AGNICO EAGLE

September 18, 2023

NWB File No. 2AM-MEL1631
NIRB File No.: 11MN034

Richard Dwyer
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Re: Agnico Eagle's Response to Technical Comments for the Meliadine Extension Water Licence Amendment

Dear Mr. Dwyer:

Agnico Eagle thanks the Kivalliq Inuit Association, Crown-Indigenous Relations and Northern Affairs Canada, Environment and Climate Change Canada, and Fisheries and Oceans Canada for their Technical Comments for the Meliadine Extension Water Licence Amendment Application.

Agnico Eagle has provided responses to the Technical Comments received in the attached.

Should you have any questions or require further information, please contact the undersigned at your convenience.

Regards,

Jamie Quesnel
Jamie.quesnel@agnicoeagle.com
Director - Permitting & Regulatory Affairs

Table of Contents

List of Appendices

KIVALLIQ INUIT ASSOCIATION (KivIA)

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-TRC-01**
Re:	**In-Pit Disposal of Tailings and/or Waste Rock**		

Request Made by Interested Party:
The KivIA recommends the following:

Agnico Eagle must define the package of information on a "pit by pit" basis that will be submitted to the NWB one (1) year prior to starting the in-pit disposal of tailings and/or waste rock. At a minimum, the request for approval on a "pit by pit" basis should include the information in the following items:

1) Thermal study to assess the degradation of permafrost within the in-pit lakes specific to the final pit shell of each open pit.

2) Hydrogeological study to assess the groundwater contaminant transport to the receiving environment.

3) Update the water balance and water quality model, including the source terms, with the most current monitoring data considering environmental quality criteria in the water and sediments of the open pits.

4) Update the Water Management Plan including an update of the monitoring section and an updated water balance.

5) Update the Mine Waste Management Plan including detailed descriptions and analysis of the placement methods, waste balance adjustments to the authorized quantities of waste to be disposed of in previously approved tailings and waste rock storage facilities and detailed pit closure strategies.

6) Update the Interim Closure and Reclamation Plan upon completion of each open pit with the detailed pit closure strategies.

7) Update the Water Management Plan, Mine Waste Management Plan and adaptive management strategies upon completion of mining of each open pit.

Agnico Eagle's Response to Request:
As per response through the NIRB review process on the Meliadine Extension file (see NIRB Final Written Submission response to CIRNAC-TRC-02 dated August 9, 2023), Agnico Eagle has agreed to completing the studies noted above. The response to CIRNAC-TRC-02 dated August 9, 2023 includes an agreed term and condition with CIRNAC on in-pit deposition.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-TRC-02**
Re:	**Limits to Annual Discharge to Meliadine Lake**		

Request Made by Interested Party:

1) A Condition to the Water Licence be added to limit the annual discharge to Meliadine Lake to 1.1 million m^3 annually.

2) With the reduced discharge, Agnico Eagle must provide details on water management infrastructure, including construction plans, updated management plans, and updated water quality water balance models prior to commencement of the Meliadine Extension, including impacts to levels on Meliadine Lake and downstream waterbodies.

Agnico Eagle's Response to Request:

Response 1)

There is no evidence that water discharged to Meliadine Lake has a detrimental effect on the health of the lake. As shown in the water balance, between the years 2025 to 2043 the range of our annual discharge goes from 132,000 to 2,464,000 m^3/year. Based on the water balance submitted to the NWB for this Application, the life of mine annual average is 1.3 Mm^3.

Based on our analysis through the NIRB process and existing operational monitoring, there is no effect on the receiving environment.

The modelling shown through this process shows an optimization and an overall reduction in the volume discharged to the lake, and concentrations of the majority of parameters in the discharge, and therefore even less of an effect to the receiving environment.

Response 2)

Agnico Eagle does not agree with the recommendation to the cap of 1.1 Mm^3 of discharge.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-TRC-03**
Re:	**Site Specific Water Quality Objectives in Meliadine Lake**		

Request Made by Interested Party:
Site Specific Water Quality Objectives in the Aquatic Effects Monitoring Plan below the Health Canada Drinking Water Guidelines should be adopted in Meliadine Lake for arsenic, fluoride, and iron.

Agnico Eagle's Response to Request:
Site specific water quality objectives (SSWQO) were developed through review and approved by toxicology experts from Environment and Climate Change Canada (ECCC). In addition, the development of the SSWQOs followed the methodology defined by ECCC.

A Human Health and Ecological Risk Assessment was completed for the Meliadine Extension (Agnico Eagle 2022). The risk assessment included evaluation of predicted water quality changes in Meliadine Lake from the Meliadine Extension and the potential risk to end users. There were no exceedances of water quality parameters that have health-based guidelines and therefore no risk.

A summary of the most recent monitoring data from the edge of the mixing zone are provided below in Table KivIA-3-1.

As concentrations are well below drinking water guidelines and the SSWQOs, there is no justification to revise the SSWQOs.

Table KivIA-3-1: Monitoring Data from the Edge of the Mixing Zone

Constituent	Unit	SSWQO	CDWG	Existing Concentration[a] Under-Ice		Existing Concentration[a] Open-Water	
				Average	Maximum	Average	Maximum
Arsenic	ug/L	25	10	0.588	0.747	0.576	0.671
Fluoride	mg/L	2.8	1.5	0.0348	0.036	0.0275	0.03
Iron	ug/L	1060	300	12.3	23.3	23.2	27.2

SSWQO = site-specific water quality objective; CDWG = Canadian Drinking Water Quality Guideline

a) Concentrations at MEL-01 as reported in the 2022 AEMP Annual Report (Azimuth 2023).

References:

Agnico Eagle. 2022. Meliadine Mine – Meliadine Extension FEIS Addendum. Submitted to the Nunavut Impact Review Board. July 2022.

Azimuth (Azimuth Consulting Group Inc.). 2023. Aquatic Effects Monitoring Program 2022 Annual Report, Meliadine Gold Mine.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-TRC-04**
Re:	**Contact Water Management**		

Request Made by Interested Party:
The Water Management Plan/Adaptive Management Plan should be updated to include a prioritized discharge strategy.

Agnico Eagle's Response to Request:
Based on comments from KivIA, water from CP3, CP4, CP5, and the STP can be directed to the saline storage pond under normal operating conditions; outside of normal operating conditions, waters from CP3, CP4, and CP5 would be directed to CP1. Agnico Eagle will update the Water Management Plan and the Adaptive Management Plan with these details.

Interested Party:	**KivIA**	**Rec No.:**	**KivIA-TRC-05**
Re:	**Saline Enrichment of Lake 87 Sediment**		

Request Made by Interested Party:
Guidelines for the protection of aquatic life are used to assess Lake B7 (SP6) for post-closure water quality.

Agnico Eagle's Response to Request:
The above comment is based on an assumption of the quality of the sediment and not predicted evidence. Based on this Application, Agnico Eagle will be operating for another 20 years which provides operational data to validate assumptions and will be used to update water quality predictions for final closure. Therefore, Agnico Eagle has time to validate before the Final Closure Plan.

CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA (CIRNAC)

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-01**
Re:	**Discovery Waterline**		

Request Made by Interested Party:
CIRNAC recommends that:

a) AEM updates the Spill Contingency Plan, Water Management Plan and Adaptive Management Plan to indicate that all mitigation measures that are applicable to the approved waterline from the Meliadine Mine to Itivia Harbour are also applicable to the Discovery Waterline.

b) AEM implements mitigation measures, including the following, for the Discovery waterline:

I. Implementing a leak detection system;
II. Implementing an emergency response number;
III. Covering the waterline;
IV. Placing markers along the waterline; and
V. Testing the waterline prior to each discharge season.

c) NWB revises the existing relevant licence conditions to ensure that all commitments made by AEM for the approved waterline would also be required for the Discovery waterline, should the Proposed Project be approved.

Agnico Eagle's Response to Request:
Response a)
As per response and commitments through the NIRB review process on the Meliadine Extension file, specifically in response to CIRNAC-TRC-01, Agnico Eagle has previously agreed to update the Spill Contingency Plan, Water Management Plan, and Adaptive Management Plan following issuance of the Project Certificate indicating that mitigation measures that are applicable to the approved waterline from the Meliadine Mine to Itivia Harbour are also applicable to the Discovery Waterline. These same plans will be updated and submitted to the NWB and interested parties.

Response b)
As per response and commitments through the NIRB review process on the Meliadine Extension file, specifically in response to information request response SDFN/NDFN-IR-2, Agnico Eagle has already committed to the following mitigation measures for the Discovery waterline:

- implement a leak detection system;
- implement an emergency response number;
- cover the waterline;
- place markers along the waterline; and
- test the waterline prior to each discharge season.

These mitigation measures are outlined within the Spill Continency Plan.

Response c)

Agnico Eagle is of the opinion that the existing conditions of the Water Licence are applicable to the Meliadine Extension and do not require revision. For example, management plans are updated and submitted to the NWB accordingly as per Part B, Item 12 of the Water Licence.

Any associated design and construction of the Discovery waterline would follow the conditions under Part D, Item 1d of the Water Licence.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-02**
Re:	**In-pit Disposal of Tailings and/or Waste Rock**		

Request Made by Interested Party:
CIRNAC recommends that:

a) In-pit tailings and/or waste rock disposal should not be approved as an alternative at this time, as no pit-specific detailed information and assessment have been provided.

b) In-pit tailings and/or waste rock disposal should be approved on a pit-by-pit basis, not as a blanket approval and after reviewing pit-specific detailed information and assessment.

c) Prior to in-pit filling of waste rock and/or tailings as described in the NWB application filed on January 13, 2023, AEM shall submit a request to the NWB for review and approval in accordance with the process set out in the terms and conditions of the Type "A" Water Licence issued under the Nunavut Waters and Nunavut Surface Rights Tribunal Act. At a minimum, the request for approval shall be at least 6 months in advance of any expected in-pit deposition activities and accompanied by the information described below:

1) *Thermal study to assess the degradation of permafrost within the in-pit lakes.*
2) *Hydrogeological study to assess the groundwater contaminant transport to the receiving environment.*
3) *Update the water balance and water quality model, including the source terms with the most current monitoring data considering environmental quality criteria in the pits (water and sediment).*
4) *Update the following management plans:*
   - I. *Water Management Plan, including an update of the monitoring sections and an updated water balance.*
   - II. *Mine Waste Management Plan, including detailed descriptions and analysis of the placement methods, waste balance adjustments to the authorized quantities of waste to be disposed of in previously approved tailings and waste rock storage facilities, and pit closure strategies sections.*
   - III. *The pit closure strategies are to be included in regular updates to the Interim Closure and Reclamation Plan.*

Agnico Eagle's Response to Request:

Response a)

Agnico Eagle disagrees with this comment. An environmental assessment for the alternative activity of in-pit deposition of tailings or waste rock has been completed. Further environmental assessment is not required. Agnico Eagle has agreed that specific studies (as outlined in part "c" of this technical comment) would be completed and submitted to the NWB for review by parties prior to initiating the activity.

Response b)

Agnico Eagle would complete the specific studies (as outlined in part "c" of this technical comment) and submit to the NWB for review by parties prior to initiating the activity. For clarification, in a single submission, Agnico Eagle may include one or more pits (i.e., separate studies would not be completed for each pit if multiple pits were to be used for in-pit deposition).

Response c)

Agnico Eagle refers the reader to the response provided in KivIA-TRC-01.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-03**
Re:	**Total Dissolved Solids Concentrations in CP1**		

Request Made by Interested Party:
CIRNAC recommends amending the CP1 TDS discharge criteria to lower values reflective of the predicted water quality modelling and actual results.

Agnico Eagle's Response to Request:
Evidence was put forward in the 2020 Water Licence Amendment application (Golder 2021) that TDS discharge criteria of 3,500 mg/L (maximum average) and 4,500 mg/L (maximum grab) will comply with the end of pipe toxicity criteria (i.e., will not be acutely lethal) and will not result in adverse effects in the receiving environment (Golder 2021; Agnico Eagle 2022). Agnico Eagle will continue to meet the Water Licence and MDMER discharge criteria. There is no rationale to change the discharge limits for the Meliadine Mine. In addition, the operations have to maintain flexibility to ensure the site can adapt to changing conditions.

References
Agnico Eagle (Agnico Eagle Mines Limited). 2022. Meliadine Mine – Meliadine Extension FEIS Addendum. Submitted to the Nunavut Impact Review Board. July 2022.

Golder (Golder Associates Ltd). 2021. Water Quality Management and Optimization Plan Progress Update Rev4b; Phase 3: Meliadine Mine Effluent Discharge Benchmarks for Total Dissolved Solids. Submitted to Agnico Eagle Mines Limited. August 2021. Posted to the NWB Site August 20, 2021.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-04**
Re:	**Post-Closure Seepage Quality from Reclaimed Areas**		

Request Made by Interested Party:
CIRNAC recommends that AEM provide specific information on the source terms used in the Water Quality Model for reclaimed site areas for the post-closure water quality predictions.

Agnico Eagle's Response to Request:
Source terms were provided in Appendix C of Appendix E of Appendix F21 of the submission to the Nunavut Water Board:

- Appendix F21: Water Management Plan
    - Appendix E: Meliadine Extension Water Balance and Water Quality Model Update
        - Appendix C: Source Term and Geochemical Reports

Agnico Eagle will be operating for another 20 years which provides operational data to validate predictions. In addition, on an annual basis Agnico Eagle is required to update the water balance and water quality models. Therefore, Agnico Eagle has time to validate before the Final Closure Plan.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-05**
Re:	**Marine Discharge to Melvin Bay**		

Request Made by Interested Party:
CIRNAC recommends that AEM provide:

a) Detailed discussion and schedule for actual and planned activities related to the construction of all components of the saline water collection and marine discharge system, complete with scheduled risks, risk mitigation and management;

b) Potential project impacts and adaptive management measures that would be required if discharge to the marine environment via the pipeline(s) can not commence in 2025 as planned in the Meliadine Extension Application; and

c) An update on long-term saline water management if issues related to ECCC toxicity criteria remain unresolved and prevent the discharge of saline water beyond 2025.

Agnico Eagle's Response to Request:
Responses a) and b)
We were delayed for almost 2 years with the construction of the waterline due to unforeseen circumstances. However, we are maintaining the schedule to have the waterline commissioned by 2025.

As already outlined in the approved Adaptive Management Plan we would evaluate utilizing other pits and/or underground for additional water storage for the "at risk" adaptive management level.

Response c)
Agnico Eagle is continuing discussions with the appropriate regulatory authorities and continues to do additional test work and identify a water treatment facility. We are confident that we will establish a reasonable solution.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-06**
Re:	**Operational Saline Water Storage in Tiriganiaq Open Pit 2**		

Request Made by Interested Party:
CIRNAC recommends that AEM:

a) Confirm that no saline water will be stored in TIR02 once it has been dewatered through pipeline discharge to the marine environment in 2025; and

b) Obtain the necessary approvals through supporting information and relevant studies to use TIRI02 beyond 2025 or any other open pit at the Meliadine Mine for saline water storage.

Agnico Eagle's Response to Request:
Responses a) and b)
Agnico Eagle has approval to store water in Tiriganiaq. In addition, all of our pits are part of our approved Adaptive Management Plan. It could receive saline water or contact water during the operational window for adaptive management and flexibility of the site. Further, the pit will be flooded at closure as part of the ICRP.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-07**
Re:	**Saline Water in Lake B7**		

Request Made by Interested Party:
CIRNAC recommends that AEM:

a) Clarify whether the potential impacts on Groundwater and receptor surface waters from saline water storage in Lake B7 (SP6) from 2025 to 2043 have been explicitly modelled and assessed; and

b) Provide appropriate modelling information, assessment results and supporting documentation prior to approving Lake B7 as SP6 for a long-term primary Saline Water storage facility.

Agnico Eagle's Response to Request:
Response a)
Agnico Eagle confirms the hydrogeological model has already been completed and assessed. The assessment was submitted to the NIRB and the hydrogeological models were submitted to the NIRB and the NWB.

Response b)
The requested information has already been provided to the NIRB as part of the environment assessment process.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-08**
Re:	**Sludge Disposal in Saline Water Storage**		

Request Made by Interested Party:
CIRNAC recommends that AEM provide:

a) Additional details of past studies supporting in-pit sludge disposal;

b) Clarify what AEM means by "may also explore other alternatives for sludge disposition in future years" and provide clear commitments on studies and timelines;

c) Evidence that the practice of disposing of sludge waste in the Tiriganiaq 2 Open Pit (or any other water body) has undergone an environmental screening to confirm whether the practice might result in significant environmental impacts.

Agnico Eagle's Response to Request:
Responses a), b), and c)
As these recommendations are a copy and paste from the 2022 Annual Report Comments submitted by CIRNAC to the NWB, we refer CIRNAC to Agnico Eagle's September 15, 2023 response to CIRNAC-4.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-09**
Re:	**Interim Closure and Reclamation Plan (ICRP)/Security Estimate**		

Request Made by Interested Party:

CIRNAC recommends that AEM review and update all Units' Rates, Lump Sum costs, allowance, and other rates established in earlier estimates and used again in the January 2023 Meliadine ICRP cost.

Agnico Eagle's Response to Request:

As per our Security Management Agreement and current practice, Agnico Eagle will meet with CIRNAC and the KivIA to discuss security after the Technical Meeting.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-10**
Re:	**Increase in Freshwater Consumption from Meliadine Lake**		

Request Made by Interested Party:
CIRNAC recommends that AEM provide additional details to support the requested increase in freshwater consumption from Meliadine Lake.

Agnico Eagle's Response to Request:
Agnico Eagle refers CIRNAC to Table 2.3-2 of the Main Application Document with the details required to support the request. In addition, the requested volume is still less than the 2014 environmental assessment. We always look for opportunities to reduce our consumption; however, an upper limit is required for unforeseen circumstances.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-11**
Re:	**Itivia Fuel Storage Capacity**		

Request Made by Interested Party:

CIRNAC recommends that AEM provide clarification on the fuel storage capacity currently existing at Itivia Harbour and what is being proposed and expected to be constructed, operated and licenced.

Agnico Eagle's Response to Request:

Agnico Eagle appreciates the comments raised by CIRNAC and has provided clarity in the below table.

Comment Raised by CIRNAC	Response by Agnico Eagle
Table 1.2-1 of the Main Application Document states under the existing Meliadine Mine –Phase 1 & 2 Rankin Inlet Infrastructure–Fuel Storage column that there is "A fuel tank farm to store up to 80 million litres of diesel fuel in 8 x 10-million litre tanks".	In the 2014 Final Environmental Impact Statement, Agnico Eagle assessed and was approved for up to 80 ML of fuel at Itivia Harbour.
Under the Meliadine Extension Water Licence Amendment column, the table states that there will be an "Increase of fuel tank farm to store up to 80 million litres of diesel fuel in 8 x 10-million litre tanks".	As part of Meliadine Extension, Agnico Eagle is maintaining the upper limit for operational flexibility and there is no change to the upper limit. However, an additional 20 ML would be added, bringing the total to 53.5 ML.
In Appendix F11 - Itivia Bulk Fuel Storage Facility EPMP, Section 2.2 states that currently, there are 2 fuel tanks at Itivia - Tank #1 20 ML and Tank #2 13.5 ML.	Currently at Itivia, there is a 20 ML tank and a 13.5 ML tank.
The Spill Contingency Management Plan (Appendix 20) Section 3, Table 3.1 notes that there are three diesel tanks at Itivia Harbour (one 20 ML tank, one 13.5 ML, and one 4 ML tank), which is one more than what is stated elsewhere.	The 4 ML in the Spill Contingency Plan is an error in the plan. The removal of the 4 ML tank was corrected in the Spill Contingency Plan (V13) which submitted as part the 2022 Annual Report.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-12**
Re:	**Improvements to the Water Management Strategy**		

Request Made by Interested Party:
CIRNAC recommends that AEM explore a better management approach for the runoff/seepage from Ore Storage Pad 2 (OP2 and OP2 Extension) to help minimize discharges to Meliadine Lake.

Agnico Eagle's Response to Request:
With regard to the ore pad the recommendation is not feasible; however, Agnico Eagle does implement continuous improvements through the operations. Recommendations on continuous improvement associated with existing infrastructure should be handled through annual report review.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-13**
Re:	**Algal Blooms in Meliadine Lake**		

Request Made by Interested Party:
CIRNAC recommends that AEM:

a) Design a study to investigate and identify the root cause of the algal blooms in Meliadine Lake and submit it for review with CIRNAC and other interested parties;

b) Based on review and feedback, conduct agreed studies to determine the root cause of the algal blooms; and

c) Based on the study's findings, develop action plans to prevent algal blooms in Meliadine Lake.

Agnico Eagle's Response to Request:
Responses a), b), and c)
As these recommendations are also provided the 2022 Annual Report Comments, we refer CIRNAC to Agnico Eagle's September 15, 2023 response to CIRNAC-6.

As per the monitoring data Meliadine Lake is still classified as oligotrophic. An oligotrophic lake is defined as: body of water characterized by extremely low nutrient concentrations such as nitrogen and phosphorous and resulting very moderate productivity. Oligotrophic lakes are those low in nutrient materials and consequently poor areas for the development of extensive aquatic floras and faunas.

Interested Party:	**CIRNAC**	**Rec No.:**	**CIRNAC-R-14**
Re:	**Application Report Content**		

Request Made by Interested Party:
CIRNAC recommends that AEM address the above-listed issues in future updates of the documents.

Agnico Eagle's Response to Request:
Agnico Eagle appreciates CIRNAC's review and comments.

ENVIRONMENT AND CLIMATE CHANGE CANADA (ECCC)

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-TRC-01**
Re:	**Meliadine Lake Water Balance**		

Request Made by Interested Party:

ECCC recommends that the Proponent confirm if Meliadine Lake levels are modelled in the WBWQM. If so, the Proponent should explain how lake levels were modelled without incorporating the effects of water withdrawals by the mine. If not, the Proponent should clarify where mine impacts on the lake levels have been considered.

Agnico Eagle's Response to Request:

Meliadine Lake levels were modelled in the 2014 FEIS. The annual withdrawal volume from Meliadine Lake for pit filling as set in the 2014 FEIS was 17,060,000 m^3/year and this volume constitutes 1.4% of the total Meliadine Lake volume. For the Meliadine Extension the water withdrawal rates are 1,116,112 m^3/year (see Table 2.3-2 from the Main Application Document), which is below the upper bound. Therefore, mine impacts on lake levels have been considered and assessed.

The previously presented impact assessment remains relevant with respect to potential impacts to Meliadine Lake water levels.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-TRC-02**
Re:	**Water Balance and Water Quality Model Calibration**		

Request Made by Interested Party:
ECCC recommends that the Proponent:

- *provide a rationale as to what might cause natural catchment runoff volume to be halved for CP3, and clarify if/how this rationale was applied to other catchments; and*
- *provide a statistical measure of fit between modelled and measured pond volumes, and discuss how the variance could impact mine water management.*

Agnico Eagle's Response to Request:
Response bullet 1)
Estimated natural catchment runoff for CP3 was reduced by half to provide a better match between modeled and measured water quality in this pond. It was difficult to ascertain the exact natural catchment area contributing to this pond, due to the low relief topography, and the working assumption is that this natural catchment area is smaller in reality than what is assumed in the model. The same issue with catchment boundary definition was not encountered for any of the other ponds, and therefore no adjustments to modelled natural area runoff were necessary to achieve good model calibration at the other collection ponds.

With respect to the difference between modelled and measured CP3 volumes (Figure 3-20 of the report), the maximum divergence on a given day is closer to 22,000 m^3 in June 2020, as opposed to 50,000 m^3 as referenced by the reviewer. Note that the comparison should be made between the *CP3_Pond (CP3 0.5)* and *CP3_Obs_Vol (Normal)* data, as the former represents the downscaled natural catchment runoff used in the predictive model. If the maximum divergence between peak modelled and measured volumes for June 2020 is considered, understanding the timing of the peaks doesn't match exactly, the difference is closer to 11,000 m^3.

Response bullet 2)
The focus of the model is determining whether a pond volume is likely to exceed an operating water level threshold, and/or result in an uncontrolled overflow. This is a binary (pass/fail) assessment conducted based on predicted peak volumes and does need to consider the exact day upon which this may occur. These peak volume predictions allow design pond volumes to be assessed, as well as the pumping system requirements to maintain the pond within the operating criteria.

The second key output of interest with respect to pond water balances is the balance of total inflows and outflows, which relate to the total volumes requiring storage, potential treatment and discharge to the

receiving environment. Standard statistical model performance metrics are not designed to assess this component.

The model replicates the timing and magnitude of variation in pond inflows, outflows, and aggregated volumes well, providing additional confidence in the predictions used to inform mine water management planning.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-TRC-03**
Re:	**Water Balance and Water Quality Model Results**		

Request Made by Interested Party:
ECCC recommends that the Proponent:

- *discuss possible management actions for POPCs that the WBWQM and updates have predicted to exceed guidelines; and*
- *propose timelines for further updates to the WBWQM that would allow sufficient time for those management actions to be put in place.*

Agnico Eagle's Response to Request:
Responses bullet 1) and 2)
The reviewer was noting the post-closure period, Agnico Eagle will be operating for another 20 years which provides operational data to validate assumptions and will be used to update water quality predictions for final closure.

The Meliadine Mine water balance and water quality forecast is calibrated annually to ultimately inform ongoing operations and eventual closure. This annual update is required per Water Licence condition Part E, Item 13.

There is sufficient time prior to closure to allow for management actions to be implemented to avoid exceedances should they be predicted to occur.

Further, Water Licence condition Part E, Item 11 also requires an update of the Water Management Plan and water balance and water quality forecast prior to closure, which would also address management actions to be implemented, should they be required.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-TRC-04**
Re:	**Water Balance and Water Quality Model Uncertainty**		

Request Made by Interested Party:

ECCC recommends that the Proponent evaluate the uncertainty of the WBWQM to provide an understanding of the range of possible results and how this may impact the planned mine water management.

Agnico Eagle's Response to Request:

The approved Adaptive Management Plan provides flexibility for the operation to mitigate issues that are outside of the normal operating conditions. As outlined in response to ECCC-TRC-03, Agnico Eagle is required under the Water Licence to update the water balance and water quality forecast on an annual basis, which enables operations to adjust if thresholds are triggered. In addition, the annual updates minimize conservatism in the water balance and water quality forecast to help identify the range of different conditions under which the proposed water management plan may be effective.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-TRC-05**
Re:	**In-pit Deposition Modelling**		

Request Made by Interested Party:
With regards to in-pit depositions modelling, ECCC recommends that the Proponent:

- *clarify additional water quantities required to create slurry tailings as opposed to filter tailings, specify from where this water would be sourced and confirm whether greater water withdrawals from Meliadine Lake would be required;*
- *explain when tailings consolidation is expected to be complete, estimate the magnitude of diffusive fluxes from in-pit tailings and describe the contribution of consolidated tailings to the WBWQM source terms of groundwater discharge through in-pit tailings or waste rock into pit lakes; and*
- *describe a proposal for monitoring water quality at the interface between water and tailings or bedrock, including a proposed schedule. The monitoring plan should also discuss how the results will be used to verify model predictions and/or trigger further updates to the model.*

Agnico Eagle's Response to Request:
Deposition of tailings and waste rock into pits has been presented as an alternative in the Meliadine Extension Water Licence Amendment.

Response bullet 1)
At this time, Agnico Eagle does not foresee additional water quantities are required for slurry tailings.

Response bullet 2) and 3)
Should a decision be made to implement in-pit deposition, specific studies would be required. Agnico Eagle refers ECCC to the response provided in KivIA-TRC-01.

Interested Party:	ECCC	Rec No.:	ECCC-TRC-06
Re:	Integration of Meliadine Extension project in Aquatic Effects Monitoring Program Design Plan		

Request Made by Interested Party:
ECCC recommends the Proponent integrate the Meliadine Extension project into the AEMP including referencing the FEIS addendum, its findings and results.

Agnico Eagle's Response to Request:
Agnico Eagle agrees with ECCC that the AEMP will need to be updated; however, we are of the opinion that the AEMP should be updated in future iterations, following the Water Licence Amendment approval.

Given the dynamics of mining, the sequencing of activities may change. Therefore, when a Meliadine Extension mining activity is triggered, the AEMP will be updated accordingly based on the site activities at that time. This can be updated through the Water Licence Annual Reporting process.

Interested Party:	ECCC	Rec No.:	ECCC-TRC-07
Re:	Changes to analysis methods and descriptions in Aquatic Effects Monitoring Program Design Plan		

Request Made by Interested Party:

ECCC recommends that the Proponent justify the simplification of analyses and text between versions 1 and 2 of the AEMP Design Plan or re-integrate what was included in the previous version of the AEMP Design Plan.

Agnico Eagle's Response to Request:

The AEMP Design Plan Version 2_NWB (December 2022) already incorporated comments from regulators from the Version 2 draft in April 2022.

Similar to the response provided in ECCC-TRC-06, the AEMP Design Plan will be updated accordingly through the Water Licence Annual Reporting process, based on when Meliadine Extension site activities are triggered to confirm that the necessary data is collected and properly analyzed to monitor for any changes to the aquatic environment.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-TRC-08**
Re:	**Aquatic Effects Monitoring Program Reference Areas**		

Request Made by Interested Party:

ECCC recommends that the Proponent demonstrate how the selected references sites within Meliadine Lake will remain suitable reference areas over a prolonged period with the mine Extension. Consideration should be given to alternate reference areas and/or modifications to the study design.

Agnico Eagle's Response to Request:

The AEMP design plan for Meliadine Mine was developed through recommendations, conditions, and commitments outlined in the NIRB decision report (NIRB 2014) which are summarized in Table 1-1 from the Version 1 plan (Golder 2016). In addition, the plan was designed through input from regulators (ECCC and CIRNAC) and the HTO. The Version 1 study plan (Golder 2016) and the Version 2 study plan submitted with the water licence amendment application (Appendix F03) provided the rationale for in-lake reference areas.

For context distances between the diffuser and the three references areas are as follows:

- Reference Area 1 – 16 km
- Reference Area 2 – 19 km
- Reference Area 3 – 21 km

Due to the seasonal discharge to Meliadine Lake, the conservatism in the site water balance and water quality discharge model, the size of Meliadine Lake (107 km^2 in surface area), the distance between the diffuser and Reference Areas, and the natural mixing processes in Meliadine Lake, in-lake reference areas are still suitable for the AEMP.

References

Golder (Golder Associates Ltd.). 2016. Meliadine Gold Project, Nunavut. Aquatic Effects Monitoring Program (AEMP) Design Plan 6513-REP-03 Version 1. Submitted to Agnico Eagle Mines Limited Rouyn-Noranda, QC.

NIRB (Nunavut Impact Review Board). 2014. Final Hearing Report. Meliadine Gold Project. Agnico Eagle Mines Limited. NIRB File No. 11MN034. October 2014.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-TRC-09**
Re:	**Closure of Saline Pond SP6 (Lake B7)**		

Request Made by Interested Party:
ECCC recommends that:

- *the Proponent clarify if the WBWQM incorporates diffusion fluxes of salts and metals from saline sediment at the bottom of SP6. If it does not, the magnitude of this source should be described in relation to other fluxes so its impact can be evaluated; and*
- *guidelines for the protection of aquatic life are used for SP6 to assess post-closure water quality.*

Agnico Eagle's Response to Request:
Response bullet 1)
During operations SP6 is a contact water pond and will be managed; water pumped from SP6 is managed, treated as required, and then discharged to Itivia Harbour.

Diffusive flux loadings from SP6 are minimal for trace metals, accounting for less than 1% of the total metal loading. Loadings for ammonia and chloride are higher as predicted; however, even with this increased load, concentrations of ammonia and chloride are predicted to remain below relevant guidelines.

Response bullet 2)
Ther reader is referred to response to KivIA-TRC-05.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-TRC-10**
Re:	**Saline Water Disposal During Closure**		

Request Made by Interested Party:

ECCC recommends that the Proponent confirm if they are still considering disposing saline water in pits. If so, a description of what modelling would be done, data necessary for the modelling and proposed timelines should be provided.

Agnico Eagle's Response to Request:

At this time Agnico Eagle is not expecting to store saline water in pits at closure. As part of the ICRP for closure saline water will be pumped to the underground with a potential to move water to Itivia Harbour.

Interested Party:	**ECCC**	**Rec No.:**	**ECCC-TRC-11**
Re:	**Uncertainty in thermal modelling for Discovery WRSFs**		

Request Made by Interested Party:
ECCC recommends that the Proponent discuss the uncertainty in the Thermal Modelling of Meliadine Discovery WRSFs, through a sensitivity analysis or comparison to measured data at other WRSF. Additionally, the Proponent might consider including a safety factor in the design of the thermal cover thickness.

Agnico Eagle's Response to Request:
ECCC has recommended that Agnico Eagle discuss uncertainty in thermal modelling of the Discovery WRSF. Uncertainties that can be constrained by modelling include:

- Physical and thermal properties of materials modelled;
- Proportion, or distribution, of PAG/ML or NPAG/NML waste rock;
- PAG/ML exothermic heating potential (intrinsic oxidation rate);
- WRSF geometry;
- Permafrost conditions underlying the WRSF; and
- Climate.

The latter three uncertainties from the list above have been constrained by mine planning, monitoring records, and existing project approvals, respectively. Uncertainty in thermal material properties, distribution of PAG/ML vs. NPAG/NML waste rock and the heating potential of the PAG/ML waste rock can be evaluated within the thermal modelling program. These three uncertainties have been accounted for by assuming conservatisms in modelling inputs used relative to active layer development. That is to say that that within the range of possible values for each of these model inputs, the modelling program has assumed the worst-case condition for thaw of the WRSF.

ECCC has also recommended comparison to measured data at other WRSFs. The Portage WRSF at Agnico Eagle's Meadowbank Mine is a fully constructed WRSF containing PAG/ML waste with a 4 metre NPAG/NML thermal cover system whose closure performance is actively being monitored through temperature monitoring at thermistors which have been drilled into the WRSF.

The Portage WRSF thermistors show the continued gradual shallowing of the active layer through repeated years of monitoring. This indicates that the WRSF is continuing to freeze back but has not yet reached a state of equilibrium. Based on thermistor data, the depth of the active layer is approximately 3 metres.

The thermal modelling of the Discovery WRSFs has considered uncertainty in the model by assuming conservatism where uncertainty exists, thereby integrating a certain factor of safety into the model results for design thickness of the thermal cover system. Additional analysis of uncertainty would yield decreased active layer depths.

FISHERIES AND OCEANS CANADA (DFO)

Interested Party:	**DFO**	**Rec No.:**	**DFO-TRC-01**
Re:	**Baseline information on fish and fish habitat**		

Request Made by Interested Party:

DFO-FFHPP requests that additional baseline information be provided on fish use and habitat, as well as revised impact assessments based on the increased duration of the project are required to conduct a thorough review of the potential impacts and determine what Harmful Alteration, Disruption, or Destruction of Fish Habitat is likely to occur.

DFO-FFHPP understands that additional baseline is being collected by Agnico and that information is required to complete our review.

Agnico Eagle's Response to Request:

Agnico Eagle has undertaken field programs to collect additional information requested by DFO. DFO expressed an interest in understanding seasonal habitats and the fish that use these habitats. The field study and locations were determined in consultation with DFO and completed over 8 weeks from June to September.

A field summary report outlining the locations, methods, and results will accompany the *Fisheries Act* Authorization Application. Based on this additional collection of information, we are confident we have the appropriate level of information for DFO to approve the *Fisheries Act* Authorization. Date of application submission is currently planned for early Q1 2024.

The impact assessment has been completed through the NIRB process; therefore, a revised impact assessment is not necessary.

Interested Party:	**DFO**	**Rec No.:**	**DFO-TRC-02**
Re:	**Impact of flow and water level changes on fish habitat**		

Request Made by Interested Party:

DFO-FFHPP requires a detailed analysis of the impact from changes in flow in all impacted watersheds on the proposed mine site due to the actions of limiting surface flow from entering the mine footprint and the diversion of contact and wastewater from natural flow paths.

While AEM provided information on changes in flow and water levels, they did not provide an analysis on what these changes mean for fish habitat and fish passage. DFO-FFHPP requires an analysis of temporal and spatial habitat changes due to changes in flow from proposed mine associated works, undertakings, and activities over the various operational phases of the mine.

Agnico Eagle's Response to Request:

During the operational phase we have provided our analysis that the fish habitat and fish passage will not be functioning, which is the premise for an offsetting plan. There is no need for additional information to define the granular activities during the operations. At closure and post-closure, it has been well documented that we will be reflooding this area and reconnection will be established. Agnico Eagle needs to develop an Offsetting Plan to account for the fish habitat loss during the operations. Agnico Eagle looks forward to further discussion during Technical Meeting and will try to schedule a meeting with DFO in advance of the Technical Meeting.

Interested Party:	**DFO**	**Rec No.:**	**DFO-TRC-03**
Re:	**Watercourse Crossings**		

Request Made by Interested Party:

DFO-FFHPP requires a list of locations and types of proposed watercourse crossings including roads to Discovery, and the proposed windfarms. The information should be presented in a table and include but not limited to:

- *locations where road infrastructure interacts with fish-bearing waterbodies and watercourses, including seasonally wet drainages;*
- *type of crossing proposed;*
- *fish species present and life stage;*
- *identification of fish bearing waterbodies downstream and/or upstream of the crossing.*
- *Mitigation measures for crossing impacting fish bearing watercourses*

Note that the seasonal channels between fish bearing waterbodies may be considered fish habitat.

DFO-FFHPP considers that this issue should be reviewed as part of the water license amendment process as we identified road crossing as being a priority issue which may overlap with one or more additional regulator's mandates.

Agnico Eagle's Response to Request:

The impacts of road crossings on fish and fish habitat are well understood. Additionally, the fish community composition within the area of the Meliadine Mine site has been extensively studied and is well understood. Additional information has been collected and Agnico Eagle has derived conservative estimates of community composition in extensive collaboration with DFO. This information is contained in the offsetting plan.

Watercourse crossings will be designed and constructed to meet current industry standards, including the ability to pass fish. Design information and exact location of crossings will be provided as part of the Request for Review process prior to construction.

As stated in response to DFO-TRC-02, the requested information is not necessary for this component of the application; however, a table will be provided to DFO prior to the Technical Meeting.

Interested Party:	**DFO**	**Rec No.:**	**DFO-TRC-04**
Re:	**Mitigation for watershed A and B**		

Request Made by Interested Party:

Mitigation measures to maintain water levels in watershed A and B should be included in the water management plan. Watershed A is a known spawning habitat for Arctic Grayling and forage fish source for Arctic Char. Watershed B is Arctic Char habitat. These measures should aim at maintaining water levels to allow for important biological functions of fish population present in the watershed.

Agnico Eagle's Response to Request:

Agnico Eagle does not agree that mitigation measures to maintain water levels in watershed A and B should be included in the Water Management Plan. Arctic Char, Arctic Grayling, and forage fish species are known to occur in both watersheds. Under the current plan and to address past DFO comments, Agnico Eagle has included waterbodies downstream of the proposed operational area (e.g., Lake A1) in the habitat loss calculations to account for these impacts, though no physical works will occur in these locations.

Agnico Eagle will evaluate options to maintain flows in Watershed A and Watershed B, even though we are creating offsets for their "loss" and they will return to full function at closure.

Interested Party:	**DFO**	**Rec No.:**	**DFO-TRC-05**
Re:	**Fish Offsetting Plan**		

Request Made by Interested Party:
DFO FFHPP requests that AEM provide the most up to date fish offsetting plan reflecting the work that was done with DFO and ECCC.

Agnico Eagle's Response to Request:
The latest version of the fish offsetting plan is provided in Appendix A. Agnico Eagle has provided a history of the offsetting plan in the table below.

Version	Date	Revision
Conceptual	July 2022	Submitted with the application to the NIRB for the Meliadine Extension.
Final	January 2023	Updated from a conceptual plan to a detailed plan with conformity to Authorizations concerning Fish and Fish Habitat Protection Regulations and S.27.1 Metal and Diamond Mining Effluent Regulations. Included in the submission to the Nunavut Water Board for the water licence amendment.
Final-R1	June 2023	Updated based on discussions held with DFO in January and May 2023. • Included consultation activities with the Kivalliq Inuit Association and the Hunters and Trappers Organization. • Where fish data unknown assumed presence based on upstream and downstream observations. • Accounted for partial losses due to reduced flows. • Better organization of main offsetting project from contingency projects. • Minor section format updates.
Final-R2	July 2023	Updated based on discussions held with DFO in June 2023. • Loss calculations for ponds have been completed using the biomass numbers throughout the document per DFOs comments on the June 2023 version. • Offsetting Monitoring Plan is briefly mentioned in the document (in two locations) and clearly outlined as an appendix. • Standardizing the number format across all of the calculations. • Minor edits for consistency.