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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

**File No: 2AM-WTP1826 /
B14 and B15**

January 21, 2019

Manon Turmel
Environmental Compliance Counselor
Agnico Eagle Mines Limited
145, King Street East Suite 400,
Toronto, ON M5C 2Y7
E-mail: manon.turmel@agnicoeagle.com

Jamie Quesnel
Environmental Superintendent - Nunavut
Agnico Eagle Mines Limited
145, King Street East Suite 400,
Toronto, ON M5C 2Y7
E-mail: jamie.quesnel@agnicoeagle.com

**Re: Updated Water Quality and Flow Monitoring Plan, Water Management Plan and
Waste Rock Management Plan; Type “A” Water Licence No. 2AM-WTP1826,
Whale Tail Pit Project; Agnico Eagle Mines Limited.**

Dear Ms. Turmel and Mr. Quesnel:

On August 29, 2018, the Nunavut Water Board (NWB or Board) received from Agnico Eagle Mines Limited (Agnico Eagle or Licensee) updated Water Quality and Flow Monitoring Plan Version 4, August 2018 (WQFMP) as per Part B Item 14 of the Water Licence 2AM-WTP1826 (Licence). On September 7, 2018, the NWB received updated Water Management Plan Version 2, September 2018 (WMP) and updated Waste Rock Management Plan Version 3, September 2018 (WRMP) as per Part B Item 15 of the Licence.

Water Quality and Flow Monitoring Plan (WQFMP)

On August 29, 2018, the NWB made the updated WQFMP publicly available for interested parties review and comments with a deadline for submissions set at September 28, 2018. On September 28, 2018, comments were received from Environment and Climate Change Canada (ECCC), and on October 3, 2018, submission was provided by Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). On October 26, 2018, Agnico Eagle provided its responses to comments along with an updated WQFMP Version 5, October 2018. On November 9, 2018, CIRNAC and ECCC raised follow-up questions, and on November 23, 2018, Agnico Eagle provided a response package to Interveners additional questions. On January 9, 2019, the NWB asked Interveners to advise the Board by January 15, 2019, on whether or not Agnico Eagle additional response addresses their concerns. On January 15, 2019, the ECCC advised the Board that *ECCC accepts this commitment by the Proponent to monitor seepage/contact water in*

accordance with Water Licence conditions regarding monitoring and water quality objectives, and notes that there will need to be a sufficient period of post-treatment monitoring to demonstrate consistent acceptability for discharge to receiving waters.

The Board would like to remind parties that as a result of public review and recommendations related to WQFMP, on December 12, 2018, the Board issued a Modification to Schedule I: Conditions Applying to General and Aquatic Effects Monitoring. Within its correspondence of December 12, 2018, the NWB highlighted that *due to this modification, relevant management plans, including the Water Quality and Flow Monitoring Plan, should be updated to reflect updated Monitoring Program.* It should therefore be noted that while the Board finds the updated Water Quality and Flow Monitoring Plan generally acceptable and has approved the Water Quality and Flow Monitoring Plan Version 5, October 2018 through the Board Motion No. 2018-A1-025, dated January 21, 2019, as required by Part B, Item 14 of Licence, an updated document for Board review is expected within the 2018 Annual Report submission.

Water Management Plan (WMP) and Waste Rock Management Plan (WRMP)

On September 12, 2018, the NWB distributed the updated WMP and WRMP for a public review with a deadline set at October 12, 2018. On September 27, 2018, Agnico Eagle supplemented the documents with Agnico Eagle and CIRNAC meeting's information from July 26, 2018 associated with the hydrogeological characterization study and hydrodynamic modelling of flooded Whale Tail Pit Lake post closure and Hydrodynamic modelling of the Waste Rock Storage Facility (WRSF) contact water mixing into Mammoth Lake post closure with respect to Arsenic concentrations within the flooded Whale Tail Pit and Mammoth Lake.

On October 12, 2018, comments were received from CIRNAC and ECCC, and on October 18, 2018, from the Kivalliq Inuit Association (KIA). On October 26, 2018, Agnico Eagle provided its responses to Interveners along with a further updated WMP Version 3, October 2018 and updated WRMP Version 4, October 2018. On November 8 and 9, 2018, ECCC and CIRNAC, respectively, raised follow-up questions, and on November 23, 2018, Agnico Eagle provided additional responses to Interveners questions. On January 9, 2019, the NWB asked Interveners to advise the Board by January 15, 2019, on whether or not Agnico Eagle responses address their concerns. On January 15, 2019, the ECCC advised the Board that *no further recommendation is provided based on its mandate, in the context of the Canadian Environmental Protection Act, and the pollution prevention provisions of the Fisheries Act.*

With respect to the updated WMP the Board notes amongst others CIRNAC's concerns regarding *"The collection of additional site-specific hydraulic data (e.g., from new monitoring wells) in key areas during the pre-development, construction and operation phases; Definition of vertical and horizontal groundwater flows in the project development areas; Delineates monitoring plans for*

both vertical and horizontal ground water” which is a Term and Condition within the Nunavut Impact Review Board (NIRB) Project Certificate (PC).

The Board acknowledges Agnico Eagle’s response that

Agnico Eagle completed the Whale Tail Post-Closure Pit Lake Thermal Assessment and updated the hydrogeological assessment and modelling. The results of these studies were presented to CIRNAC in July 2018 and confirmed the insignificant horizontal groundwater flows observed at the Whale Tail Site.

As per the October 2018 meeting, Agnico Eagle committed to the collection of additional hydraulic data from the Westbay multiport well but not to the installation of additional wells. Vertical flow gradients are effectively evaluated with the Westbay well system installed at the Site, which allows the measurement of hydraulic head below Whale Tail Lake at multiple depth intervals in the unfrozen bedrock. Sampling of the groundwater and measurement of the vertical gradient was completed in November 2018 and will be included in the annual report...

Horizontal groundwater flow would be expected below the sub-permafrost (at depths of 425 to 495 m bgs). This flow system are and will be controlled by the regional lakes with open taliks and is effectively estimated by lake elevations (in areas of continuous permafrost these lakes act as large diameter monitoring wells) and numerical modelling undertaken to date. The flux of groundwater between Whale Tail Lake to this sub-permafrost flow system can be estimated by the calculation of the vertical flow rate through the talik connecting the Lake to the sub-permafrost flow system, which in turn has been predicted using numerical modelling and will be field verified using the November 2018 hydraulic gradient estimated from the Westbay well system, in combination with the site-specific hydraulic conductivity measurements.

While the Board generally concurs with CIRNAC’s concerns the Board does also acknowledge and understand the rationale and conclusions provided by Agnico Eagle and has approved the Water Management Plan Version 3 October 2018 through the Board Motion No. 2018-A1-025, dated January 21, 2019, as required by Part B, Item 15 of Licence. However, the Board looks forward for further verification of numerical model predictions with the November 2018 hydraulic gradient estimations from the Westbay well system in combination with the site-specific conductivity measurements, within the 2018 Annual Report’s updated document.

With respect to the updated WRMP the NWB would like to highlight CIRNAC’s valid concern that *based on AEM’s model predictions, the waste rock storage facility (WRSF) cover needs to be at least 4.7 meter thick and be constructed with 100% “clean” waste rocks (i.e. Non Potential Acid Generation (NPAG) and Non Metal Leaching (NML) waste rocks) or be contaminant-free (i.e. free of any Potential Acid Generation (PAG) waste rocks and free of any Metal Leaching (ML) waste rocks). The Whale Tail Waste Rock Management Plan needs to be developed such that, if implemented, no PAG waste rocks or ML waste rocks would be misidentified and misplaced*

in the cover.

The Board acknowledges Agnico Eagle's response that

ARD-ML Sampling and Testing Plan Appendix B "Flow Chart for Waste Rock delineation and segregation" shown below; Step 4: Rock segregation and management gives implementable details on how the two (2) different types of waste (i.e. NPAG and NML and PAG and/or ML) will be disposed of during Operations. Agnico Eagle would like to clarify that waste rock segregation is not based only on rock type or lithology but rather on operational ARD-ML testing results.

The NWB does not necessarily object that the set of procedures for segregation and monitoring of the waste rock material presented in the Operational Acid Rock Drainage (ARD)/ Metal Leaching (ML) Testing and Sampling Plan is *thorough and gives implementable details on how the two (2) different types of waste (i.e. NPAG and NML and PAG and/or ML) will be disposed of during Operations*, and the Board also acknowledges Agnico Eagle's commitment:

Monitoring will be carried out during all stages of the operation to demonstrate geotechnical stability, safe environmental performance of the facility and efficiency of the waste management procedures. If any non-compliant conditions are identified, adaptive management including modification of waste management practices and planning for corrective measures will be completed in a timely manner to ensure the environmental performance of the Whale Tail WRSF, the protection of the environment and that regulatory requirements are met.

Given the short operational period of mine activities the monitoring and adaptive management are very important steps and the NWB strongly recommends Agnico Eagle to implement the proposed *number of methods in order to assess and monitor the performance of the waste rock management procedure*. The Board has approved the Waste Rock Management Plan Version 4 October 2018 through the Board Motion No. 2018-A1-025, dated January 21, 2019, as required by Part B, Item 15 of Licence.

Should you have any questions or require clarification with respect to the above, please feel free to contact undersigned at (867) 360-6338 (Ext. 35) or by e-mail to karen.kharatyan@nwb-oen.ca.

Sincerely,

NUNAVUT WATER BOARD

Karén Kharatyan
Director Technical Services