



August 2, 2023

NWB File: 2AM-WTP1830

Nunavut Water Board  
PO Box 119  
Gjoa Haven, NU X0B 1J0

**Re: Response to Additional Comments from CIRNAC on the Whale Tail 2023 Modification under Water Licence 2AM-WTP1830**

Dear Mr. Dwyer,

Enclosed please find responses from Agnico Eagle Mines Limited (Agnico Eagle) regarding the additional comments received from Crown-Indigenous Relations and Northern Affairs Canada dated July 26, 2023 regarding the Whale Tail 2023 Modification under Water Licence 2AM-WTP1830.

Should you have any questions regarding this letter, please do not hesitate to contact the undersigned.

Sincerely,

Colleen Prather  
Permitting Technical Advisor – Water Management  
Agnico Eagle Mines Limited

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Interested Party:	CIRNAC	Rec No.:	CIRNAC-R-01
Re:	Adaptive Management		

**Original Recommendation Made by Interested Party:**

*CIRNAC recommends that AEM:*

- a) Continue using GSPs per the approved Adaptive Management Plan V1.5 for managing groundwater.*
- b) Clarify if they have identified any situation that requires implementing Adaptive Management Levels 2 and 3 as per the approved Adaptive Management Plan V1.5.*
- c) Update the current Adaptive Management Plan if required and submit it to the NWB for approval.*

**Original Agnico Eagle’s Response to Recommendation on July 19, 2023:**

**Responses a, b, and c)**

As mining in this area of the IVR pit is completed, it is more environmentally and economically sound to use this already built and exhausted pit than blasting to build another pit (GSP) in the ground. IVR Pit would be used as a temporary storage for only 5 months under this modification. Utilizing IVR Pit would minimize additional land disturbance for this short period of time. Finally, the approved Adaptive Management Plan V1.5 already includes storing water into a mined out/exhausted pit.

**Further Recommendation Made by Interested Party on July 26, 2023:**

*Page 5 of AEM’s response letter, dated July 19, 2023, AEM stated that using the IVR pit for groundwater storage is environmentally and economically sound.*

*However, AEM did not provide any supporting analysis and/or data to prove the statement. AEM also stated, “Finally, the approved Adaptive Management Plan V1.5 already includes storing water into a mined out/exhausted pit.”*

*CIRNAC’s interpretation of the Adaptive Management Plan V1.5 indicates that the use of the IVR Pit to store groundwater is ONLY allowed under level 3 scenarios (i.e., high-risk situations and once all three GSP are full) and with proper assessment.*

*Therefore, CIRNAC is of the opinion that AEM did not adequately address the comments and stands by its initial recommendations.*

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**Agnico Eagle's Response to Recommendation from July 26, 2023:**

In the July 19, 2023 response package, Agnico Eagle stated in response to CIRNAC-R-02 the rationale for why utilizing IVR Pit was environmentally equal to or better than constructing two new GSPs. In addition, the potential environmental interactions and impacts were outlined. Additional context to support this view is provided.

- A GSP is an excavated and constructed pond; a GSP is essentially a smaller version of a mining pit. Mining is completed in the east lobe of IVR Pit and thus it is available for use as a water management pond.
  - As per the ICRP (Agnico Eagle 2020): Once mining is completed the intent would be to pump the groundwater from the GSPs to the underground workings; for the Modification, this would include pumping water from GSP-1 and IVR Pit to the underground workings.
- Creation of a new GSP, rather than utilization of an exhausted pit, will result in:
  - additional land disturbance (pond and treatment plant for GSP-2), air emissions (heavy equipment, blasting, and dust generation during construction, air emissions during treatment), and waste generation (waste rock to be placed in the WRSF, brine from treatment (for GSP-2), excavation/crushing of NML/NPAG for closure).
- The closure strategy for the GSPs is to backfill with NML/NPAG.
- The environmentally better option is to use IVR Pit (which is available for use) rather than create additional disturbance. The economically better option is to use existing infrastructure, such as an existing pit.
  - Note: at the time of writing Version 1.5 of the Adaptive Management Plan (Agnico Eagle 2021), IVR Pit was currently being mined and not immediately available for water storage; since that time, mining of the east lobe of IVR Pit has been completed and thus this lobe of the pit is available for water storage.
  - The adaptive management levels and management strategies from the Adaptive Management Plan were reviewed and considered:
    - Level 1 management strategy includes completing a review of the site wide water quantity, Level 2 includes evaluate feasibility of using IVR Pit, and Level 3 includes storing water in IVR Pit until the end of operations.
    - The Level 1 and 2 assessments were completed before requesting moving to Level 3 as part of this application.
- Agnico Eagle is being proactive and identifying well in advance the need for additional, but temporary storage of water.
- The IVR Pit is in a region of permafrost and during the operations phase there will be no flux of water between the pit and the receiving environment.
- At closure, the underground mining voids will be flooded with: water from GSP-1, the small additional quantity of water from IVR Pit, surface contact water from the site (includes water from the WRSF, attenuation ponds, and pits), groundwater seepage, and natural runoff (i.e., through

the portal before sealed). The quantity of water pumped to the underground at closure was predicted to be 1,089,720 m<sup>3</sup>, of which 61,920 m<sup>3</sup> would come from IVR Pit (5.7%) and 139,900 m<sup>3</sup> (13%) would come from GSP-1. From the 2018 FEIS, about 25% of the water to flood the underground void would come from the GSPs (148,464 m<sup>3</sup> + 178,081 m<sup>3</sup> out of 1,267,081 m<sup>3</sup>) (Golder 2018a).

- As summarized in the 2018 FEIS (Agnico Eagle 2018; Golder 2018b): Long-term post-closure flows from the pit lakes to the groundwater flow system were predicted to be less than 2 m<sup>3</sup>/day. Groundwater from the Whale Tail mine area was predicted to discharge to Lake DS1; travel time was estimated to be over 1,000 years. Potential changes in groundwater regimes in lakes in local watersheds are expected to be negligible compared to surface water discharge regimes, resulting in negligible effects to water levels and water quality.
- No change in groundwater fluxes, and thus surface water levels, due to the Whale Tail 2023 Modification activities are expected.
- Water quality predictions were updated for the modification. The updates were based on calibration using monitoring data from 2020 to 2022. In closure and post-closure, water quality in the downstream environment is predicted to be less than the aquatic life guidelines.

Agnico Eagle has provided appropriate assessment and rationale (as outlined above) to implement a Level 3 management strategy from the Adaptive Management Plan (Agnico Eagle 2021).

**References:**

Agnico Eagle 2020. Whale Tail Interim Closure and Reclamation Plan Version 4. Appendix 51 of the Meadowbank Complex 2020 Annual Report.

Agnico Eagle 2021. Adaptive Management Plan V1.5, Whale Tail Pit. July 2021

Golder 2018a. Addendum Mean Annual Water Balance. Appendix 6-O to the Whale Tail Pit – Expansion Project FEIS. December 2018.

Golder 2018b. Addendum Hydrogeological Assessment and Modelling. Appendix 6-B to the Whale Tail Pit – Expansion Project FEIS. December 2018.

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<b>Interested Party:</b>	<b>CIRNAC</b>	<b>Rec No.:</b>	<b>CIRNAC-R-02</b>
<b>Re:</b>	<b>Storing Groundwater in IVR Pit</b>		

**Original Recommendation Made by Interested Party:**

*CIRNAC recommends that AEM:*

- a) Provide evidence that groundwater storage in the IVR Pit is an environmentally equal or better alternative to the currently approved water management strategies.*
- b) Describe the specific circumstances that would trigger the option to store groundwater in the IVR Pit.*
- c) Provide an assessment of potential environmental interactions and impacts associated with storing groundwater in the IVR Pit. At a minimum, interactions and impacts should be assessed quantitatively for high amounts of contaminant in the IVR Pit.*

**Original Agnico Eagle's Response to Recommendation on July 19, 2023:****Response a)**

Agnico Eagle would like to reiterate that storage of excess saline water in IVR Pit is an approved strategy under the Water Management Plan and Adaptive Management Plan V1.5. Please refer to response CIRNAC-01 for additional rationale on why Agnico Eagle is proposing to use this approved management strategy for the Whale Tail Modification.

**Response b)**

Agnico Eagle considers that the management strategies presented in Table 5 of the Adaptive Management Plan V1.5 summarize well the circumstances that would trigger the option to store groundwater in IVR Pit. Groundwater storage in a pit is a common operational practice at Agnico Eagle. For example, at Meliadine Mine, groundwater has been managed (stored and monitored) in Tiriganiaq Pit 02 (TIR02), since 2021.

**Response c)**

The following considerations were made for the Modification:

**Hydrogeology**

Based on the hydrogeological and thermal assessment of the IVR Pit completed in support of the 2018 FEIS, the environmental interactions and impacts associated with storing groundwater in the IVR Pit during operations are negligible. The IVR Pit is in an area of regional permafrost and therefore no flux between the pit and the underground is expected.

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**Water Quantity**

As presented in section 2.2 of the Water Balance and Water Quality Model (Appendix B of the Water Management Plan V11), Agnico Eagle is proposing to store groundwater in the eastern lobe of IVR Pit. The eastern lobe of the IVR has an available storage volume of approximately 1.9 Mm<sup>3</sup>.

**Water Quality**

Agnico Eagle will continue to monitor water at station ST-WT-18 (IVR Pit or IVR Pit Sump) during operations. It is expected that the water quality of this water will be the same or better than groundwater water quality. Furthermore, the groundwater stored in IVR Pit will not be in contact with the receiving environment.

**Further Recommendation Made by Interested Party on July 26, 2023:**

*Page 6 of AEM's response letter, dated July 19, 2023, stated: "Agnico Eagle considers that the management strategies presented in Table 5 of the Adaptive Management Plan V1.5 summarize well the circumstances that would trigger the option to store groundwater in IVR Pit."*

*CIRNAC agrees with this statement and reiterates that Table 5 of the Adaptive Management Plan V1.5 only permits storing water in the IVR pit under level 3 scenarios (i.e., high-risk situations and once all three GSP are full) and with proper assessment.*

*AEM's response does not address how groundwater storage in the IVR Pit is an environmentally equal or better alternative to the currently approved water management strategies. Moreover, it did not address the CIRNAC's concern regarding the high contaminant concentration, such as arsenic in the IVR pit and its possible implication and mitigation.*

*Therefore, CIRNAC is of the opinion that AEM did not adequately address the comments and stands by its initial recommendations.*

**Agnico Eagle's Response to Recommendation from July 26, 2023:**

See response to CIRNAC-R-01 for rationale of why utilizing IVR Pit for temporary storage of groundwater is an environmentally equal or better alternative to constructing another GSP.

Water quality predictions for groundwater stored in GSP-1 (operations phase to July 2025) and IVR Pit (operations phase August to December 2025) were provided (Lorax 2023, Appendices C4 and C8). Maximum concentrations predicted for GSP-1 and IVR Pit are similar for most constituents; maximum concentrations were generally predicted to be higher in GSP-1 (e.g., ammonia, nitrate, and chloride) but some maximum concentrations were predicted to be higher in IVR Pit (e.g., arsenic and phosphorus were predicted to be higher in IVR Pit).

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As noted in response to CIRNAC-R-01, the closure plan always included pumping of groundwater from the GSPs to the underground mine voids in closure. For the Whale Tail 2023 Modification, this would include pumping of water from GSP-1 and IVR Pit to the underground mine void at closure.

The quantity of water from the GSP-1 and IVR Pit to be pumped to the underground mine is small (<20% of underground mine void), and it is less than predicted in the 2018 FEIS. The load of contaminant pumped to the underground void was part of the 2018 FEIS. Long-term post-closure flows from the pit lakes to the groundwater flow system were predicted to be less than 2 m<sup>3</sup>/day (Golder 2018), and potential changes in groundwater regimes in lakes in local watersheds are expected to be negligible compared to surface water discharge regimes, resulting in negligible effects to water levels and water quality (Agnico Eagle 2018).

In summary, there is no implication to the environment from the Whale Tail 2023 Modification.

**References:**

Agnico Eagle 2020. Whale Tail Interim Closure and Reclamation Plan Version 4. Appendix 51 of the Meadowbank Complex 2020 Annual Report.

Golder 2018. Addendum Hydrogeological Assessment and Modelling. Appendix 6-B to the Whale Tail Pit – Expansion Project FEIS. December 2018.

Lorax 2023. Whale Tail Modification: Water Balance and Water Quality Model – Technical Report. Appendix B to the Whale Tail Mine – Water Management Plan, Version 11\_NWB. June 2023.

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<b>Interested Party:</b>	<b>CIRNAC</b>	<b>Rec No.:</b>	<b>CIRNAC-R-03</b>
<b>Re:</b>	<b>Water Management Plan</b>		

**Original Recommendation Made by Interested Party:**

*CIRNAC recommends that AEM update the Water Management Plan V11 to reflect the current Adaptive Management Plan, which indicates that the storage of groundwater in the IVR Pit is an alternative option, only to be considered when level 3 (e.g. high-risk) thresholds are met.*

**Original Agnico Eagle's Response to Recommendation on July 19, 2023:**

Agnico Eagle does not agree that an update the Water Management Plan V11 is required for this application. Agnico Eagle will update the Water Management Plan as part of the next Annual Report to include flexibility in the implementation of already approved management strategies, as described in response CIRNAC-01 of this response package.

**Further Recommendation Made by Interested Party on July 26, 2023:**

*As mentioned above and in the written submission dated July 10, 2023, CIRNAC does not agree with AEM's interpretation that the Adaptive Management Plan V1.5 allows flexibility to use the IVR pit to store groundwater under normal circumstances. As such, CIRNAC does not recommend approving the submitted Water management Plan V11, mentioning groundwater storage in the IVR pit as an approved strategy under normal circumstances.*

*Not updating the submitted water management plan could be interpreted as if the storage of groundwater in the IVR pit has been reviewed and approved. Moreover, in CIRNAC's opinion, an annual report is not an appropriate time to modify any management plan to include strategies such as in-pit storage.*

*Therefore, CIRNAC is of the opinion that AEM did not adequately address the comments and stands by its initial recommendations.*

*CIRNAC understands that the decision on whether to grant AEM's request rests solely with the Nunavut Water Board (NWB).*

**Agnico Eagle's Response to Recommendation from July 26, 2023:**

As part of the application to the NWB, Agnico Eagle included an updated Water Management Plan (Version 11\_NWB, June 2023); updates to the plan to reflect the scope of the Whale Tail 2023 Modification were highlighted in the plan. The plan is supported by the updated water balance and water quality model that reflects storage of water in IVR Pit, considers environmental linkages to hydrogeology, water quantity, and water quality (noted in the July 19 response to CIRNAC-R-02 and emphasized in response to CIRNAC-R-01 above), and considers environmental and economic reasons (as noted in the above response



to CIRNAC-R-01) to utilize an exhausted pit for temporary groundwater storage. Finally, the rationale for implementing adaptive management Level 3 management strategies before adaptive management Level 2 thresholds are reached is provided in the above response to CIRNAC-R-01.

These documents have gone through a review where additional details to address concerns have been provided. Agnico Eagle has addressed the comments and provided further details to confirm that the activities of the 2023 Modification will not change the results from the 2018 FEIS.

As noted in the initial application, Agnico Eagle forecasts the need to utilize IVR Pit for groundwater storage starting in approximately August 2025. As such, Agnico Eagle will update the Water Management Plan through the regular Annual Reporting cycle to reflect the option to utilize IVR Pit for temporary groundwater storage.