. The PAG waste rock also leaches arsenic but at concentrations that are well below the EQC. Kinetic leaching tests, mineral depletion calculations and consideration of the scale and site differences between laboratory tests and field conditions suggest a time lag to possible ARD development at site of more than a decade. Upper tier ARD materials (high sulphur/low buffering capacity greywacke or chert waste rock) generated acidic drainage earlier under laboratory conditions but without the benefit of added buffering capacity from mixing with other NPAG rock piles. The delay to onset of ARD from the bulk of PAG waste rock and ore is expected to be substantially longer than the seven years of mine construction and operations.*"

It is not readily clear to ECCC how the Proponent determined that the delay of onset of ARD/ML will be more than a decade when there is little or no buffering capacity given that this determination is a function of sulphide content and rate of reaction. ECCC acknowledges the proposed use of monitoring results (as compared to water quality criteria in the water licence) to determine when to discharge, however, the plan did not indicate how long this monitoring and application of adaptive management will last.

ECCC Recommendation

ECCC recommends that the Proponent explain or show how they determined that the delay of onset of ARD/ML will be more than a decade or substantially longer than seven years of mine construction and operation.

Should you require further information, please do not hesitate to contact me at (867) 669-4733 or Melissa.Pinto@canada.ca.

Sincerely,

[original signed by]

Melissa Pinto
Senior Environmental Assessment Coordinator

cc: Georgina Williston, Head, Environmental Assessment North (NT and NU)
ECCC Review Team