

Environmental Protection Operations Directorate  
Prairie & Northern Region  
5019 52<sup>nd</sup> Street, 4<sup>th</sup> Floor  
P.O. Box 2310  
Yellowknife, NT X1A 2P7

ECCC File: 6100 000 008/014  
NWB File: 2AM-WTP1830



July 11, 2023

via email at: [licensing@nwb-oen.ca](mailto:licensing@nwb-oen.ca)

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

Dear Richard Dwyer:

**RE: 2AM-WTP1830 – Agnico Eagle Mines – Whale Tail Pit – Notice of Modification**

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned notice of modification.

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate, including climate change, air quality, water quality, biodiversity, environmental preparedness and emergencies. This work includes reviewing proponent characterization of environmental effects and proposed mitigation measures. We provide advice decision-makers regarding a proponent's characterization of environmental effects, the efficacy of their proposed mitigation activities, and may suggest additional mitigation measures. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

The following comments are provided:

**1. Water Quality Predictions**

Reference(s)

- Appendix B (2023 Whale Tail Water Balance and Water Quality Model) of Whale Tail Mine Water Management Plan, Version 11 (Agnico Eagle; June 2023)

Comment

Section 4 (Water Quality Model Results) of Appendix B (2023 Whale Tail Water Balance and Water Quality Model) indicates that water quality predictions in the receiving environment and downstream lakes are compared to the long-term water quality guidelines for the protection of aquatic life established by the Canadian Council of Ministers of the Environment (CCME)



and other criteria. This section also provides the following water quality modeling details regarding parameter fractions:

- i. End-of-pipe concentrations are presented as dissolved concentrations similar to the IVR/WT Pushback model; and
- ii. Receiving environment model results are developed assuming that total concentrations are equal to dissolved concentrations because the Total Suspended Solids (TSS) is expected to remain near baseline values of <1 mg/L.

The majority of the CCME guidelines were developed as 'total fraction' guidelines (as opposed to 'dissolved fraction'). Therefore, when comparing model results against such guidelines, it is preferable to use total fractions. Dissolved concentrations are not directly comparable to 'total fraction' guidelines (i.e., guidelines that are based on total fractions) and such comparisons may underestimate impacts. In addition to the comparison criteria listed, the relevant Federal Water Quality Guidelines would also be informative for water quality prediction comparisons.

Evidence should be provided to support the model assumption that total concentrations are equal to dissolved concentrations. As well, the parameter fractions presented in water quality predictions should be in agreement with the fractions on which the comparison guidelines are based.

#### ECCC Recommendation(s)

ECCC recommends that the Proponent:

1. Provide evidence to support the Receiving Environment Model assumption that total concentrations are equal to dissolved concentrations.
2. Provide water quality predictions for both total and dissolved fractions.
3. When comparing water quality predictions against guidelines:
  - a. Present the same parameter fraction (i.e., total or dissolved fraction) on which the guideline is based.
  - b. Include relevant Federal Water Quality Guidelines in the comparison criteria.

If you need more information, please contact Victoria Shore at [Victoria.Shore@ec.gc.ca](mailto:Victoria.Shore@ec.gc.ca).

Sincerely,

*[original signed by]*

Victoria Shore  
Senior Environmental Assessment Officer

cc: Eva Walker, Acting Head, Environmental Assessment North (NT and NU)