Water Resources Division
Resource Management Directorate
Nunavut Regional Office
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Iqaluit, NU, X0A 3H0

Your file - Votre référence
2AM-MEL1631
Our file - Notre référence
GCDocs#124783121

April 26, 2024

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
E-mail: licensing@nwb-oen.ca

Re: Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC's) Review of the 2024 Water Licence Amendment Application by Agnico Eagle Mines Limited for the Meliadine Project Type A Water Licence No: 2AM-MEL1631.

Dear Richard Dwyer,

Thank you for your March 26, 2024, invitation to review the 2024 Water Licence Amendment Application by Agnico Eagle Mines Limited for the Meliadine Project Type A Water Licence No: 2AMMEL1631.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the Amendment Application and its attachments pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. Please find CIRNAC comments and recommendations in the attached Technical Memorandum for the Nunavut Water Board's consideration.

If there are any questions or concerns, please contact me at Aminul.Haque@rcaanc-cirnac.gc.ca or (867) 975-4282 or Andrew Keim at (867) 975-4550 or Andrew.Keim@rcaanc-cirnac.gc.ca.

Sincerely,

আমিনুল

Aminul Haque
Regional Water Management Coordinator

Technical Review Memorandum

Date: April 26, 2024

To: Richard Dwyer, Manager of Licensing, Nunavut Water Board

From: Aminul Haque, Regional Water Management Coordinator, CIRNAC

Subject: **Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC's) Review of the 2024 Water Licence Amendment Application by Agnico Eagle Mines Limited for the Meliadine Project Type A Water Licence No: 2AMMEL1631.**

Region: ☐ Kitikmeot ☒ Kivalliq ☐ Qikiqtani

A. BACKGROUND

Agnico Eagle Mines' (Agnico Eagle) Meliadine Gold Mine Project is located near the western shore of Hudson Bay in the Kivalliq Region of Nunavut, approximately 25 km north of Rankin Inlet, 80 km southwest of Chesterfield Inlet, and 290 km southeast of the Meadowbank mine. The Project site is situated on a peninsula amongst the east, south, and west basins of Meliadine Lake (63°1'23.8''N, 92°13'6.42''W) on Inuit-owned land. The 111,358-hectare property covers an 80-km-long greenstone belt. A 24-km All Weather Access Road (AWAR) (built in October 2013) links the Meliadine project site with Rankin Inlet. On October 10, 2014, the Nunavut Impact Review Board (NIRB) provided the Minister with the Final Hearing Report and recommended Terms and Conditions for the Meliadine Project. The Minister accepted the NIRB's recommendation on January 27, 2015, and Project Certificate No.006 was issued on February 26, 2015.

Meliadine includes seven gold deposits: Tiriganiaq, Normeg, Wesmeg, Pump, F-Zone, Wolf and Discovery. The approved Project consists of mining at five deposits (Tiriganiaq, Wesmeg, Pump, F Zone, and Discovery) through a phased approach and processing of the ore at an on-site milling operation at a rate of 8,500 tonnes per day, as well as transportation of the gold bullion south for final refinement and sale. The deposits are all within five (5) km of Tiriganiaq except for Discovery, which is 17 km southeast of Tiriganiaq. Each of these deposits has mineralization within 120 metres of the surface, making them potentially mineable by open pit methods. Also, because of their deeper mineralization, they could be mined with underground methods.

On May 19, 2016, Type A Water Licence 2AM-MEL1631 was approved to begin construction and operation of the Meliadine Mine. The mine commenced its commercial production on May 14, 2019. Under the initial application, Agnico Eagle restricted the scope of the application to the exploitation of the Tiriganiaq deposit. Supplies and equipment for the Project are barged into Itivia Harbour, Melvin Bay in Rankin Inlet, during the open water season. The Itivia project area includes quarry operations that began in 2017 and a laydown

area and fuel tank farm completed in the summer of 2018. Construction of the bypass road from Itivia to the start of the AWAR was completed in the fall of 2018. The bypass road enables mine traffic to avoid the community of Rankin Inlet while transporting fuel and equipment to the Project mine site.

The Meliadine Mine project has undergone several amendments and additions to scope over the last ten years, including:

- On February 26, 2019, the NIRB amended Project Certificate No.006 to include the discharge of saline effluent to the marine environment via diffuser at Itivia Harbour and to convey, via truck, saline effluent along the AWAR to Itivia Harbour.
- On May 12, 2020, based on the Nunavut Water Board (NWB) recommendation, the Minster approved an emergency amendment to Type A Water Licence 2AM-MEL1631 to release, on a temporary basis, Surface Contact Water from the existing Containment Pond 1 (CP1) prior to the 2020 freshet. Agnico Eagle required the authorization because the Water released from Containment Pond 1 exceeded the Total Dissolved Solids (TDS) concentration limits prescribed under Part F, Item 3 of the Licence (1,400 mg/L).
- On June 23, 2021, the Minister approved the Type A Water Licence 2AM-MEL1631 Amendment, which included updated TDS thresholds to Meliadine Lake, an increase of annual freshwater consumption, additional laydown and landfarm area, an updated waste management strategy, construction of access roads, and an updated Interim Closure and Reclamation Plan (ICRP).
- On January 31, 2022, the NIRB amended Project Certificate No.006 to include the conveyance of saline effluent via a waterline along the AWAR to accommodate an increased volume of saline effluent generated from the underground workings that was being transported initially by truck to Itivia harbour. Agnico Eagle is committed to the community to reduce/ minimize any discharge to Lake Melidaine.

During 2023, the NWB considered another Type A Water Licence amendment application triggered by the Meliadine Extension Proposal. The application was withdrawn by Agnico Eagle on December 19, 2023, following NIRB's recommendation that the Extension Proposal should not be allowed at this time based on the potential for significant adverse ecosystemic and socio-economic effects.

With the withdrawal of the Meliadine Extension Application to support the completion of mining of all deposits permitted at the Meliadine Mine, Agnico Eagle has identified components included in the 2014 FEIS and already approved under the Nunavut Impact Review Board's (NIRB) Project Certificate No. 006. These specified project components now require a further amendment of the Type A Water Licence (collectively called the Meliadine Mine Water Licence Amendment).

On January 29, 2024, the NWB distributed an amendment application for Agnico Eagle Mines Limited Meliadine Mine water licence 2AM-MEL1631 to regulators and interested parties. The NWB requested that interested parties review the application and supplemental information for completeness and conduct an initial technical assessment, including

identifying any Information Requests (IRs) necessary to complete their technical review of the Application. On March 26, 2024, NWB requested interested parties to complete a technical assessment of the Meliadine Mine Water Licence Amendment Application for Water Licence No: 2AM-MEL1631.

CIRNAC provides the following comments and recommendations for reviewing the Water Licence No: 2AM-MEL1631 Type "A", Meliadine Project; Amendment Application by Agnico Eagle Mines Limited. A summary of the subjects of recommendations can be found in Table 1. Documents reviewed as part of this submission can be found in Table 2 of Section B. Detailed technical review comments can be found in Section C.

Table 1: Summary of Recommendations

Recommendation Number	Subject
R-01	Adaptive Management Plan Approval
R-02	Minimizing Discharges to Meliadine Lake
R-03	Adaptive Management Plan Revisions
R-04	Storage of Saline Water in Lake B7
R-05	Post Closure Water Quality
R-06	Clarifications

B. DOCUMENTS REVIEWED AND REFERENCED

The following table (Table 2) lists the documents reviewed under the submission and references during the review.

Table 2: Documents Reviewed and Referenced

Document Title	Author/Date
Meliadine Water Licence 2AM-MEL1631 Amendment Main Application Document & Appendices (Provided in January 2024)	
Application for Amendment to Meliadine Mine Type A Water Licence Cover Letter	AEM, 26 Jan 2024
Meliadine Mine Application for Water Licence Amendment Form	AEM, 26 Jan 2024
Meliadine Mine Water Licence Amendment Main Application Document	AEM, 26 Jan 2024
Appendix A: SIG Minimum Application Requirements Checklist and Cross Reference Table	AEM, 26 Jan 2024
Appendix B: NPC Determination of Significant Modification	AEM, 26 Jan 2024
Appendix C: Consultation Logs (C1- Consultation Details, C-2 Compiled Comments / Questions	AEM, 26 Jan 2024
Errata to Application for Amendment to the Meliadine Mine Type A Water Licence	AEM, 12 Feb 2024
Appendix D: Design Drawings	
D-1: Prefeasibility Level Design of Water Management Infrastructures for Operation Phase, Meliadine Mine (Tetra Tech), Rev 1	Tetra Tech, 24 Jan 2024
D-2: Stability Analyses for the Proposed Tailings Storage Facility, Meliadine Mine Water LIcence Amendment (Tetra Tech), Rev 1	Tetra Tech, 24 Jan 2024
Appendix E: Technical Studies	
E-1: Spring 2021 Geotechnical Site Investigation	Tetra Tech, 22 Sep 2021

E-2: Thermal Modelling of Meliadine Discovery WRSF, Rev 3	Okane, 23 Jan 2024
E-3: Meliadine Extension – 2022 Thermal Assessment, Rev 1	WSP Golder, 12 Jan 2024
E-4: Updated Hydrogeology Modelling Meliadine Extension, Rev 1	WSP Golder, 18 Jan 2024
E-5: Meliadine Extension – Westbay Monitoring Well System M20-3071, 2021 Groundwater Program Meliadine Mine, Rev1	WSP Golder, 12 Jan 2024
E-6: Updated Summary of Hydrogeology Existing Conditions Meliadine Extension	WSP Golder, 24 Jan 2024
E-7: Meliadine Project – Predicted Groundwater-Surface Water Interaction at Post-Closure Versus Existing Conditions	WSP Golder, 24 Jan 2024
Appendix F: Management Plans	
F-01: Adaptive Management Plan of Water Management, V3_NWB	AEM, Jan 2024
F-02: Ammonia Management Plan, V5_NWB	AEM, Jan 2024
F-03: Aquatic Effects Monitoring Program Design Plan, V3	Azimuth, 23 Jan 2024
F-04: ARD-ML Sampling and Testing Plan, V1_NWB	AEM, Jan 2024
F-05: Borrow Pits and Quarries Management Plan, V7 _NWB	AEM, Jan 2024
F-06: Meliadine Bulk Fuel Storage Facilities: Environmental Performance Monitoring Plan, V2_NWB	AEM, Jan 2024
F-07: Dust Management Plan, V7 _NWB	AEM, Jan 2024
F-08: Environmental Management and Protection Plan, V10 _NWB	AEM, Jan 2024
F-09: Hazardous Materials Management Plan, V6 _NWB	AEM, Jan 2024
F-10: Incineration and Composter Waste Management Plan, V8 _NWB	AEM, Jan 2024
F-11: Itivia Bulk Fuel Storage Facility, Environmental Performance Monitoring Plan, V3 _NWB	AEM, Jan 2024
F-12: Interim Closure and Reclamation Plan, V2_NWB	AEM, Jan 2024
F-13: Landfarm Management Plan, V5_NWB	AEM, Jan 2024
F-14: Landfill and Waste Management Plan, V9 _NWB	AEM, Jan 2024
F-15: Mine Waste Management Plan, V9_NWB	AEM, Jan 2024
F-16: Ore Storage Management Plan, V6 _NWB	AEM, Jan 2024
F-17: Quality Assurance/Quality Control Plan, V5 _NWB	AEM, Jan 2024
F-18: Risk Management and Emergency Response Plan, V5 _NWB	AEM, Jan 2024
F-19: Roads Management Plan, V9 _NWB	AEM, Jan 2024
F-20: Spill Contingency Plan, V14 _NWB	AEM, Jan 2024
F-21: Meliadine Extension Water Balance and Water Quality Model –Technical Report, V14_NWB	AEM, Jan 2024
F-22 Fish Habitat Offsetting Plan, V3 _NWB	AEM, Jan 2024
Appendix G: Prior Engagement on Meliadine Infrastructure	
Table G-1 Record of Technical Comments and Commitments from NWB Meliadine Extension Process Relevant to Application - Ongoing	AEM, Jan 2024
Table G-2: Record of Technical Comments and Commitments from NWB Meliadine Extension Process Relevant to Application - Complete	AEM, Jan 2024
Additional Information as Provided to the NWB FTP Site Pursuant to the January 2024 Amendment Application	
240112 Meliadine Mine WL Amendment-Conformity to 2011 Determination	AEM, 12 Jan 2024
2024-01-22 NPC Letter re File 150202 - Itivia Fuel Farm and Temporary Tailings Storage Pad	NPC, 22 Jan 2024
240320 2AM-MEL1631 WL Amendment Cost Estimate Assumptions	AEM, January 2024
240213 2AM-MEL1631 WL Amendment Reclaim-LOC Schedule for CIRNAC and KivIA Review	AEM, 13 Feb 2024
240216 2AM-MEL1631 Meliadine Amendment 2024 Completeness check CIRNAC IRs	CIRNAC, 16 Feb 2024
KivIA Security Spreadsheet Changes	AEM, Mar 2024
240301 2AM-MEL1631 Agnico Eagle Responses to Completeness Check on Meliadine WL Amendment (KiviA, CIRNAC, ECCCC, DFO))	AEM, 1 Mar 2024

240301 2AM-MEL1631 Agnico Eagle Responses to Completeness Check on Meliadine WL Amendment-AppB_WBWQM Figures (Lorax, 23 Feb 2024)	AEM, 1 Mar 2024
240307 Meliadine Mine Adaptive Management Plan, Letter to CIRNAC re 2021 Commitments (3 for NWB and 15 for NIRB) Review Processes	AEM, 7 Mar 2024
240307 Meliadine Mine Schedule 2 (Discussion B7 review requirements by ECCC and DFO)	AEM, 7 Mar 2024
240313 2AM-MEL1631 Stability Evaluation of the WRSFs of Meliadine Water Licence Amendment, Rev1	Tetra Tech, 12 Mar 2024
240313 2AM-MEL1631 Meliadine Amendment 2024 Completeness check CIRNAC Reply to Agnico's Response on IRs	CIRNAC, 13 Mar 2024
240321 2AM-MEL1631 Agnico Eagle 2nd Round Responses to Completeness Check on Meliadine WL Amendment-IMLE	AEM, 21 Mar 2024
240321 2AM-MEL1631 NWB Reply to CIRNAC Completeness-OKKE	NWB, 21 Mar 2024
240326 2AM-MEL1631 Notice of Amendment Application & Technical Review-OASE	NWB, 26 Mar 2024
240326 2AM-MEL1631 Public Notice of Amendment Application-OMLE	NWB, 26 Mar 2024
240330 2AM-MEL1631 Letter to NWB on Meliadine Waterline-ILAE (History & Supporting Info)	AEM, 30 Mar 2024

C. RESULTS OF REVIEW

1. Adaptive Management Plan Approval

Comment:

The application for the proposed amendment included an Adaptive Management Plan (AMP, Version 3) (Appendix F-01). Within the context of Water Licence 2AM-MEL1631, the requirement for an AMP was triggered during a prior amendment process in which Agnico Eagle made the following Commitment #3:

"Agnico Eagle to provide an Adaptive Management Plan which includes: the site-specific water quality objectives for chloride; and a decision tree specifying the conditions under which surface water will be diverted into the saline effluent pipeline for marine disposal."

While the AMP describes the conditions under which surface water will be diverted into the waterline, its primary purpose is to prescribe a limited set of circumstances under which discharges to Meliadine Lake can occur.

Given the important role that the AMP plays in determining discharges to Meliadine Lake, the document is, therefore, central to the management of water and waste under Water Licence 2AM-MEL1631. This conclusion is supported by the multiple references to the AMP from other management plans that have been approved under Water Licence 2AM-MEL1631. Following are two examples of such linkages:

"The Meliadine Mine Adaptive Management Plan is also used in combination with the Water Management Plan to provide management and mitigation actions." (S.1.2 of the Water Management Plan)

"The WBM replicates the Normal Operating Conditions as defined in the Meliadine Mine Adaptive Management Plan for Water Management." (S.2.2 of the Meliadine Mine Water Balance and Water Quality Model)

Based on the above, CIRNAC's position is that the AMP should be an approved plan under 2AM-MEL1631. However, we note that the AMP is not listed under Part B, Item 12 of the 2AM-MEL1631 Water Licence; consequently, it does not have regulatory force.

In responding to CIRNAC-CR-05, Agnico Eagle agreed with CIRNAC's observation and requested that the NWB approve the AMP under the current water licence amendment process. Therefore, CIRNAC and Agnico Eagle agree that the NWB should review the AMP for approval.

Recommendation:
(R-01) CIRNAC recommends that the NWB review and, as appropriate, set the conditions or terms for approval of the Adaptive Management Plan during the course of the current water licence amendment process.

2. Minimizing Discharges to Meliadine Lake

Comment:
An updated version of the Adaptive Management Plan (AMP, Version 3) was submitted by Agnico Eagle in support of the current amendment application (Appendix F-01). The first guiding principle of the AMP is as follows:

"Water discharges to Meliadine Lake will be minimized or eliminated".

CIRNAC notes that the AMP was initially developed during the Environmental Assessment (EA) process for the saline waterline to Itivia Harbour. At that time, Agnico Eagle indicated that discharges to Meliadine Lake would be significantly lower than had been predicted during the original approval of the Meliadine Mine (per the 2014 FEIS). Specifically, the Waterline EA indicated that the maximum volume of water requiring discharge to Meliadine Lake would be 4,034 m^3/day if the waterline was approved. It was also expected that water discharges could be completely eliminated under some circumstances. In contrast, Section 2.2.3 of Appendix E in Appendix F-21 to the amendment application indicates that treated effluent will be discharged to Meliadine Lake at a maximum discharge rate of 22,000 m^3/day.

Based on the above, discharges to Meliadine Lake under the proposed water licence amendment could be up to five times greater than indicated when NIRB approved the waterline. In addition, the volume of water discharged to Meliadine Lake could be greater than the amount discharged to Itivia Harbour via the waterline (i.e., 20,000 m3/day). Within this context, the proposed amendment does not appear to be consistent with Agnico Eagle's commitment in the AMP to minimize or eliminate discharges to Meliadine Lake. Moreover, as per prior engagement (Appendix G), Agnico Eagle indicated that saline water from Tiriganiaq Pit 2 or any other saline water storage would never be discharged into Meliadine Lake.

Recommendation:
(R-02) CIRNAC recommends that Agnico Eagle:

a) Indicate why the waterline was not designed to have sufficient capacity to minimize or eliminate discharges to Meliadine Lake under the proposed amendment and
b) Initiate a process to identify and evaluate the feasibility of additional mitigations that could be implemented to minimize or eliminate discharges to Meliadine Lake. Examples of such mitigations include but are not necessarily limited to: a) ensuring

there are no further delays with the construction and commissioning of the waterline; b) reducing the rate of contact and saline water production by moderating the mine development rate; c) further increasing the water storage capacity at the site; and d) expanding the capacity of the waterline.

c) Confirms that, under no circumstances, will saline water from Tiriganiaq Pit 2 or any other saline water storage be mixed with surface contact water and/or discharged into Meliadine Lake.

3. Adaptive Management Plan Revisions

Comment:

a. Undocumented Revision:

As with updates to other management plans, Agnico Eagle's proposed revisions to the AMP (Version 3) have been documented using a system of marginal annotations. However, during our review of the AMP (Version 3), CIRNAC identified the following undocumented change from Section 1.1, Guiding Principles:

Original (AMP Version 2)

"2. Water will be discharged to Meliadine Lake only if there is insufficient residual capacity in the waterline system and stored surface contact water volumes are outside of normal operating levels set in place in consideration of Dike for Collection Pond 1 (D-CP1) design;"

Agnico Eagle's Proposed Revision Without Documentation (AMP Version 3)

"2. Water will be discharged to Meliadine Lake only if there is insufficient residual capacity in the waterline system and/or stored surface contact water volumes are outside of normal operating levels set in place in consideration of Dike for Collection Pond 1 (D-CP1) design"

In addition to being an undocumented revision, the change from "and" to "and/or" is not consistent with the intent of the guiding principles of the AMP. As a consequence, CIRNAC does not support the proposed change.

b. Documented revisions:

Version 3 of the AMP also includes the following proposed and documented changes:

Original (AMP Version 2)
"4. Design criteria of infrastructure will be respected at all times."

Agnico Eagle's Proposed Revision (AMP Version 3)
"4. Design criteria, performance objectives, and drawdown of water management infrastructures shall always be respected and have a satisfactory trend. If any of these

are not respected or if the trend is not satisfactory, additional discharge of surface contact water to Meliadine Lake may be required."

Related to this change, Table 1 of the revised AMP (Version 3) also includes "Dike Performance" as a new decision-making category. Agnico Eagle has not presented the rationale for these revisions and it is unclear to CIRNAC why the changes are necessary under the proposed amendment.

c. Proposed revisions (Objective):

The submitted version of the Adaptive Management Plan (AMP, Version 3) (Appendix F-01) indicated the following as the primary objective:

"*The primary objective of the AMP is to document specific management actions and mitigation measures to be taken when specified thresholds are exceeded.*"

As indicated earlier, given the important role that the AMP plays in determining discharges to Meliadine Lake, the document is central to the management of water and waste under Water Licence 2AM-MEL1631. This conclusion is supported by the multiple references to the AMP from other management plans that have been approved under Water Licence 2AM-MEL1631, such as:

"*The Meliadine Mine Adaptive Management Plan is also used in combination with the Water Management Plan to provide management and mitigation actions.*" (S.1.2 of the Water Management Plan)

Therefore, CIRNAC understands that the primary objective of the AMP should not only be to document specific management actions but also to implement specific actions so that the specified thresholds under each scenario are not exceeded.

d. Proposed revisions (Table 2):

Section 4 of the AMP stated:

"The determination of discharge to Meliadine Lake will depend on the adaptive management level (i.e., normal, caution, at-risk) and if the water (as measured at MEL-14) meets the discharge criteria stipulated in Water Licence 2AM-MEL1631."

As such, it is expected that Agnico Eagle will be able to meet the Water License criteria for water quality in CP1 even when its quantities are at risk level. Consequently, management activities such as emergency discharge (as indicated in Table 2, item 12 for at Risk Adaptive Management Level) should not apply to surface contact water quality and meet the licensing water quality criteria for discharge. In other words, emergency discharge should only address the water quantity risk, not the water quality issue.

Moreover, for clarity, Table 2 should include a footnote mentioning that Agnico Eagle must consult with the NWB on the required approval process, execution, and implementation before initiating the adaptive management strategy actions related to the discharge in Lake Maliadine at Cution and at Risk Situation. This approach is consistent with the requirement for AMP for water license No. 2AM-WTP1830.

Recommendation:

(R-03) CIRNAC recommends that Agnico Eagle:

a) Ensure that the document control section fully and transparently documents all proposed revisions to regulatory submissions.
b) Withdraw the proposed change to AMP Guiding Principle 2. The change from “and” to “and/or” is not consistent with the intent of the guiding principles of the AMP.
c) Provide a rationale for the proposed revision to AMP Guiding Principle 4.
d) Revise the Guiding Principles (Section 1.1) to indicate that the primary objective of the AMP is not only to document specific management actions but also to implement specific actions so that the specified thresholds under each scenario are not exceeded.
e) Revise Table 2 to indicate that Item#12 activity under the At-Risk Adaptive Management Level does not apply to Surface Contact Water Quality.
f) Add a footnote under Table 2 stating that Agnico Eagle must consult and get approval from the NWB and the Inspector before considering, initiating and implementing the adaptive management strategy actions related to the discharge in Lake Maliadine at Cution and at Risk Situation.

4. Storage of Saline Water in Lake B7

Comment:

The proposed amendment involves dewatering Lake B7 to form a new Saline Pond (SP6). As indicated in CIRNAC’s completeness review of the amendment application (CIRNAC-CR-04), the Department requested that Agnico Eagle provide evidence demonstrating that the scoping and environmental screening that occurred during the previous NIRB Assessment considered the use of Lake B7 as a saline pond not only for use as a waste management area. Agnico Eagle’s responses did not address CIRNAC’s recommendation but instead referred to the approved use of Lake B7 as a tailings storage facility (TSF).

The NWB subsequently ruled that the NIRB's prior evaluations gave due consideration to the potential environmental impacts associated with storing saline water in Lake B7.

For the record, CIRNAC disagrees with this regard and is of the opinion that NIRB has not assessed the temporary use of Lake B7 as a saline pond. Specifically, CIRNAC has reviewed the 2014 FEIS documentation describing the TSF, potential impacts and mitigations (e.g., SD 2-3 Tailings Storage Facility Preliminary Design - Meliadine Gold Project, Nunavut, January 7, 2013) and concluded that the analysis is not applicable to the use of Lake B7 as a saline water storage facility.

Given the significant differences between slurried tailings and saline mine water, CIRNAC believes that the assessment presented in the 2014 FEIS does not necessarily apply to the

current water licence amendment process. The burden of proof to demonstrate the applicability of the prior FEIS rests with Agnico Eagle. Furthermore, CIRNAC notes that the previously proposed use of Lake B7 to store tailings was a permanent alteration and that the lake would not serve as an aquatic habitat in the future. In contrast, saline water storage is a temporary activity, and the water body will be re-integrated into the broader aquatic environment during the closure phase. Therefore, the water licence amendment process must verify that the temporary storage of saline water in SP6 will not result in long-term environmental effects.

With the exception of assessing the post-closure diffusive flux of total dissolved solids (TDS) from SP6 sediments exposed to saline water (Section 4.4.2 of the Water Management Plan), the water licence amendment application does not assess the full scope of potential interactions between SP6 and the environment. For example, the application does not explicitly assess: a) any salinity effects on lake sediments; b) salinity effects on the size of the talik below Lake B7 and any consequential changes in groundwater flows; and c) any salinity effects on littoral soils, including permafrost and loss of ground strength.

For clarity, CIRNAC has not determined that interactions between SP6 and the environment would necessarily be significant. Instead, the Department indicates that the interactions should be formally considered and, if necessary, appropriate mitigations should be integrated into the amended water licence. This is necessary because the interactions were not considered during the 2014 FEIS. Because this screening was not undertaken during the NIRB process, it is now left to be undertaken at the licensing process and, as such, maybe the cause for any delays in the Licensing process that could have been previously avoided.

Recommendation:

(R-04) CIRNAC recommends that Agnico Eagle provide a qualitative technical memo describing the potential environmental interactions between SP6 and the environment during operations and post-closure. Appropriate mitigations should be proposed if there is a potential for significant adverse impacts. The memo should be provided a minimum of 3 weeks prior to the close of the public record for the current proceeding. At minimum, the technical memo should explicitly assess:

a) any salinity effects on lake sediments;
b) salinity effects on the size of the talik below Lake B7, any consequential changes in groundwater flows and impact on the receptor water quality; and
c) any salinity effects on littoral soils, including permafrost and loss of ground strength.

5. Water Quality Predictions

Comment:

Updated water quality predictions were included in Agnico Eagle's amendment application package (Appendix F-21). The updated predictions are not compared to prior predictions (e.g., from the 2014 FEIS and the most recent predictions for Water Licence 2AM-MEL1631). It is, therefore, not possible to determine the incremental changes associated with the proposed amendment.

In addition, and as shown in the following figures, multiple parameters are now predicted to exceed applicable water quality criteria during operations, active closure, or the post-closure phases. The amendment application does not present details regarding the steps Agnico Eagle is committed to taking to ensure the exceedances do not occur (e.g., source control) or can be effectively mitigated (e.g., treatment).

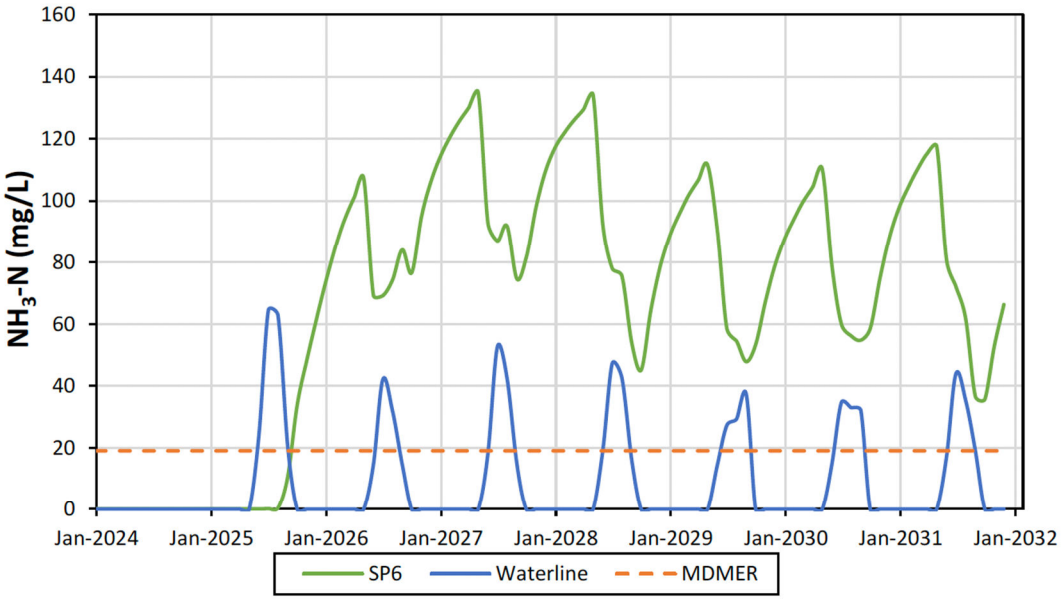


Figure E-5: Projected concentrations of ammonia (NH_3-N) at SP6 and Waterline during Operations (2024-2031) as compared to the maximum monthly mean effluent concentrations specified in in MDMER (Schedule 4, Table 2).

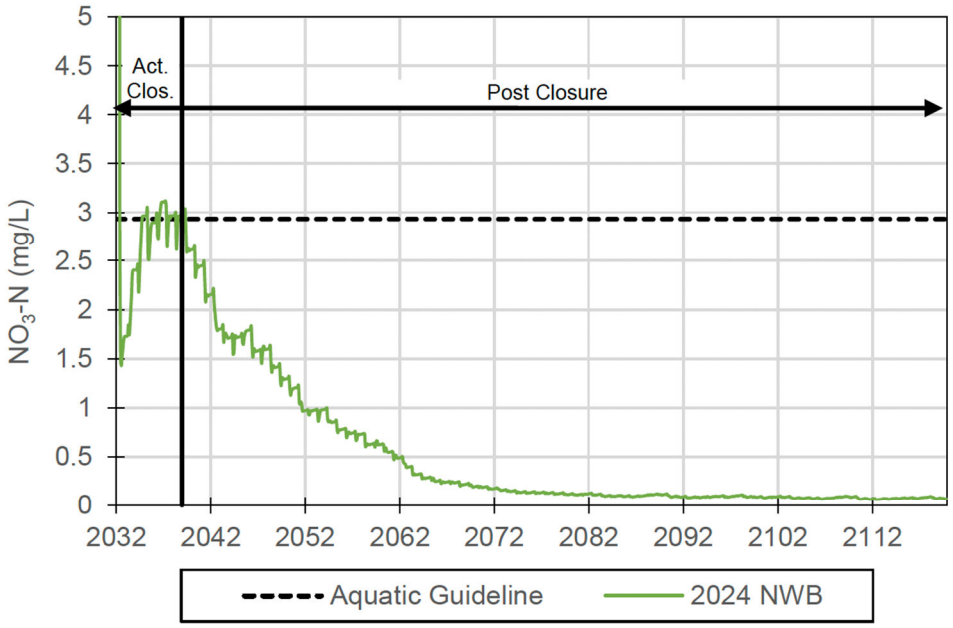


Figure E-8: Projected concentrations of nitrate (NO_3-N) at SP6 during Active Closure (2032-2038) and Post Closure (2039 onwards).

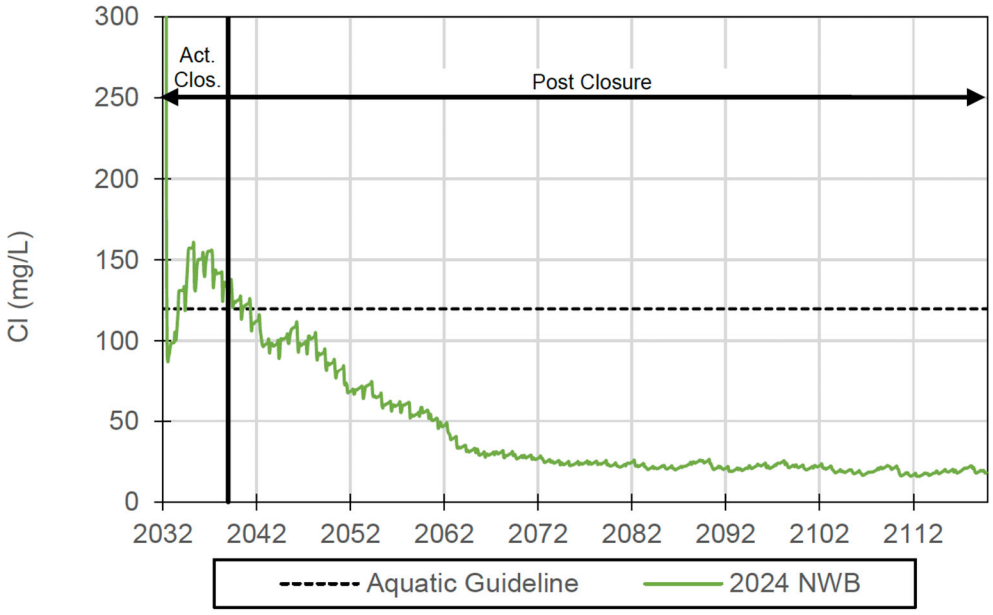


Figure E-10: Projected concentrations of chloride (Cl) at SP6 during Active Closure (2032-2038) and Post Closure (2039 onwards).

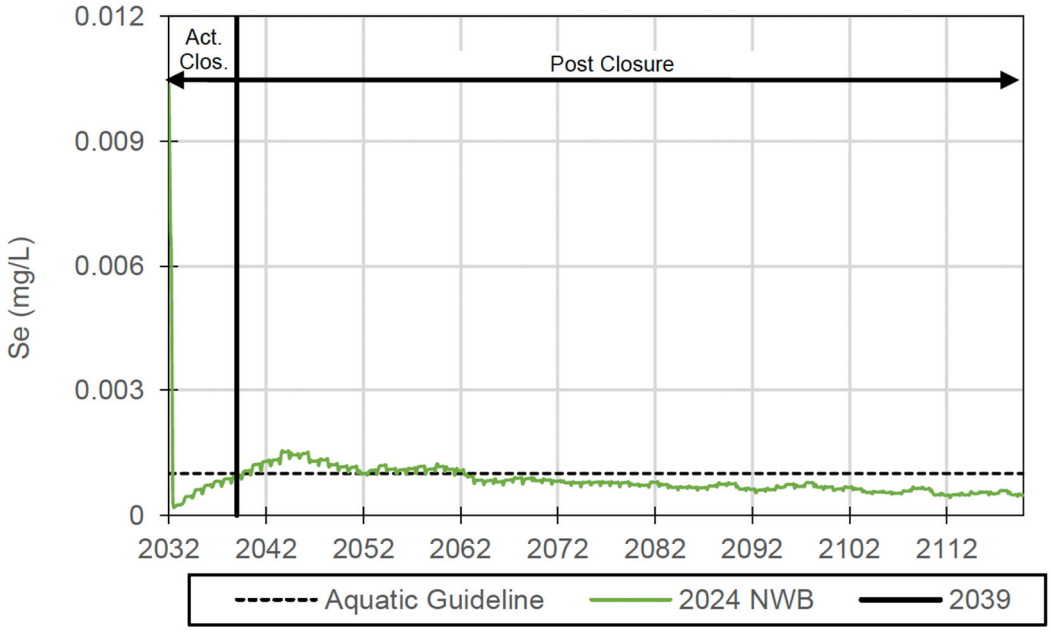


Figure E-12: Projected concentrations of selenium (Se) at SP6 during Active Closure (2032-2038) and Post Closure (2039 onwards).

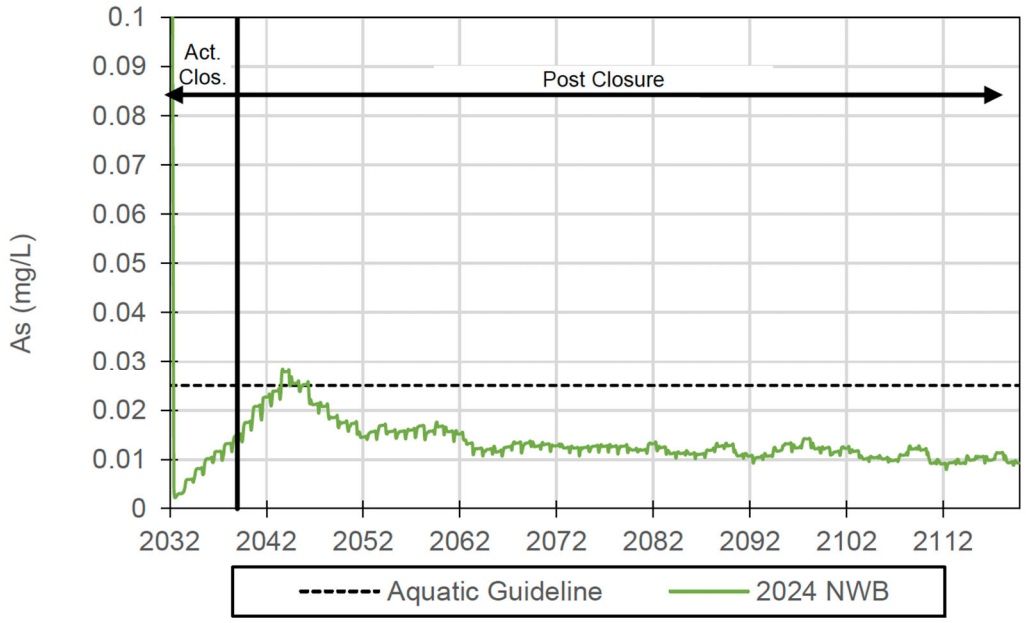
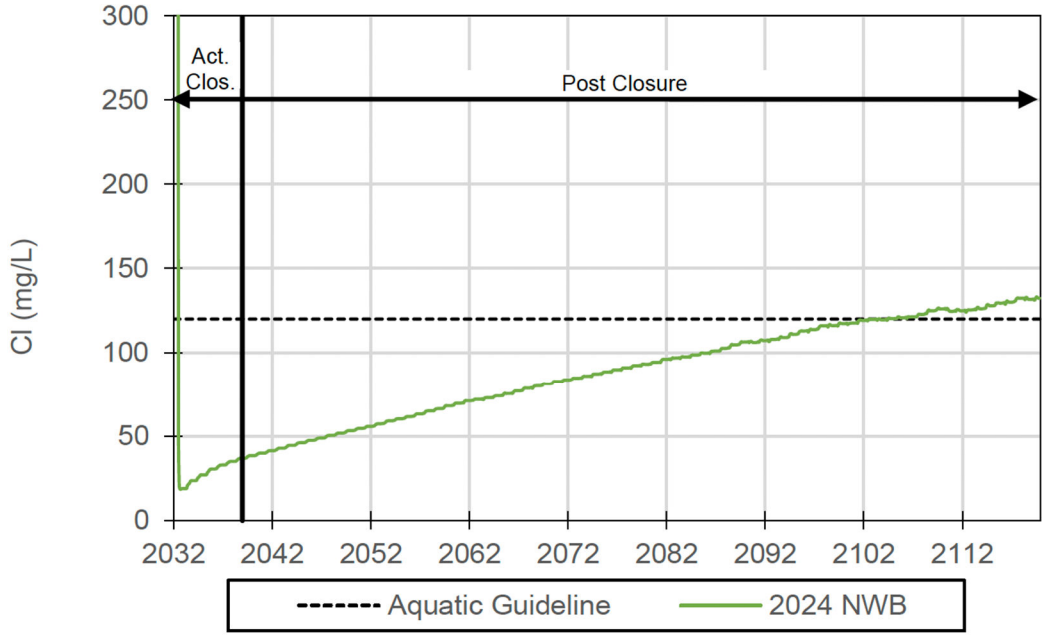


Figure E-11: Projected concentrations of arsenic (As) at SP6 during Active Closure (2032-2038) and Post Closure (2039 onwards).



gure E-18: Projected concentrations of chloride (Cl) at WES04 during Active Closu (2032-2038) and Post Closure (2039 onwards).

As presented in the figures above, multiple parameters approach or exceed the applicable water quality criteria. When considering the predictions and the limited "margin of error", CIRNAC draws attention to the accuracy of water quality predictions. Although the current amendment application does not state the accuracy of the predictions, prior Agnico Eagle water quality modelling exercises at other mines (e.g., for the Meadowbank and Meliadine Mines) were considered accurate to within one order of magnitude. If the same prediction accuracy is applied to the current application, there is a potential that future contaminant concentrations would significantly exceed the applicable criteria. The amendment application does not address this potential.

Recommendation:

(R-05) CIRNAC recommends that Agnico Eagle:

a) Update all water quality prediction plots to include comparisons to prior FEIS and water licence predictions;
b) Specify the anticipated accuracy of the water quality predictions (e.g., within X orders of magnitude);
c) Indicate the steps it is taking to prevent and/or mitigate the predicted exceedances and
d) Specify how the predicted exceedances and associated uncertainty should influence post-closure monitoring and security requirements.

6. Clarifications

Comment:

During the course of our technical review, CIRNAC identified the following inconsistencies and/or information that require clarification:

a) Groundwater Quantities

The following table is presented in the updated Water Management Plan submitted in support of the amendment application:

Table 16: Predicted Groundwater Inflow to the Underground Mine (2024 to 2031)

Year	Tiriganiaq Underground inflows Total (m^3/day)
2024	444
2025	639
2026	976
2027	1,098
2028	988
2029	921
2030	905
2031	925

Source: Lorax 2024

In contrast, the following table is presented in the Updated Hydrogeology Modelling report (WSP, January 24th, 2024) also submitted in support of the amendment application. The predicted groundwater inflow rates between the two documents differ significantly.

Table 6: Predicted Groundwater Inflow and TDS Quality to Tiriganiaq Underground Mine – Base Case

	Predicted Groundwater Inflow (m^3/day)
2022	400
2023	575
2024	700
2025	975
2026	1,450
2027	1,625
2028	1,450
2029	1,400
2030	1,350
2031	1,450

b) Ore and Tailings Quantities

The amendment application indicates there will be significant differences between the quantity of mined ore and the quantity of tailings that will be produced. For example, Section 2.1 of the Waste Management Plan states:

"The current Mine Plan is expected to produce approximately 37.5 million tonnes (Mt) of ore, 179.6 Mt of waste rock, 34.5 Mt of overburden waste, and 31.4 Mt of tailings. Agnico Eagle will continue exploration activities with the objective to extend mine life beyond 2031."

CIRNAC is unclear why the quantities of ore milled and tailings produced differ by 6.1 Mt.

It is also stated in Table 2.2-2 of the Main Amendment Application document that 28.1 Mt of tailings will be placed in the Tailings Storage Facility (TSF). Given that 37.5 Mt of ore will be milled, 9.4 Mt of tailings are unaccounted for.

c) Freshwater Requirements

Table 2.2-1 of the Main Amendment Application notes that freshwater requirements for Milling Operations need to be increased to 653,000 m^3/yr. However, based on annual total tonnes of ore mined as shown in Table 2.2-2 Life of Mine Summary for All Deposits, using a water requirement of 0.21 m^3/t milled, with the exception of 2027, water requirements for milling exceed this annual amount during the years from 2025 to 2031.

Recommendation:

(R-06) CIRNAC recommends that Agnico Eagle:

a) Reconcile differences between predicted groundwater inflow rates;
b) Reconcile differences between ore and tailings production rates;
c) Confirm that freshwater milling requirements of 652,000 m^3/yr are adequate for the total annual ore milling requirements to 2031, as shown in Table 2.2-2.