Environmental Protection Operations Directorate
Prairie & Northern Region
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ECCC File: 6100 000 008/021
NWB File: 2AM-WTP1830

June 26, 2024

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 Richard Dwyer:

RE: 2AM-WTP1830 – Agnico Eagle Mines – Meadowbank Mine – 2024 Modification Request

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

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 to 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. **Topic: Flooded pit water quality**

   Reference(s)

   Whale Tail Mine Water Management Plan, version 13_NWB (May 2024)

   Comment

   The executive summary of the Water Management Plan discusses removal of contact water management systems and dike breaching as follows:

"… *Contact water management systems will remain on site until monitoring results demonstrate that water quality is acceptable for discharge of all contact water to the environment without further treatment. Once water quality meets the discharge criteria, the water management systems will be decommissioned to allow the water to naturally flow to the receiving environment.…Dikes will not be breached until the water quality in the flooded area meets the approved water quality objectives*."

However, this discussion does not acknowledge that flooded pit water quality must demonstrate long term acceptability for discharge and stability or improving conditions prior to reconnecting the flooded pit to surface waters.

ECCC Recommendation(s)

ECCC recommends that the Water Management Plan be updated to acknowledge that monitoring results must demonstrate flooded pit water quality consistently meets water quality objectives for a sufficiently long duration and that water quality has stabilized or is improving prior to reconnection.

2. Topic: Sewage treatment

Reference(s)

- Whale Tail Mine Water Management Plan, version 13_NWB (May 2024)
- Meadowbank Complex – 2023 Annual Report
- ECCC submission regarding Meadowbank Complex – 2023 Annual Report (June 25, 2024)Reference

Comment

ECCC's recent review of the 2023 annual report for the Meadowbank Complex provided comments regarding sewage treatment which are relevant to the Whale Tail Mine Water Management Plan. According to the 2023 annual report, the sewage treatment plant (STP) has experienced ongoing challenges in meeting treatment targets for nitrate and phosphorus.

Appendix C (Whale Tail Water Balance and Water Quality Report), Section 4.2 (Geochemical Source Terms) of the Water Management Plan summarizes source term development for the water quality model. However, the discussion of source term development related to phosphorus and nitrogen species does not mention the challenges in meeting STP treatment targets for nitrate and phosphorus. It is unclear whether water quality predictions consider that the effluent concentrations are not achieving treatment targets. Modeling source terms and assumptions should be reviewed and updated as appropriate.

Additionally, given that attenuation pond sediments have potential to accumulate sediment-associated parameters, the water quality model source term development should consider the potential role of pond sediments as a sink and source of contaminants.

ECCC Recommendation(s)

ECCC provides the following recommendations regarding the water quality model:

- Ongoing sewage treatment plant challenges in meeting treatment targets for nitrate and phosphorus should be reflected in the source term development.
- Consider the potential for attenuation pond sediments to accumulate parameters and release these parameters into the receiving environment following reconnection to surface waters. Parameters should include, but not be limited to, phosphorus and arsenic.
- Consider how removal of attenuation pond sediments would affect the water quality predictions during operations, closure and post-closure.
- Review and update the model, as appropriate, to incorporate the above recommendations.

3. Topic: Water quality predictions

Reference(s)

- Whale Tail Mine Water Management Plan, version 13_NWB (May 2024)

Comment

Appendix C (Whale Tail Water Balance and Water Quality Report), Section 6 (Water Quality Model Results) of the Water Management Plan presents figures illustrating the predicted water quality concentrations of phosphorus and arsenic. Figures depicting concentrations in the receiving environment and downstream lakes include comparison of the updated model (i.e., ELOM model) as compared to the 2018 Final Environmental Impact Statement (FEIS) model. However, figures depicting concentrations in pit lakes, attenuation ponds and treated effluent present the ELOM model only. It would be more informative for all figures to compare the phosphorus and arsenic predictions for the ELOM model to the 2018 FEIS model.

ECCC Recommendation(s)

ECCC recommends that Appendix C (Whale Tail Water Balance and Water Quality Report), Section 6 (Water Quality Model Results) provide comparison figures depicting concentrations in pit lakes, attenuation ponds and treated effluent for the ELOM model as compared to the 2018 FEIS model.

4. Topic: Figure 6-2

Reference(s)

- Whale Tail Mine Water Management Plan, version 13_NWB (May 2024)

Comment

Appendix C (Whale Tail Water Balance and Water Quality Report), Section 6.1.2 (IVR Pit) discusses phosphorous and arsenic loadings to the IVR Pit and refers to Figure 6-2 for predicted concentrations. However, Figure 6-2 (Predicted phosphorous (P) and arsenic (As) concentrations for the Whale Tail Pit during Operations in the Whale Tail ELOM model) appears to be mislabelled as the title references the Whale Tail Pit rather than the IVR Pit.

ECCC Recommendation(s)

ECCC recommends that the Proponent review the title of Figure 6-2 in Appendix C (Whale Tail Water Balance and Water Quality Report) and correct as needed.

If you need more information, please contact Russell Wykes at (867) 445-1263 or Russell.Wykes@ec.gc.ca.

Sincerely,

[original signed by]

Russell Wykes
A/ Senior Environmental Assessment Officer

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