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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File No: 2AM-WTP1826 / B13

January 28, 2019

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Re: Updated Operational ARD/ML Sampling and Testing Plan, Groundwater Monitoring Plan; Type “A” Water Licence No. 2AM-WTP1826, Whale Tail Pit Project; Agnico Eagle Mines Limited.

Dear Ms. Turmel and Mr. Quesnel:

On September 13, 2018, the Nunavut Water Board (NWB or Board) received from Agnico Eagle Mines Limited (Agnico Eagle or Licensee) an updated Operational ARD/ML Sampling and Testing Plan (ARD/ML Plan) Version 2, June 2018, and on October 3, 2018, Groundwater Monitoring Plan Version 1, May 2018 as per Part B Item 13 of the Water Licence 2AM-WTP1826 (Licence).

Operational ARD/ML Sampling and Testing Plan (ARD/ML Plan)

On September 21, 2018, the NWB distributed the updated ARD/ML Plan for interested parties review and comments with a deadline for submissions set at October 22, 2018. On October 22, 2018, comments were received from the Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) and Environment and Climate Change Canada (ECCC). On November 9, 2018, Agnico Eagle provided its responses to comments along with another version of updated ARD/ML Plan Version 3, November 2018. It was stated that

On October 17th and 18th, 2018, Agnico Eagle met with CIRNAC, presented an update on modelling results, updated validation of the modelling and came to agreement on how to address the CIRNAC recommendations; a common understanding was gained during these meetings and are reflected in this response package. Agnico Eagle has previously submitted to NWB the presentation that guided the October 17th and 18th, 2018 discussion between Agnico Eagle, CIRNAC and our subject matter experts, that summarized the updated results of the hydrogeological, water quality and geochemical

data at Whale Tail Pit.

On November 29, 2018 and November 30, 2018, respectively, ECCC and CIRNAC raised follow-up questions, and on January 15, 2019, Agnico Eagle provided a response package to Interveners additional questions. On January 15, 2019, NWB asked Interveners to advise the Board by January 17, 2019, on whether or not Agnico Eagle additional responses address their concerns. On January 17, 2019, CIRNAC advised the Board that *CIRNAC notes that AEM did not provide any new information or analysis to address CIRNAC's two remaining concerns (i.e., CIRNAC comments and recommendations #11 and #19).*

CIRNAC's Comment #11 is regarding Agnico Eagle's statement within the S. 3.1 of ARD/ML Plan that *"the Geology Superintendent may vary the default frequency based on his knowledge from previous drilling and from visual inspections depending on where the drill pattern is situated and which rock type is encountered"*.

While this may be a general operational practice the NWB would like to highlight that based on Agnico Eagle's 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)). Therefore, the Board concurs with CIRNAC recommendation that *the rationale for any such changes be clearly documented and implemented only with the prior approval of the NWB.*

CIRNAC's Comment #19 is associated with the *uncertainty regarding AEM's assumption there would be zero cover "contamination" (i.e., inadvertent inclusion of waste rock with elevated ARD/ML) potential into the cover. CIRNAC recommended that a sampling/testing program be conducted of the cover materials both before placement (i.e., from the NPAG/NML stockpile) and after placement (i.e., from the cover itself). This program should be designed to include the collection of representative cover material samples and long-term kinetic testing. The analysis program should be initiated no later than one year prior to closure and the results of the ongoing study should be reported annually. Information from the kinetic testing would help to inform the final design of the cover and any long-term management decisions for the site (e.g., the duration of post-closure monitoring).*

The NWB does acknowledge Agnico Eagle response to CIRNAC comment that *sampling and segregation procedure detailed in the ARD-ML plan is robust and QA-QC practices are in place to assess the process. In addition, the shape of the WRSF will not allow proper sampling of the thermal cover after placement.*

The Board notes that the ARD/ML Plan proposes a monitoring program that *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.*

The NWB is of opinion that the monitoring of efficiency of the waste management procedures

during operations could justify the need of cover materials' sampling/testing program recommended by CIRNAC, and requires Agnico Eagle to assess accordingly the findings of its monitoring within the updated plan prior to the final closure and reclamation planning. In the interim, the Board requires the Applicant to implement the proposed number of methods in order to assess and monitor the performance of the waste rock sampling and segregation procedure.

The Board hereby approves the Operational ARD/ML Sampling and Testing Plan Version 3, November 2018 through the Board Motion No. 2018-A1-026, dated January 28, 2019, as required by Part B, Item 13 of the Licence. However, the Licensee shall ensure that any changes of field sampling procedure should be implemented after the NWB approval of these changes. The future update to the plan should reflect this recommendation.

Groundwater Monitoring Plan (GWMP)

On October 3, 2018, the NWB distributed the GWMP for a public review with a deadline set at October 22, 2018. On October 22, 2018, comments were received from CIRNAC and ECCC. On November 9, 2018, Agnico Eagle provided a response package along with a further updated GWMP Version 2, November 2018. On November 29 and 30, 2018, ECCC and CIRNAC, respectively, raised follow-up questions, and on January 15, 2019, Agnico Eagle provided additional responses to Interveners questions. The NWB asked Interveners to advise the Board by January 17, 2019, on whether or not Agnico Eagle additional responses address their concerns. On January 17, 2019, CIRNAC *strongly recommended the NWB not approve the November 2018 Version 2 Groundwater Monitoring Plan for the Whale Tail Pit Project as it does not satisfy the objectives of a groundwater monitoring plan based on unresolved comment #2 (incorporation of well monitoring) and comment #3 (thermal monitoring)... CIRNAC will continue to work with AEM and the NWB to resolve the outstanding comments, as they are essential to achieve the objective of a Groundwater Monitoring Plan.*

CIRNAC comment #2 stated that the *plan does not identify any groundwater monitoring wells (i.e. the installed 2016 Westbay Multiport Well System) in the Groundwater Monitoring Plan for monitoring during operations nor closure of the Whale Tail Pit Project. Without identifying the only active groundwater well, the 2016 Westbay Multiport Well System, in the Groundwater Monitoring Plan, AEM has effectively determined no groundwater monitoring wells will be monitored during operations and closure – which is unacceptable to CIRNAC.*

While the NWB realizes the potential expense and difficulty of installing monitoring wells beneath the permafrost the Board concurs with CIRNAC and ECCC that deep groundwater flow and quality monitoring (i.e. existing Westbay Multiport Well System) in flow paths adjacent to the pit will help to better characterize the hydrogeological setting and assess potential water quality impacts from the project during closure and post-closure phases. The Board is of opinion that

Agnico Eagle should consider deep groundwater monitoring or provide a strong rationale on why it doesn't intend to monitor even the Westbay multilevel well.

In its correspondence of January 17, 2019 regarding the comments #3 (thermal monitoring) CIRNAC stated that CIRNAC requested *thermal monitoring be included in the Groundwater Monitoring Plan to:*

- *validate and monitor the horizontal hydrogeological profile assumptions that continuous permafrost surrounding the Whale Tail Lake talik negates horizontal hydrogeological flow, in particular in the vicinity of the Whale Tail Pit 'north wall' area where metal leaching is of concern; and*
- *validate and monitor the vertical hydraulic head and groundwater quality changes in the AEM designated open and closed Whale Tail Lake talik during operations and closure.*

The NWB acknowledges Agnico Eagle's response that *long-term closure predictions with respect to arsenic loading are not expected to be affected by the assumption of an open or closed talik, as the permafrost will eventually degrade below the pit foot print and connect the shallow talik to the deeper flow system. Maximum rates of discharge from the pit lake presented in Agnico's Eagle's response to CIRNAC's recommendation regarding "Background, Results of Review" would still be applicable (maximum inflow of 13 m³/day to an outflow of 11 m³/day). The predicted and estimated maximum flows are negligible compared to the 3,000,000+ m³ of surface water exchanged annually post-closure when flows are re-established, based on average climate year watershed runoff.*

The NWB advises the Licensee that an approval of the Groundwater Monitoring Plan as submitted will be withheld at this time and the Licensee is requested to revise the plan and re-submit for approval within the 2018 Annual Report, taking into consideration the results of parties review. More particularly, Agnico Eagle should provide options for the monitoring of Westbay Multiport Well System or potential additional monitoring well and discuss thermal analysis associated with the concerns of metal leaching around the pit's north wall area. Agnico Eagle is encouraged to continue to work directly with parties to address these issues within the revised plan.

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