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ECCC File: 6100 000 010/042
NWB File: 2AM-DOH1335

March 17, 2026

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-DOH1335– Agnico Eagle Mines – Hope Bay Mine – Type A Water Licence Amendment

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

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate and within federal jurisdiction, including greenhouse gas emissions and climate change, air quality, water quality and quantity, migratory birds, species at risk, environmental emergencies preparedness and response, and climate and meteorology. This work includes reviewing proponent's characterization of environmental effects and proposed mitigation measures, and providing information and knowledge to decision-makers on activities needed to mitigate these environmental effects within federal jurisdiction. 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 – Disposal of Contaminated Soils**

   Reference(s)

   - 260130 2AM-DOH1335_HopeBay-WLAmendment-App6-G_HydrocarbonContamMatMgmtPlan_Nov2025_V5, Section 1.1 (p.5) and Section 3 (p.11)

   Comment

The Proponent states that contaminated soils generated during Project activities that cannot be reclaimed by landfarming processes upon closure would be placed in an underground mine for permanent storage where permafrost would effectively act as the primary barrier preventing contaminant migration to groundwater. While the underground placement of contaminated soil in the Hope Bay Project will be done in continuous permafrost, this method of disposing of contaminated soils could pose a long-term environmental risk as a result of a malfunction of the permafrost barrier. Reliance on permafrost as a sole containment mechanism introduces uncertainty as climate conditions accelerate permafrost thaw.

Landfarming is commonly used as an initial remediation approach due to its relatively low cost and simple equipment requirements. However, in Arctic environments its effectiveness is constrained by short thaw seasons, limited aerobic microbial activity, and logistical challenges.

ECCC Recommendation(s)

ECCC recommends that, where landfarming does not achieve applicable soil quality objectives, the Proponent consider alternative or complementary remediation methods rather than disposing of contaminated soils in an underground mine. The following remediation options may be appropriate for the project soil conditions and should be evaluated based on site-specific characteristics:

1. Biopiles (engineered bioremediation cells): Excavated contaminated soils arranged in engineered piles with controlled aeration, nutrient addition, and moisture management to enhance biodegradation;
2. Nutrient biostimulation and bioaugmentation: Enhancement of indigenous microbial activity through nutrient amendments and/or the introduction of cold-adapted hydrocarbon-degrading microbial consortia;
3. Soil vapor extraction (SVE) and air sparging: SVE applies a vacuum to remove volatile and semi-volatile hydrocarbons from unsaturated soils, while air sparging injects air into saturated zones to volatilize contaminants for subsequent capture via SVE;
4. Low-temperature thermal desorption (LTTD) or in-situ thermal enhancement: Application of heat, either ex situ or in situ, to volatilize or desorb hydrocarbons for capture and treatment; or
5. Soil amendments (e.g., biochar or compost): Addition of amendments to improve soil physical properties and microbial habitat, potentially enhancing degradation processes, including within frozen or partially frozen soil environments.

2. Topic – Emergency Response Guidebook Version

Reference(s)

- 260130 2AM-DOH1335_HopeBay-WLAmendment-App6-M_SpillContingencyPlan_V19_Jan2026, Table 1.1, p.16

Comment

The Emergency Response Guidebook cited in Table 1.1 is outdated. The most current edition is the 2024 version, and the plan should be updated to reference this latest publication.

ECCC Recommendation(s)

Revise the spill contingency plan and ensure all on-site resources reference and utilize the most recent edition of the Emergency Response Guidebook (2024).

3. Topic – Burning at the Boston Site

Reference(s)

- 2AM-DOH1335 Water Licence Amendment – Hope Bay Operational Update Appendix 6-H: Incinerator and Composter Waste Management Plan
  - Section D1.2 Incinerator Management at Boston
  - Section D2.2 Incinerator Management at Boston
- Nunavut Environmental Guideline for the Burning and Incineration of Solid Waste

Comment

Section D1.2 states that the Boston facility is in Care and Maintenance with no activity currently on site, hence there is currently no incinerator present. There is however a burn pan for "combustible materials". Section D2.2 states that when the Boston Camp enters into the operational phase of the project, the same point source waste segregation and efficient burning practices achieved at Doris Camp and Madrid will be applied. This implies that an incinerator will eventually be installed at the Boston facility. In the interim, it is not evident exactly what combustible materials are being or will be burned at Boston. The Nunavut Environmental Guideline for the Burning and Incineration of Solid Waste restricts open burning to paper products, paperboard packing including boxboard and cardboard, untreated wood including lumber and plywood, and natural fiber textiles, and specifies appropriate practices including consideration of wind direction during open burns.

ECCC Recommendation(s)

ECCC recommends that the Proponent confirm that any usage of the burn pan at the Boston site follows the Nunavut Environmental Guideline for the Burning and Incineration of Solid Waste.

4. Topic – Proposed Changes to Water and Wast Management

Reference(s)

- 2AM-DOH1335 Water Licence Amendment – Hope Bay Operational Update Main Application Document
  - Table 1.2-1
  - Section 3.3.5

Comment

The summary of the operational update provided in the main application document indicates the need for additional water and waste management infrastructure, including changes to ore stockpiles, waste rock piles, overburden stockpiles, and contact water ponds. However, little

detail is provided on the specific changes that are being proposed. For example, Table 1.2-1 outlines that currently approved waste rock piles include, “Doris and Madrid South: 1 waste rock pile each” and “Madrid North: 2 waste rock piles”. The water licence amendment proposes “waste rock piles at Doris and Madrid” and refers the reader to section 3.3.5. However, this section also does not include any specific details of the changes that are proposed. It is unclear what the new configuration of waste rock piles is proposed to be. Figures 1.2-1 through 1.2-4 provide general information on where expansions to the existing footprint will occur, but do not depict details on the changes. However, it does appear that some of the new infrastructure may be near surface water bodies.

Clarity on the configuration of the various stockpiles, and their associated contact water ponds, is important to understand the overall site layout. Site layout will influence how the new stockpiles may impact the surrounding environment but also can ensure that water management is appropriately located and sized.

ECCC Recommendation(s)

ECCC recommends that the Proponent provide:

1. A detailed table of the proposed changes to water and waste management infrastructure. This should clearly outline which components have been eliminated, relocated, or are new as part of this water licence amendment;
2. Figures to support the tables requested in recommendation 1 that clearly depict the differences between currently approved water and waste management infrastructure and proposed changes for the operational update.

5. Topic – Sewage Effluent

Reference(s)

- 2AM-DOH1335 Water Licence Amendment – Hope Bay Operational Update Main Application Document
  - Section 3.3.14 – On-site facilities
  - Appendix 1-A: Evaluation of Change Associated with Operational Update
- Water Management Plan
  - Section 3.2.9

Comment

The Operational Update includes an increase to the size of the Doris Camp from a 400-person camp to an 800-person camp and the addition of either a 250-person camp at the Madrid site or a further expansion of the Doris camp to a 1050-person camp. Sewage discharge from the existing camp is managed through the water licence (Part F, condition 5).

The current licence provides discharge limits for sewage effluent discharged to the tundra and monitoring at ST-8 (point of discharge) and ST-9 (location where effluent may enter surface waters). Sewage discharge is further elaborated on in various management plans. Section 3.2.9 of the Water Management Plan states that during operations treated sewage will be discharged to the tundra and/or pumped to the tailings impoundment area (TIA).

ECCC notes that the existing management plans do not provide any additional information on what conditions (e.g. quality or quantity) might influence the decision on whether to discharge to the tundra or to direct sewage effluent to the TIA. With an increased camp size, it would be expected that the volumes of sewage effluent would increase. However, the operational update does not provide any detail on how the increased camp size may contribute to increased sewage volumes. Increased volumes may have the potential for increased erosion and sedimentation along the discharge pathway and the potential for this waste stream to reach surface waters.

ECCC Recommendation(s)

ECCC recommends the Proponent:

1. Discuss conditions/criteria that inform the decision of whether sewage effluent is discharged to the tundra or transferred to the TIA; and
2. Discuss how proposed project changes will impact the volume of sewage effluent discharged to the tundra and whether tundra discharge is still proposed with the increased volumes. If tundra discharge is to continue, discuss how erosion and sedimentation will be managed given the increased volumes.

6. Topic – Clarification for Table 4.3-2

Reference(s)

- 2AM-DOH1335 Water Licence Amendment – Hope Bay Operational Update Main Application Document
  - Table 4.3-2: Results of the Hydrogeological Model Sensitivity Scenarios

Comment

Table 4.3-2 provides the results of the hydrogeological model sensitivity scenarios and includes numeric values for Doris and Madrid groundwater inflow for two scenarios, expressed as mg/L. It is unclear what parameter concentrations the values in Table 4.3-2 are intended to communicate, or if the table includes errors and are intended to communicate water inflow.

ECCC Recommendation(s)

ECCC recommends the Proponent review Table 4.3-2 and clarify what the numeric values are intended to communicate.

7. Topic – Water Management – Patch 7

Reference(s)

- Appendix 3C - Design Report: Patch 7 Contact Water Pond 4 (CWP 4) and Sump 6A
- Appendix 6P - Doris-Madrid Water Management Plan Version 20

Comment

The Design Report for Patch 7 water management indicates that CWP4 will be used to collect contact water runoff from the ore stockpile pad and waste rock storage facility and that water stored in this pond will be pumped to Quarry D Contact Water Pond 3. Sump 6A will also be constructed at Patch 7 and will be used to collect contact water from the infrastructure pad and then water from Sump 6A will be transferred to CWP4. This water management flow pathway is contradicted by the water and load balance diagrams provided in the Water Management Plan, which indicate that Contact Water Pond 4 (Patch 7) is transferred to the Doris TIA.

ECCC Recommendation(s)

ECCC recommends the Proponent clarify the correct water management pathway for runoff at Patch 7 and provide an updated water management flow diagram for Doris-Madrid that depicts the configuration proposed for the operational update.

8. Topic – Emergency Outlet to Doris Lake

Reference(s)

- Appendix 4F - Mine Plan Operational Update: Water and Load Balance Model
  - Figure 3-1: Water Management Strategy – Full-Scale Production
  - Appendix A: Process Flow Diagrams
- Appendix 3A - TIA Filtered Tailings Conceptual Design Assessment
  - Section 4: Hydrotechnical Design

Comment

Figure 3-1 of Appendix F4 depicts the proposed water management strategy at full scale production and includes an “emergency overflow channel” from the Doris TIA reclaim pond to Doris Lake. The process flow diagrams provided in Appendix A also include the emergency overflow from the Doris TIA reclaim pond to Doris Lake, indicating that this is a proposed addition (2024 Final Environmental Impact Study (FEIS). However, this emergency outlet channel is not discussed or presented anywhere else in the Water and Load Balance Model, the Water Management Plan, or in the Operational Update. The only other reference found to the emergency overflow was found in the TIA Filtered Tailings Conceptual Design Assessment, which states, *“water management and discharge from the reclaim pond will be managed through active water discharge, treatment and overflow during emergencies via the Emergency Overflow Channel once constructed.”*

No details are provided on rationale for the addition of the Emergency Overflow Channel or under which specific conditions it would be used. It appears that this would be a new discharge to Doris Lake therefore additional monitoring requirements and/or licence conditions should be considered.

ECCC Recommendation(s)

ECCC recommends the Proponent provide the following details related to the proposed Emergency Overflow Channel:

1. Rationale for the addition of the Emergency Overflow Channel;
2. Conditions under which the Emergency Overflow Channel is proposed to be used;
3. Specific location where the EOC is proposed to discharge in Doris Lake; and
4. Any proposed updates to the Water Licence and/or site monitoring program (Table 3 of the Water Licence) required for the addition of the EOC.

9. Topic – Effluent Quality Predictions

Reference(s)

- Appendix 4F - Mine Plan Operational Update: Water and Load Balance Model
  - Section 5.3 – Load Balance
  - Appendix D – Water Quality Results
- Appendix 4D – 2024 Hydrogeological Modelling Update
  - Section 7 - Conclusions

Comment

The water and load balance provides updates to the monthly maximum estimated effluent chemistry for the process effluent and saline effluent. The predictions are then compared to the limits prescribed in the *Metal and Diamond Mining Effluent Regulations* (MDMER). While the MDMER provides a minimum national standard for mining effluent quality, there is the potential for other parameters of potential concern to cause effects to aquatic life that are not identified with discharge limits in the Regulations. For example, the hydrogeological modelling update identifies ammonia, boron, cadmium, chloride, fluoride, iron, manganese, nickel, selenium, sulfate, and zinc as constituents of concern in discharging groundwater to the environment, but these are not further discussed in the water and load balance model. Effluent quality should be screened for all identified parameters to confirm all constituents of potential concern. It is acknowledged that graphical depictions are provided for a larger suite of parameters in Appendix D to the Water and Load Balance Model, but a table to accompany these figures would provide additional clarity on screening of parameters of potential concern and understanding of model results.

ECCC Recommendation(s)

ECCC recommends the Proponent provide:

1. A summary of predicted effluent quality for all parameters including a screening of all parameters to identify parameters of potential concern for each effluent stream; and
2. A discussion of whether the water and load balance modelling identified any additional parameters of concern not captured by the MDMER.

10. Topic – Model Calibration

Reference(s)

- Appendix 4F - Mine Plan Operational Update: Water and Load Balance Model
  - Appendix B – WLB Model Design Basis
  - Appendix D – Water Quality Results

Comment

Section 3.8 of Appendix B (WLB Model Design Basis) describes calibration of the load balance model and states that *"only those constituents with applicable criteria were adjusted as part of the model calibration to better match observed water quality records."* No additional rationale was provided for why model calibration was not completed for other constituents. Appendix D provides figures of the water quality model results for all constituents in both the TIA and the saline pond. For some constituents the figures demonstrate that the model may be underpredicting concentrations, as demonstrated by the predicted concentrations during the calibration period being lower than the measured concentrations. This may also result in the model underpredicting concentrations during the predictive period of the model and future observed concentrations being higher than expected.

ECCC Recommendation(s)

ECCC recommends the Proponent provide rationale for only calibrating the model for constituents with existing discharge criteria. Consideration should be given to further calibration to increase the accuracy of the predictive modelling for all constituents.

11. Topic – Federal Environmental Quality Guidelines

Reference(s)

- Appendix 6A: Aquatic Effects Monitoring Plan – Version 4
    - Table 1.2-1: Regulations and Guidelines Pertinent to the Aquatic Effects Monitoring Plan
    - Section 3.2.2: Water Quality
    - Table 4.4-1: Freshwater Water Quality Benchmarks

Comment

The Aquatic Effects Monitoring Plan (AEMP) includes references to the Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines for the Protection of Aquatic Life and indicates that variables with CCME guidelines will be evaluated for potential effects on aquatic life. Table 4.4-1 provides a summary table of the guidelines that are proposed to be used in assessing impacts to water quality associated with the mine site. The plan does acknowledge that if guidelines are updated after submission of the plan, the most up-to-date guideline will be used as benchmark.

ECCC notes that while the CCME guidelines are still relevant for many parameters, another Canadian resource for water quality guidelines is the Federal Environmental Quality Guidelines (FEQG). FEQGs are developed where there is a federal need for a guideline but where the CCME guidelines for the substances have not yet been developed or are not reasonably expected to be updated in the near future. For parameters where both CCME and FEQG exist, the FEQG should be preferentially used, as they are more recently developed and incorporate the current state of the science, including toxicity modifying factors. Specifically applicable to the AEMP, FEQG has been published for aluminum, cobalt, copper, iron, lead, strontium, and vanadium, and should be considered for use in assessing water quality data.

ECCC Recommendation(s)

ECCC recommends the Proponent review the available FEQG for applicability to the site and update the AEMP benchmarks accordingly.

12. Topic – Water Management Plan – Additional Monitoring Stations

Reference(s)

- Appendix 6P - Doris-Madrid Water Management Plan Version 20
    - Figure 1 – Water Management Flow Diagram – Doris and Madrid

Comment

The updated water management plan includes a water management flow diagram for Doris and Madrid. The figure identifies numerous newly proposed water management structures and pathways as depicted by the purple lines as well as revisions (depicted by the green lines). The figure includes some named monitoring stations (e.g. TL-12, ST-1), but not the complete monitoring required as per table 3 of the water licence.

The amendment application has not provided any details on proposed updates to the monitoring program to accompany the proposed changes to the licence, including which new water management structures will have monitoring stations associated with them to characterize that effluent source prior to being combined with other sources.

ECCC Recommendation(s)

ECCC recommends the Proponent:

1. Provide a water management figure that includes monitoring points, including future monitoring points associated with the operational update; and
2. Provide a summary of proposed monitoring that will be added to Table 3 of the licence as a result of the operational update.

If you need more information, please contact Russell Wykes at (867) 446-1263 or Russell.Wykes@ec.gc.ca.

Sincerely,

Jody Small
Regional Director – EPOD Prairie and Northern Region

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