

MEMORANDUM:

June 3, 2026

To: Colin Hovi
Mineral Exploration and Development Consultant, MEM

From: Andrea Hanson, M.Sc., P.Geo.
Geoscience Rehabilitation Specialist, MEM

Re: Great Bear Project, Kinross – Commitments Review

As requested, I have conducted a cursory review of the following documents pertaining to the Great Bear Advanced Exploration Project:

- Water Quality Estimate Update Report (WSP, August 2025)
- Groundwater Model Memo (WSP, October 2025)
- 2026 Supplementation Well Pumping Test Results memo (WSP, March 2026)
- AEX ISW Groundwater Monitoring Plan (WSP, November 2025)
- AEX Predicted Drainage Chemistry Comparison (WSP, September 2025)
- Advanced Exploration Program Metal Leaching and Acid Rock Drainage Assessment Report (WSP, September 2025)
- ML/ARD Monitoring Plan – Kinetic Testing (WSP, September 2025)

The objective of this review was to assess whether these documents align with the groundwater and ARD/ML commitments made by the proponent in the November 2024 Closure Plan (Section 4.4).

This review is limited to evaluating alignment with commitment statements. A detailed technical review of datasets and models was not undertaken.

1. Commitment Summary

The proponent committed to completing several studies prior to closure and prior to underground placement of PAG materials including (Appendix A):

- evaluating deep groundwater dewatering impacts prior to dewatering;
- assessing deep groundwater system response prior to underground PAG placement through predictive groundwater flow modelling post-flooding, particle tracking (flow paths and seepage destinations), drawdown in deep bedrock, deep groundwater quality assessment;
- using model results to confirm appropriateness of underground rehabilitation;
- expanding monitoring networks based on results;
- reporting results to MINES;
- installation of downgradient capture wells for overburden stockpiles; and

- providing updated overburden geochemistry assessments.

In addition, under Part 7, Section 59(4) of the Mine Rehabilitation Code requirements, the proponent is required to apply analytical models to predict the performance of materials under closure conditions.

2. Review Findings

Groundwater Model Memo (WSP, October 2025)

The Groundwater Model Memo (WSP, October 2025) was prepared in response to MECP comments requesting additional groundwater modelling for the AEX project, not in response to MEM comments.

The memo discusses a flow-only closure simulation of flooding and seepage pathways. The report looked at equilibrium water levels in the flooded AEX underground workings, seepages rates and discharge locations from the flooded underground workings once it reaches equilibrium, and the water level recovery timeline post-closure.

This memo partially addresses the following commitments:

- predictive groundwater flow under flooded conditions; and
- particle tracking to identify seepage pathways once the underground workings are flooded.

However, the analysis is limited to flow-only simulations and does not evaluate:

- groundwater quality or contaminant transport;
- drawdown in deep bedrock; and
- effects of underground placement of PAG material during closure.

Therefore, the memo does not represent a closure assessment, particularly with respect to evaluating the performance of underground rehabilitation measures. The model does not integrate post-closure water quality from the workings when they are backfilled with waste material under a post-closure scenario.

AEX Water Quality Estimate Update (WSP, August 2025)

This report provides water quality predictions for the AEX operational phase, to inform operational water treatment design, including:

- underground dewatering;
- mine Water Pond; and
- surface stockpiles

The report explicitly states in Table 3-4 that, “*No backfilling will take place during the AEX Program*” suggesting that the model does not consider a closure scenario where material is stored underground. The model only appears to consider the wall rock leaching and groundwater inflow as loading source terms underground.

The report partially addresses the following commitment:

- deep groundwater quality characterization

However, the model does not simulate flooded underground conditions, post-closure geochemical behaviour, the underground placement of PAG materials and the implications of flooding those materials.

Therefore, this report does not address the commitment to evaluate groundwater quality under closure conditions.

2026 Supplementation Well Pumping Test Results Memo (WSP, March 2026)

The 2026 Supplementation Well Pumping Test Results memo is not applicable for the above commitments. The objective of this memo was to demonstrate groundwater supply feasibility for supplementing Unnamed Watercourse 3.

AEX ISW Groundwater Monitoring Plan (WSP, November 2025)

The AEX ISW Groundwater Monitoring Plan (WSP, November 2025) identifies:

- installation of three downgradient remedial pumping wells (MW-24-AEX-101 to 103) for the overburden stockpiles; and
- trigger criteria and mitigation actions that will be implemented in the event of adverse water quality.

The plan appears to address the commitments related to monitoring and installing remedial pumping wells around the overburden stockpiles.

AEX Predicted Drainage Chemistry Comparison (WSP, September 2025)

The AEX Predicted Drainage Chemistry Comparison (WSP, September 2025) memo is not applicable for the above commitments. The objective of this memo was to assess contact water quality predictions.

ML/ARD Characterization and Monitoring Reports

This section includes a review of the following documents:

- The Advanced Exploration Program Metal Leaching and Acid Rock Drainage Assessment Report (WSP, September 2025)
- The ML/ARD Monitoring Plan – Kinetic Testing (WSP, September 2025)
- The Advanced Exploration Program Mine Rock and Overburden Management and Monitoring Plan (November 2025)

These reports summarise updated static and kinetic testing data (up to July 2025) for mine rock and overburden materials, include ongoing monitoring commitments for further kinetic tests, and provide a management plan for mine rock and overburden that are generated by the AEX program.

The reports appear to address the commitments related to providing updated static and kinetic data for the overburden material.

However, these reports do not evaluate the performance of material under closure conditions and do not provide modelling of long-term behaviour in a closure scenario.

3. Conclusion Summary:

Based on this review, the submitted documents do not collectively satisfy the closure plan commitments made by the proponent (Appendix A).

The commitments that were partially addressed include:

- post-closure groundwater flow behaviour;
- particle tracking of seepage pathways;
- geochemical characterization of materials; and
- installation of downgradient remedial wells around the overburden pile.

The commitments that were not addressed include:

- deep groundwater dewatering/drawdown impact assessment;
- evaluation of groundwater quality under post-closure conditions, including integrating an assessment of underground PAG storage performance; and
- validation of rehabilitation approaches using predictive modelling .

The AEX Closure Plan (November 2024) identifies underground placement of PAG material at closure as a key rehabilitation measure, including, relocation of surface PAG material underground and placement of materials below the water table under flooded conditions (Section 6.1, Section 9, Section 9.14). However, despite this, none of the reviewed documents evaluate, geochemical behaviour of PAG materials under saturated conditions, long-term groundwater quality following underground storage and interaction between groundwater flow and stored materials.

The key gap found in this review is that there appears to be no integrated modelling that evaluates flooded underground conditions in combination with groundwater flow, geochemistry, and underground material placement. This represents a significant gap in demonstrating closure performance and compliance with the closure plan commitments and Part 7 s.59 (4) of the Code.

It is understood that the proponent is progressing toward the next phase of the project. Similar concerns regarding these gaps have been identified in the Environmental Impact Statement review process.

If you have any questions regarding the above comments, please do not hesitate to contact me.

Regards,

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Geoscience Rehabilitation Specialist
Ministry of Energy and Mines

Disclaimer

The purpose of the preceding review is to provide advice to the Ministry of Energy and Mines regarding matters pertaining to groundwater quality, acid rock drainage and metal leaching potential based on the information provided in the above referenced

document(s). The conclusions, opinions, and recommendations of the reviewer are based on information provided by others, except where otherwise specifically noted; therefore, the Ministry cannot guarantee that the information is accurate or complete. A lack of specific comment by the reviewer is not to be construed as endorsing the content or views expressed in the material being reviewed. The reviewer reserves the right to make additional comments and provide advice to the Ministry of Energy and Mines after the initial review is submitted.

APPENDIX A – Commitment Statement Quotes

Groundwater Commitments

The proponent made the following commitments in the Great Bear Advanced Exploration Closure Plan (November 2024) in Section 4.4:

“Prior to closure, Kinross will undertake the following:

- *Kinross has committed to MINES to study the potential deep groundwater dewatering impacts just prior to dewatering of the underground workings. The results of potential deep groundwater dewatering impacts study will be shared with MINES.*
- *Prior to placement of PAG and NPAG/ML mine rock in the underground workings, Kinross will study the deep groundwater and the potential for changes related to the AEX Program including:*
 - *A predictive Model for groundwater flow once the underground workings are flooded*
 - *Particle tracking model to predict future paths (where seepage goes) and flows rates from the underground workings to the environment once the underground workings are filled and as may be applicable*
 - *Drawdown in the deep bedrock*
 - *Deep groundwater quality assessment*
 - *Results from the predictive groundwater model will be used to confirm the appropriateness of the underground rehabilitation*
 - *As needed and based on the results, downgradient groundwater monitoring locations will be added to the monitoring program discussed in Section 10.2, to be developed in discussion with MINES*
 - *Kinross will share the results from this assessment with MINES. Results at downgradient monitoring locations and drawdown of the deep bedrock will be included in this assessment.”*

In addition, the Great Bear AEX Closure Plan (November 2024), Section 4.4, includes a commitment statement from the proponent to install several capture wells downgradient of the overburden stockpiles to be activated in the event of the detection of deterioration of groundwater quality originating from the stockpiles, stating:

- *“Kinross will install several capture wells downgradient of the overburden stockpiles, to be activated in the event of the detection of a deterioration of groundwater quality originating from the stockpiles”*
- *“Following the detection of deterioration of groundwater quality, the wells will be equipped with pumps, which would be kept on standby at the AEX Program...”*
- *“Placement of the capture wells will be undertaken after construction of the AEX Program...”*
- *“It is presently anticipated that three capture wells will be required”*
- *“Kinross will work with technical specialists from MECP and MINES to determine the optimal location for the additional capture wells. Kinross, MECP and MINES will develop a sampling program and frequency for the capture wells once they are installed”*

It is presumed that the above commitment statements: *“As needed and based on the results, downgradient groundwater monitoring locations will be added to the monitoring*

program discussed in Section 10.2, to be developed in discussion with MINES” and “Kinross will share the results from this assessment with MINES. Results at downgradient monitoring locations and drawdown of the deep bedrock will be included in this assessment” are referring to the commitment to install wells downgradient of the overburden stockpile as discussed in Section 4.4.

ARD/ML Commitments:

In an email from MEM to the proponent in November 2024, MEM communicated their expectation regarding the following commitments for the overburden stockpile:

- *“You will recall that in order to mitigate any metal leaching potential, Kinross committed to installing downgradient wells to intercept any impacted groundwater, should this be necessary, and to pump and treat the intercepted groundwater through an approved system”*
- *“...we ask Kinross to provide the Ministry with an updated overburden assessment including a summary and recommendation section, statistical summary tables, figures for static and kinetic testing, and raw data for the sample, as soon as this information is available. Any reports regarding metal leaching potential under neutral drainage conditions should be provided to the Ministry upon completion”*