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1235089

December 14, 2018

Sophia Granchinho  
Manager, Impact Assessment  
Nunavut Impact Review Board  
PO Box 1360  
Cambridge Bay, NU, X0B 0C0  
Via electronic mail to: [info@nirb.ca](mailto:info@nirb.ca)

**Re: The Nunavut Impact Review Board's "2017-2018 Annual Monitoring Report for the Meadowbank Gold Project and the Whale Tail Pit Project" with Board's Recommendations**

Dear Ms. Granchinho,

On November 7, 2018, the Nunavut Impact Review Board (NIRB) issued the "2017-2018 Annual Monitoring Report for Agnico Eagle Mines Ltd.'s Meadowbank Gold Project (NIRB File No. 03MN107) & the Whale Tail Pit Project (NIRB File No. 16MN056)" (the Monitoring Report) to Agnico Eagle Mines Ltd. (the Proponent) and to other interested parties. The NIRB's review of the annual monitoring report and other materials submitted by the Proponent in relation to the Meadowbank and Whale Tail Pit projects has resulted in recommendations to assist achieving compliance with the Project Certificates. NIRB has specifically issued a recommendation for Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) and has requested CIRNAC to comment whether the information provided by the Proponent in relation to site-specific thermal analysis and monitoring as well as to confirm if the Term and Condition (T&C) 10 has been satisfied.

As we are in the first year post-issuance of the Whale Tail Pit Project Certificate (No. 008), there has not been a review period to assess compliance with the T&Cs yet. CIRNAC appreciates the chance to provide comments in relation to T&C 10 and would also like to take the opportunity to comment on additional compliance issues identified through its review of the material submitted by the Proponent since issuance of the Project Certificate.

### Site-specific Permafrost Monitoring, mapping and Thermal Analysis – Term and Condition 10

As requested by the T&C, the Proponent was to consult with relevant agencies, including CIRNAC, regarding additional site-specific permafrost monitoring, mapping, and thermal analysis. The results of these additional studies were to be reported to the NIRB 30 days prior to the start of construction of the main infrastructure. As mentioned in NIRB's Monitoring Report, CIRNAC met with the Proponent on July 26, 2018, in Ottawa but the discussions did not include permafrost conditions, amount of ground ice or thermal analyses and monitoring. A subsequent meeting was held on October 17, 2018, where the permafrost conditions surrounding the Whale Tail Pit were discussed, although no additional information was presented by the Proponent and the actual Thermal Monitoring Plan was not discussed. On December 4, 2018, the Proponent provided CIRNAC with a memo, "*Summary of Thermal monitoring at Amaruq Site from 2015-2018*", presenting the location and the raw data obtained from the currently installed thermistors.

After reviewing all information presented by the Proponent to date to the NIRB, to the Nunavut Water Board (NWB), and directly to CIRNAC, CIRNAC concluded that the information does not satisfy the requirements under T&C 10 for the following reasons:

- The Proponent submissions did not meet the timeline and the reporting requirements of the T&C as the additional site-specific information was not reported to NIRB 30 prior to the start of construction;
- The information submitted did not provide description of how the Proponent interprets the raw data provided and how the collected site-specific data documents the permafrost conditions and seasonal thaw;
- The submissions included little information on the amount of ground ice and it was only focused on the Whale Tail Dike area and not the other relevant infrastructure; and
- The design and drawing reports submitted to date did not demonstrate how the detailed designs of the infrastructure were informed by the site-specific data and how these considerations ensure the integrity of the infrastructure as the thermal conditions discussed in the design reports are general and not aligned with the descriptions of the site conditions in the Thermal Monitoring Plan.

In order to satisfy the condition, the Proponent shall adequately respond to all aspects of the requirements established by NIRB in T&C 10. Additionally, based on the importance of permafrost conditions to the behaviour of the hydrological regime, the site-specific permafrost mapping, monitoring and the thermal analysis should be incorporated into the Groundwater Monitoring Plan.



### Talik Distribution and Flow – Term and Condition 14

Appendix D-2 of the Monitoring Report presents the T&Cs specific to Whale Tail Pit Project, the reporting requirements and the compliance achievements as assessed by NIRB. For T&C 14, NIRB notes in the compliance achievement that the first version of the Thermal Monitoring Plan was submitted by the Proponent on May 18, 2018, but does not elaborate on the adequacy of the plan presented.

CIRNAC has reviewed the Thermal Monitoring Plan as well as the first and second versions of the Groundwater Monitoring Plan submitted to the NWB and concluded that the Thermal Monitoring Plan is not adequate to “[...] *identify potential changes in talik distribution and flow paths that may result from the development of project infrastructure* [...]” as per the requirement of T&C 14. Particularly, the monitoring plan presents inconsistencies regarding the number of thermistors currently active in the Whale Tail Pit area, as well as no clear commitments regarding the thermal monitoring of the pit area. In Section 3.3.3 of the Thermal Monitoring Plan, the Proponent presents the thermal monitoring plans for the open pit and states “*For/if any thermistors remain active or are installed in this area, they may be connected to data loggers* [...]”. The plan describes uncertain outcomes as almost all monitoring activities presented “*may be*” implemented. Further details on how the Proponent intends to “*adapt the monitoring strategy defined for each facility as needed*” shall be provided. For example, a schedule of the potential destruction of current thermistors linked to the operational plans, as well as information on what temperature, depths and timing would trigger the decision to install additional thermistors should be provided.

In order to satisfy the condition, the current Thermal Monitoring Plan and the Groundwater Monitoring Plan require revisions to include more comprehensive details on the monitoring strategy the Proponent will employ to confirm the predicted impacts on talik distribution and groundwater flows in the vicinity of the Whale Tail Pit.

### Groundwater Monitoring Plan – Hydraulic Conditions – Term and Condition 15

For T&C 15 in Appendix D-2 of the Monitoring Report, NIRB notes in the compliance achievement that the first version of the Groundwater Monitoring Plan was submitted by the Proponent on June 4, 2018, but does not elaborate on the adequacy of the plan presented.

The Proponent has responded to CIRNAC’s comments on the first version (comments sent on October 22, 2018 as part of a commenting period with the NWB) and has submitted a second version of the Groundwater Monitoring Plan to the NWB in November 2018. CIRNAC has reviewed the latest version and still concludes that the Groundwater Monitoring Plan submitted by the Proponent is not adequate as several requirements from T&C 15 are not satisfied by the plan:



- *"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"*

Throughout the NIRB and NWB regulatory processes, CIRNAC expressed concerns regarding water quality in the flooded Whale Tail Pit after closure and recommended that new field data be collected from new groundwater wells prior to mine development. During the Final Hearing in September 2017, the minutes from a meeting held between CIRNAC and the Proponent were submitted as Exhibit No. 50. This exhibit contains the Proponent's commitment to carry out hydrogeological evaluation during the 2018 summer field season. During a meeting on October 17, 2018, CIRNAC was advised that the Westbay well sampling event scheduled for June 2018 was delayed until November 2018. The delay was reportedly required due to the presence of operational activities that rendered the well area unsafe during the original sampling event. The Proponent has not justified why the planning of the operational activities did not account for the critical pre-development period sampling as per their commitment and the requirement of T&C 15 and why it resulted in a five-month delay. Given that excavation works have already initiated, it is uncertain if the delayed sampling can accurately reflect pre-development conditions.

- *"Definition of vertical and horizontal groundwater flows in the project development areas;*
- *Delineates monitoring plans for both vertical and horizontal ground water"*

Additionally, the Proponent confirmed that it has not installed any new monitoring wells since the Westbay multiport well and does not intend to do so in the future. As a result, a single Westbay multiport well continues to be the only functioning groundwater sampling station on the Whale Tail property. While the Westbay system is capable of providing important information to characterize the groundwater regime, a single station provides little information to define and monitor horizontal flows.

Based on the abovementioned consideration and the new modelling information presented, CIRNAC maintains that, in order to satisfy the condition, - at least one additional deep groundwater well is desirable to define and monitor both vertical and horizontal groundwater flows as per the requirements of T&C 15.

- *"Thresholds that will trigger the implementation of adaptive management strategies that reflect site-specific conditions encountered at the project site"*

Although Section 2.5 of the Groundwater Monitoring Plan (Version 2, November 2018) includes some descriptions of adaptive management, CIRNAC considers model updating and calibration an insufficient action when certain thresholds are exceeded. For example, if water quality in the seeps of the Waste Rock Storage Facility or in the Whale Tail Pit exceeds predictions and/or guidelines, an update and calibration of models will not adequately address the potential long-term impacts from these project components. In order to satisfy the condition, the Groundwater Monitoring Plan shall be



revised to include details of effective and feasible options available for mitigation if arsenic concerns materialized.

In the meeting held on October 17, 2018, CIRNAC requested the Proponent to provide a rationale and justification to demonstrate why they have proceeded as such, and how they consider to have satisfied the Project Certificate T&Cs. This justification has not been provided to date. The majority of the comments presented above were also brought forward through the various commenting periods held by the NWB. The submissions are available on the NWB public registry at:

CIRNAC Review of the Groundwater Monitoring Plan (October 22, 2018): <ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-WTP1826%20Agnico/3%20TECH/B%20GENERAL/B13/GWMP/181022%202AM-WTP1826%20GWMP%20CIRNAC%20Comments-IMLE.pdf>

CIRNAC Reply to AEM's Response on the Groundwater Monitoring Plan: <ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-WTP1826%20Agnico/3%20TECH/B%20GENERAL/B13/GWMP/181130%202AM-WTP1826%20GWMP%20CIRNAC%20Reply%20to%20AEM%20Response-IMLE.pdf>

CIRNAC Comments on AEM's WRSF, NPAG Stockpile and Overburden Stockpile Design Report and Drawings: <ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-WTP1826%20Agnico/3%20TECH/D%20CONSTRUCTION/D1.%20D2/WRSF NPAG%20Design%20Report/181207%202AM-WTP1826%20WRSF.%20NPAG%20Design%20CIRNAC%20Comments-IMLE.pdf>

CIRNAC appreciates the opportunity to provide comments and will remain available to work with the NIRB and the Proponent, as necessary, throughout any further monitoring or review phases, related to this project. Should you have any questions, please contact Rachel Théoret-Gosselin at (867) 975-4741 or by e-mail at [rachel.theoret-gosselin@canada.ca](mailto:rachel.theoret-gosselin@canada.ca).

Sincerely,



Rachel Théoret-Gosselin  
A/Manager, Impact Assessment

cc: Marie-Pier Marcil, Agnico Eagle Mines Ltd.  
Jamie Quesnel, Agnico Eagle Mines Ltd.  
Peter Hunger, Natural Resource Canada



