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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File: 2AM-WTP1830/B18

May 5, 2021

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Subject: Adaptive Management Plan; Type “A” Water Licence No: 2AM-WTP1830, Whale Tail Pit Project; Agnico Eagle Mines Limited

Dear Cassandra DeForge and Jamie Quesnel:

The Nunavut Water Board (NWB or Board) received from Agnico Eagle Mines Limited (Agnico Eagle or Licensee) on January 29, 2021, the document entitled “Adaptive Management Plan” (Plan) as indicated by the Board in Part B, Items 18 and 19 of Water Licence No: 2AM-WTP1830 (Licence). The Report was dated December 2020.

The Report was distributed for interested parties’ review with a deadline for submissions set for February 16, 2021, which later was extended to February 22, 2021 at the request of the Kivalliq Inuit Association (KivIA). Comments were received¹ from the KivIA, Environment and Climate Change Canada (ECCC), and Crown-Indigenous Relations and Northern Affairs (CIRNA).

The KivIA noted that it had no comments at the time.

ECCC submitted the following comments:

- More information on construction of passive and active ground freezing systems is necessary, along with the explanation on how these actions would help permafrost aggradation to move the average zero amplitude upwards. Timeframes for implementation need to be indicated;

¹ Kivalliq Inuit Association, dated February 22, 2021; Environment and Climate Change Canada (ECCC), dated February 16, 2021; Crown-Indigenous Relations and Northern Affairs (CIRNA), dated February 22, 2021.

- The Licensee should clarify the reasons for removal of the options of deep well injection and meromictic lake disposal from the originally proposed version of the Plan; and
- Agnico Eagle is to correct the errata in the Plan.

In its submission, CIRNA recommended that Agnico Eagle:

- Substantiate the claim that the proposed activities are not a significant modification as defined under the *Nunavut Planning and Project Assessment Act* (NuPPAA);
- Address any inconsistencies between the Plan and other management plans, update the relevant management plans within the next annual report;
- Include measures to prevent thermal probe malfunctions and contingency plans in case of such malfunctions;
- Clarify why the depth of the active thermal layer is 7 m in the Plan while the design of the waste rock storage facility (WRSF) cover assumes the depth of 4.2 m;
- Include arsenic in the receiver water quality adaptive management chart;
- Indicate the site-specific water quality objectives and whether Agnico Eagle intends to continue discharge after the water quality objectives have been exceeded;
- Provide information on “if and how water quality will be confirmed or validated by sampling and measurement data prior to discharge under” a high-recurrence precipitation event and clarify if the effluent is to meet the Licence quality limits. “The AMP should be revised prior to approval, should any specific measures or steps be required,” and
- Indicate whether the Plan is to undergo the Nunavut Impact Review Board (NIRB) process, the proposed effective date, and the frequency of the Plan review.

On March 26, 2021, the Licensee responded:

- Evaluations in accordance with Levels 2 and 3 in the Plan will be conducted prior to the implementation of passive or active ground freezing systems;
- Deep well injection was excluded from the Plan because of the requirement for complex infrastructure. The option of a meromictic lake needs further consideration;
- The Nunavut Planning Commission (NPC) reviewed the Plan and determined that it conforms to the Keewatin Regional Land Use Plan and does not require screening by the NIRB;
- No changes to other management plans are required;
- Thermal probe malfunction is discussed in the monitoring plan as described in the *Whale Tail WRSF Expansion and IVR WRSF Design Report and Drawings* dated December 2019, and “as per Table 1, Level 2 of the [Plan], modification of instrumentation program based on interpretation of existing data and understanding of mechanism (could include installation of thermistors and downhole monitoring instruments) will be completed and updated in the Annual Report”;
- In regards to CIRNA’s comments on the depth of the active thermal layer, Agnico Eagle referred the intervener to the *Whale Tail Project - Thermal Modelling of the Whale Tail and IVR WRSFs* dated July 23, 2019 and *Whale Tail Project - Thermal Modelling of Whale Tail WRSF Under RCP8.5* dated June 20, 2019;
- CIRNA’s recommendation in regards to the inclusion of arsenic into the receiver water quality adaptive management chart will be addressed in the annual report;

- “Agnico Eagle will include the site-specific water quality objectives in the Annual Report. We would like to clarify that the site is composed of two receivers, and, at this level, the discharge could continue to one of the receivers after water quality criteria or objectives have been exceeded in the other receiver. Agnico Eagle does not intend to continue to discharge to the receiver if the water quality criteria or objectives have been exceeded”;
- Agnico Eagle committed to comply with the monitoring and effluent quality requirements in case of a high-recurrence precipitation event, and
- The Licensee intends to implement the Plan during the 2021 discharge season and will review the Plan annually as part of its annual reporting.

On April 9, 2021, CIRNA requested the provision of the NPC correspondence. The agency noted that Agnico Eagle did not provide the explanation on the difference in the two values for the depth of the active layer. On April 12, 2021, ECCC confirmed that it was satisfied with the Licensee’s responses.

On April 23, 2021, the Licensee provided the NPC letter. In addition, the Licensee noted:

For additional clarification, the active layer depth of 7m was selected as a threshold in the Adaptive Management to be representative of the thermal stabilization expected to happen during the first years of construction. This 7m depth is the result of the sensitivity analysis run with the RCP 8.5 Climate Change Model. Even if the active layer depth of 7m is reached during the operation, closure or post-closure phase, it is not expected to have adverse effect on the WRSF water quality. This worst-case water quality analysis was also cited by CIRNAC in their FWS-2 of January 2019. Details of the RCP 8.5 climate change scenario were presented in the Whale Tail Mine Site and Downstream Receiving Water Balance and Water Quality Under Climate Change Scenario 8.5 (Golder, 2019).

On April 30, 2021, CIRNA responded:

Provided that [Agnico Eagle] now considers the RCP 8.5 Climate Change Model more appropriate for its management plan design (i.e., [the Plan]), CIRNAC believes this new thermal modelling approach or result needs to be incorporated in the WRSF design as well. If [Agnico Eagle] does not consider the RCP 8.5 Climate Change Model more appropriate, CIRNAC would be satisfied to apply 4.7 meter thermal active layer depth provided that the assumptions used are consistent in the [Plan] and the WRSF design.

To properly address the underlying concerns related to our comment #4, CIRNAC recommends that [Agnico Eagle] either revise its WRSF design plan by applying a 7.0 meter thermal active layer depth, or revise its [Plan] by applying a 4.7 meter thermal active layer depth, or substantiated the following statement with sufficient evidences or data: “(E)ven if the active layer depth of 7m is reached during the operation, closure or post-closure phase, it is not expected to have adverse effect on the WRSF water quality.”

In addition to parties’ comments, the Board notes the following statement in the Plan:

In the event of a conflict or inconsistency between this Adaptive Management Plan and any other Plan approved under the Type A Water Licence, the Adaptive Management Plan shall prevail to the extent of the conflict or inconsistency.

The Board also notes that the Plan states:

... all actions and management strategies described in the approved Adaptive Management Plan are included in the Scope of the Type A Water Licence (see Part A, Item 1) and can proceed without modification or amendment to the Type A Water Licence.

The Board would like to remind the Licensee about the discussion on this matter at the Public Hearing (*Amended Water Licences Nos: 2AM-WTP1830 and 2AM-MEA1530, Reasons for Decision, Including Record of Proceedings*):

... the Board does not agree with Agnico Eagle that it is appropriate for the Board to pre-empt the integrated regulatory process that would normally apply to... NWB's consideration of adaptive management measures... that would upon review, warrant changes to the Amended Licences... The Board agrees with the comments of the KivIA and CIRNA that it is not appropriate for the Board to "carve out" an exception to the normal regulatory process for activities, works or undertakings described by Agnico Eagle as adaptive management measures. As with any other changes to the previously-approved mining Undertaking, some adaptive management measures may not be sufficient to constitute a modification or amendment as defined under the Amended Licences. However, if a specific adaptive management measure fits within the scope of a modification or amendment, Agnico Eagle must follow the normal regulatory path for such activities, works or undertakings...

While the NWB commends Agnico Eagle for updating the original *Adaptive Management Plan* and understands that the NPC issued its conformity determination stating that the activities outlined in the Plan conform to the Keewatin Regional Land Use Plan and do not require screening by the NIRB, some of these activities may require additional review and approval as Licence amendments or modifications by the NWB. These specific items are mostly associated with the Adaptive Management Level 2 through Level 4 and include the following as examples:

- The relocation / reconfiguration of WRSF; construction of new or expanded interception structures for water to redirect WRSF contact water in the flooded pits (*Table 1: WRSF Permafrost Aggradation Adaptive Management Strategy*);
- Construction of new or expanded interception structures for water (ponds, sump, ditch) to protect the environment (*Table 2: WRSF surface water balance and active layer development adaptive management strategy*);
- Complete assessment of potential discharge in lakes D1 or D5 in case level 3 is reached, with approval from the NWB as per NIRB Project Certificate Conditions; move discharge location in an approved receiver in Lakes D1 or D5, with approval from the NWB as per NIRB Project Certificate Condition. (*Table 3: Receiver Water Quality Adaptive Management Strategy*).
- Implement construction measures to improve contact and non-contact water management. This will be situation specific based on result of previous levels but could include (*Table 4: Surface water quantity adaptive management strategy*):
 - Construction of new or expanded ponds, ditch, berm, sump and/or water conveyance system to avoid mixing contact water above discharge criteria with non-contact water or contact water under discharge criteria.

The Board's expectation is that before execution/implementation of these adaptive management strategy items, the Licensee will consult with the Board. The Board will then advise the Licensee on the proper review/approval process prior to implementing respective measures. Also, the Board position is that all relevant management plans shall be updated to include potential adaptive

management strategy measures or action items consistent with the Adaptive Management Plan, indicating that some of adaptive management strategy measures could require separate review/approval by the Board before execution or implementation.

Having considered the above, the Board requires the Licensee to update the Plan on or before **June 3, 2021** by removing the statements on the prevalence of the Adaptive Management Plan above any other management plan under the Licence and on activities in the Plan not requiring modifications or amendments of the Licence, as well as addressing errata as recommended by ECCC. The updated Plan is to be submitted for Board approval. The Board also advises the Licensee to include the requirement to consult with the NWB within the Adaptive Management Levels as discussed above. In addition, CIRNA's comment 4 on the discrepancy in the active layer depths at the WRSF should also be addressed within the relevant plans, designs, and any other documentation on or before **June 3, 2021**.

The Licensee shall update all relevant management plans to be aligned with the Adaptive Management Plan as discussed above and submit the updated plans **within the next Annual Report**.

Should you have any questions, please feel free to contact the undersigned at (867) 360-6338 or assol.kubeisinova@nwb-oen.ca at your earliest convenience.

Sincerely,

Assol Kubeisinova
Technical Advisor

cc: Distribution List - Meadowbank