

FINAL WRITTEN SUBMISSION

MELIADINE GOLD MINE NIRB PROJECT CERTIFICATE NO. 006

FINAL ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

**ENVIRONMENTAL ASSESSMENT OF
TREATED GROUNDWATER EFFLUENT DISCHARGE
INTO
MARINE ENVIRONMENT, RANKIN INLET**

Prepared By:



KIVALLIQ INUIT ASSOCIATION

April 12, 2021

WITH SUPPORT FROM



Prepared For:

Nunavut Impact Review Board

Executive Summary

The Kivalliq Inuit Association (KIA) has completed a technical review of Agnico Eagle Mines Limited's (Agnico Eagle) "Final Environmental Impact Statement (FEIS) Addendum to Project Certificate No. 006" for the Meliadine Gold Mine submitted to the Nunavut Impact Review Board (NIRB) on August 17, 2020¹. The addendum is for the Environmental Assessment of proposed Treated Groundwater Effluent Discharges into the Marine Environment at Rankin Inlet. Changes to the project proposed under the addendum include:

- The construction of two buried/covered 16" waterlines along the all-weather access road (AWAR) linking Rankin Inlet with the Meliadine Mine,
- Conveyance of treated groundwater for discharge to Melvin Bay via the waterlines,
- Increasing the discharge volume to Melvin Bay, and
- Modification of the diffuser in Melvin Bay.

The KIA represents Inuit beneficiaries of the Nunavut Agreement in the Kivalliq Region. In particular, the KIA manages Inuit Owned Lands (IOL) in the region with the main aim of promoting self-reliance and social well-being of Inuit now and in the future. The KIA manages IOL to support sustainable economic development opportunities for Inuit if it is completed in an environmentally and socially responsible manner.

This review was completed with support from Hutchinson Environmental Sciences Ltd., GeoVector Management Inc. and Aurora Wildlife Research to ensure that the potential impacts and benefits were comprehensively assessed through scientific and socio-economic best practices, and to ensure Inuit Qaujimajatuqangit (IQ) values continue to be incorporated into impact determination, mitigation, project design and monitoring.

This document represents our final written submission on the project and follows directly from both our technical review submitted to the NIRB on November 14, 2020 and our completeness and initial technical review submitted to the NIRB on September 25, 2020.

The FEIS addendum currently before the NIRB adequately demonstrates that discharges of saline groundwater from the Meliadine Site to Melvin Bay are unlikely to result in deleterious effects in the marine environment. The approach to monitoring the marine aquatic environment proposed with Agnico Eagle's submissions and committed to through the technical review process are sufficient to confirm the predictions presented within the models and reports before the NIRB.

However, Agnico Eagle's application has not satisfied KIA with regard to the management of surface contact water at the Meliadine Site using the proposed waterlines. KIA does not support ongoing discharges to Meliadine Lake. Rankinmiut have expressed concern that discharges to Meliadine Lake have degraded Inuit perception of the waterbody as a traditional drinking water source. This waterline application provides an alternate approach to manage saline water at the Meliadine Site that would optimise the benefit of Meliadine Lake for Rankinmiut if it is used to prevent discharges of surface contact water to Meliadine Lake unless absolutely necessary. The Adaptive Management Plan for use of the waterlines to manage both

¹ Agnico Eagle Mines Ltd. August 2020. *Final Environmental Impact Statement Addendum – Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. Submitted to the Nunavut Impact Review Board on August 17, 2020.*

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surface contact water and saline groundwater at the Meliadine Site as currently presented does not provide confidence that discharges to Meliadine Lake will be minimized as much as is technically feasible. KIA requests Agnico Eagle commit to diverting all surface contact water to the waterlines for discharge into Melvin Bay unless absolutely necessary.

KIA puts forward the following specific recommendations :

- KIA recommends Agnico Eagle provide supplemental modelling to demonstrate the volume of surface contact water from CP1 that could be discharged to Melvin Bay without incurring deleterious impacts to water quality at the edge of the mixing zone. KIA is specifically concerned that salinity at the edge of the mixing zone should not be depressed relative to ambient conditions such that sublethal effects may occur and the *“24-hour change in salinity [would] not exceed 4 parts per thousand”* following Department of Environment guidance for salinity (1972) at the 100-m regulated mixing zone.
- KIA recommends Agnico Eagle submit information for NIRB consideration demonstrating the hydrological impacts to Meliadine Lake of diverting all surface contact water from CP1 to Melvin Bay.
- KIA recommends that Agnico Eagle devote at least 50% of the full waterline capacity (at least 10,000 m³/day) to the discharge of surface contact water to the marine environment as soon as the waterlines become available annually (i.e. when temperatures are consistently above freezing) and suspend discharges to Meliadine Lake unless the water levels in CP1 are >94%, the “at risk” water level for the open water period.
- KIA recommends that freshwater discharged to Melvin Bay via the waterlines should not be limited to 50% capacity by volume, but rather should be limited by compliance with the MDMER requirement that effluent should not be acutely toxic to aquatic life.
- KIA recommends Agnico Eagle conduct acute toxicity testing using MDMER saline species to determine a lower total dissolved solids (TDS) limit for discharges to Melvin Bay using blended surface contact water from CP1 and saline groundwater stored on site. This TDS limit should be applied as a lower bound Effluent Quality Criterion for discharges to Melvin Bay.

The KIA is pleased Agnico Eagle highlighted in their responses that, if the proposed waterline is approved, they will now be covering 80-90% of the waterlines. The KIA is also pleased that Agnico Eagle will be forming a Terrestrial Advisory Group (TAG) for the Meliadine project. A TAG will be able to work with Agnico Eagle to develop of a revised TEMMP to better monitor wildlife interactions with the project, particularly the AWAR-water line complex. However, KIA retains the concern that the predictions of little to no impact on movement by individual caribou is adequately monitored, and sufficient feedback and adaptive mitigation is considered. Specifically, the KIA requests that Agnico Eagle:

- Finalize the process of forming a TAG for the Meliadine project by expediting the development of Terms of Reference and a Memorandum of Understanding for the TAG.
- Develop, in collaboration with the TAG, a revised Terrestrial Environment Management and Monitoring Plan (TEMMP) to better monitor wildlife interactions with the project, particularly the AWAR-water line complex.
- Conduct a more rigorous assessment of potential impacts of the project on caribou movements.

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Finally, KIA maintains its position that the proposed waterline – its construction, operation, maintenance and reclamation – is not contemplated or authorized in Road Lease KVRW11F02 (the “Road Lease”) between Agnico Eagle and KIA. Agnico Eagle cannot proceed with any part of the waterline on the Road Lease lands until it renegotiates the Road Lease with KIA.

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1. Introduction

The Kivalliq Inuit Association (KIA) has completed a technical review of Agnico Eagle Mines Limited's (Agnico Eagle) "Final Environmental Impact Statement (FEIS) Addendum to Project Certificate No. 006" for the Meliadine Gold Mine submitted to the Nunavut Impact Review Board (NIRB) on August 17, 2020². The addendum is for the Environmental Assessment of proposed Treated Groundwater Effluent Discharges into the Marine Environment at Rankin Inlet. Changes to the project proposed under the addendum include:

- The construction of two buried/covered 16" waterlines along the all-weather access road (AWAR) linking Rankin Inlet with the Meliadine Mine,
- Conveyance of treated groundwater for discharge to Melvin Bay via the waterlines,
- Increasing the discharge volume to Melvin Bay, and
- Modification of the diffuser in Melvin Bay.

The KIA represents Inuit beneficiaries of the Nunavut Agreement in the Kivalliq Region. In particular, the KIA manages Inuit Owned Lands (IOL) in the region with the main aim of promoting self-reliance and social well-being of Inuit now and in the future. The KIA manages IOL to support sustainable economic development opportunities for Inuit if it is completed in an environmentally and socially responsible manner.

This review was completed with support from Hutchinson Environmental Sciences Ltd., GeoVector Management Inc. and Aurora Wildlife Research to ensure that the potential impacts and benefits were comprehensively assessed through scientific and socio-economic best practices, and to ensure Inuit Qaujimajatuqangit (IQ) values continue to be incorporated into impact determination, mitigation, project design and monitoring.

This document represents our final written submission on the project and follows directly from both our technical review submitted to the NIRB on November 14, 2020 and our completeness and initial technical review submitted to the NIRB on September 25, 2020. Agnico Eagle responded to both sets of comments. We present the status of the information requests in Section 2.1 that remain unresolved as of the technical meetings in January 2021. The status of all technical comments based on Agnico Eagle's technical response package and the commitments made during the technical meetings are provided in Section 2.2.

A key document submitted by Agnico Eagle pursuant to commitments made during the January 2021 technical meetings was an Adaptive Management Plan (AMP) intended to clarify how surface contact water and saline groundwater would be managed using the proposed waterlines. Comments on this document were provided as part of KIA's concurrent participation in the Nunavut Water Board's review of the Agnico Eagle's Meliadine Water Licence Amendment application. The majority of our concerns with the AMP were unresolved during the Water Licence Amendment process; they were deferred by both the proponent and the NWB to the NIRB as the NIRB had not yet approved the waterline proposal. Our final

² Agnico Eagle Mines Ltd. August 2020. *Final Environmental Impact Statement Addendum – Treated Groundwater Effluent Discharge into Marine Environment, Rankin Inlet. Submitted to the Nunavut Impact Review Board on August 17, 2020.*

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written submission therefore carries forward technical comments regarding Agnico Eagle's AMP previously submitted to the NWB as new technical comments before the NIRB. These are presented in Section 2.3 of this document. KIA's central concern with Agnico Eagle's proposed AMP is that it does not adequately ensure that the waterlines will be used to minimize discharges of saline effluent into Meliadine Lake to the extent that is technically feasible.

KIA maintains its position that the proposed waterline – its construction, operation, maintenance and reclamation – is not contemplated or authorized in the Road Lease between Agnico Eagle and KIA. Agnico Eagle cannot proceed with any part of the waterline on the Road Lease lands unless it renegotiates the Road Lease with KIA.

2. Specific Comments

2.1 Unresolved Information Requests

2.1.1 Aquatic Environment

2.1.1.1 KIA-IR#2: 20,000 m³/day alternative and the discharge of surface contact water

IR Source:	Kivalliq Inuit Association
IR Number:	KIA-IR#2
IR Directed To:	Agnico Eagle
Subject:	20,000 m ³ /day alternative and the discharge of surface contact water
Reference:	Main Application Document Section 3.2 Rationale Meliadine Type A Water Licence Amendment Application Section 1.6 Consultation; Section 2.4.1 CP1 Water Diversion to Waterline
Issue/Concern:	<p>KIA have expressed concern with the ongoing discharge of surface contact water with elevated TDS to Meliadine Lake. This concern is highlighted in Agnico Eagle's concurrent application to the NWB stating that the <i>"Deposit of surface contact water in Meliadine Lake is a topic of concern for some community members, as members carry out traditional activities in Meliadine Lake."</i></p> <p>However, Agnico Eagle's application to the NIRB notes that <i>"The 6,000 to 12,000 m³/day discharge rates do not include the opportunity to discharge surface contact water from the site to Melvin Bay and limits the discharge period to the open water season."</i> <i>"Agnico Eagle has not completed a full environmental and socio-economic assessment of [the 20,000 m³/day] alternative."</i></p> <p>Agnico Eagle's decision to exclude discharge of surface contact water to Melvin Bay from the addendum seems counter to the stated understanding of both community and KIA concerns, and statements within the NWB amendment application that <i>"An additional future potential adaptive management strategy includes the use of the waterline (if approved by NIRB) as a supplemental option to divert surface contact water transfer from CP1 to Melvin Bay."</i></p>
Information Request	Agnico Eagle should complete a full environmental assessment of the 20,000 m ³ /day alternative including the discharge of surface contact water from the site to Melvin Bay. This assessment should fully link the NIRB and NWB applications, and include:

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	<p>a) Water quality and hydrodynamic modelling of blended surface and ground water quality discharged to Melvin Bay at rates of up to 20,000 m³/day.</p> <p>b) Water balance modelling for the Meliadine site, including Meliadine Lake, to determine the influence of diverting all surface contact water to Melvin Bay on both site water management, and water levels in Meliadine Lake.</p> <p>Note that the full environmental and socio-economic assessment should include a freshwater use volume of 741,706 m³/year for Operations at Meliadine as currently proposed within the NWB water licence amendment application.</p>
Agnico Eagle's Response	<p>Part A Agnico Eagle refers KIA to Hydrodynamic modelling presented in the Appendix IR-9 of the response package.</p> <p>Part B Agnico Eagle refers KIA to Meliadine Lake Assessment presented in the Appendix IR-2 of this response package</p>
KIA Request/Recommendation	<p>Part A We appreciate the model provided by Agnico Eagle. The information provided in Appendix IR-9 adequately demonstrates that there is sufficient exchange between Melvin Bay and Hudson Bay to prevent a building up saline groundwater within the embayment. However, the effects of a combined effluent discharge were not modeled. Without this modelling, there is still uncertainty around the environmental effects and viability of a combined surface and subsurface effluent discharge.</p> <p>We recommend Agnico Eagle update the hydrodynamic model using a combined surface and subsurface water effluent scenario discharged to Melvin Bay. This modelling should include at an assessment of diverting Meliadine Site runoff to Melvin Bay using volumes outlined in Appendix IR-2, and an assessment of diverting all surface contact water from the Meliadine Site (i.e. all water that would be discharged from CP1 to Meliadine Lake) to Melvin Bay.</p> <p>Part B The assessment of water levels provided in Appendix IR-2 adequately demonstrates that the effect of diverting surface runoff from the from Meliadine Lake on water levels in that waterbody will not be significant. However, Agnico Eagle has neglected to assess the impacts of diverting all surface contact water from the Meliadine Site to Melvin Bay such that discharges to Meliadine Lake are no longer required.</p> <p>We request Agnico Eagle provide an assessment of the impacts to water levels and the resulting hydrological regime in Meliadine Lake of diverting all contact water from the Meliadine Site to Melvin Bay.</p> <p>Summary KIA recommends that Agnico Eagle provide all necessary documentation for the NIRB and other stakeholders to fully consider the discharge of blended surface contact water and saline groundwater effluent to Melvin Bay via the pipeline and diffusers. KIA further recommends Agnico Eagle expand their application before the NIRB to include permitting of the blended effluent discharge.</p>
AEM Response	<p>Part A As noted in response to CIRNAC-TRC-02, the application submitted by Agnico Eagle considered a discharge to Melvin Bay (6,000 to 12,000 m³/day, and as an alternative, up to 20,000 m³/day). This discharge is a blend of saline and surface contact water (see response to CIRNAC-TRC-05). These results of the blended effluent discharge</p>

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	<p>have been presented in two hydrodynamic model reports (Tetra Tech 2020; Attachment TC-02).</p> <p>As noted in response to ECCC-TRC-02, the assessment completed in Appendix IR-2 considered the potential effects of diverting site runoff from Meliadine Lake to Melvin Bay primarily based on the flow and water level regimes of Meliadine Lake (Golder 2020). This was a conservative assessment, and diversion of all water from the A and B sub-watersheds is not realistic. The actual and expected diversion quantities were provided in response to CIRNAC-TRC-05. Agnico Eagle has completed hydrodynamic modelling scenarios aligned with the proposed Project; these results are summarized in response to ECCC-TRC-01 with the details in Tetra Tech 2020 and Attachment TC-02.</p> <p>Agnico Eagle intends to maximize the diversion of contact water to the Melvin Bay but cannot commit to diverting all contact water to Melvin Bay. Contact water management relies on the discharge to Meliadine Lake. Monitoring programs were developed, as part of the Project Certificate, and based on community inputs and IQ, to mitigate the impact of the discharge of contact water in Meliadine Lake.</p> <p>Part B</p> <p>Agnico Eagle has provided models and estimates of saline and surface contact water quantity and quality, and the dispersion of that discharge in the marine environment. These models account for treatment capacity and waterline capacity. Agnico Eagle has presented a Project to the NIRB that provides for management of groundwater in environmentally responsible way while allowing mining and development to proceed. Another discharge scenario, where all surface contact water from the Meliadine Mine is diverted to Melvin Bay is not necessary. The alternative 20,000 m³/day discharge to Melvin Bay will reduce the discharge to Meliadine Lake. However, maintaining the discharge to Meliadine Lake is required to maintain flexibility of water management at the site.</p> <p>Summary</p> <p>Agnico Eagle considers that the information presented as part of this process is sufficient to assess the alternative 20,000 m³/day discharge to Melvin Bay. If further studies are required, those would be conducted as part of the implementation of the alternative.</p> <p>References</p> <p>Golder. 2020. Impact Assessment of the Diversion of Site Runoff to Melvin Bay on the flow and Water Level Regimes of Meliadine Lake. Prepared for Agnico Eagle Mines Ltd. Submitted as Appendix IR-2 to the Nunavut Impact Review Board for the Waterline FEIS Addendum – Meliadine Mine Information Request Responses. October 2020.</p> <p>Tetra Tech. 2020. Melvin Bay Hydrodynamic Modelling and Characterization of the Fate and Behaviors of the Discharged Saline Effluent. Prepared for Agnico Eagle Mines Ltd. Submitted as Appendix IR-9 to the Nunavut Impact Review Board for the Waterline FEIS Addendum – Meliadine Mine Information Request Responses. October 2020.</p>
KIA Conclusion	<p>Part A:</p> <p>Agnico Eagle has provided hydrodynamic modelling at 20,000 m³/day for lower salinity (14.86 PSU) water indicating that impacts to water quality at the edge of the regulated mixing zone and beyond are unlikely to occur as a result of the discharges. This updated modelling</p>

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	<p>also suggests there is still significant assimilative capacity within the mixing zone such that even lower salinity water could be discharged to Melvin Bay; this lower salinity may be achieved by diverting a greater proportion of the surface contact water for ocean discharge.</p> <p>We recommend Agnico Eagle provide supplemental modelling to demonstrate the volume of surface contact water from CP1 that could be discharged to Melvin Bay without incurring deleterious impacts to water quality at the edge of the mixing zone. KIA is specifically concerned that salinity at the edge of the mixing zone should not be depressed relative to ambient conditions such that sublethal effects may occur and the “24-hour change in salinity [would] not exceed 4 parts per thousand” following Department of Environment guidance for salinity (1972) at the 100-m regulated mixing zone.</p> <p>This modelling is intended to help clarify the volume of surface contact water that can be acceptably diverted to Melvin Bay for discharge.</p> <p>Part B</p> <p>KIA acknowledges Agnico Eagle’s assertion that the option to discharge CP1 to Meliadine Lake is necessary to provide sufficient operational to draw down elevated water levels should they occur to prevent potential structural damage to CP1.</p> <p>However, we disagree with Agnico Eagle’s statement that “<i>Another discharge scenario, where all surface contact water from the Meliadine Mine is diverted to Melvin Bay is not necessary.</i>” KIA maintains the position that all discharges to Meliadine Lake should be avoided unless absolutely necessary. KIA therefore requests Agnico Eagle commit to diverting all surface contact water to the waterlines for discharge into Melvin Bay unless absolutely necessary.</p> <p>We also reiterate our request that Agnico Eagle submit information for NIRB consideration demonstrating the hydrological impacts to Meliadine Lake of diverting all surface contact water from CP1 to Melvin Bay.</p>
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2.1.2 Terrestrial Environment

All of KIA’s terrestrial environment information requests have been resolved.

2.2 Status of Technical Comments

2.2.1 Aquatic Environment

2.2.1.1 KIA-TC#1: Annual confirmatory ocean discharge monitoring

Review Comment Number	KIA-TC#1
Subject/Topic	Annual confirmatory ocean discharge monitoring
References	Appendix F. Ocean Discharge Monitoring Plan, Table 3 Appendix 9 - Meliadine Mine Waterline Addendum: Melvin Bay Hydrodynamic Modelling and Characterization of the Fate and Behaviour of the Discharged Saline Effluent. Section 5.2.2 Effluent Concentration
Summary	The ocean discharge monitoring plan submitted with the waterline application is insufficient to determine whether water quality in the marine environment returns to

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	<p>predischarge conditions each year as predicted by the new hydrodynamic model. KIA recommends an additional sampling event approximately 20 days after marine discharges have ceased to confirm that annual flushing of effluent from Melvin Bay has occurred as predicted.</p>
Importance of Issue to Impact Assessment	<p>Failure to characterize post discharge conditions precludes an assessment of whether water quality in Melvin Bay returns to predischarge each year conditions prior to the formation of ice cover. This assessment is required to determine whether unanticipated impacts to aquatic life may be occurring.</p>
Detailed Review Comment	<p>1. Gap/Issue</p> <p>The ocean discharge monitoring plan submitted with the waterline application is insufficient to determine whether water quality in the marine environment returns to predischarge conditions each year as predicted by the new hydrodynamic model.</p> <p>2. Disagreement with IS Addendum conclusion</p> <p>Hydrodynamic modelling provided in Appendix 9 of the IR response package indicates that <i>“The [effluent] concentration value reaches near 0 about 20 days after the effluent discharge stops on October 30.”</i>. However, the monitoring approach presented in the Ocean Discharge Monitoring Plan suggests that monitoring will conclude within the same month discharges conclude for the year.</p> <p>The approach to monitoring neglects include the period following the conclusion of discharges to Melvin Bay to assess whether water quality has recovered to predischarge conditions.</p> <p>3. Reasons for disagreement with IS Addendum conclusion</p> <p>Given the assertion outlined in the new hydrodynamic model that effluent will be flushed by the end of each season, an additional sampling event is required within Melvin Bay to determine whether water quality has returned to predischarge conditions prior to the formation of ice cover. Exchange of water between Melvin Bay and the wider marine environment decreases following the formation of ice cover; residual impacts to water quality resulting from discharging effluent from the Meliadine Site are more likely to negatively impact aquatic life once ice forms over Melvin Bay.</p>
Recommendation / Request	<p>KIA recommends Agnico Eagle update the Ocean Discharge Monitoring Plan to include an additional sampling event following the cessation of discharges to Melvin Bay each year. Specifically, KIA recommends Agnico Eagle collect water quality samples and water column measurements from all 7 stations in the receiving environment and all 3 samples from Reference Area A at least 10 days but ideally 20 days following the conclusion of discharges each year going forward. Samples should be collected as close to the full 20 days following the cessation of discharges to the marine environment given appropriate consideration to the potential formation of ice and the associated safety concerns.</p> <p>This recommended sampling is intended to confirm that annual flushing of the effluent from Melvin Bay has occurred as predicted.</p>
Summary of AEM Response	<p>AEM has committed to <i>“Conduct validation monitoring post discharge during a period of 3 years. This will be conducted for the first 3 years of the waterline operation.”</i></p>
KIA Conclusion	<p>Resolved.</p>

2.2.1.2 KIA-TC#2: Spill management for covered waterline

Review Comment Number	KIA-TC#2
Subject/Topic	Spill management for covered waterline

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References	Appendix C Spill Contingency Plan Waterline FEIS Addendum – Meliadine Mine Information Request Responses
Summary	It is unclear how the cleanup of spills and unintended discharges will proceed now that the pipeline will be covered. Specifically, KIA is concerned how spills, leaks and other unintended discharges will be managed in a timely manner. We recommend Agnico Eagle commit to suspending discharge from a waterline if a leak has been identified understanding that overall discharge can continue given the presence of a second undamaged waterline.
Importance of Issue to Impact Assessment	Unmitigated leaks and discharges along the waterline may result in deleterious effects to the terrestrial, freshwater and marine environments.
Detailed Review Comment	<p>1. Gap/Issue</p> <p>It is unclear how the cleanup of spills and unintended discharges will proceed now that the pipeline will be covered.</p> <p>2. Disagreement with IS Addendum conclusion</p> <p>We are please that Agnico Eagle has chosen to install “<i>a fiber optic leak detection system... for the waterline</i>”. This will allow Agnico Eagle to identify spills and leaks along the waterline in a timely manner. The updated decision to cover 80-90% of the waterline will also decrease the likelihood of damage and associated malfunction. It is unclear however how the decision to cover the waterline will impact Agnico Eagle’s capacity to repair leaks in timely manner should they occur.</p> <p>3. Reasons for disagreement with IS Addendum conclusion</p> <p>While a covered waterline is more resilient to damage and associated malfunction, it is unclear how spills, leaks and other unintended discharges will be managed in a timely manner. We are specifically concerned Agnico Eagle has not clarified whether discharges from a leaking waterline will be suspended once it has been identified acknowledging that overall discharge to the marine environment can continue using the second undamaged waterline.</p> <p>Leaks and discharges along the waterline may result in deleterious effects to the terrestrial, freshwater and marine environments if they are not mitigated in a timely manner.</p>
Recommendation / Request	We request Agnico Eagle clarify how the decision to cover the waterlines will impact the approach to managing and mitigating spills and include this updated approach in future iterations of the Spill Contingency Plan. We recommend Agnico Eagle commit to suspending discharge from a waterline if a leak has been identified understanding that overall discharge can continue given the presence of a second undamaged waterline.
Summary of AEM Response	Agnico Eagle has submitted an updated Spill Contingency Plan which clearly states that Agnico Eagle will “ <i>Suspend discharge from a waterline if a leak has been identified until the leak is resolved</i> ”.
KIA Conclusion	Resolved.

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2.2.2 Terrestrial Environment

2.2.2.1 Monitoring of effects of AWAR and waterlines on caribou movement

Review Comment Number	KIA-TC-3
Subject/Topic	Monitoring of effects of AWAR and waterlines on caribou movement
References	Appendix IR-8 Anticipated Ecosystem and Socio-economic Impacts Associated with Covering the Waterline; Appendix IR-11 Literature review of caribou, waterlines, and roads Revision 2; Waterline FEIS Addendum IR Responses, Waterline consultation report, August 2020; Collared caribou Meliadine AWAR interactions (Golder; January 8, 2021).
Summary	Agnico Eagle concludes that outside of the construction period that sensory disturbance and altered movements to wildlife (including caribou) “ <i>are expected to result in only minor changes to individual animals and negligible residual effects</i> ” (Appendix IR-8, S 3.2, pg 18). There is uncertainty with this conclusion that must be verified through rigorous monitoring and adaptive management.
Importance of Issue to Impact Assessment	How caribou react to the AWAR and associated covered waterlines has some associated uncertainty. Covering the waterlines is a large positive step over leaving the waterlines exposed on the tundra, but the reaction to the expanded physical structure of the road is not fully predictable, thus adding uncertainty to the impact assessment conclusions.
Detailed Review Comment	<p>1. Gap/Issue</p> <p>There is limited evidence on the impact to caribou movement of covered waterlines placed adjacent to the existing AWAR. Smith and Cameron (1985) showed that selection for crossing of buried pipes was strongest if the buried pipe was isolated from road traffic (Appendix IR-11, Golder section, pg 1). Agnico Eagle acknowledges that “<i>there is some uncertainty and potential for delays, caused by a behavioural response and not a physical limitation, on movement over such structures</i>” (Appendix IR-8, S 3.0, pg 6).</p> <p>2. Disagreement with IS Addendum conclusion</p> <p>The KIA suggests that there is uncertainty to what extent the “minor changes” to movements of individual caribou will be. The combined road and covered waterline may have greater impact on individual animals than anticipated. Behavioural data are not provided that support the IS Addendum conclusions as evidence of no effect.</p> <p>3. Reasons for disagreement with IS Addendum conclusion</p> <p>The extent of deflections or delays in crossing of the AWAR by caribou have not been clearly documented, and the addition of the covered waterline adds an extra degree of uncertainty to the conclusions. A commitment to rigorous monitoring is required to verify that Agnico Eagle’s conclusions are supported. Agnico Eagle has committed to long-term monitoring studies that will inform adaptive management,</p>

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	<p>including (Waterline consultation report, Appendix 1, commitment 4; Waterline FEIS Addendum IR Responses KIA-IR-8):</p> <ul style="list-style-type: none"> a) Site Visits for Elders b) Tracking Caribou with GPS collars c) Camera study d) KHTO road surveys <p>However, the details and design of these programs have not been provided and are needed to ensure that adaptive management of caribou migration will occur.</p>
Recommendation / Request	<p>Agnico Eagle should:</p> <ul style="list-style-type: none"> a) Provide detailed methodology of the monitoring proposed for the waterline-road complex (Site visits by Elders; GPS collar tracking; camera study; and KHTO road monitoring), and show how this monitoring will feed into adaptive management of caribou movement through the project. Behavioural monitoring data must be presented to support the IS Addendum conclusions. Agnico Eagle should clarify which triggers will result in changes to mitigation, and what that enhanced mitigation might entail. b) The KIA also recommends that Agnico Eagle establish a Terrestrial Advisory Group (TAG) similar to the TAG in place at Meadowbank/Whale Tail, so that regulators and interested parties can collaboratively work with Agnico Eagle to develop sound and systematic TEMMP monitoring and reporting to facilitate Agnico Eagle's adaptive management of wildlife, especially caribou.
Summary of AEM Response	<ul style="list-style-type: none"> a) Agnico Eagle stated that existing monitoring of the AWAR will capture monitoring of the covered waterlines because the covered waterlines are adjacent to/buried within the AWAR. Agnico Eagle stated that no new or additional monitoring is required and the changes to caribou behaviour from the covered waterlines are predicted to be negligible and not measurable. A revision to the TEMMP will be developed. Detailed responses associated with monitoring were provided in response to GN-TRC-06. These responses state that it is impractical to isolate waterline effects independent of other stressor sources such as the AWAR, traffic and harvesting. An additional memo provided by Golder (January 8, 2021) attempted to clarify the extent of deflections in crossing of the AWAR by caribou. b) Agnico Eagle has agreed to the formation of a TAG for the Meliadine project.
KIA Conclusion	<ul style="list-style-type: none"> a. The KIA maintains that the potential impacts of the AWAR-waterline corridor must be better monitored and assessed. Prior to the January 2021 technical meeting Golder submitted a technical memorandum to Agnico Eagle and NIRB titled "Collared caribou Meliadine AWAR interactions" (8 January 2021). The report was Agnico Eagle's historical annual summary of collared caribou interactions with the AWAR in response to a question from Sayisi Dene First Nation. The report essentially concluded that anywhere from 81–98% of caribou encountering the AWAR crossed the road, and that the overall deflection rate since road operation was 1.8%. KIA finds the conclusions premature and based on a partial analysis

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	<p>which lacks insight into caribou behaviour. Details of our criticism were provided in a January 25, 2021 memo (Comments on Collar Caribou Meliadine AWAR Interactions, Golder 8 January 2021). We recommended that:</p> <p>1) Agnico Eagle should consult with interested parties about how to define deflection using both IQ and technical criteria.</p> <p>2) The preliminary analyses presented in the Golder report should be replaced by a more comprehensive analysis at appropriate spatial and temporal scales and including relevant variables (e.g., insect harassment and daily traffic levels) to ensure that the conclusions are rigorous.</p> <p>3) An updated TEMMP is required, and should be developed in conjunction with the TAG.</p> <p>b) Agnico Eagle committed to a draft Terms of Reference (ToR) for the TAG for February 12, 2021, with the first meeting to be held by May 2021. To date (12 April 2021) a final ToR has not been distributed. A ToR and associated Memorandum of Understanding (MOU) should be provided as soon as possible (and prior to the final public hearings) to ensure that a functional TAG for the Meliadine project can commence work in May 2021.</p>
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2.2.2.2 *Optimal side slope of the berms on the waterline covering*

Review Comment Number	KIA-TC-4
Subject/Topic	Optimal side slope of the berms on the waterline covering
References	Appendix IR-8 Anticipated Ecosystem and Socio-economic Impacts Associated with Covering the Waterline; Appendix IR-11 Literature review of caribou, waterlines, and roads Revision 2; Waterline FEIS Addendum IR Responses, Waterline consultation report, August 2020.
Summary	Agnico Eagle states that the cover over the waterline will be constructed with a planned side slope of 1:2.5 (rise:run) (Waterline FEIS Addendum IR Responses KIA-IR-8). This proposed side slope is steeper than the caribou literature suggests is required to facilitate caribou crossing.
Importance of Issue to Impact Assessment	How caribou perceive the widened road-waterline surface may influence how readily they cross the feature. If caribou do not cross the road-waterline complex as readily as Agnico Eagle expects, then the conclusions of the assessment
Detailed Review Comment	<p>1. Gap/Issue</p> <p>Agnico Eagle states that the cover over the waterline will be constructed with a planned side slope of 1:2.5 (rise:run) (Waterline FEIS Addendum IR Responses KIA-IR-8).</p>

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	<p>2. Disagreement with IS Addendum conclusion</p> <p>KIA suggests that this proposed side slope is not supported by the literature as the optimal slope to reduce potential deflections or delays in caribou crossing.</p> <p>3. Reasons for disagreement with IS Addendum conclusion</p> <p>The literature review of caribou, waterlines and roads provided by Agnico Eagle indicates that side slopes used or recommended elsewhere to facilitate caribou crossing are more gradual (Ekati Jay: 1:5 slope; Alberta 1:6 slope and never exceed a slope of 1:3; Alaska 1:5 slope) than the 1:2.5 slope proposed for the waterline (Appendix IR-11 Literature review of caribou, waterlines, and roads Revision 2). A steeper than optimal side slope on the east side of the road-waterline complex – which is the direction from which most caribou cross in July – may cause greater deflection or delay in caribou passage, thus adding uncertainty to the IS conclusions.</p>
Recommendation / Request	Agnico Eagle should ensure that the side slopes on the waterline coverings are at minimum 1:3 slope or preferably 1:5 slope to facilitate caribou passage through the road-waterline corridor. If the design is not changed to accommodate a shallower side slope, then Agnico Eagle should justify why a steeper side slope is warranted against the recommendations of their literature review.
Summary of AEM Response	Agnico Eagle provided a memo on February 3, 2021 detailing the proposed side slopes and committing to provide details on the actual side slopes (“as built”) within 6 months of completion of the waterline construction.
KIA Conclusion	Resolved.

2.3 New Technical Comments

2.3.1 Adaptive Management Plan

Agnico Eagle submitted an Adaptive Management Plan (AMP) in response to IRs submitted to both the Nunavut Water Board (NWB KIA-IR#2 “Diversion of CP1 water to waterline”) and NIRB (NIRB KIA-IR#2 “20,000 m3/day alternative and the discharge of surface contact water”) specifically requesting that Agnico Eagle divert all surface contact water to the waterline for discharge to the marine environment rather than continuing discharges to Meliadine Lake. The AMP was designed to address that request and includes “a decision tree specifying the conditions under which surface water will be diverted into the saline effluent waterlines for marine disposal and the volumes that will be diverted under those conditions. The decision tree [was] designed such that discharges to Meliadine Lake are minimized.”³.

The AMP as submitted by AEM has been developed with significant input from KIA, Environment and Climate Change Canada and Crown Indigenous Relations and Northern Affairs Canada gathered over two teleconferences held on January 21 and February 2, 2021. The AMP directly addresses many of KIA’s concerns and increases confidence that surface contact water will not be discharged to Meliadine Lake

³ Nunavut Impact Review Board. 2021. List of Commitments Resulting from the Technical Meetings held on January 11-12, 2021 for the Saline Effluent Discharge to Marine Environment, Rankin Inlet, Meliadine Gold Mine, Nunavut.

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under normal conditions once the waterlines are permitted, built, and operational. However, KIA raised 4 technical concerns with the AMP as part of our submissions to the NWB on March 1⁴ and March 17⁵. Agnico Eagle's responses to those submissions and discussions during the NWB Public Hearing resolved one of those concerns. We provide the remaining three as new technical comments tracking the discourse developed during the NWB regulatory process and continuing it here for the NIRB's consideration.

2.3.1.1 KIA-New-TC#1: Clarification of Tiriganiaq-2 Saline Groundwater Management

Review Comment Number	KIA-New-TC#1
Subject/Topic	Clarification of Tiriganiaq-2 Saline Groundwater Management
References	Adaptive management Plan Section 2.1 Discharge through the Waterline
Summary	The Adaptive Management Plan does not provide sufficient clarity as to how the excess saline groundwater that will be stored in the Tiriganiaq-2 starting in 2021 will be handled when the waterlines become operational.
Importance of Issue to Impact Assessment	Failure to clearly prioritize the discharge of surface contact water within CP1 to Melvin Bay via the waterlines in the AMP creates ambiguity as to how discharges to Meliadine Lake will be minimized or avoided during the initial operational years of the waterline until the Tiriganiaq-2 open pit has been dewatered.
Detailed Review Comment	<p>Agnico Eagle has included the following text to define the normal condition level within the AMP: "<i>Saline water capacity at site is less than 70% (open-water), 0% pre-freeze up, and <15% pre-freshet.</i>" Agnico Eagle 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.</p> <p>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.</p>
Recommendation / Request	Agnico Eagle 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	<p>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.</p> <p>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 KivA-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).</p>

⁴ Kivalliq Inuit Association. March 1, 2021. Assessment of Material Provided by Agnico Eagle's in Response to NWB Commitments. Prepared for the Nunavut Water Board.

⁵ Kivalliq Inuit Association. March 17, 2021. Final Written Submission – Application for Amendment to Type A Water Licence 2AM-MEL1931 for the Meliadine Gold Project.

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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 1 st 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:

- As-built storage capacities
- To be added to storage when required, based on timing of SP1 and SP4 reaching capacity.
- Will become contingency storage when Tiriganiaq Pit 2 is made available for saline water storage
- 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.

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Table KIA-WL-9-1. Projected saline storage requirements vs. available storage through					
Year	Lower-bound Base Case Saline Storage Requirement ¹ (m ³)	Upper-Bound Saline Storage Requirement ² (m ³)	Saline Pond / Open Pit Storage Capacity		
			SP1	SP4 ^{3,4}	Tiri2
2021	355,026	494,769	32,000	272,122	1,152,852
2022	490,044	792,423	32,000	272,122	1,152,852
2023	589,676	975,080	32,000	272,122	1,152,852
2024	287,033	836,437	32,000	272,122	1,152,852
2025	148,590	673,616	32,000		1,152,852
2026	154,590	535,794	32,000		1,152,852
2027	145,590	392,793	32,000		1,152,852
<p>Notes:</p> <ol style="list-style-type: none"> 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 model 3. The capacity of SP4 has been updated based on the as-built capacity (previous design value presented in the Management Plan was 233,133 m³) 4. <i>Italicized, gray</i> values are contingency storage only 5. Excludes contingency storage 6. Storage requirements assume discharge through the proposed waterline begins July 1st 2023 <p>The total available storage volume for saline water is 1,184,852 m³. 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.</p> <p>References:</p> <p>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.</p> <p>Agnico Eagle. 2021b. Groundwater Management Plan, Meliadine Gold Mine. V6. Submitted to the Nunavut Water Board. January 2021.</p> <p>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.</p>					
KIA Response	<p>We appreciate Agnico Eagle's clarification regarding the overall purpose of the waterlines as well as the groundwater storage volumes provided through Tiriganiaq-2, SP1 and SP4. However, Agnico Eagle has not clarified how excess saline groundwater stored in Tiriganiaq-2 will be handled under the AMP until the waterlines are available and Tiriganiaq-2 is dewatered.</p> <p>This lack of clarity continues to introduce uncertainty as to how Normal Operating Conditions will be defined under the AMP until Tiriganiaq-2 has been dewatered via the waterlines. KIA understands that not all discharges to Meliadine Lake will be prevented through implementation of the AMP and use of the waterlines, but KIA maintains that minimizing discharges to Meliadine Lake is insufficient to address the concerns of Rankinmiut. Specifically, KIA continues to assert that discharges to Meliadine Lake should be a last resort; the AMP should clearly support that goal.</p>				
Agnico Eagle Response	<p>Normal Operating Conditions for management of surface contact water and saline water was first proposed in the Adaptive Management Plan (AMP; submitted February 5, 2021; Agnico Eagle 2021); a summary of the Normal Operating Conditions as stated in the AMP is provided below. It was also stated in the AMP that</p>				

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	<p>this plan would be effective once the waterline is approved. To date neither have been approved. As noted in response to KIA-WL-9-1 (Technical Comment Response Package issued November 13, 2020) and re-iterated in response to KIA-WL-NEW-7 (Additional Technical Comment Response Package issued March 8, 2021 [to the NWB]), it is assumed that the waterline will not be operational until the open-water season, 2023.</p> <p>Until the waterline is approved, discharge to the marine environment will be done by trucking during the open-water period. Using this method, the current inventory of saline water, and the projected additional inventory until the waterline is operational (if approved), will not be depleted. For this reason, Agnico Eagle has committed to suspending mining operations in Tiriganiaq-2 and using this pit for temporary storage of saline water.</p> <p>Until the waterline is approved and operational it will not be possible to reduce the discharge of surface contact water to Meliadine Lake because, as discussed in response to KIA-NEW-TC-2 (this response package), storage of water is not a viable option and the annual inventory of surface contact water must be discharged to Meliadine Lake. For greater clarity, the primary purpose of the waterline has always been stated and communicated that it is for saline water management. In addition, as per the approved Groundwater Management Plan, the long-term strategy has always been to use the waterline for saline water. The AMP becomes the mechanism for execution of the long-term strategy.</p> <p>Discharge to Meliadine Lake is a fundamental pillar of the mine water management system and a key activity within the approved Water Licence and Project Certificate. Discharge will continue in a manner to remain being protective of the environment, and specifically to maintain the health of Meliadine Lake.</p> <p>In summary, discharge to Meliadine Lake will continue until the waterline is approved and operational. At that time, when the waterline is operational, discharge to Meliadine Lake will be minimized; however, it should be noted that the monitoring results to date all confirm that Meliadine Lake is healthy and within monitoring benchmarks and predictions as shown in the report card on Meliadine Lake (see the Aquatic Effects Program summary [and the additional supplemental information]).</p> <p>Additional supplemental information was provided by Agnico Eagle in: Agnico Eagle. 2021. 2AM-MEL1631 Water Licence Amendment Final Written Statement Responses March 22, 2021.</p>
KIA Conclusion	<p>KIA appreciates that the existing water management strategy of trucking saline water to Melvin Bay and discharging surface contact water to Meliadine Lake will persist until the waterlines are permitted, constructed and become operational. KIA further appreciates that storage of excess water on site is not a viable long-term option and the annual inventory of both surface contact water and saline groundwater are ideally dewatered. However, Agnico Eagle has still failed to clarify how excess saline groundwater stored in Tiriganiaq-2 will be handled under the AMP when the waterlines become available and dewatering Tiriganiaq-2 commences.</p> <p>KIA would like to clarify we are not requesting Agnico Eagle store excess water on site indefinitely. KIA suggests that drawing down excess saline stored in Tiriganiaq-2 as efficiently as possible may not be necessary, and that a reduced dewatering rate would support minimizing discharges to Meliadine Lake in the first year the waterlines become operational. We specifically suggest that avoiding discharges to Meliadine Lake should be prioritized over dewatering Tiriganiaq-2 with the understanding that this path forward may delay efforts to resume mining that ore body by up to one year. Delay of a year may not be necessary given the waterlines have the capacity to deliver approximately 3,000,000 m³ of effluent to Melvin Bay; this volume is sufficient to draw down the excess saline water that may be stored in Tiriganiaq-2 as well as all CP1 water in a single year.</p> <p>KIA recommends that Agnico Eagle devote at least 50% of the full waterline capacity (at least 10,000 m³/day) to the discharge of surface contact water to the marine</p>

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	<p>environment as soon as the waterlines become available annually and suspend discharges to Meliadine Lake unless the water levels in CP1 are >94%, the “at risk” CP1 water level for the open water period. We accept that discharges from CP1 to Meliadine Lake may be required pre-freshet to prevent damage to the CP1 dike.</p> <p>KIA suggests that this approach is both in line both with our position that discharging surface contact water to Meliadine Lake should only occur when absolutely necessary and Agnico Eagle’s commitment to minimize discharges to Meliadine Lake.</p>
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2.3.1.2 KIA-New-TC#2: Freshet Management

Review Comment Number	KIA-New-TC#2
Subject/Topic	Freshet Management
References	Adaptive management Plan Table 2 Adaptive Management Response to Maintain Normal Operating Conditions
Summary	Agnico Eagle’s approach to water management and use of the waterlines as outlined in the AMP is not consistent with their goal to minimize discharges to Meliadine Lake. Agnico Eagle should prioritize discharges of surface contact water to the marine environment via the waterlines as soon as they are available annually to avoid discharges to Meliadine Lake.
Importance of Issue to Impact Assessment	Agnico Eagle’s approach to water management and use of the waterlines as outlined in the AMP will result in unnecessary discharges to Meliadine Lake, further compromising the quality of that waterbody for Rankinmiut based on their evaluation using Inuit Qaujimajatuqangit.
Detailed Review Comment	Agnico Eagle notes under the normal adaptive management level, they will “ <i>Maintain saline and contact water discharge through waterline as required, unless waterline is not available.</i> ” At the caution adaptive management level, Agnico Eagle specifies the following response option: “ <i>If outside normal waterline operational window, evaluate starting discharge of water to Melvin Bay earlier and below the ice.</i> ” 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 / Request	KIA requests Agnico Eagle clarify how surface contact water will be managed during freshet to avoid discharges to Meliadine Lake. We specifically recommend Agnico Eagle 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. Agnico Eagle 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	<p>Until the Waterline is approved, discharge to Meliadine Lake will continue. Once the Waterline is approved, discharge to Meliadine Lake will be minimized.</p> <p>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.</p>

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	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>References:</p> <p>Agnico Eagle. 2021a. Adaptive Management Plan for Water Management, Meliadine Gold Mine. V1. Submitted to the Nunavut Impact Review Board. February 2021.</p> <p>Agnico Eagle. 2021b. Groundwater Management Plan, Meliadine Gold Mine. V6. Submitted to the Nunavut Water Board. January 2021.</p> <p>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.</p> <p>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.</p>
KIA Response	<p>We appreciate the clarification that annual operation of the waterline is directly tied to ambient temperatures given the lines will not be heat traced. Based on this understanding, we therefore recommend Agnico Eagle link commencing annual operations of the waterlines in AMP Table 1 Note 1 to temperature as has been done with the conclusion of the annual operation window. We also recommend Agnico Eagle specify within AMP that the diversion of water from CP1 to Melvin Bay will be prioritized ahead of saline water during freshet given the ample additional saline storage capacity provided through the use of Tiriganiaq-2. We suggest incorporation of this specification can be made into Table 2 of the AMP as a Management Activity ahead of the current Caution Response 4: "Prioritize saline water for discharge through the waterline." The Caution Response would be added between the current</p>

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	Caution Response 3 and 4 and read "Prioritize surface contact water for discharge through the waterline."
Agnico Eagle Response	<p>In Table 1, Note 1 of the Adaptive Management Plan (AMP; Agnico Eagle 2021), the operation window of the waterline was defined as follows:</p> <ul style="list-style-type: none"> • <i>"In consideration of maintenance, repairs, and season, the regular operational window for the Waterline is open-water conditions from approximately late June to mid October (or until consistent sub-zero temperatures are observed)."</i> <p>Agnico Eagle agrees with the recommendation by the KivIA to clarify the note regarding the yearly operational window of the waterline to the following:</p> <ul style="list-style-type: none"> • <i>"In consideration of maintenance, repairs, and season, the regular operational window for the Waterline is defined as open-water conditions from approximately late June (or until consistent above-zero temperatures are observed) to mid-October (or until consistent sub-zero temperatures are observed)."</i> <p>With respect to the recommendation pertaining to prioritization of water through the waterline, Agnico Eagle refers back to the primary purpose of the waterline. As stated in the submission currently in front of the NIRB (FEIS Addendum; Agnico Eagle 2020), the primary purpose of the waterline is for discharge of saline water to the marine environment with the intent to reduce the inventory to zero (or near zero) by the end of the open-water season (or the by the end of the yearly operational window of the waterline). As stated within the Decision Tree section of the AMP (Section 2.1.1), <i>"The primary purpose of the waterline is to allow sustainable management of saline water on site"</i>. Storage of water within the saline ponds is not a normal operating condition for the following reasons:</p> <ul style="list-style-type: none"> • Risk to permafrost degradation: As mining within Tiriganiaq Pit 2 is expected to resume later in mine life, geotechnical integrity of the pit walls must be considered. Similarly, as mining of the Tiriganiaq Underground mine will occur underneath Tiriganiaq Pit 2, it is important to also consider the geotechnical integrity of the crown pillar. Diverting more contact to the Tiriganiaq Pit 2 results in significantly more water stored in the pit for a longer time. The deeper water, and additional pit flooding time will result in additional permafrost warming and degradation in the pit walls and base. The permafrost adds to the strength and stability of the rock mass. Thus, in the interest of reducing risk to geotechnical integrity of the pit and crown pillar, and to prevent risks that could injure workers, the primary purpose of the waterline will remain to manage saline water. • Risk to increased groundwater inflows: Holding back water in Tiriganiaq Pit 2 longer than required, and at greater depths increases the site risk to greater than expected groundwater inflows to the underground mine, which could shift the operating condition into a caution or at risk state. The seepage rates will be also increased due the permafrost degradation caused by additional water in the pit. Thus, in the interest of minimizing risk to the saline water management system the waterline's primary purpose will remain saline water management. <p>To illustrate water management activities and timing around freshet and operation of the waterline, a table highlighting key activities has been prepared (Table KIA-NEW-TC-9-1). This table highlights the following key pieces of information:</p> <p>Surface Contact Water Management</p> <ul style="list-style-type: none"> • Key periods of time are pre-freshet to freshet. It is during this period of time that large quantities of runoff need to be managed and discharge in a timeline manner to avoid damage to infrastructure or the environment. • Freshet may start anytime between May 15 and June 15. • It is necessary to start discharge during the freshet period. • The waterline (if it is approved) will not be annually operating until early July. • There could be upwards of three to four weeks between the start of the need to discharge surface contact water and the availability of the waterline. • Preparations for freeze-up are completed in September.

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	<p>Saline Water Management</p> <ul style="list-style-type: none"> • The primary purpose of the waterline is for discharge of saline water to the marine environment. • At the Technical Meeting for the Waterline Application (January 11 and 12, 2021), and at the request of the KHTO, Agnico Eagle committed to “testing the line prior to each discharge season” (Commitment 1). This annual testing must be completed before water can be discharged through the waterline; this annual testing is expected to take up to two weeks. The waterline testing will not occur until temperatures are consistently above zero. • Once the waterline has been tested and confirmed there are no leaks, the seasonal discharge of water through the line can occur. Discharge will continue until consistent sub-zero temperatures are observed. <p>Considering the timelines of CP1 freshet and the waterline operation, it is likely that discharge to Meliadine Lake will be required prior to the operation of the waterline. However, as has been exemplified through the Water Quality Management and Optimization Plan (WQ-MOP) and concluded by the Water Management Working Group (WMWG), discharge to Meliadine Lake at the requested effluent quality criteria is protective the environment and to the health of Meliadine Lake.</p>
KIA Conclusion	<p>KIA first would like to reiterate our position that the primary purpose of the proposed waterlines is two fold:</p> <ol style="list-style-type: none"> 1) To discharge saline water to the marine environment with the intent to reduce the inventory to zero (or near zero) by the end of the open-water season, 2) To minimize with the intent to avoid all discharges of surface contact water to Meliadine Lake. <p>KIA proposes Agnico Eagle prioritize the discharge of surface contact water to the marine environment during freshet (or as soon as the waterlines are available annually based on ambient air temperatures) to avoid discharges to Meliadine Lake whenever possible. It is anticipated that prioritization of surface contact water in the waterlines may delay the annual drawdown of the on-site saline water inventory, but will not compromise Agnico Eagle’s ability to completely dewater the saline water inventory by the end of the annual waterline operational period.</p> <p>This recommendation is consistent with Agnico Eagle’s proposed purpose for the waterlines as well as KIA’s position regarding the handling of surface contact water given the capacity of the waterlines should be sufficient to move the entire inventory of both surface contact water and saline groundwater annually. Using 2020 as an example, Agnico Eagle discharged approximately 1,000,000 m³ into Meliadine Lake (Figure 1, Golder 2020). The 2020 discharge season should be viewed as a relatively high-volume discharge year given the 1,000,000 m³ included the accumulated 2019-2020 winter inventory, all precipitation and seepage over the rest of the 2020 open water season, and the additional surface contact water inventory that was unable to be discharged in 2019 due to elevated TDS concentrations as compared to the relevant discharge criteria at the time.</p>

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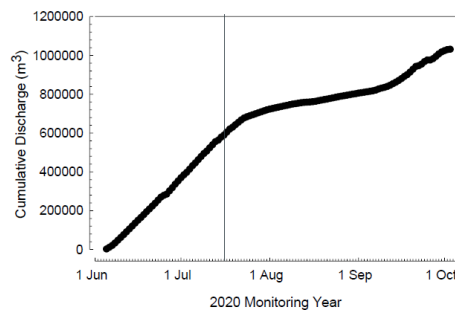


Figure 1. Cumulative CP1 Water Discharge to Meliadine Lake between 5 June 2020 and 3 October 2020.

Operation of the waterline at the 20,000 m³/day capacity provides the option to discharge up to 2,400,000 m³ to the marine environment. Agnico Eagle's November 2020 technical memorandum titled "Addendum to 3-D Hydrodynamic Modelling of Melvin Bay to Characterize the Long-Term Mixing and Transport of the Released Effluent" states that "A total of about 3,060,000 m³ of effluent is discharged between June and October," indicating a 5 month potential operational period at 20,000 m³/day.

Even using a 4 month operational period allowing for 20% downtime, Agnico Eagle should have sufficient capacity to both dewater CP1 to the marine environment and discharge the entire saline groundwater inventory to the marine environment annually.

Agnico Eagle may therefore be able to successfully prioritize the discharge of CP1 water into Melvin Bay as soon as the waterlines become available without compromising the integrity of the on-site water management infrastructure.

KIA recommends that Agnico Eagle devote at least 50% of the full waterline capacity (at least 10,000 m³/day) to the discharge of surface contact water to the marine environment as soon as the waterlines become available annually and suspend discharges to Meliadine Lake unless the water levels in CP1 are >94%, the "at risk" CP1 water level for the open water period.

2.3.1.3 KIA-New-TC#3: Limits on Freshwater Discharge to Melvin Bay.

Review Comment Number	KIA-New-TC#3
Subject/Topic	Limits on Freshwater Discharge to Melvin Bay.
References	Adaptive management Plan Section 2.1.2 Volume
Summary	Agnico Eagle appears to have arbitrarily limited the proportion surface contact water may comprise in discharges to Melvin Bay. This may result in unnecessary discharges of surface contact water to Meliadine Lake.
Importance of Issue to Impact Assessment	Agnico Eagle's approach to water management and use of the waterlines as outlined in the AMP will result in unnecessary discharges to Meliadine Lake, further compromising the quality of that waterbody for Rankinmiut based on their evaluation using Inuit Qaujimajatuqangit.
Detailed Review Comment	Agnico Eagle has specified 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 m ³ /day total, and up to 50% of that water comprised of surface contact water for a daily total of 6,000 m ³ /day of surface contact water."

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	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 Agnico Eagle will have ample saline water storage capacity using Tiriganiaq-2 starting in June/July 2021 providing significant operational flexibility.
Recommendation / Request	KIA requests that Agnico Eagle prioritize the discharge of surface contact water to Melvin Bay even under the lower bound scenario when only <i>“one waterline is operational”</i> 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	<p>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.</p> <p>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.</p> <p>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:</p> <ul style="list-style-type: none"> • 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. <p>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.</p> <p>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).</p>

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	<p>References:</p> <p>Agnico Eagle. 2021. Adaptive Management Plan for Water Management, Meliadine Gold Mine. V1. Submitted to the Nunavut Impact Review Board. February 2021.</p> <p>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.</p> <p>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</p>
KIA Response	<p>We appreciate Agnico Eagle's stated goal of <i>"reducing water storage on site and developing robust and effective dewatering system (such as the Waterline)... to address uncertainties related to water management"</i>. We appreciate prioritizing surface contact water through the waterlines will increase the overall risk of permafrost degradation, and incremental inflows to the underground development; and require a higher discharge rate and future availabilities of the dewatering system which create risk for the overall site water management. However, given Tiriganiaq-2 will be used for saline storage starting in 2021, we suggest the risks are incremental and should not dissuade Agnico Eagle from prioritizing discharges of surface contact water to Melvin Bay, addressing the concerns of Rankinmiut.</p>
Agnico Eagle Response	<p>Overall, Agnico Eagle disagrees with the KivIA's comment and overall risk to the operations. The risks to the operation are real and are not incremental; therefore, Agnico Eagle feels this recommendation is creating an additional risk to the operation that could cause long-term issues.</p> <p>As stated numerous times, storage of water within the saline ponds is not a normal operating condition for the following reasons:</p> <ul style="list-style-type: none"> • Risk to permafrost degradation: As mining within Tiriganiaq Pit 2 is expected to resume later in mine life, geotechnical integrity of the pit walls must be considered. Similarly, as mining of the Tiriganiaq Underground mine will occur underneath Tiriganiaq Pit 2, it is important to also consider the geotechnical integrity of the crown pillar. Diverting more contact to the Tiriganiaq Pit 2 results in significantly more water stored in the pit for a longer time. The deeper water, and additional pit flooding time will result in additional permafrost warming and degradation in the pit walls and base. The permafrost adds to the strength and stability of the rock mass. Thus, in the interest of reducing risk to geotechnical integrity of the pit and crown pillar, and to prevent risks that could injure workers, the primary purpose of the waterline will remain to manage saline water. • Risk to increased groundwater inflows: Holding back water in Tiriganiaq Pit 2 longer than required, and at greater depths increases the site risk to greater than expected groundwater inflows to the underground mine, which could shift the operating condition into a caution or at risk state. The seepage rates will be also increased due the permafrost degradation caused by additional water in the pit. Thus, in the interest of minimizing risk to the saline water management system the waterline's primary purpose will remain saline water management. <p>The health of Meliadine Lake will be maintained, refer to [supplemental information provided in response to KIA-New-TC-1].</p>
KIA Conclusion	<p>As outlined in our conclusion to KIA-New TC#2, KIA is not suggesting storage of additional saline groundwater in Tiriganiaq Pit 2 in the long term. We are suggesting that Agnico Eagle utilize the capacity available in the waterlines to avoid discharges to Meliadine Lake unless absolutely necessary.</p> <p>Using the updated rate of groundwater inflow provided in the 2020 memorandum included in the IR response package titled "2019 Updated Predictions of Groundwater Inflow to Tiriganiaq Underground Mine", Agnico Eagle expects between 540 m³ / day</p>

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	<p>and 640 m³ / day without mitigation (grouting); measured groundwater inflows into the Tiriganiaq Underground Mine have consistently been lower than the predicted values.</p> <p>Based on these predicted unmitigated inflows, Agnico Eagle has indicated they will require 453,238 m³ and 556,396 m³ will be required to store saline water on site in 2021 and 2022 respectively. This saline volume compares with up to 1,000,000 m³ of surface contact water that will require discharge each year (based on 2020 surface contact water discharge volumes to Meliadine Lake – See KIA Conclusion for KIA-New-TC#2 for more details). Dewatering the entire annual inventory of both the saline and surface contact water will not require the entire capacity of the waterline which is able to discharge up to approximately 3,000,000 m³ annually to Melvin Bay as per the 2020 technical memorandum titled “Addendum to 3-D Hydrodynamic Modelling of Melvin Bay to Characterize the Long-Term Mixing and Transport of the Released Effluent” included in the TC response package.</p> <p>We therefore recommend that freshwater discharged to Melvin Bay via the waterlines should not be limited to 50% capacity by volume, but rather should be limited by compliance with the MDMER requirement that effluent should not be acutely toxic to aquatic life.</p> <p>To support a lower TDS limit on discharges to Melvin Bay, we recommend Agnico Eagle conduct acute toxicity testing using MDMER saline species to determine a lower TDS limit using blended surface contact water from CP1 and saline groundwater stored on site. This TDS limit should be applied as a lower bound Effluent Quality Criterion for discharges to Melvin Bay</p> <p>We note based on Agnico Eagle’s modelling that impacts beyond a 100 m regulated mixing zone are unlikely to occur. The 2020 technical memorandum titled “Addendum to 3-D Hydrodynamic Modelling of Melvin Bay to Characterize the Long-Term Mixing and Transport of the Released Effluent” included in the TC response package indicates that effluent discharged at 14.86 PSU (conservatively converted to approximately 14,860 mg/L TDS):</p> <ul style="list-style-type: none"> • <i>The receiving embayment will not fluctuate by more than +/- 10% with respect to chloride or salinity from the effluent discharge; specifically, the target dilution factor of 11:1 or target concentration of 9% at the 100 -m mixing zone is always satisfied during or post the discharge season;</i> • <i>Temperature and salinity changes due to effluent discharge are well below the regulated threshold values (i.e. 0.2 °C change and 4 PSU change respectively) at the 100-m mixing zone throughout the discharge season. In other words, the release of the effluent has a very little impact on the ambient temperature and salinity at the edge of the mixing zone;</i> • <i>Based on simulated conditions, the system takes slightly less than 20 days following the end of the discharge to recover to a near pre-effluent-discharge state (less than 0.001% of total released effluent remains in the domain) and;</i> • <i>The Melvin Bay metocean conditions lead to very efficient flushing capacity of the study area that easily satisfies the various regulations and guidelines on effluent discharge of all the studied cases.</i> <p>It is therefore presumed that effluent with a lower TDS concentration (i.e. with a greater proportion of surface contact water) could be discharged to Melvin Bay without incurring deleterious effects nor violating the Department of Environment guide for salinity (1972) for a salinity change at the 100-m regulated mixing zone, specifically that the “24-hour change in salinity should not exceed 4 parts per thousand if natural salinity is 13.5 to 35 parts per thousand (PSU).” Ambient ocean water in Agnico Eagle’s hydrodynamic modelling was set at 30.5 PSU.</p>
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3. Summary of Recommendations

The FEIS addendum currently before the NIRB adequately demonstrates that discharges of saline groundwater from the Meliadine Site to Melvin Bay are unlikely to result in deleterious effects in the marine environment. The approach to monitoring the marine aquatic environment proposed with Agnico Eagle's submissions and committed to through the technical review process are sufficient to confirm the predictions presented within the models and reports before the NIRB.

However, Agnico Eagle's application has not satisfied KIA with regard to the management of surface contact water at the Meliadine Site using the proposed waterlines. KIA does not support ongoing discharges to Meliadine Lake. Rankinmiut have expressed concern that discharges to Meliadine Lake have degraded Inuit perception of the waterbody as a traditional drinking water source. This waterline application provides an alternate approach to manage saline water at the Meliadine Site that optimises the benefit of Meliadine Lake for Rankinmiut by preventing discharges of surface contact water to Meliadine Lake unless absolutely necessary. The Adaptive Management Plan for use of the waterlines to manage both surface contact water and saline groundwater at the Meliadine Site as currently presented does not provide confidence that discharges to Meliadine Lake will be minimized as much as is technically feasible.

The KIA is pleased Agnico Eagle highlighted in their responses that, if the proposed waterline is approved, they will now be covering 80-90% of the waterlines. The KIA is also pleased that Agnico Eagle will be forming a Terrestrial Advisory Group (TAG) for the Meliadine project. A TAG will be able to work with Agnico Eagle to develop of a revised TEMMP to better monitor wildlife interactions with the project, particularly the AWAR-water line complex.

KIA maintains its position that the proposed waterline – its construction, operation, maintenance and reclamation – is not contemplated or authorized in the Road Lease between Agnico Eagle and KIA. Agnico Eagle cannot proceed with any part of the waterline on the Road Lease lands unless it renegotiates the Road Lease with KIA.

We provide a summary of our specific recommendations to the NIRB and Agnico Eagle pertaining to the aquatic and terrestrial environments below.

3.1 Aquatic

KIA's recommendations regarding the aquatic environment pertain to our position that all discharges to Meliadine Lake should be avoided unless absolutely necessary. Our recommendations are intended to further clarify the environmental implications of that position as well as provide additional certainty Agnico Eagle will divert the majority of the surface contact water at the Meliadine Site to Melvin Bay. Our recommendations are summarized as follows:

- KIA requests Agnico Eagle commit to diverting all surface contact water to the waterlines from the Meliadine Site for discharge into Melvin Bay unless absolutely necessary.
- We recommend Agnico Eagle provide supplemental modelling to demonstrate the volume of surface contact water from CP1 that could be discharged to Melvin Bay without incurring deleterious impacts to water quality at the edge of the mixing zone. KIA is specifically concerned

that salinity at the edge of the mixing zone should not be depressed relative to ambient conditions such that sublethal effects may occur and the “24-hour change in salinity [would] not exceed 4 parts per thousand” following Department of Environment guidance for salinity (1972) at the 100-m regulated mixing zone.

- We recommend Agnico Eagle submit information for NIRB consideration demonstrating the hydrological impacts to Meliadine Lake of diverting all surface contact water from CP1 to Melvin Bay.
- We recommend that Agnico Eagle devote at least 50% of the full waterline capacity (at least 10,000 m³/day) to the discharge of surface contact water to the marine environment as soon as the waterlines become available annually (i.e. when temperatures are consistently above freezing) and suspend discharges to Meliadine Lake unless the water levels in CP1 are >94%, the “at risk” water level for the open water period.
- KIA recommends that freshwater discharged to Melvin Bay via the waterlines should not be limited to 50% capacity by volume, but rather should be limited by compliance with the MDMER requirement that effluent should not be acutely toxic to aquatic life.
- KIA recommends Agnico Eagle conduct acute toxicity testing using MDMER saline species to determine a lower TDS limit for discharges to Melvin Bay using blended surface contact water from CP1 and saline groundwater stored on site. This TDS limit should be applied as a lower bound Effluent Quality Criterion for discharges to Melvin Bay.

KIA recommends that the Project Certificate include conditions requiring (a) that Agnico Eagle shall develop, implement and comply with the Adaptive Management Plan; and (b) avoid discharges to Meliadine Lake unless absolutely necessary, in accordance with the Adaptive Management Plan.

KIA made a similar request to the NWB during March 2021 proceedings to amend Agnico Eagle's Water License 2AM-MEL1631. KIA requested a condition on the water license to ensure discharges to Meliadine Lake be minimized and diverted instead to the waterlines, subject to regulatory approval of the waterlines and to any further conditions arising from NIRB's review process. The NWB has not yet issued its decision; however, KIA notes that Agnico Eagle objected to including KIA's proposed condition to the water license.

KIA requests that the Project Certificate include the above-recommended language to ensure Agnico Eagle's commitment to divert wastewater away from Meliadine Lake using the waterlines is fully enforceable. KIA agrees with CIRNAC's position at the NWB hearing that the waterlines will change the Meliadine Site water management and will, at minimum, require changes to the plans under the water license and may require a water license amendment.

3.2 Terrestrial

The KIA retains the concern that the predictions of little to no impact on movement by individual caribou is adequately monitored, and sufficient feedback and adaptive mitigation is considered. Specifically:

- The KIA is pleased that Agnico Eagle will be forming a Terrestrial Advisory Group (TAG) for the Meliadine project, but are concerned that the process to establish a TAG has been delayed with no recent updates on the development of a Terms of Reference or a Memorandum of

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Understanding for the TAG. The KIA recommends that Agnico Eagle needs to expedite this process.

- The KIA recommends, in collaboration with the TAG, the development of a revised TEMMP to better monitor wildlife interactions with the project, particularly the AWAR-water line complex. The TEMMP should provide detailed methodology of the monitoring proposed for the road-waterline complex (e.g., site visits by Elders; GPS collar tracking; camera study; and KHTO road monitoring), and show how this monitoring will feed into adaptive management of caribou movement through the project. Behavioural monitoring data must be presented to support the IS Addendum conclusions. Agnico Eagle should clarify which triggers will result in changes to mitigation, and what that enhanced mitigation might entail.
- The Golder evaluation of “Collared caribou Meliadine AWAR interactions” (8 January 2021) was in our opinion a preliminary analysis that lacked insight into caribou behaviour. The KIA recommends that Agnico Eagle conduct a more rigorous assessment of potential impacts of the project on caribou movements.