Crown-Indigenous Relations and Northern Affairs Canada
Relations Couronne-Autochtones et Affaires du Nord Canada

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

Your file - Votre référence
2AM-MEL1631
Our file - Notre référence
GCDocs#150515732

October 6, 2026

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 Technical Review of the Licence Amendment Application for Meliadine Gold Project, Type A Water Licence No. 2AM-MEL1631

Dear Richard,

Thank you for the September 4, 2026 invitation to review the referenced licence amendment application, submitted by Agnico Eagle Mines Ltd., for Type A Water Licence No. 2AM-MEL1631.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the application 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.

If there are any questions or concerns, please contact me at (587) 338-6428 or sarah.forte@rcaanc-cirnac.gc.ca or Andrew Keim at (867) 975-4550 or andrew.keim@rcaanc-cirnac.gc.ca.

Sincerely,

Sarah Forté,
Regional Coordinator

Canada

Crown-Indigenous Relations and Northern Affairs Canada | Relations Couronne-Autochtones et Affaires du Nord Canada

Technical Review Memorandum

Date: October 6, 2026

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

From: Sarah Forté – Regional Coordinator, CIRNAC

Subject: **Crown-Indigenous Relations and Northern Affairs Canada's Technical Review of the Licence Amendment Application for Meliadine Gold Project, Type A Water Licence No. 2AM-MEL1631**

Region: ☐ Kitikmeot ☒ Kivalliq ☐ Qikiqtani

A. BACKGROUND

The 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. The project is owned and operated by Agnico Eagle Mines Ltd. (Agnico Eagle) under Type A water licence No. 2AM-MEL1631.

Agnico Eagle is applying for the amendment of the licence to optimize operations. Changes requested include:

- Extending the mining on site and licence term by 5 years
- Use of pits to store and manage saline groundwater and contact water
- Increased water use
- Additional infrastructure including: increased fuel storage, ore storage pads, and temporary tailings storage pads
- Addition of composting to waste management
- Increasing camp capacity to 900 people

Following their responses to CIRNAC's information requests, Agnico Eagle met with Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) on October 1, 2026 to discuss concerns identified in our review. This constructive meeting helped clear up certain points and has allowed us to formulate clearer recommendations.

CIRNAC worked with a consultant on this review and provides the following comments and recommendations pertaining to the application package and responses to information requests. 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 Information Requests

Information Request Number	Subject
R-01	Consistency of mine, milling and closure schedule
R-02	Ore storage capacity
R-03	Life-of-mine tailings mass balance
R-04	Management of increased waste from increased camp size
R-05	Relocation of undergrounds in thermal model
R-06	Water quality of predicted inflows to PUMP04 Pit
R-07	Water quality modelling predictions past 2099
R-08	Modelled post-closure water quality
R-09	Water balance catchment areas
R-10	Saline water treatment and site water management
R-11	Hydrodynamic model calibration
R-12	Long-term fate of saline water placed in underground workings at closure
R-13	Deficiencies in hydrological model
R-14	Closure freshwater withdrawal and pre-closure hydrological assessment

B. DOCUMENTS REVIEWED AND REFERENCED

The following table (Table 2) provides a list of the documents reviewed under the submission and reference during the review.

Table 2: Documents Reviewed and Referenced

Document Title	Author, File No., Rev., Date
Meliadine 2AM-MEL1631 Water Licence Amendment Operational Update - Main Application Document	Agnico Eagle Meliadine Gold Mine, June 2026
Application for Water Licence Amendment	Agnico Eagle Meliadine Gold Mine, June 6, 2026
Appendix 4-A: Thermal Assessment of Proposed Storage of Water in Open Pits During Operation	WSP Canada Inc., CA0066296.6872-MEL-001-TM-Rev0, March 23, 2026
Appendix 4-B: Meliadine Project - Updated Groundwater Modelling for Tiriganiaq and Pump Undergrounds and In-pit Water Storage	WSP Canada Inc., CA0042236.1659-MEL2026-006-TM-Rev1, March 23, 2026

Document Title	Author, File No., Rev., Date
Appendix 4-C: Meliadine Mine Operational Update: Water Balance and Water Quality Model Technical Report	Lorax Environmental Services, A667-5, April 21, 2026
Appendix 4-D: Agnico Meliadine Mine – Meliadine Lake Hydrology Modelling	DHI Water & Environment, Inc., Project No 42804619-03, April 30, 2026
Appendix 4-E: Meliadine Lake 3-D Hydrodynamic Modelling	DHI Water & Environment, Inc., Rev 0.0, May 12, 2026
Appendix 5-B: ARD-ML Sampling and Testing Plan	Agnico Eagle Meliadine Gold Mine, V2, June 2026
Appendix 5-F: Groundwater Management Plan	Agnico Eagle Meliadine Gold Mine, V14, June 2026
Appendix 5-H: Incineration and Composter Waste Management Plan	Agnico Eagle Meliadine Gold Mine, V10, June 2026
Appendix 5-I: Interim Closure and Reclamation Plan – Update 2026	Agnico Eagle Meliadine Gold Mine, V3.0, June 2026
Appendix 5-L: Mine Waste Management Plan	Agnico Eagle Meliadine Gold Mine, 6513-MPSV2-09, V15, June 2026
Appendix 5-M: Ore Storage Management Plan	Agnico Eagle Meliadine Gold Mine, V9, June 2026
Appendix 5-R: Water Management Plan	Agnico Eagle Meliadine Gold Mine, V19, June 2026
Response to Completeness Check and Information Requests	Agnico Eagle, August 7, 2026
Metal and Diamond Mining Effluent Regulations	Minister of Justice, June 4, 2026
Water Licence No: 2AM-MEL1631 Reason for Decision Including Record of Proceedings	Nunavut Water Board, October 25, 2024
Meliadine Mine Water Licence Amendment (2AM-MEL1631) Main Application Document	Agnico Eagle Meliadine Division, January 2024
Final Environmental Impact Statement (FEIS) – Meliadine Gold Project, Volume 7.0 Freshwater Environment	Agnico Eagle/Golder Associates, April 2014

C. RESULTS OF REVIEW

1. Consistency of mine, milling and closure schedule

Comment:

The Ore Storage Management Plan (Appendix 5-M) identifies an end-of-2036 ore stockpile of 6,036,061 tonnes and states that ore will be processed at approximately 8,500 tonnes per day. At the stated mill rate, processing 6.036 Mt would require approximately 710 days of milling, or about 1.95 years at continuous nominal throughput.

The Interim Closure and Reclamation Plan (ICRP) (Appendix 5-I) states that mining activities and ore processing are expected to end in 2036 and that Active Closure will occur from 2037 to 2043. The Water Management Plan (Appendix 5-R) similarly assumes that 2036 is the last year of mining and that Active Closure begins in 2037. The Ore Storage Management Plan also states that final closure activities commence at the end of mining operations in 2036 and that no ore will remain in stockpiles following cessation of operations.

In its August 28, 2026 response to KivIA IR-6, Agnico Eagle indicated that the mine plan represents the most likely plan at the time of submission, that actual mined quantities may vary, and that any ore remaining after 2036 and potential extension of operations would be addressed through future mine planning and regulatory processes. The current application therefore does not provide a single reconciled schedule through depletion of the projected ore inventory. On October 1, 2026 Agnico Eagle indicated that reclamation period could be lengthened if operations continued past the mining period.

The mine and milling schedule is an input to tailings generation, water management, infrastructure operation, and closure sequencing. A consistent life-of-mine schedule is therefore required to confirm that the supporting management plans and modelling use compatible assumptions.

Recommendation:

(R-01) CIRNAC recommends that Agnico Eagle:

a. Provide a reconciled annual life-of-mine production schedule that identifies ore mined, ore processed, year-end ore inventory, and tailings generated through depletion of the ore stockpiles; and
b. If the reconciled schedule indicates that milling may continue beyond 2036, identify the corresponding changes required to the mine operating period and demonstrate that the timing and assumptions used in the Water Management Plan, Mine Waste Management Plan, Water Balance and Water Quality Model, and Interim Closure and Reclamation Plan remain appropriate, or revise those documents as necessary.

2. Ore storage capacity

Comment:

The ore stockpiles at the end of the year presented in Table 4.4 of the Ore Storage Management Plan are two or more time greater than the capacity of the ore storage pad (OP2) described in Section 4.3.3 of the same plan.

On October 1, 2026 Agnico Eagle indicated that another ore storage pad, OP3, had been approved through the 2024 amendment and was not yet integrated into the Ore Storage Management Plan because it ha not yet been designed. This new pad would be designed and notification for construction would be sent to the Nunavut Water Board prior to its use. The only ore storage pads to which CIRNAC found reference to in the 2024 amendment application and Reason for Decision were temporary stockpiles near the Pump, F Zone and Discovery deposits.

Recommendation:

(R-02) CIRNAC recommends that Agnico Eagle clarify in which documents ore storage pad OP3 is discussed and where it was approved.

3. Life-of-mine tailings mass balance

Comment:

The Mine Waste Management Plan (Appendix 5-L) identifies total life-of-mine tailings generation of 45,500,673 tonnes, with 6,515,017 tonnes placed underground and 37,442,056 tonnes placed in the tailings storage facility (TSF). The two identified disposition pathways sum to 43,957,073 tonnes, leaving approximately 1.54 million tonnes of generated tailings not reconciled to a disposition pathway.

The difference occurs almost entirely in 2036. For that year, the table identifies 3,111,000 tonnes of tailings generated, 374,152 tonnes placed underground, and 1,193,247 tonnes placed in the TSF, leaving approximately 1.54 million tonnes unaccounted for in the annual disposition columns.

Agnico Eagle explained during our October 1, 2026 meeting that there was an error in the formula they used for the tailings going underground and more tailings would be sent underground.

Recommendation:
(R-03) CIRNAC recommends that Agnico Eagle provide the corrected annual life-of-mine tailings mass balance in which total tailings generated are accounted for, and confirm there is sufficient capacity for the increased underground backfill.

4. Management of increased waste from increased camp size

Comment:
The proposed amendment includes an increase in camp capacity from 800 to 900 people, as described in the Water Management Plan and Agnico's response to CIRNAC's Information Request #09. Waste volumes presented in Section 6.5 and Table 6-1 of the Incineration and Composter Waste Management Plan (Appendix 5-H) are calculated for a camp population of 680 workers.

On October 1, 2026, Agnico indicated there was sufficient capacity to manage the increased waste production and Table 6-1 would be corrected in the next Incineration and Composter Waste Management Plan update.

Recommendation:
(R-04) CIRNAC recommends that Agnico Eagle confirm the next update to the Incineration and Composter Waste Management Plan will include an update to the waste volumes generated to reflect the increase camp capacity.

5. Relocation of undergrounds in thermal model

Comment:
A thermal model was created to help assess the impact of in-pit storage of saline or contact water on permafrost conditions during mine operation and the possibilities for future hydraulic connections between the pits, undergrounds and regional groundwater system. The information can be used to better understand future groundwater movements and the possibility of contaminant migration through groundwater.

Section 4.2 of the Thermal Assessment Memo (Appendix 4-A) includes the statement "*As directed by Agnico Eagle, a 100-m crown pillar was assumed beneath pits in the model geometry. UGs* [undergrounds] *originally present within the crown pillar in the provided CAD files were artificially relocated in the model geometry to appear below the 100-m crown pillar zone*." CIRNAC found no description of which undergrounds were relocated in the models and the effect it had on the results. If undergrounds relocated in the thermal model are found beneath pits TIRI02 or PUMP02, there could be unmodelled effects impacting the conclusions of the thermal model and groundwater model.

Recommendation:

(R-05) CIRNAC recommends that Agnico Eagle:

a. Identify on illustrations which undergrounds were relocated and where they are actually located;
b. Explain the decision to model undergrounds deeper below the pits than their actual locations;
c. Describe the impact on model results of relocating undergrounds, including how the thickness of the layer colder than -3 °C below pits TIRI02 and PUMP02 might be altered; and
d. Discuss how the conclusions of the Thermal Assessment and Groundwater Modelling might change if the undergrounds had not be relocated in the thermal model.

6. Water quality of predicted inflows to PUMP04 Pit

Comment:

Groundwater inflow into PUMP04 pit in 2032 is predicted to be more saline than surface water in the Groundwater Modelling Memo (Appendix 4-B). The Water Balance Water Quality Model (WBWQM) Update Report (Appendix 4-C) uses PUMP04 pit groundwater with a relatively lower salinity in 2032. The water's salinity will influence how it is managed and should be consistent across reports.

Table 2 of the Memo indicates the TDS concentration is predicted to be 1 000 mg/L in 2032, while Table 3-5 of the WBWQM Report states it would be 100 mg/L. For 2033 and 2034, both the Memo and the Report specify inflow groundwater into PUMP04 pit should be 500 mg/L TDS.

Recommendation:

(R-06) CIRNAC recommends that Agnico Eagle clarify the predicted TDS concentration from groundwater inflowing into PUMP04 pit in 2032 and describe the impact of the discrepancy on predicted concentration results presented in the WBWQM.

7. Water quality modelling predictions past 2099

Comment:

Water quality predictions for the post-closure period are presented in Appendix D of the WBWQM for 2039 to 2099. Section 6.3 of the WBWQM Update Report refers to a modelling period that is 20 years longer: "*Water quality predictions are summarized starting in January 2039 and extends to December 2119.*" Providing model results for the

entire model period allows reviewers to confirm information in summary tables and see long term trends in predictions. Agnico Eagle informed us on October 1, 2026 that the data had been truncated when they were presented and they could provide the complete data set.

Recommendation:
(R-07) CIRNAC recommends that Agnico Eagle share the post-closure water quality predictions of the WBWQM for the entire modelling period of 2039 to 2119.

8. Modelled post-closure water quality

Comment:
When discussing modelled water quality results for post-closure, the WBWQM Update Report states: "*The model nodes presented herein show predicted concentrations below the applicable guidelines throughout Post-Closure with the exception of phosphorus. Chloride concentrations are elevated only in PUMP01 early in Post-Closure and decrease to below the guideline value by June 2046. Elevated concentrations of phosphorus are associated with natural runoff and thus phosphorus is not considered a mine related POPC.*"

It appears many model nodes that showed predicted concentrations above the applicable guidelines were not presented in the main body of the report and are only found in Appendix D. From the data in Appendix D, concentrations exceedances still present in 2099, in addition to the phosphorous exceedance discussed, include:

- Cobalt: All containment ponds (CP1, CP2, CP3, CP5, CP6, CP7, CP8), Lake J1 and two conjoined pits (TIRI and WES). Several are marginal exceedances, though in two instances they are five times the guideline.
- Mercury: Six of the containment ponds (CP2, CP3, CP5, CP6, CP7, CP8) have mercury concentrations 1.5-2 times the guideline.
- Sulphate: Four of the containment ponds (CP2, CP3, CP6, CP8) have sulphate concentrations above the guidelines available, though the water hardness in these ponds is above the range for which the guidelines apply
- Pit WES04 has increasing trends for concentrations of many parameters, by 2099 TDS, chloride, and sulphate are over the guidelines, and keeping consistent rates of increase would likely cause ammonia and mercury to be over the guidelines by 2119 (data not presented).

All water quality prediction results should be discussed in the report so that plans can be made in advance to avoid guideline exceedances in post-closure. Instances of worsening water quality over time are of particular concern.

Recommendation:

(R-08) CIRNAC recommends that Agnico Eagle:

a. Provide rationale for not presenting water quality model prediction results that do not meet applicable guidelines during post-closure in the main body of the report;
b. Explain the cause for increased post-closure predictions for cobalt concentrations between the 2025 and 2026 models;
c. Explain why the water chemistry at WES04 has increasing parameter concentration trends for TDS, Chloride, sulphate, ammonia and mercury, which differs from long-term forecasts in other pits; and
d. Discuss measures that could improve water quality outcomes in post-closure for the guideline exceedances identified above.

9. Water balance catchment areas

Comment:

The labelling of ponds and catchment areas is inconsistent throughout the WBWQM, which makes it difficult to verify that all components of the mine are being accounted for. Information presented in different parts of the report should be sufficient consistent to allow reviewers to cross-reference catchment areas. Four parts of the report with conflicting information are:

i. main report figures (ex. 3-9 and 3-9);
ii. annual water balance figures in Appendix A1;
iii. table listing annual catchment areas in m^2 in Appendix A2; and
iv. annual water management flow diagrams in Appendix B1.

Inconsistencies identified include:

- Two ponds and catchment areas are labelled CP7 on the maps in Appendix A1, one to the SW of the TSF and the other to the east of dewatered Lake A6. There is only one CP7 pond in the flow diagrams and none in the catchment area table or maps in the main report.
- The catchment area table includes six entries for CP2.5 which is not on any maps or in the flow diagrams.
- Catchment area table entries for SP6 and A52 do not have equivalents on Appendix A1 maps or the flow diagrams, though they are labelled on maps in the main report.
- Pond CP8 is labelled in both Appendix A1 maps and flow diagrams, but not in the table or the maps in the main report.

- Development of the Discovery site begins in 2028 on the Appendix A1 maps with the construction of two containment ponds, followed by the pit and WRSF in 2029. The associated watershed areas are not incorporated in the model until 2035 according to the table in Appendix A2.

Recommendation:

(R-09) CIRNAC recommends that Agnico Eagle:

a. Clarify in which instances which of the four sources of information on catchment areas in the WBWQM report were used as input to the water balance;
b. Explain the inconsistencies noted above to allow reviewers to confirm that all catchment areas are consistently accounted for in the WBWQM; and
c. Use consistent names for water catchment areas throughout the WBWQM report in future reports.

10. Saline water treatment and site water management

Comment:

The long-term water management strategy relies on treatment and waterline discharge to remove saline and surface contact water from site. The WBWQM identifies ammonia-N as the parameter requiring additional treatment for waterline discharge, while the ammonia-management component of the SETP-WTC (saline effluent treatment plant - water treatment complex) remains under design.

During operations, the WBWQM predicts average waterline discharge of approximately 1.97 M-m^3/year, comprising approximately 0.45 M-m^3/year of saline water and 1.52 M-m^3/year of surface contact water. For untreated waterline discharge, the WBWQM predicts ammonia-N concentrations with a mean of approximately 13 mg/L, a 90th percentile of 29 mg/L, and a maximum of 38 mg/L, compared with the 19 mg/L Metal and Diamond Mining Effluent Regulations (MDMER) screening criterion used in the model. The report states that treatment options are being investigated.

Accordingly, the application relies on a future ammonia-management system within the treatment configuration that will be available when the waterline is operated, but the treatment capacity and expected performance of that system are not yet described in sufficient detail to confirm compatibility with the modelled saline-water removal rates.

During the October 1, 2026 meeting, Agnico Eagle informed us treatment engineers are currently designing SETP-WTC treatment approach so they could not provide further details on the design. Additional information will be provided through the 60-day construction notice process. Given the July 2027 planned start date for discharge of saline water to Itivia, there are only 9 months remaining to complete treatment design, go

through a 2-month construction notice and review process, and construct or install the treatment system.

Recommendation:

(R-10) CIRNAC recommends that Agnico Eagle:

a. Discuss the predicted timeline for completing the ammonia-management approach for saline water, notice period, and treatment system construction/installation; and
b. Identify how material limitations or delays in implementation of ammonia treatment would be managed with respect to on-site saline-water storage and the allocation of waterline capacity between saline and surface contact water.

11. Hydrodynamic model calibration

Comment:

A hydrodynamic model was developed to predict the effects of treated mine water discharge to Meliadine Lake on its water quality. The Meliadine Lake 3-D Hydrodynamic Modelling Report (Appendix 4-E) describes the use of the 2026 version of the DHI MIKE 3 Flow Model Flexible Mesh (FM) software, applying the Hydrodynamic (HD) and Transport (Advection–Dispersion, AD) modules.

Section 4.5 and Appendix A of the report present the hydrodynamic model's validation, for which modelled output from 2019-2024 was compared with field measurements over the same time period. Data used for model calibration is not specified. The report states: "The last six months of 2018 were used as a model warm up period, allowing hydrodynamic and transport conditions within Meliadine Lake to adjust from initial conditions before evaluation against observations." It is not clear if data from the last six months of 2018 were also used to calibrate the model.

On October 1, 2026, Agnico Eagle explained that the hydrodynamic model used in the 2012 Final Environmental Impact Statement (FEIS) was re-used and since the validation demonstrated it reproduced 2019-2024 field measurements adequately, it was not necessary to re-calibrate the model. The only model for water quality in Meliadine Lake CIRNAC found reference to in the 2012 FEIS was a CORMIX model for the area around the diffuser. During the meeting, Agnico Eagle also recommended looking at the documents referenced in the hydrodynamic modelling report. The references include the Meliadine Lake Hydrology Model Development, Calibration and Analysis Report (Appendix 4-D), but it is not evident how this relates to the MIKE3 hydrodynamic model as it describes calibration of the HEC-HMS hydrological model.

Recommendation:
(R-11) CIRNAC recommends that Agnico Eagle specify what in-situ water quality observations collected in Meliadine Lake were used to calibrate the Meliadine Lake hydrodynamic model or clarify in which document the calibration is described.

12. Long-term fate of saline water placed in underground workings at closure

Comment:
The proposed closure water-management strategy includes permanent placement of saline water remaining in surface storage within the underground mine workings. The current closure documentation does not yet provide an updated integrated assessment of the long-term fate of that saline-water inventory for the anticipated final Tiriganiaq and Pump underground configuration.

The assessment is relevant to final closure design, monitoring, and contingency planning because permanent underground storage will form part of the long-term water-management system. The information is not considered necessary to support the present amendment because placement would occur during closure, but it should be developed through progressive closure planning before the Final Closure and Reclamation Plan is finalized.

The WBWQM predicts that approximately 2.9 M-m3 of saline water remaining in pit WES02 will be pumped to the underground mine voids for permanent storage during Active Closure. The current mine plan also extends the Pump underground workings below permafrost, and the ICRP indicates that the underground workings will be flooded using groundwater seepage and saline contact water.

The current ICRP identifies no uncertainties associated with flooding the underground workings. However, the closure documentation does not provide an updated integrated assessment of the approximately 2.9 M-m3 saline-water inventory considering the anticipated final underground geometry, saline-water chemistry, density-dependent groundwater flow, hydraulic recovery, evolving permafrost conditions, and potential hydraulic connections with flooded pits and surface-water receptors.

An updated assessment of the long-term fate of saline water pumped underground will be required sufficiently in advance of preparation of the Final Closure and Reclamation Plan to adapt the planned disposal of saline water if necessary.

Recommendation:
(R-12) CIRNAC recommends that Agnico Eagle provide a timeline for development of an updated technical assessment of the long-term fate of saline water proposed for

placement in the Tiriganiaq and Pump underground workings. The assessment should consider:

a. The anticipated final underground configuration and the volume and chemistry of saline water proposed for placement underground;
b. Density-dependent groundwater flow, hydraulic recovery, and permafrost conditions; and
c. Potential hydraulic connections with flooded pits and surface-water receptors, with the results used to confirm or, if necessary, revise the proposed closure water-management strategy and associated monitoring and contingency measures.

13. Deficiencies in hydrological model

Comment:

A hydrological model of Meliadine Lake was produced to predict impacts of increased water withdrawals on lake levels and flows at the outlets. The model presented in the Meliadine Lake Hydrology Model Development, Calibration and Analysis Report has deficiencies, though it provides sufficient support for the purpose of the withdrawal of an extra 12 000 m^3 of water per year requested for operations in the 2026 water licence amendment.

As stated by Agnico Eagle in their August 28, 2026 response to DFO IR-02, they are undertaking a three-year hydrology monitoring program to answer concerns raised during the 2024 water licence amendment. Data from the monitoring program was used for the hydrological model and presumably the model will be revisited once there is more data. When the model be reworked, particularly in regards to quantifying potential impacts of withdrawal volumes proposed for closure, addressing identified deficiencies will help produce more credible results.

- **Elevation-area curve:** Two surface models were used to create the elevation-area curve a Meliadine Lake triangular irregular network (TIN) dataset for elevations below 51.7 m and 2-m resolution digital surface model (DSM) for elevations above. As noted in the model report: "*Compared to the TIN dataset, the DSM data produced larger surface area for the same elevation, which leads to a jump near 51.7m.*" The jump produces a ~35% increase in the area of the lake (~35 km^2) at 51.7 m, which does not match topography visible along the shores. The error in the elevation-area curve is propagated in the model, since the curve is integrated to determine Meliadine Lake storage capacity, and it occurs at an elevation that is within the normal yearly lake level range. Future work should join the TIN and DSM data using a method that produces a surface model that more closely resembles site.

- **Reference elevation of 1997-2000 data:** The model was calibrated using 2024-2025 data and validated using 1997-2000 data. However, the reference elevation for 1997-2000 is not known and water levels were translated to geodetic elevations using "*For the period 1997 to 2000, the reference elevation was assumed to be 48.27m so the lowest water level in 2000 is same as the lowest water level in 2025.*" No justifications were used to support this assumption and more robust methods of tying the two data sets are available. The resulting data was used for the Meliadine Lake hydrologic model validation, which found the peak lake water levels were not well reproduced. The report concluded "*While the model validation is under-estimating the peak lake water level during the spring snowmelt, the potential root causes of the error in the model (i.e. lake elevation datum, lake ice cover dynamics, and/or old data and rating curves differences) cannot be addressed within the scope of this study.*" Future work should find the reference elevation for 1997-2000 Meliadine Lake discharge data using a supported method, should the data be used for validating a hydrologic model in the future.
- **Rating curve for low lake levels:** When comparing the 1997-2000 data to modelled output, the report states: "*This difference supports the above assertion that the current rating curve is either incorrect at low lake levels, and/or that lake ice cover and melting influence the outflow from the lake.*" Determining the validity of the current rating curve at low lake levels is important because one of the concerns with the abstraction rate proposed for closure is a reduction in flows at the outlets. As discussed above, the method for integrating 1997-2000 data is not supported, but once this has been addressed, it will be critical to validate the rating curve at low lake levels.

Recommendation:

(R-13) CIRNAC recommends that Agnico Eagle address the deficiencies noted above when they revisit the hydrological model once the hydrology monitoring program is complete.

14. Closure freshwater withdrawal and pre-closure hydrological assessment

Comment:

The closure water withdrawal from Meliadine Lake will be substantially greater than operational freshwater demand and will continue for several years. An updated assessment before closure will allow the withdrawal strategy to incorporate the longer hydrometric record available at that time and to establish monitoring and response criteria based on the final pit-reflooding schedule.

The Meliadine Lake Hydrology Model Report presents model results for an annual closure withdrawal of 8,700,000 m^3/year from June 15 to September 30, equivalent to approximately 80,556 m^3/day, under RCP 4.5, RCP 6.0, and RCP 8.5 climate scenarios. The modelling predicts effects on peak lake levels generally less than 1 cm and effects on average annual lake levels less than 2 cm.

The hydrological model represents discharge through both the Main Outlet and West Outlet using elevation-discharge relationships. However, the closure results presented in Table 7-1 report lake levels and average lake inflow rather than predicted discharge through the two outlets. The effect of the closure withdrawal on downstream flow through the outlets is therefore not directly presented in the closure analysis.

The Meliadine Lake Hydrology Model Report also identifies limitations in the available hydrometric data. The outlet rating curves were developed from open-water measurements and may not represent winter outflow conditions under ice cover. The report notes that these data gaps are expected to improve as additional hydrological monitoring data are collected and incorporated into the model.

As the higher-volume closure withdrawals are not expected to commence until 2037, CIRNAC does not consider further hydrological modelling necessary to support the present amendment. The additional monitoring record available before closure provides an opportunity to update the assessment and establish operational controls for closure withdrawals.

An updated Meliadine Lake hydrological assessment will be required sufficiently in advance of preparation of the Final Closure and Reclamation Plan to adapt the planned pit reflooding schedule if necessary.

Recommendation:

(R-14) CIRNAC recommends that Agnico Eagle provide a timeline for development of an updated Meliadine Lake hydrological assessment. The updated assessment should:

a. Incorporate the hydrometric record available at that time, include an appropriate baseline or no-withdrawal comparison, and evaluate the effects of the proposed closure withdrawals on Meliadine Lake levels and discharge through both lake outlets under relevant hydrological and climate conditions; and
b. Be used to establish an adaptive closure withdrawal strategy, including monitoring and response criteria for adjusting or suspending withdrawals if required.