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NUNAVUT WATER BOARD  
NUNAVUT IMALIRIYIN KATIMAYINGI  
OFFICE DES EAUX DU NUNAVUT

**File: 2AM-DOH1335  
Notice of Construction**

November 15, 2022

Nancy Duquet Harvey  
Environmental Superintendent  
Agnico Eagle Mines Limited  
765 Chemin de la Mine-Goldex,  
Val-d'Or, Quebec, Canada J9P 7G4

Email: [nancy.harvey@agnicoeagle.com](mailto:nancy.harvey@agnicoeagle.com)

**RE: Licence No: 2AM-DOH1335 Type “A”, Doris-Madrid Project; Agnico Eagle Mines Limited; Notice of Construction for Interim (Permanent) Dike.**

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Dear Ms. Harvey:

On September 7, 2022, the Nunavut Water Board (NWB or the Board) received a Notification by Agnico Eagle Mines Limited (Agnico Eagle or Licensee) for the construction of the Interim (permanent) Dike within the existing tailings impoundment area. This notification is required under the Type “A” Water Licence 2AM-DOH1335 Part D, Item 1 and Part G, Item 1.

The Notification outlined Agnico Eagle’s plans for the construction of the Interim (permanent) Dike. On June 6, 2022, the NWB approved Agnico Eagle’s request to install a temporary water filled portable dam (AquaDam) within the Tailings Impoundment Area (TIA). At that time, Agnico Eagle stated that they plan on building the permanent dike in the next 12 months.

In their submission, Agnico Eagle have stated that this Dike will be constructed immediately downstream (north) of the current AquaDam location; constructed fully within the current TIA footprint. The Interim (permanent) Dike will help to provide a location within the TIA to help segregate different contact water streams. The Interim (permanent) Dike is planned to be used primarily during the care and maintenance phase of the Doris-Madrid Project (Project). If / when the Doris-Madrid Project goes back into operation and tailings deposition resumes in the TIA, then the need for the Interim (permanent) Dike would be re-evaluated. This is planned to be a temporary water management structure and will eventually (over the mine life), be fully buried by the subaerial tailings beach when tailings deposition resumes.

On September 16, 2022, the NWB distributed the Notice of Construction for a 30-day public review, parties were invited to submit comments by October 17, 2022. Submissions were received on October 13, 2022 from Environment and Climate Change Canada (ECCC) stating they had no comments regarding this information. On October 17, 2022, submissions were

received from Crown-Indigenous Relations and Northern Affairs (CIRNA) and the Kitikmeot Inuit Association (KIA).

Agnico Eagle provided responses to CIRNA and KIA's questions/comments on October, 28 2022. Following is a summary of the comments/questions and Licensee's responses.

Crown-Indigenous Relations and Northern Affairs (CIRNA)

1. Provide clarification whether the AquaDam will remain in place or be removed after the construction of the "interim" dike?

Agnico Eagle's response:

- The AquaDam will be removed in summer 2023 after the construction of the Interim (permanent) Dike is complete.

2. Clarify whether the dike will remain in place or be removed when the site resumes operation post care and maintenance?

Agnico Eagle's response:

- *"The Interim Dike is expected to be used throughout the care and maintenance period, and will remain in place when the site resumes operation."*
- *"The Interim Dike is considered to be a temporary structure. Plans for a permanent saline water storage facility are being included in future mine planning activities. The permanent facility is expected to be constructed shortly after the site resumes operation. At this time, the Interim Dike will no longer be used to segregate water within the TIA, however the structure will remain in place, to be covered by future tailings deposition."*

Kitikmeot Inuit Association (KIA)

1. What is the need for segregating different streams of mine contact water and thus the need for the Interim Dike?

Agnico Eagle's response:

- *"Due to the updated MDMER toxicity testing requirements that came into effect in December 2021, AEM identified the need to segregate underground mine water from the surface contact water in order to effectively meet the updated discharge criteria. Context is provided below."*
- *"The underground mine water is highly saline compared to surface contact water. Prior to the segregation of the two water streams, the underground mine water was affecting the salinity in the TIA such that the threshold for a toxicity test on a new invertebrate species was triggered. It was identified that the underground mine water could pass the required toxicity tests. However, when the underground water was deposited into the TIA, the combined water would fail, thus prohibiting the discharge of water from the entire TIA."*

- *“The construction of the interim dike within the TIA is required to create a temporary storage cell for saline underground mine water, separate from the rest of the TIA. With this configuration, water can be “batch discharged” from either the TIA or the temporary saline storage cell, providing each source meets the required discharge criteria independently.”*
2. Can Agnico Eagle comment on the potential for post-construction settlement of the dike and potential consequences and mitigative activities should settlement occur.

Agnico Eagle’s response:

- Agnico Eagle *“acknowledges the potential for post-construction settlement, particularly during the months immediately following the end of construction. Excessive settlement could compromise the GCL liner or compacted tailings elevation, and consequently affect the storage capacity of the Interim Dike. It should be noted that the GCL is a secondary (redundant) seepage barrier, with the primary seepage barrier being the compacted tailings material.”*
  - Agnico Eagle *“will address the potential issue through active monthly survey monitoring and visual inspections, and respond with remedial work, including additional fill placement, when required.”*
3. Can Agnico Eagle comment on the potential for permafrost degradation of the channel and any potential consequences of this or possible mitigative actions should it occur.

Agnico Eagle’s response:

- Agnico Eagle *“expects some permafrost degradation to occur in the area of the overflow channel. The channel will be inspected monthly, and mitigation work including additional fill/riprap placement will be carried out in order to ensure the hydraulic performance of the channel. The intent of the compacted tailings layer below the geotextile is to accommodate small movements without compromising the performance of the channel. It is acknowledged that the condition of the channel is especially important at the inlet, and mitigation work is expected to be required over the life of the structure.”*
  - *“In the longer term, the entire structure, including the overflow channel, will be covered by tailings as it lies within the footprint of future tailings deposition.”*
4. Can Agnico Eagle comment on how the maximum water level of the pond upstream of the interim dike will impact the beach length upstream of the South Dam and if this will comply with existing minimum beach length requirements for the TIA.

Agnico Eagle’s response:

- *“The maximum water elevation for the interim dike is controlled by an overflow channel with an inlet elevation of 34.5 masl. During the design process for the Interim Dike, the elevation for the channel inlet was selected such that the operation beach length requirement (100 m) is maintained at the South Dam.”*

- *“In the long term after the restart of operations, the Interim Dam will no longer impound water and the water in this area will be removed and replaced with tailings.”*
5. Can Agnico Eagle comment what ground conditions or construction observations would be required to trigger the construction of the buttress.

Agnico Eagle’s response:

- *“The submission document indicated that pre-construction investigative activities would be carried out to verify the foundation conditions. Following the submission of the document, a ground temperature cable sensor was installed into the tailings foundation on the upstream alignment of the Interim Dike. Data from the ground temperature cable indicates that the tailings that form the foundation for the Interim Dike are below 0°C (frozen) and that temperatures are holding stable going into the winter months. Based on the preconstruction instrumentation readings, the construction of the buttress is not expected to be required. The buttress may be required if:*
    - *Instrumentation indicates a thawing of the tailings foundation, accompanied deformation observed in the Interim Dike structure.*
    - *Observations during construction indicate excessive losses of fill material are occurring (material sinking into the tailings foundation). Construction monitoring will include tracking of material placement in order to identify such losses as they are occurring.*
    - *Observations and material quantities will be recorded in the as-built report.”*
6. After reviewing the Applicant’s responses, the KIA, on November 3, 2022, requested confirmation from Agnico Eagle whether the saline mine water would be retained in the TIA downstream of the Interim Dike and the water upstream of the Dike is limited to the antecedent run-off.

Agnico Eagle’s response on November 8, 2022:

- *“To address the comment of the KIA’s geotechnical engineer: the temporary saline mine water storage cell will be upstream of the Interim Dike.*
- *As stated in the response to KIA comments on October 28th, 2022, the purpose of the Interim Dike is to create a temporary storage cell for saline underground mine water (KIA-NWB-1).*
- *Section 1.1 of the 2022 Interim Dike design report implies that the Interim Dike is intended be a more robustly engineered, but still temporary, update to the currently functioning Aquadam. Similar to the Aquadam, the Interim Dike will maintain the temporary saline mine water storage cell upstream of the structure, between the interim dike and the South Dam.*
- *As stated in Section 3.2 of the 2022 Interim Dike design report and AEMs response to initial comments from the KIA (KIA-NWB-4), potential impacts to the South Dam were considered during the design of the Interim Dike. The operational beach length requirements will be maintained by controlling the water elevation within the saline*

*storage cell, achieved through the construction of an overflow channel with the invert elevation fixed to maintain the required beach length.”*

Following this reply, the KIA confirmed that the responses from Agnico Eagle are acceptable. CIRNA confirmed on November 4, 2022, that all their IRs had been addressed.

Copies of all documents received in support of the Request can be accessed through the NWB's Public Registry and FTP site using the following Link:

<ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-DOH1335%20AEM/3%20TECH/D%20CONST%20%26%20OPER/D1%20Interim%20Dike%20Notice%20of%20Construction>

#### NWB's Review and Decision

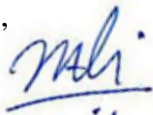
The NWB has reviewed the Notice of Construction and related submissions, and finds this functional and generally satisfying Licence requirements. The Board acknowledges that this Construction doesn't require any amendments to Licence conditions, and advises Agnico Eagle that all relevant monitoring should be completed to ensure that the site is stable once construction activities are completed. Therefore, by way of this correspondence and in accordance with Part G, Item 1 of the Licence, the Board authorizes Agnico Eagle to undertake the construction of the Interim (permanent) Dike.

Further, in keeping with Part G, Item 4 of the Licence's terms and conditions, the submission of post-construction information, including as-built plans and drawings, shall remain applicable to this authorization. The Board also advises that a Construction Summary Report should be provided as per Licence terms and conditions.

The Licensee is advised that the Board's review of this document is a verification that the proposed activity is consistent with the existing terms and conditions of the Licence and more specifically with Part G, and may proceed in accordance with the design specifics and drawings provided. It should be noted that the Board's acceptance is NOT intended or offered as any representation regarding the suitability of the plans nor third-party verification of the design, construction, planning or engineering discussed in the notice of construction and accompanying documents.

Should you have any questions regarding the above, please contact the NWB Licensing Department by email to [licensing@nwb-oen.ca](mailto:licensing@nwb-oen.ca) or by phone at (867) 360-6338.

Sincerely,



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Mohammad Ali Shaikh  
Technical Advisor,  
Nunavut Water Board,

as/rh

Cc: Distribution List – Doris North, Kitikmeot