AGNICO EAGLE

# 2AM-MEL1631 Water Licence Amendment

*Additional Information Technical Comment Responses*

Submitted to:

**Nunavut Water Board**

Submitted by:

**Agnico Eagle Mines Limited – Meliadine Division**

March 8, 2021

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# CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA (CIRNAC)

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| **Interested Party:** | **CIRNAC** | **Rec No.:** | **CIRNAC-WL-TC-1** |
| **Re:** | **Additional Information Provided** | | |

**Recommendation Made by Interested Party:**
*Pursuant to its mandated responsibilities under the Nunavut Waters and Nunavut Surface Rights Tribunal Act and the Department of Indian Affairs and Northern Development Act, Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) reviewed the documents provided by Agnico Eagle and would like to provide the following response to the Nunavut Water Board:*

*1. For item #8 on the Commitments List, CIRNAC will update its security estimate based on the additional information provided in the Interim Closure and Reclamation Plan by Agnico Eagle and work with the Kivalliq Inuit Association and Agnico Eagle to reach an agreement.*

*2. For items #13 and #14 on the Commitment List, CIRNAC is satisfied with the additional information provided by Agnico Eagle.*

**Agnico Eagle's Response to Recommendation:**
Agnico Eagle acknowledges the information provided addresses CIRNAC's needs.

# ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

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| **Interested Party:** | **ECCC** | **Rec No.:** | **ECCC-WL-TC-1** |
| **Re:** | **Additional Information Provided** | | |

**Recommendation Made by Interested Party:**
*ECCC does not have any comments to add on the additional information provided by AEM as per the Commitments List for the Meliadine Project, 2AM-MEL1631.*

**Agnico Eagle's Response to Recommendation:**
Agnico Eagle acknowledges the information provided addresses ECCC's needs.

# KIVALLIQ INUIT ASSOCIATION (KIVIA)

# INTRODUCTION TO COMMENT FROM THE KIVALLIQ INUIT ASSOCIATION

As a general comment, Agnico Eagle has noticed that there may be some confusion as to the interaction between the Water Licence Amendment process and the ongoing Nunavut Impact Review Board (NIRB) reconsideration of the waterline proposal. As discussed and agreed at the Water Licence Amendment technical meetings, the waterline is not a facility that triggers the need for a water licence and so it is not part of the Water Licence Amendment process, nor will there be need for an amendment to the Water Licence to add the waterline should it be approved by NIRB. This approach is consistent with the current licensing approach to the management of saline water at Meliadine Mine – trucking and discharge of saline water is not part of the water licence though it is part of the overall mine as permitted by the Project Certificate.

As a related issue, there are certain Adaptive Management Plan (AMP) revisions that are being considered as part of the NIRB reconsideration process that relate to the waterline. Again, these AMP revisions should not be brought into the water licencing process but would be finalized as amendments to the AMP should the waterline be approved by an amended Project Certificate in future.

| Interested Party: | KivIA | Rec No.: | KIA-WL-New-TC-1 |
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| Re: | Use of the Waterline to discharge saline wastewater should be prioritized over discharge into Meliadine Lake, in accordance with a revised Adaptive Management Plan | | |

**Recommendation Made by Interested Party:**
*KIA submits that the Board should include conditions within the Licence requiring Agnico Eagle to prioritize discharge of saline water effluent into Melvin Bay through the Waterline (if it is approved following the NIRB process), rather than discharging it directly into Meliadine Lake.*

*By addressing the Waterline and the Adaptive Management Plan (AMP) in the Licence, the NWB would be making enforceable an effluent allocation strategy that minimizes project interactions with the freshwater environment.*

*The Waterline is currently under review by the Nunavut Impact Review Board (NIRB) as a "significant modification" to the Meliadine Project, and will be the subject of a public hearing to be scheduled. The Waterline is projected to have a minimum capacity of 6 000 $m^3$ of water per day, and a maximum capacity of 20 000 m3 of water per day in the open water season. The minimum capacity exceeds the predicted unmitigated saline water output of the Project.*

*AEM has submitted to NIRB and the Board an Adaptive Management Plan for Water Management (AMP) which sets out a process for allocating saline wastewater discharge between the Waterline and Meliadine Lake. The AMP is described in further detail below, along with KIA's proposed modifications.*

***Recommendation:***
*Amend the Draft Amended Licence to:*

- *include the AMP in the list of Plans at Part B(13);*
- *add "Waterline" in the Schedule A definitions;*
- *refine the definition of "Adaptive Management" to include Waterline priority allocation;*
- *Include a condition at Part E(2) of the Draft Amended Licence requiring Agnico Eagle to prioritize discharge of saline water through the Waterline rather than directly into Melvin Bay; and*
- *add to the requirements for the Annual Report referred to in Schedule B requirements for AEM to summarize how the AMP has been implemented to prevent discharges to Meliadine Lake. Specific discussions should be provided for the three periods defined in the AMP: pre-freshet, open-water, and pre-freeze.*

**Agnico Eagle's Response to Recommendation:**
Agnico Eagle does not agree that the commitments made in the NIRB process relating to the waterline should be made an enforceable condition of the Water Licence for all of the following reasons.

As acknowledged by KivIA in its recommendation and described in the preamble to this response, the waterline proposal is currently undergoing consideration by NIRB and the NIRB process is not yet

complete. As the waterline is infrastructure to support discharge to the marine environment, the waterline is not a facility that requires inclusion in the Water Licence. This is similar to the current situation – as an example, the discharge infrastructure at Itivia Harbour is not included in the Water Licence. This topic was discussed at the Technical Meeting and it was agreed that the waterline should not be included in the Water Licence Amendment.

With respect to the reference to the Adaptive Management Plan (AMP), again this is an issue that is being considered as part of the ongoing NIRB reconsideration. It is anticipated that the AMP will be included as an appendix to the Water Management Plan. It will not be a stand-alone plan and therefore the current reference to the Water Management Plan only in the Water Licence is appropriate. Should an amended Project Certificate approving the waterline be issued by NIRB, the AMP will be updated as appropriate to reflect the commitments made in the NIRB process relating to the waterline, including utilizing the waterline infrastructure to minimize discharges to Meliadine Lake. However again for emphasis, the waterline commitment should not be brought into the Water Licence as an enforceable condition.

With respect to the comments regarding the Annual Report, Agnico Eagle will include an annual summary which describes how discharges to Meliadine Lake are minimized on an annual basis, with specific regard to the following periods as described in the AMP: pre-freshet, open water, and pre-freeze.

| Interested Party: | KivIA | Rec No.: | KIA-WL-New-TC-2 |
|---|---|---|---|
| Re: | The amended water license should continue to require AEM to notify the Board of any changes in operating plans or conditions | | |

**Recommendation Made by Interested Party:**
*KIA does not agree with Agnico Eagle's proposed revision to change the requirement for Agnico Eagle to notify the Board of any changes in operating plans or conditions to a requirement that they notify the Board of any changes in Project Phases associated with this Project. AEM's proposed revision changes the meaning of the section, and would only require AEM to advise the Board when it is moving to the next phase – an entirely different concept than operating plans.*

***Recommendation:***
*Maintain the original language of Part B(9).*

**Agnico Eagle's Response to Recommendation:**
Agnico Eagle's suggestion is to align the Water Licence with standard wording included in the Whale Tail Water Licence 2AM-WTP1830, as well as the Meadowbank Water Licence 2AM-MEA1530, which states at B(9): "The Licensee shall notify the Board of any changes in Project phases associated with this Project at least sixty (60) days prior to any such change." It is a standard term in Agnico Eagle's Kivalliq mine production water licenses and Agnico Eagle desires consistency across the water licenses issued for its mines where possible.

Agnico Eagle remains of the view that our proposed wording provides better clarity than the current wording in the Water Licence. The topic of changes to plans is already well covered by Part B, sections 10 to 15 of the Water Licence.

> ***Part B (9) original wording:*** The Licensee shall notify the Board of any changes in operating plans or conditions associated with this Project at least thirty (30) days prior to any such change.
>
> ***Part B (9) Agnico Eagle proposed changes:*** The Licensee shall notify the Board of any changes ~~operating plans or conditions~~ in Project phases associated with this Project at least thirty (30) days prior to any such change.

| Interested Party: | KivIA | Rec No.: | KIA-WL-New-TC-3 |
|---|---|---|---|
| Re: | **Agnico Eagle should not be permitted to circumvent Board approval and public participation through their proposed "deemed approval" mechanism for updating Plans.** | | |

**Recommendation Made by Interested Party:**
*KIA does not agree with Agnico Eagle's proposed amendment entitling them to "deemed approval" of any Plan submission that the Board does not respond to within 45 days.*

*Plans form a part of the Water Licence (Water Licence, Part B(14)). At the Board's discretion, a "significant" change to a Plan may be considered an "Amendment" to the Water Licence itself (Water Licence, Part B(12)), requiring the Board's approval. Alternatively, a change to a Plan that introduces a new physical work may be a "Modification" to the Water Licence instead of an "Amendment". A "Modification" requires 60 days prior notice to the Board (Water Licence, Part B(1)).*

*AEM's proposed addition of a "deemed approval" mechanism to the lease not only improperly restricts the Board's authority, but also limits, if not eliminates, public participation and consultation with KIA on important changes to the Water License and its Plans. The proposed 45 days is also an unjustified reduction to the 60-day notice period for a proposed Modification.*

***Recommendation:***
*Remove Agnico Eagle's amendments to Part B(10) from the Draft Amended Licence.*

**Agnico Eagle's Response to Recommendation:**
Clear direction on timelines for Nunavut Water Board processes and decision making on plan amendments is essential for Project planning and operations. As an example of the issue this comment is trying to address management plan amendments submitted with the annual report in March may be subject to multiple rounds of comments with little certainty as to when Board approval may be granted. Setting a timeline and a process would enhance predictability for all participants, including KivIA who could plan in advance to allocate resources to participate as they deem appropriate.

Agnico Eagle revises its suggestion and asks the Board to consider a process whereby a plan amendment could be "deemed approved" following a 60-day period. In suggesting this approach, Agnico Eagle would anticipate that during the 60-day period the Board would circulate the draft plan for public and Intervenor comment (including comments by the KivIA).

| Interested Party: | KivIA | Rec No.: | KIA-WL-New-TC-4 |
|---|---|---|---|
| Re: | Agnico Eagle should not be entitled to "at any time" submit to the Board a request for change in the amount of security | | |

**Recommendation Made by Interested Party:**
*KIA does not agree with Agnico Eagle's proposed amendment allowing Agnico Eagle to, "at any time submit an application to the Board for a change to the amount of security." This has the potential to impose additional unnecessary review burden on KIA and the Board.*

*KIA acknowledges that allowing Agnico Eagle to update their security on a regular basis reflects and encourages progressive reclamation. A more reasonable timeline would be to allow Agnico Eagle to submit applications to the Board for a change to the amount of security once annually, in conjunction with its Annual Report submitted to the Board.*

***Recommendation:***
*Amend Agnico Eagle's added provision at Draft Amended Licence, Part C(9) to remove the words "at any time" and replace them with "once annually at the same time as filing its Annual Report".*

**Agnico Eagle's Response to Recommendation:**
Again, Agnico Eagle's suggestion adding the wording at Part C(9) to the Water Licence is entirely consistent with the Whale Tail Water Licence 2AM-WTP1830 wording, which states, "In addition to the process for amending security under Part C, Item 8, the Licensee may, at any time submit an application to the Board for a change to the amount of security outlined in Part C, Item 1. The submission will include supporting evidence to justify the amendment. The Licensee's request to amend security will be processed by the Board as an amendment to the terms and conditions of the Licence." Similar wording is included in Part C, Item 9 of the Meadowbank Water Licence 2AM-MEA1530. It is a standard term in Agnico Eagle's Kivalliq mine production water licenses and Agnico Eagle desires consistency across the water licenses issued for its mines where possible.

Agnico Eagle requires flexibility to ensure that the reclamation security aligns with the reclamation liability on site at any given time, including in relation to amendments or modifications that may be proposed over the course of the year as well as progressive reclamation completed.

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| **Interested Party:** | **KivIA** | **Rec No.:** | **KIA-WL-New-TC-5** |
| **Re:** | **Agnico Eagle should not be allowed to escape their obligation to proactively minimize surface drainage impacts.** | | |

**Recommendation Made by Interested Party:**
*In their Draft Amended Licence, Agnico Eagle has proposed removing their obligation to "conduct all activities in a manner so as to minimize impacts on Surface Drainage" leaving in only their obligation to "undertake any corrective action required."*

*KIA submits that Agnico Eagle must be required to minimize impacts on Surface Drainage and take immediate corrective measures.*

***Recommendation:***
*Maintain the standard language: "The Licensee shall conduct all activities in a manner so as to minimize impacts on Surface Drainage and immediately undertake any corrective measures required in the event of any impacts on Surface Drainage."*

**Agnico Eagle's Response to Recommendation:**
As context, Agnico Eagle has suggested the current Water Licence language be replaced with the following: "The Licensee shall undertake appropriate corrective measures to mitigate impacts on surface drainage resulting from the Licensee's Operations."

Agnico Eagle has suggested the change for clarity and for consistency with other licenses.

- Meadowbank Water Licence 2AM-MEA1530 includes the following clause: "The Licensee shall undertake appropriate corrective measures to mitigate impacts on surface drainage resulting from the Licensee's operations."
- Whale Tail Water Licence 2AM-WTP1830 also includes the following clause: "The Licensee shall undertake appropriate corrective measures to mitigate impacts on surface drainage resulting from the Licensee's Operations."
- Doris North Water Licence 2AM-DOH1335 also includes the following clause: "The Licensee shall undertake appropriate corrective measures to mitigate impacts on surface drainage resulting from the Licensee's operations."

Based on the above, Agnico Eagle is not in any way trying to "escape obligations" as suggested by KivIA. Agnico Eagle is trying to be consistent with our other licenses.

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| **Interested Party:** | **KivIA** | **Rec No.:** | **KIA-WL-New-TC-6** |
| **Re:** | **Agnico Eagle's water use for dust suppression should not be exempt from the Water Licence** | | |

**Recommendation Made by Interested Party:**
*KIA disagrees with Agnico Eagle's proposed removal of the requirement that waters used for dust suppression should be exempt from the maximum allocation of water under the Water Licence.*

*Granting Agnico Eagle the freedom to use water without limitation would undermine the central purpose of the Water Licence to regulate "water use and deposit of waste."*

***Recommendation:***
*Re-insert the final sentence of Part E(3), deleted by Agnico Eagle.*

**Agnico Eagle's Response to Recommendation:**
Agnico Eagle refers KivIA to Table 2-1 from the Application document that was submitted in August 2020 (Agnico Eagle 2020) where the breakdown of the proposed 741,706 cubic meters per year during Operations of the Project are provided. A copy of the Table 2-1 is presented below.

Agnico Eagle would like to clarify that waters used for dust suppression, as mentioned above, is included in the 741,706 cubic meters and no exemption is requested to the Nunavut Water Board. Moreover, in the 2014 FEIS, the total freshwater needs for the Project was assessed at 2,168,100 $m^3$/year (Agnico Eagle 2014, Volume 2, Table 2-27). Based on this, the additional freshwater volume requested as part of this application only represents 34% of the total volume assessed in the 2014 FEIS.

Agnico Eagle will add this table to the Water Licence Amendment under Part E(3).

**Table 2-1: Consumptive Flows**

| Item | Flow Rate | m³ per year |
|---|---|---|
| Camp Use | 200 L/Day/Person<br>People = **680** ea LOM | 50,000 |
| Truck Shop – Wash Bay Consumptions (New 2020 and Dyno) | 1.1 cubic m³/d | 9,636 |
| Paste Plant Usage | 0.144 m³ per tonne of paste<br>2000 TPD | 105,120 |
| Mill Fresh Water use | 6000 TPD @ 0.194 m³ per tonne | 424,860 |
| Drilling Water, per pit | Per Drill per day = 2 m³ | 1,460 |
| Dust Control | Use ponded water on surface, but if Fresh Water<br>106 days * 45% of no overcast = 53 days at 120,000 gal = 6.3 M gallons | 24,168 |
| Emulsion Plant | 7M TPY pits at 0.35 kg of emulsion/tonne using 0.17<br>6.4M Kg from UG at 0.17 | 420<br>1,100 |
| Underground consumptive flows Wash Bay | 180 m³/month | 2,200 |
| | **Contingency (20%)** | 123,618 |
| | **Total** | **741,706** |

**Reference:**

Agnico Eagle. 2014. Final Environmental Impact Statement (FEIS) - Meliadine Gold Project, Nunavut Volume 2, Table 2-27. from: ftp://ftp.nirb.ca/02-REVIEWS/ACTIVE%20REVIEWS/11MN034-Agnico Eagle%20MELIADINE/2-REVIEW/09-FINAL%20EIS/

Agnico Eagle. 2020, Meliadine Type A Water Licence Amendment Application – Main Application Document. August 2020.

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| **Interested Party:** | **KivIA** | **Rec No.:** | **KIA-WL-New-TC-7** |
| **Re:** | **Clarification of Tiriganiaq-2 Saline Groundwater Management** | | |

**Recommendation Made by Interested Party:**
*AEM has included the following text to define the normal condition level within the AMP: "Saline water capacity at site is less than 70% (open-water), 0% pre-freeze up, and <15% pre-freshet." AEM references the Groundwater Management Plan to define the thresholds used to evaluate the available saline water storage capacity. However, it is unclear whether the Tiriganiaq-2 open pit is considered in the defined saline water storage capacity.*

*This consideration is of particular importance as Tiriganiaq-2 will be used to store saline groundwater starting in June or July 2021 and has sufficient capacity to store the predicted saline groundwater inflows over much of the project life. If the pit is not included in the evaluation of normal available groundwater storage capacity, KIA is concerned the volume of saline water volume stored on site may be considered outside normal operating conditions for at least the first year the waterline is operational given excess saline groundwater will be within the pit from previous years. If Tiriganiaq-2 is included in the storage, the volume of saline groundwater stored on site may be considered above the "at risk" management threshold during both freshet and prior to freeze up for at least the first year the waterline is operational.*

***Recommendation:***
*AEM should clarify how excess saline groundwater stored in Tiriganiaq-2 will be handled under the AMP until the waterlines are available and Tiriganiaq-2 is dewatered.*

**Agnico Eagle's Response to Recommendation:**
Until the waterline becomes available, saline water will be stored in SP1, SP4, and Tiriganiaq-2. Saline water will be discharged to sea using the 2021 approved trucking and discharge method.

Information on the saline storage capacity available at site has been provided in Appendix H of the Saline Disposal Proposal in August 2020 (Agnico Eagle 2020), in response to KivIA-WL-IR-9 in Technical Comment Response Package (November 13, 2020), and in the most recent Groundwater Management Plan on January 29, 2021 (Agnico Eagle 2021b).

Agnico Eagle confirms that saline water storage includes SP1, SP4, and Tiriganiaq-2. See Table 2 from the Groundwater Management Plan (Agnico Eagle 2021b) (copied below).

**Table 2 Saline Pond Storage Capacity at the Mine**

| Surface Pond | Capacity ($m^3$) | Occupied storage capacity as of January 1st 2021 ($m^3$) |
|---|---|---|
| Saline Pond 1 | 32,686[a] | 27,200 |
| Saline Pond 3 | 7,895[a] | Emptied for winter |
| Saline Pond 4[c] | 272,122[a] | 204,900 |
| Tiriganiaq Pit 2[d] | 1,563,000[c] | 0 |

Notes:

a. As-built storage capacities
b. To be added to storage when required, based on timing of SP1 and SP4 reaching capacity.
c. Will become contingency storage when Tiriganiaq Pit 2 is made available for saline water storage
d. Forecasted storage capacity in bedrock assuming mining is stopped June 1st 2021.

An Adaptive Management Plan (AMP) related to water management at Meliadine Mine was developed and submitted to the Nunavut Impact Review Board (NIRB) registry on February 5, 2021 (Agnico Eagle 2021a). The AMP was submitted as part of the Saline Effluent Disposal to the Marine Environment Proposal (August 2020; Agnico Eagle 2020) that is currently in front of the NIRB. The NWB was copied, for information purposes, on the submission of the AMP to the NIRB. The AMP includes a framework to guide management decisions regarding discharge through the waterline. The AMP will be effective if the Waterline is approved.

As stated in the August 2020 application to the NIRB (Agnico Eagle 2020), the purpose of the proposed Waterline project is to change the conveyance of treated groundwater from trucks to waterlines and to increase the discharge rate as a means to manage the saline inventory at site. Discharge of saline water through the waterline is the priority.

The AMP includes guiding principles with the first principle as: “Water discharges to Meliadine Lake will be **minimized**”. Agnico Eagle has committed to minimizing discharges to Meliadine Lake but not to stop discharge to Meliadine Lake. However, the opportunity to minimize discharge to Meliadine Lake can occur if the waterline is operational and conditions at the site are within the Normal Operating Conditions as defined in the AMP (Agnico Eagle 2021a).

As provided in response to KIA-WL-IR-9 in Technical Comment Response Package (November 13, 2020), Agnico Eagle completed a sensitivity analyses for storage and management of saline groundwater prior to the waterline being permitted and operational. As was presented, the data indicates that Agnico Eagle will have the capacity to store the saline groundwater until the waterline is approved. The summary table of the sensitivity analysis (i.e., lower bound to upper bound storage requirements) was initially presented in response to KIA-WL-IR-9; the table from that response (Table KIA-WL-9-1) is copied below. As noted in the footnotes to the table, the requirements presented assume the proposed waterline begins July 1, 2023.

**Table KIA-WL-9-1. Projected saline storage requirements vs. available storage through time**

| Year | Lower-bound Base Case Saline Storage Requirement[1] (m³) | Upper-Bound Saline Storage Requirement[2] (m³) | Saline Pond / Open Pit Storage Capacity (m³) | | | |
|---|---|---|---|---|---|---|
| | | | SP1 | SP4[3,4] | Tiri2 | Total[5] |
| 2021 | 355,026 | 494,769 | 32,000 | *272,122* | 1,152,852 | 1,184,852 |
| 2022 | 490,044 | 792,423 | 32,000 | *272,122* | 1,152,852 | 1,184,852 |
| 2023 | 589,676 | 975,080 | 32,000 | *272,122* | 1,152,852 | 1,184,852 |
| 2024 | 287,033 | 836,437 | 32,000 | *272,122* | 1,152,852 | 1,184,852 |
| 2025 | 148,590 | 673,616 | 32,000 | | 1,152,852 | 1,184,852 |
| 2026 | 154,590 | 535,794 | 32,000 | | 1,152,852 | 1,184,852 |
| 2027 | 145,590 | 392,793 | 32,000 | | 1,152,852 | 1,184,852 |

Notes:

1. Saline water storage requirement for given year applying Base Case predictive groundwater inflow model
2. Saline water storage requirement for given year applying 3x k-value bulk bedrock sensitivity analysis predictive groundwater inflow model
3. The capacity of SP4 has been updated based on the as-built capacity (previous design value presented in the 2020 Water Management Plan was 233,133 m³)
4. *Italicized, gray* values are contingency storage only
5. Excludes contingency storage
6. Storage requirements assume discharge through the proposed waterline begins July 1st 2023

The total available storage volume for saline water is 1,184,852 $m^3$. The purpose of the waterline is to provide a mechanism to effectively reduce and remove saline water currently stored at site and additional saline water projected to be encountered during continued mining operations. It will take more than one year of waterline operation to reduce the stored saline water to meet Normal Operating Conditions.

**References:**

Agnico Eagle (Agnico Eagle Mines Limited). 2021a. Adaptive Management Plan for Water Management, Meliadine Gold Mine. V1. Submitted to the Nunavut Impact Review Board. February 2021.

Agnico Eagle. 2021b. Groundwater Management Plan, Meliadine Gold Mine. V6. Submitted to the Nunavut Water Board. January 2021.

Agnico Eagle. 2020. Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. Meliadine Gold Mine – Final Environmental Impact Statement Addendum. August 2020.

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| **Interested Party:** | **KivIA** | **Rec No.:** | **KIA-WL-New-TC-8** |
| **Re:** | **Saline Groundwater Storage Thresholds.** | | |

**Recommendation Made by Interested Party:**
*AEM has included the following text in the definition of normal conditions: "Saline water capacity at site is less than 70% (open-water), 0% pre-freeze up, and <15% pre-freshet." The criteria used to define "pre-freeze up" is more stringent than criteria used for other volumetric evaluations under the AMP. The full criteria used to evaluate available saline groundwater storage capacity on site is as follows:*

| Category | Condition (Adaptive Management Level) | Normal | Caution | At Risk |
|---|---|---|---|---|
| | Description | | | |
| 1. Saline Water | Saline Pond Occupied Capacity open-water | <70% | >70% | >80% |
| | Saline Pond Occupied Capacity pre-freeze | 0% | +5% | +10% |
| | Saline Pond Occupied Capacity pre-freshet | <15% | +15% (from Normal) | +20% (from Normal) |

*We reference for comparison the criteria used to evaluate normal conditions for surface contact water storage capacity: "Surface contact water capacity at site is less than 81% (open-water), less than 14% pre-freeze up, and less than 22% pre-freshet". Surface contact water storage capacity evaluations are afforded ranges of volumes. While we understand dewatering the saline water storage ponds is desirable, complete dewatering to 0% storage capacity may introduce additional total suspended solids into discharges that exceed Metal and Diamond Mine Effluent Regulations (MDMER) discharge criteria and may not be necessary from an engineering perspective.*

***Recommendation:***
*AEM should provide additional flexibility surrounding the evaluation saline groundwater storage thresholds. For example, normal conditions pre-freeze up could be defined as <5%, caution could be defined as ≥5%, and at risk could be defined as ≥10%.*

**Agnico Eagle's Response to Recommendation:**
Any water discharged to the environment, regardless of meeting or not meeting storage capacity thresholds, will first need to comply with the regulations such as the MDMER.

The Adaptive Management Plan (AMP) (submitted February 5, 2021; Agnico Eagle 2021a) identified pre-freeze operating conditions (Normal, Caution, and At Risk) for saline water storage which were considered achievable, and which align with the Groundwater Management Plan approach for short-term (e.g., storing water in an underground stope), medium-term (e.g., discharge to sea by trucking), and long-term management strategies (i.e., discharge to sea by a waterline) (submitted January 29, 2021; Agnico Eagle 2021b).

As noted in the Groundwater Management Plan, during the application of the short-term and medium-term strategies, saline water requiring storage is expected to increase year-over-year. It is with the long-term strategy where the inventories that accumulate over the winter can be effectively removed from the system.

Storing water on site is not considered normal conditions; under normal conditions, the annual accumulated water is effectively managed, treated, and discharged. The recommendation by the KivIA to adjust the pre-freeze thresholds for saline storage is reasonable and are accepted. The pre-freeze thresholds for saline water storage will be revised in the next iteration of the AMP to <5%, caution could be defined as ≥5%, and at risk could be defined as ≥10%. However, this will be updated through the NIRB process with the AMP.

**References:**

Agnico Eagle (Agnico Eagle Mines Limited). 2021a. Adaptive Management Plan for Water Management, Meliadine Gold Mine. V1. Submitted to the Nunavut Impact Review Board. February 2021.

Agnico Eagle. 2021b. Groundwater Management Plan, Meliadine Gold Mine. V6. Submitted to the Nunavut Water Board. January 2021.

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|---|---|---|---|
| **Interested Party:** | **KivIA** | **Rec No.:** | **KIA-WL-New-TC-9** |
| **Re:** | **Freshet Management.** | | |

**Recommendation Made by Interested Party:**
*AEM notes under the normal adaptive management level, they will "Maintain saline and contact water discharge through waterline as required, unless waterline is not available." At the caution adaptive management level, AEM specifies the following response option: "If outside normal waterline operational window, evaluate starting discharge of water to Melvin Bay earlier and below the ice." KIA wishes to highlight that while discharges to both Meliadine Lake and Melvin Bay are planned during the freshwater and marine ice-free seasons respectively, these discharge windows do not align with the discharge needs pertaining to CP1 required to both avoid compromising the CP1 dike as well as discharging to Meliadine Lake. Discharges from CP1 will be necessary prior to the open water season in the marine environment.*

***Recommendation:***
*KIA requests AEM clarify how surface contact water will be managed during freshet to avoid discharges to Meliadine Lake. We specifically recommend AEM link annual operation of the waterlines to the discharge requirements of CP1 in the AMP regardless of whether the ice has melted on Melvin Bay at freshet. AEM should plan to commence discharges from CP1 to Melvin Bay prior to the marine open water season to ensure discharges to Meliadine Lake are avoided.*

**Agnico Eagle's Response to Recommendation:**
Until the Waterline is approved, discharge to Meliadine Lake will continue. Once the Waterline is approved, discharge to Meliadine Lake will be minimized.

Discharge to Melvin Bay prior to open discharge season could be problematic to the integrity of the Waterline. As defined in the Adaptive Management Plan (AMP), the regular operational window for the waterline is when temperatures are consistently above sub-zero (approximately from late June to mid-October). Discharge through the waterline is not possible during consistent sub-zero temperatures because the waterlines will not be heat traced and any water captured in the line during sub-zero temperatures would freeze and compromise the line. Moreover, it is planned at the start of every discharge season to pneumatically test the lines under low pressures to detect any potential leaks and to ensure the integrity of the waterline prior to the discharge of saline water which was a commitment from a request from Rankin HTO. This operation would be significantly hampered by the presence of snow cover that prevails adjacent to the All Weather Access Road till early June of every year.

In the AMP, surface contact water management during freshet is also discussed with management activities outlined in Table 2 (Agnico Eagle 2021a). For example, if the occupied capacity of surface contact water storage is outside of Normal, an evaluation to initiate water discharge to Melvin Bay (earlier and below the ice) will be completed.

While discharges to Meliadine Lake can be minimized through the use of the waterline, it is important to note that all discharges to date, and discharges in the future, will continue to be protective of the environment, and specifically to maintain the health of Meliadine Lake. The need for discharges to Meliadine Lake from the Meliadine Mine has always been a key component of the Project design. Agnico Eagle designed the Project and all applications in a manner that is respectful of the traditional knowledge and Inuit Qaujimajatuqangit (IQ). Through IQ we learned that Meliadine Lake as an important lake for fishing and for drinking water for Rankinmiut. Due to the importance of this lake, a comprehensive Aquatic Effects Monitoring Program (AEMP; Golder 2016) was developed to monitor the potential effects to water quality and aquatic biota (i.e., fish) in Meliadine Lake. The AEMP also includes a framework for responding to water quality and aquatic health in Meliadine Lake that changes relative to guidelines.

The AEMP is conducted annually. The most recent results confirm that since development of the mine, concentrations of water quality parameters in Meliadine Lake remain well below levels that raise concern for human health or wildlife health. In addition, the aquatic food web in Meliadine Lake, from phytoplankton to benthic invertebrates to fish, appears healthy, diverse, and functionally stable. Based on the available monitoring data, mine operations and water discharge to Meliadine Lake are not impacting the ecological function of the lake.

Agnico Eagle is confident that through the ongoing AEMP monitoring and annual evaluation of those data through a response framework, we can continue to ensure the discharge is protective of the aquatic environment.

**References:**

Agnico Eagle. 2021a. Adaptive Management Plan for Water Management, Meliadine Gold Mine. V1. Submitted to the Nunavut Impact Review Board. February 2021.

Agnico Eagle. 2021b. Groundwater Management Plan, Meliadine Gold Mine. V6. Submitted to the Nunavut Water Board. January 2021.

Agnico Eagle. 2020. Water Management Plan, Meliadine Gold Mine. V10. Appendix C of the Water Licence Amendment Application. Submitted to the Nunavut Water Board. August 2020.

Golder (Golder Associates Ltd.). 2016. Aquatic Effects Monitoring Program (AEMP) Design Plan. Doc 485-1405283 Ver. 1. Submitted to Agnico Eagle Mines Limited. June 2016.

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| **Interested Party:** | **KivIA** | **Rec No.:** | **KIA-WL-New-TC-10** |
| **Re:** | **Limits on Freshwater Discharge to Melvin Bay** | | |

**Recommendation Made by Interested Party:**
*AEM has specifies that "The lower bound of surface contact water that can be diverted away from discharge to Meliadine Lake and towards Melvin Bay will be based on the annually updated water balance and water management plans. The lower bound limit is defined as: One waterline is operational for a total daily discharge up to 12,000 m3/day total, and up to 50% of that water comprised of surface contact water for a daily total of 6,000 m3/day of surface contact water."*

*It is unclear why the lower bound scenario limits the volume of surface contact water that may be discharged to the marine environment to 50%. Limiting surface contact water to 50% flow in the waterlines increases the likelihood that discharges to Meliadine Lake will occur given there is relatively more surface contact water that will require management and discharge as compared with saline water in even a normal year as per the water balance. KIA highlights that AEM will have ample saline water storage capacity using Tiriganiaq-2 starting in June/July 2021 providing significant operational flexibility.*

***Recommendation:***
*KIA requests that AEM prioritize the discharge of surface contact water to Melvin Bay even under the lower bound scenario when only "one waterline is operational" given the saline groundwater storage capacity provided through Tiriganiaq-2 allows for significant operational flexibility in the management of site water. This prioritization of surface contact water discharges to Melvin Bay may become particularly necessary during freshet to avoid discharges to Meliadine Lake.*

**Agnico Eagle's Response to Recommendation:**
As stated in the Saline Effluent Disposal to the Marine Environment Proposal currently in front of the NIRB (Agnico Eagle 2020), the purpose of the proposed Waterline is to change the conveyance of treated groundwater from trucks to waterlines and to increase the discharge rate to manage the saline inventory at site. The priority of the Waterline is to manage saline water reporting to Underground Mine; however, when there is capacity available in the waterline, it will also be used to minimize surface contact water discharge to Meliadine Lake. Diversion of surface contact water (in addition to saline groundwater) through the waterline to the marine environment is contingent upon approval of the Waterline by NIRB and completion of construction.

Agnico Eagle has worked with the Kivalliq Inuit Association (KivIA), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), and Environment and Climate Change Canada (ECCC) to develop an Adaptive Management Plan (AMP; Agnico Eagle 2021) that includes a decision tree outlining a process to determine when surface contact water would be discharged to Meliadine Lake and under what conditions surface contact water would be diverted to the Waterline (once approved) for discharge to Melvin Bay. It is through this process that discharge to Meliadine Lake can be minimized.

The KivIA have stated that there will be "ample saline storage capacity using Tiriganiaq-2 starting in 2021". Storage of additional surface water on-site generates a risk for the operation such as:

- Permafrost degradation, and incremental inflows to the underground development; and,
- Storage of water required higher discharge rate and future availabilities of the dewatering system which create risk for the overall site water management.

For all those reasons, Agnico Eagle also considers that reducing water storage on site and developing robust and effective dewatering system (such as the Waterline) is a sustainable plan to address uncertainties related to water management. Further, the Meliadine Mine is currently permitted to discharge treated surface contact water to Meliadine Lake. Discharges to Meliadine Lake have been and will continue to be protective of the environment, and specifically to maintain the health of Meliadine Lake.

Agnico Eagle understands the importance of Meliadine Lake for Rankinmiut. To monitor, respond to changes, and ultimately to protect Meliadine Lake, Agnico Eagle developed an Aquatic Effects Monitoring Program (AEMP; Golder 2016) that incorporated traditional knowledge, is conducted annually, and is sufficiently comprehensive to monitor and track for changes in water quality and aquatic biota. The framework of the AEMP was developed through a workshop with CIRNAC, KHTO, and ECCC in January 2015 (KIA were not able to attend the workshop, but invited), and then further refined with interveners, including the KivIA, through the NWB process in 2015 and 2016. This program will continue to be conducted to monitor the health of the lake and to inform other management changes that may be required plus inclusion of any additional traditional knowledge and Inuit Qaujimajatuqangit (IQ).

**References:**

Agnico Eagle. 2021. Adaptive Management Plan for Water Management, Meliadine Gold Mine. V1. Submitted to the Nunavut Impact Review Board. February 2021.

Agnico Eagle. 2020. Environmental Assessment of Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. Meliadine Gold Mine – Final Environmental Impact Statement Addendum. August 2020.

Golder (Golder Associates Ltd.). 2016. Aquatic Effects Monitoring Program (AEMP) Design Plan. Doc 485-1405283 Ver. 1. Submitted to Agnico Eagle Mines Limited. June 2016

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| **Interested Party:** | **KivIA** | **Rec No.:** | **KIA-WL-New-TC-11** |
| **Re:** | **Rationale for Change to Groundwater Reporting** | | |

**Recommendation Made by Interested Party:**
*The updated Plan indicates that "Underground contact water monitoring is carried out for operational and water management purposes by Agnico Eagle. This monitoring data will not be reported to the Regulators in the Annual Water License Report but can be provided upon request by the Regulators." This represents a shift from the previous iteration of the Plan where underground contact water monitoring data was to be included in the annual report to the NWB. This data will become more important going forward as increased volumes of saline groundwater will be stored on site starting in 2021 going forward until the waterlines are available.*

***Recommendation:***
*AEM should provide rationale as to why underground contact water monitoring data will no longer be reported to the NWB within the Annual Report unless specifically requested by the regulators.*

**Agnico Eagle's Response to Recommendation:**
Agnico Eagle wishes to clarify that underground contact water monitoring data isn't part of its current reporting requirements and as such, that data was not presented in previous Annual Reports, including the 2019 Annual Report.

The Annual Report's intent is to address the project's various annual reporting requirements as per applicable regulations and authorizations.

As mentioned in section 7.3.2 of the 2019 Annual Report Underground contact water and non-contact groundwater sampling is a verification monitoring program carried out for operational and management purposes by the Licensee.

Agnico Eagle could discuss this matter directly with KivIA as it falls outside of the Annual Report scope.

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| **Interested Party:** | **KivIA** | **Rec No.:** | **KIA-WL-New-TC-12** |
| **Re:** | **Reclamation Costs for Tiriganiaq-2 Saline Storage Pond** | | |

**Recommendation Made by Interested Party:**
*The updated Groundwater Management Plan indicates that the Tiriganiaq-2 open pit will be used to store saline groundwater starting in June/July 2021 until such time as the waterlines are available and can be used to dewater the pit. However, no specific consideration is provided within the updated ICRP to include reclamation activities designed to specifically prevent saline contamination of the freshwater intended to flood the Tiriganiaq-2 open pit at closure.*

***Recommendation:***
*AEM should outline activities that will be employed at closure to ensure the sediments within the Tiriganiaq-2 open pit do not serve as a source of chloride or other residuals resulting from its use as a saline water storage pond. Specific activities may include testing and excavating high chloride sediments prior to flooding at closure. Costs associated with these activities should be included as part of the "Chemicals and Contaminated Soil Management" in the Reclaim cost estimate. Any additional costs for this activity can be reviewed if the proposed saline waterlines are approved and the Tiriganiaq-2 open pit is used for saline water storage. If approved, the KIA suggests a review of the Groundwater Management Plan and Security twelve months after the proposed saline water lines have been in operation.*

**Agnico Eagle's Response to Recommendation:**
Agnico Eagle would like to clarify that storage of water in Tiriganiaq-2 outside of normal condition, as per the Adaptive Management Plan (AMP), is not a primary option for water management at site.

As presented in the approved 2020 Groundwater Management Plan, the long-term saline water management strategy relies on the use of the Waterline to discharge the saline water reporting to the underground development and the discharge of the treated saline water to Melvin Bay.

Storage of saline water could create a risk for the closure of the saline ponds as sediments may be generated at the bottom of the saline pond and may be required to be managed at closure. During the operational phase, Agnico Eagle will continue to monitor conditions of the saline ponds to inform the Final Closure Plan and develop the most appropriate reclamation strategy for the Saline ponds.