

Appendix 12

Whale Tail 2024 Geomechanical Inspection Implementation Plan

Observations, Comment and Recommendations							AEM Implementation Action Plan						
Category	Topic	2022 Recommendations	2023 Status and Comments	2023 Recommendations	2024 Status and Comments	2024 Recommendations	AEM Action Plan / Follow-up	Status	Due Date	Completion Date	AEM Comments / Update	Priority	
Design	Rock Mass Characterization	Undertake structural mapping to: a) Define the northwest dipping joint set in the lower Phase 2 Southeast Wall of the Whale Tail open pit b) Better define the extents of Structural Domain 5 in the Whale Tail open pit c) Validate the Brittle Structure model	This work has not yet been completed. The original recommendations remain relevant. Key decisions are being made based on the Brittle / High Strain Structure model (e.g., Whale Tail open pit lower Northeast Wall redesign, tactical measures for the Whale Tail open pit Northwest Wall, design of the IVR V2 open pit North Wall etc.), increasing the importance of validating the model through mapping in the open pits and underground mine. While it is unrealistic to assume that all structures will agree with the model, it is expected that many of the major structures will be able to be identified consistently across the open pit slopes.	Complete the original recommendation, with a particular focus on validating the Brittle / High Strain Structure model. Key areas include Design Sector A1K, E4, D4K, and IVR V2A. If there are significant changes to the interpretation of the structures, the potential impact on the open pit slope performance and design should be assessed. Priority increased to P2.	This work has not yet been completed. The original recommendations remain relevant. Structural mapping has not been completed since 2023 inspection.	Complete regular structural mapping with the objectives of: - Confirming the general structural trends (e.g., the dip of the foliation). - Identifying prominent structures that can strongly influence slope performance, including the Brittle / High Strain Structures. - Confirming the extents of Structural Domain 5 in the South Wall of the Whale Tail Pit. - Validating the Brittle / High Strain Structure model. Key areas include Design Sector A1K, D4K, H5, G5 and IVR V2A. If there are significant changes to the interpretation of the structures, the potential impact on the open pit slope performance and design should be assessed.	As recommended, implement a brittle structure variation table. a) See Comments/Updates section. b) Undertake systematic mapping on the ramp section adjacent to Structural Domain 5. Calculate the backbreak along the crest of the SD5. c) Mapping of the main brittle contact to be completed in G5, and H5, DS respectively. d) Back analysis on mapped brittle structures to be performed using the geology documentation available on AMQ brittle structures models.	Ongoing	2024-07-01	-	a) Partly completed, leading to the redesign of design sector F6. b) Spot mapping completed on 5045 & 5039 benches of the G5 Domain c) Drone scans of all pits While AEM did not fully comply with the recommendations in 2024, rock mechanics anticipated potential adverse ground conditions by regularly analyzing brittle structure models and lithologies to interpret field conditions. Proactive measures, such as pre-support, pit design changes, and input to drilling and blasting (D&B), have been implemented in various design sectors of the mine, including A1K, D4K, H5, G5, and F6. Some of these actions were performed before the areas were available for mapping, reinforcing the idea that rock mechanics are proactive in their approach.	P2	
		Complete geomechanical mapping on a regular basis, consistent with the commitments in the GCMP. Mapping is particularly important in Q2 and Q3 when the bench faces are clear of snow. The mapping should focus on critical areas of the open pit, including Design Sectors D4K and F6 of the Whale Tail pit and V0A, V2A and V2E of the IVR pits.	The Rock Mechanics team commits to undertaking spot mapping every 150 m along each of the final benches. The mapping is not reliably completed; 18 locations were mapped in the first quarter of 2023 but none were mapped in the second quarter. The mapping to date has been focussed on critical areas in Design Sector D4 of the Whale Tail pit and Design Sector V0A of the IVR V1 pit, which is endorsed. The mapping should also include Design Sectors A1K, F6 at the Whale Tail pit and Design Sectors V2A and V2E of the IVR V2 pit.	Complete the original recommendation. The mapping should include Design Sectors A1K, D4, D4K, F6 and IVR V2A and V2E.	Geomechanical mapping has not been completed since the 2023 inspection. The commitment for spot mapping has been reduced from "once every 150 m along each of the final benches" to on a "as needed basis". There is a need for periodic mapping to confirm the rock mass characteristics that underpin the design recommendations or when unexpected/unusual conditions are encountered (e.g., sheared Mafic Volcanics).	Complete geomechanical mapping to confirm the rock mass design parameters and characterize any unusual or unexpected conditions. The mapping could be completed annually or when unusual conditions are observed. The commitment in the GCMP should be clarified accordingly.	- Comply with Recommendations: Implement the recommended actions. - Focus on Sensitive Zones and Unusual Conditions. Prioritize geomechanical mapping in sensitive zones and areas with unusual conditions for better understanding. - Update GCMP: Ensure the new mapping commitment is clearly stated in the Ground Control Management Plan (GCMP). - Utilize Pit Wall Approval Process: Take advantage of the Pit Wall Approval process to perform mapping more frequently.	Ongoing	2024-07-01	-	- Spot mapping completed on 5045 & 5039 benches of the G5 Domain.	P3	
	Open Pit Design	Review the risks associated with future access below the failure in the Phase 1 North Wall of the Whale Tail open pit for water management purposes. Implement mitigation measures as appropriate.	This will be done when access is needed to Phase 1.	Complete original recommendation prior to re-accessing Phase 1 of the Whale Tail open pit.	The failure has been mined out and is no longer a hazard.	None.	-	(P3) Closed	-	-	-	N/A	
		(New Recommendation in 2023)	The Whale Tail Extension is planned to be used for water management purposes in the future. This will require periodic access along the ramp. The ramp is located within poor quality Komatite and ravelling and small-scale rockfall is likely to occur over time.	Review the risks associated with future access along the ramp in the Whale Tail Extension for water management purposes. Implement mitigation measures as appropriate.	The Whale Tail Extension is considered an active working area when it is used for dewatering activities, and is included in the official wall inspections that are completed every two weeks. When the area is inactive for an extended period (e.g., over the winter), access is prevented with a berm. A special inspection is completed by Rock Mechanics before personnel can re-enter the area. Permission for re-entry is communicated via email.	None.	-	(P3) Closed	-	-	-	Complete	
		(New Recommendation in 2023)	The IVR V1 open pit is currently inactive and barricaded but is planned to be used for water management purposes in the future. This will require periodic access along the ramp and rockfall hazards are present above and below the ramp. An existing multi-bench failure on the North Wall could break back further into the ramp.	Review the risks associated with future access along the ramp in the IVR V1 open pit for water management purposes. Implement mitigation measures as appropriate.	IVR V1 is considered an active working area when it is used for dewatering activities, and is included in the official wall inspections that are completed every two weeks. When the area is inactive for an extended period (e.g., over the winter), access is prevented with a berm. A special inspection is completed by Rock Mechanics before personnel can re-enter the area. Permission for re-entry is communicated via email.	None.	-	(P3) Closed	-	-	-	Complete	
	Review of 5-Year Mine Plan and LOM	(New Recommendation in 2023)	The review of the IVR V2 007 mine plan considered the potential influence of the high-strain/brittle structures on bench scale failures. However, the potential for inter-ramp scale failures on the footwall was not considered. The influence of changing wall orientation on the potential for kinematic failures was also not considered.	Consider the potential for inter-ramp scale failures in addition to bench and overall slope scale failures during reviews of the mine plan.	The potential influence of the high-strain / brittle structures on the performance of the IVR V2 open pit slopes was evaluated by KP in 2024. The results of the review are documented in letter NB24-00250 issued in March 2024.	None.	-	(P3) Closed	-	-	-	Complete	
		(New Recommendation in 2024)			Recovery of the crown pillar between the underground workings and the open pit is planned for the second half of 2026. Extraction of the crown pillar is likely to adversely influence slope performance, including in areas that have performed well to date. A workshop was held on August 21, 2024 to review the risks associated with the recovery of the crown pillar and to identify potential control measures. A series of follow-up action items were identified.	Implement the actions identified during the crown pillar workshop. Assign priorities and track progress.	The operationalization of the crown pillar extraction is currently in progress. Numerous actions have been completed, with several still pending. The entire process is expected to be finalized by July 2025.	Ongoing	2025-07-31	-	-	P3	
		(New Recommendation in 2024)			The benches below the ramp in the Northeast Wall of the Whale Tail open pit are intended to be established during the winter months in order to take advantage of the strengthening effect of the permafrost. The benches will then be buttressed. In the current LOM, the first two benches are established by the end of September 2025. This is likely too early to ensure that the benches remain frozen. Mining in this area is planned to be completed by April 2026.	Review the timing of the development of the benches below the ramp in the Northeast Wall of the Whale Tail open pit and ensure that they will remain frozen between development and buttressing prior to freshet. Ensure the construction of the buttress is included in the LOM and Budget mine plans. Note that there may be an opportunity to recover more ore in this area if a greater number of benches can be excavated and buttressed during the winter than currently planned.	- Assess the schedule for developing the benches below the ramp in the Northeast Wall of the Whale Tail open pit. - Ensure these benches will remain frozen between their development and the construction of the buttress, especially prior to the freshet period. - Confirm that the construction of the buttress is incorporated into both the Life of Mine (LOM) and Budget mine plans. Evaluate Ore Recovery Opportunities: - Investigate the potential to recover additional ore in this area by increasing the number of benches that can be excavated and buttressed during the winter months, compared to the current plan.	Ongoing	2025-04-01	-	The matter has already been discussed, and the recommendations will be incorporated into the next Three-Month Review (3MR).	P2	
			Review the failure in the Phase 1 North Wall of the Whale Tail open pit in greater detail to better understand the failure mechanism, likely contributing factors, and the potential for the failure to continue below the ramp. A Maptek scan is recommended to better define the failure geometry.	A detailed review and back-analysis of the failure had not been completed at the time of the audit. A Maptek scan has been completed for the failure.	Complete the original recommendation.	A detailed review and back-analysis of the failure has not been completed. However, Phase 1 has been essentially mined out, and there is now limited benefit to completing this review.	None.	-	(P3) Closed	-	N/A	-	N/A
		Document the bench performance and key rock mass characteristics in the IVR V2 open pit and compare them to the design. In particular, it is important to verify that the north wall is being established in the Mafic Volcanics and below the Brittle Structure expected along the contact between the Mafic Volcanics and the Komatite as the slope geometry recommendations for the V2A and V2E design sectors are based on this premise.	The bench performance of the IVR V2 open pit was reviewed as part of the Open Pit Ground Control Quarterly Reports in Q3 2022 and Q1 2021. The lithologies and high-strain/brittle structures exposed in the open pit slopes have not been reviewed relative to the design. The rock mass quality and structure encountered in the pit had not been quantitatively documented at the time of the audit.	Document the lithology, rock mass quality, and rock mass structure at regular intervals in the IVR V2 pit and compare them to the design. Continue to document and review the bench performance. KP is in the process of completing a detailed review of the design of the IVR V2 open pit, including the bench performance and rock mass characteristics.	Documentation of the lithology, rock mas quality, and rock mass structure in the IVR V2 pit has not been completed in 2024. This is because mining has focussed on the pushback of the west wall where the slope performance is less sensitive to the expected variation in rock mass characteristics. These activities should be resumed once mining restarts on the footwall (i.e., V2A design sector). The review of the design of the IVR V2 open pit was completed by KP in 2024. The review is documented in letter NB24-00250 issued in March 2024. The slope performance in the V2A design sector will be sensitive to the position and characteristics of the high-strain/brittle structures. The bench performance of the final walls is reviewed as part of the quarterly reports.	Document the lithology, rock mas quality, and rock mass structure in the V2A design sector of the IVR V2 pit, with a particular focus on the position, orientation, and characteristics of the high-strain/brittle structures. The existing benches should be mapped as soon as practical and periodic mapping should be planned for when mining resumes in this design sector.	- Perform detailed description of the rock types present in the V2A design sector. - Identify the lithological units and any significant variations within the sector. - Assess the rock mass quality using standard geotechnical classification systems (e.g., RMR, Q-system). - Document any zones of weakness or alteration that may affect rock mass stability. - Produce comprehensive mapping of structural features, including faults, joints, and bedding planes with special attention to high-strain/brittle structures. - Precise location of these structures within the V2A sector.	Open	2025-07-01	-	The recommendations will be implemented as soon as mining resumes in this design sector.	P3	

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	Design Verification and Optimization	(New Recommendation in 2024)			<p>The catch bench width compliance for the IVR V2 pit continues to be challenging, with only 60% of the catch benches established to date achieving a width of 8 m. Approximately 85% of the catch benches achieved a width of 6 m, which has been demonstrated to be adequate for retaining rockfall.</p> <p>The underperforming catch benches are not limited to any one design sector, and include walls with favourable rock mass conditions. As a result, it is likely that the cause is linked to operational factors. The on-going efforts to reduce backbreak appear to be having a positive effect but this has not been quantified.</p>	<p>Review the causes of the poor catch bench width compliance in the IVR V2 pit including drilling, blasting, and scaling practices resulting in crest loss and/or hard toes. Summarize the status and effectiveness of the previous initiatives to reduce the catch bench loss. Implement measures to improve the catch bench width compliance and track their progress (e.g., on a monthly or quarterly basis).</p> <p>The mine needs to demonstrate that the minimum catch bench width can be reliably achieved or the design catch bench width will need to be increased or a variance obtained from the WSCC.</p> <p>Priority based on potential for an order from the regulator.</p>	<p>As per the recommendation, a review of contributing causes to the IVR V2 catch bench non-compliance will include:</p> <ul style="list-style-type: none">- Testing current Komatite drilling and blasting (D&B) specifications with the assistance of D&B Engineering.- Reinforcing the crest picketing initiative with the survey team.- Increasing field presence by rock mechanics during the scaling of identified high-strain structures in this area.- Investigate the process of obtaining a variance from the WSCC if the results are unsatisfactory.	Ongoing	2025-09-01	-	D&B has made adjustments to the mass pattern blasting process by eliminating the 200 holes and relocating the 300 holes closer to the presheared wall.	P2
		(New Recommendation in 2024)			<p>Rock Mechanics has recently started to review and document the catch bench width compliance for the Whale Tail pit. Previous efforts focused solely on measuring the backbreak and this change is endorsed.</p>	<p>Complete systematic reviews of the catch bench width compliance for all new benches in the Whale Tail pit.</p>	<ul style="list-style-type: none">- Integrate the process of catch bench compliance review in the Quarterly report.- Pinpoint specific areas where compliance is lacking.- Provide detailed analysis of these areas, including potential risks and impacts.- Implement corrective measures to ensure compliance.	Ongoing	2025-12-31	-	The compliance review was conducted for the newly developed benches during Q2 and Q3 of 2024.	P3
		(New Recommendation in 2023)	<p>The redesign of the Northeast wall of the Whale Tail open pit is based in part on the results of a numerical model that have not yet been validated. There is a need to validate the numerical model results and thus the slope design.</p>	<p>Use the numerical model to define criteria for comparing the model results to the observed/measured performance of the Northeast Wall. Use these criteria to verify the slope design.</p>	<p>This work remains outstanding.</p> <p>The mine has installed an SAA and three GNSS beacons in the Northeast Wall since the previous annual inspection and the SSR has recently been moved to a position on the South Wall where it will have long-term coverage of the Northeast Wall. These data can be used to validate the numerical model and better predict both the long-term slope performance and the impact of crown pillar recovery on the slopes.</p>	<p>Periodically compile and review the data from the SSR, GNSS beacons, and SAA. The interpretation of the slope deformation developed from these data should then be compared to the slope performance predicted by the model. It is recommended that this be done quarterly or semi-annually.</p> <p>Priority increased to P2 based on the time available to collect and review these data before the crown pillar is recovered.</p>	<ul style="list-style-type: none">- Compare the displacement data from GNSS beacons with the model's predicted positions (Numerical Modelling of Pit Slope Mitigation Options from RockEng.). Ensure the data aligns with the model's expectations and identify any discrepancies.- Analyze the evolution of survey scans over the years to track changes and trends.- Develop an interpretation of Shape Accel Array (SAA) data to measure wall slope distances and deflections.- Investigate the use of satellite data, such as Interferometric Synthetic Aperture Radar (InSAR), for long-term and large-scale monitoring of ground displacement.- Present the data as comparative table and graphs and incorporate the results in the quarterly report.	Open	2025-09-01	-	-	P2
		(New Recommendation in 2024)			<p>The open pit is reaching the expected boundary between Structural Domains 5 and 6. The position of this boundary is uncertain and is based on discontinuity orientation data from a limited number of drillholes. There is a significant difference in the expected slope performance and the slope geometry recommendations for design sectors H5 and G5 in Structural Domain 5 and the overlying design sectors H6 and F6 in Structural Domain 6. It is important that the appropriate slope geometry is implemented for the encountered conditions.</p> <p>The observed slope performance in the Southeast Wall suggests that Design Sector F6 may extend deeper than currently planned.</p>	<p>Confirm the extents of Structural Domain 5 and adjust the implementation of the slope geometry recommendations for the South and Southeast walls accordingly (i.e., Design Sectors H6/H5 and F6/G5).</p>	<p>Crest loss on the next bench could potentially reduce the usable width of the ramp. Given the uncertainty regarding the extents of Structural Domain 5, AEM has implemented preventive measures, including:</p> <ul style="list-style-type: none">- Installation of vertical dowels (shear pins) along a 75m stretch on the outside of the ramp in this sector to mitigate crest loss.- Completion of line drilling with 0.4m spacing on the adjacent stretch, with an additional 20m to be drilled during ramp development to minimize back break.- Planning of post-development mapping and evaluation of wall performance in this sector.	Ongoing	2025-07-01	-	An additional 20m of line drilling remains to be completed following the mining sequence. A pre-evaluation will be conducted during mucking and scaling of the walls below the ramp. Once the area has been mined out, mapping will be performed. Adjustments to the slope geometry for the remaining benches will be made if necessary.	P2
		(New Recommendation in 2024)			<p>The open pit slope geometry recommendations and expected slope performance for the future lower Northwest and North Wall of the Whale Tail open pit is sensitive to whether or not, and to what degree, the S1-S2 foliation and Brittle / High Strain Structures folds and dips to the north at depth in the pit. There is limited drillhole coverage of this area.</p>	<p>Review the confidence in the dip of the foliation and Brittle / High-Strain Structures at the base of the final Northwest and North walls of the Whale Tail open pit.</p> <p>If the confidence is limited, collect additional data to confirm the orientation of the S1-S2 foliation and the orientation and position of the Brittle / High Strain Structures in this area. This could be through diamond drilling or through mapping of the cross-cuts on 260L in the underground mine.</p>	<ul style="list-style-type: none">- Assess the confidence in the dip of the foliation and Brittle / High-Strain Structures at the base of the final Northwest and North walls of the Whale Tail open pit.- Conduct mapping and scanning of the sector to evaluate current data.- If required, map the cross-cuts on 260L in the underground mine, Compare new data with existing information to ensure accuracy.- Prepare a comprehensive report detailing the confidence levels and any additional data collected.	Open	2025-07-01	-	-	P3
		Implementation: Excavation	Thermal Capping	Remediate the thermal cap in the IVR V2 "Turtlehead".	<p>The thermal cap was not remediated. Mining of the "Turtlehead" is now complete and access to the area has been limited with a berm. As a result, there is no exposure of personnel to the rockfall hazard caused by the gaps in the thermal cap.</p>	<p>Whether or not remediation of the thermal cap is required given the lack of exposure should be confirmed with the WSCC.</p> <p>Priority reduced from P2 as mining is no longer occurring in the area and personnel are not exposed to the rockfall hazard.</p> <p>Recommendation can be removed if WSCC confirms the regulatory requirement is not applicable.</p>	<p>It is understood that the mine inspector visited the area with AEM and did not have any concerns.</p>	None.	-	(P3) Closed	-	-
Drill and Blast	Complete the recommended blasting trials. In particular, the development of a blasting pattern for the Komatite is likely to be beneficial to bench performance.		<p>Initial trials were completed but further work stopped due to the departure of several Drill and Blast personnel. To date, the trials have not resulted in significant changes to drilling and blasting practices. The mine intends to revisit the trials in the future.</p>	<p>Complete the original recommendation.</p>	<p>The Drill and Blast team is trialling different options for reducing crest loss and blast damage. The backbreak associated with each trial is assessed.</p> <p>Electrical detonators have been implemented. The changes appear to be resulting in improved bench performance in the Komatite.</p>	<p>Continue the trials. Sufficient progress has been made that this recommendation has been closed.</p> <p>The impact of drill and blast practices on catch bench performance at IVR V2 will need to continue to be tracked as part of the recommendation above.</p>	-	(P3) Closed	-	-	-	Complete
	Implement a year-round blasting quality control program, at a minimum measuring blasthole depth.		<p>A blasting quality control program has not been implemented.</p>	<p>Complete the original recommendation.</p>	<p>The drills have been outfitted with a Wenco system that tracks hole depths and angles. Drilling quality control has improved.</p>	None.	-	(P3) Closed	-	-	-	Complete
Water Management	(New Recommendation in 2023)		<p>The sump on the 5081 bench of the South Wall of the Whale Tail open pit is unlined. Water from the sump is seeping through the face of the bench below and will create an ice wall during winter. The ramp will eventually be located below this location.</p>	<p>Evaluate options for lining the sump to limit the re-infiltration of water.</p>	<p>The base of the sump was sealed with a combination of Komatite, bentonite and cement and the walls were lined. Unfortunately the liner was subsequently damaged during ice clearing activities.</p>	<p>None. The mine has other indicatives underway to manage the groundwater seepage in the South Wall.</p>	-	(P4) Closed	-	-	-	Complete

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Inspections		(New Recommendation in 2023)	A potential wedge has been identified in the Northwest wall of the Whale Tail Open pit, above the Phase 2 ramp. If the wedge were to fail, it is likely that material would reach the ramp. The wedge is currently being monitored using visual inspections, drone surveys, and the slope stability radar.	Continue to monitor the wedge. If further deterioration of the wedge is observed, review and implement mitigation measures (e.g., knocking down the wedge).	No change was observed in the wedge relative to the 2023 annual inspection. The Rock Mechanics team continues to monitor the wedge as part of the regular open pit inspections.	This recommendation is being closed as the wedge is being routinely monitored as part of the ground control program at the mine.	-	(P3) Closed	-	-	-	N/A
		(New Recommendation in 2023)	IVR West 2 was barricaded upon completion of mining. This was an effective method of managing the risk associated with the identified rockfall hazards in the pit. It was identified during the 2022 annual review that access would eventually be required for dewatering purposes and that the construction of a rockfall berm along the inside of the ramp was recommended prior to re-entry. However, in late June or early July, dewatering personnel were allowed access to install a pump at the base of the ramp. The rockfall berm had not been constructed. A rock mechanics inspection was not completed prior to personnel accessing the pit. The pump was installed below a rockfall hazard and adjacent several large blocks that had fallen onto the ramp. These rockfall hazards were either not identified by the dewatering personnel or were identified and no action was taken. The hazard was identified during the 2023 annual inspection and the pump was removed and the pit barricaded the following day.	Ensure that a rock mechanics inspection is completed before work activities resume in barricaded areas. The intent is to re-assess existing hazards and to assess whether new hazards have developed over time. All hazards should be mitigated before access is allowed. A rockfall berm should be constructed along the inside of the ramp if the IVR West 2 pit is used for water management in the future. Prior to the removal of the pump and the re-establishment of the barricade, this was a P1 priority.	A rock mechanics inspection is now completed before work resumes in a closed area/open pit. These areas are tracked on the Hazard Maps. A rockfall berm has not been constructed along the inside of the ramp in the IVR West 2 pit. However, access to the IVR West 2 pit is prevented by a berm and access is not currently planned.	None.	-	(P2) Closed	-	-	-	Complete
		Review the use of the Hazard Maps: a) Refine the legend on the Hazard Map to clearly note the restrictions associated with the risk ratings (e.g., Yellow – Spotter Required). b) Provide more detailed guidance, including examples, on how to determine the risk ratings. c) Consider the use of physical markers (e.g., pylons) in the open pit to remind personnel of hazards that are not bermed off (e.g., Yellow Zones). d) Consider a separate method for communicating the corrective actions to Operations so that it is clear that the Hazard Map is focussed on existing hazards rather than whether or not work has been completed. This could be captured within the Bench Approval process. e) Two of the hazards noted as requiring ongoing monitoring in the Hazard Tracking Database have been removed from the hazard map. All current hazards requiring mitigation should be shown on the Hazard Map.	The use of the Hazard Maps has been reviewed. a) The legend has been revised to clearly indicate the need for a spotter in Medium Risk (Yellow) areas b) There continues to be limited guidance on how to determine the risk ratings. The mine relies on practical training by the Rock Mechanics Coordinator. While the training is important, the ratings are a critical aspect of hazard management at the mine and more detailed formal guidance on their selection should be developed. c) The mine has considered the use of physical markers in the open pit to demarcate the Yellow hazard areas that are not bermed off but has concluded that it would be impractical to implement d) The Hazard Map is focussed on rock mechanics hazards. While corrective actions related to the identified hazards are noted on the map, the corrective actions are primarily communicated and tracked through the Pit Wall Approval procedure and the Hazard Tracking Database. e) Not all existing hazards are shown on the map. This is discussed separately as a new recommendation under Hazard Tracking, below	Provide more detailed guidance, including examples, on how to determine the risk ratings. Priority has been revised to P3.	This work remains outstanding.	Complete the 2023 recommendation. The objective is to promote consistency among rock mechanics personnel and to help guide less experienced personnel.	Implement a risk rating matrix to evaluate various hazards, such as smaller rocks that are not well attached and could fall, overhanging sections, fault lines that could weaken the rock mass and lead to instability, measured displacements in the rock mass indicating potential instability, water ingress, and large slope instabilities. The matrix should categorize risks based on their likelihood and severity. Include concrete examples in the document to ensure consistency among rock mechanics personnel.	Open	2025-07-01	-	-	P3
		Review the Pit Wall Approval process: a) Review the communication of bench approvals with Engineering and Operations to ensure that the process is reliably followed b) Incorporate a checklist to improve consistency between staff and avoid hazards being missed c) Limit approvals in key sectors (e.g. WHL F6) to experienced staff	The list of upcoming patterns is reviewed each morning during the daily production meeting. This includes whether or not the walls adjacent the pattern have been approved. The mine is in the process of updating the Pit Wall Approval procedure so that patterns are only released to Survey once the required wall approvals are completed. This is endorsed. A checklist has not yet been implemented. The Rock Mechanics team currently relies on practical training in the field for new staff. Approvals in key sectors are now only completed by experienced staff.	Update the Pit Wall Approval procedure as planned. Continue to recommend the development of a checklist to improve consistency between staff and avoid hazards being missed. Priority has been revised to P3.	The Pit Wall Approval procedure has been updated so that patterns are only released to the drillers and Survey once the required pit wall approvals are completed. This is an excellent approach. A checklist has not yet been implemented. The Rock Mechanics team currently relies on practical training in the field for new staff.	None. Continue to recommend the development of a checklist to improve consistency among staff and to avoid hazards being missed.	-	(P3) Closed	-	-	-	Complete
								Open	2025-09-01	-	-	P4
		(New Recommendation in 2024)			The Rock Mechanics team completes drone surveys of the open pit slopes each month during the summer. While the photos and videos are saved on the network, the results of the surveys are not reported.	Document the drone surveys in brief reports. The reports should present the conditions in key areas as well as any observations of slope instability or unusual conditions.	A report is now produced based on that demand, presenting visual observations such as unusual conditions, the appearance of new tension cracks, accumulation of material on catch benches and water inflow.	Ongoing	2024-09-07	-	One report was produced in September 2024. Additional reports will be completed once drone flights resume.	P3
		Formally identify sectors of the open pit where SSR is a critical control for achieving an acceptable level of residual risk. Develop a process to stop or modify mining activities in these areas when SSR coverage is not available. This could be captured within the SSR TARP.	Sectors of the open pit where SSR is a critical control are now identified in the Ground Control Monitoring Using Radar System Procedure (Northeast and Northwest Walls of the Whale Tail open pit). When the SSR is offline, a Grey Alarm is triggered. On day shift, the Rock Mechanics team would be aware of the alarm and could stop or modify mining activities in these sectors. However, on night shift Dispatch does not contact the Rock Mechanics team if a Grey Alarm is triggered. As a result, no action would be taken until the start of the next day shift.	Empower Dispatch to pull personnel out of sectors where SSR is a critical control in the event that the SSR is offline (e.g., a Grey Alarm triggers). Update the procedure to reflect this change.	The process has been changed. Dispatch contacts Rock Mechanics any time a Grey Alarm is triggered, including on night shift.	None.	-	(P2) Closed	-	-	-	Complete
		Review the effectiveness of the SSR alarm parameters in 2022 and establish a commitment to review the parameters annually.	The SSR alarm parameters had not been reviewed at the time of the audit. It is understood that the mine intends to implement an annual review.	Complete the original recommendation.	The SSR alarm parameters were reviewed by Tetratech in July, 2024 after the rockfall on the WHL South Wall. The velocity threshold was reduced from 1.3 mm/hr to 1 mm/hr over 2 scans and 3 pixels. Alternate time periods and pixel configurations were considered.	None.	-	(P3) Closed	-	-	-	Complete
		(New Recommendation in 2024)			The SSRs for the Whale Tail pit have been moved to semi-permanent locations. This will result in a much longer-term set of monitoring data to assess the slope performance than has been available to date. The Komatite in the Northeast and Northwest slopes is likely to experience more deformation over time than the other lithologies. It is possible that this deformation could be a precursor to a large-scale instability. The current SSR alarms are focussed on relatively brittle small-scale failures and the mine would benefit from defining additional alarms that consider longer-term trends over a larger area of the slope.	Define additional SSR alarms that consider the potential for large-scale slope instability that manifest over an extended period. The length of the period is likely to be limited by noise in the data (e.g., atmospheric effects).	- Atmospheric Noise Filtering: Implement filters to account for atmospheric effects that can introduce noise into the data. - SSR Pad Stability: Solidify the SSR pad before freshet to maximize its stability, allowing for a longer period of uninterrupted monitoring and data acquisition. - Zone-Specific Alarms: Adjust the alarm settings by zone and by deformation exceeding chosen values over a predefined longer duration (e.g., between 14 to 60 days). - Coherence Analysis: Analyze the coherence of a specific zone over a longer period to ensure consistent and reliable monitoring. - Use of the "Hot Spot" Visualization Setting: Visualize deformation over a longer period with a larger deformation setting. - Third-Party Review: Use the geotechnical support provided by GroundProbe, a third-party monitoring company, to review the parameters for long-term deformation and large slope monitoring.	Ongoing	2025-06-01	-	The permanent pad location for the radar monitoring on the south wall has been constructed using a hard wooden base from a seacan platform. This should prevent the typical "sinking" movement caused by the melting of the top rock layer. The platform, installed in August 2024, ensures greater stability.	P2

Observations, Comment and Recommendations							AEM Implementation Action Plan					
Category	Topic	2022 Recommendations	2023 Status and Comments	2023 Recommendations	2024 Status and Comments	2024 Recommendations	AEM Action Plan / Follow-up	Status	Due Date	Completion Date	AEM Comments / Update	Priority
Implementation: Inspections and Monitoring	Instrumentation and Monitoring	(New Recommendation in 2024)			The SSR alarm parameters are currently reviewed infrequently and on an ad-hoc basis. The SSR is a key tool for managing the risk associated with slope failures at the mine and there is a need to periodically review the effectiveness of the alarm parameters.	Define a commitment to review the effectiveness of the SSR alarm parameters on an annual basis, if the observed/anticipated slope performance changes, or if a significant instability did not trigger an alarm. The alarms should be updated as necessary based on the results of the review. GroundProbe's GSS can assist with the review process if needed.	Since AEM utilizes GroundProbe's Geotechnical Support Services (BPN), which provide 24/7 remote monitoring of the SSR during the summer period, AEM will leverage this service to conduct a comprehensive review of the parameters during the critical times of the year. This includes the beginning of the fresher period and as the summer unfolds. The service provides daily reports, making communication easier for addressing questions or recommendations.	Open	2025-06-01	-	-	P3
		Define a red trigger for the SSR TARP to provide a backstop for unprecedented or unexpected conditions.	A global Red Alarm trigger has not been defined. The intent is to define these on a case by case basis for high risk activities requiring constant monitoring.	Continue to recommend the development of a Red Alarm for at least the areas of the open pit where SSR is a critical control. The intent is to capture unprecedented or unexpected conditions.	A Red Alarm has not been developed and the mine's preference is to always have Rock Mechanics in the loop before a decision is made to evacuate personnel from a particular area. The mine has retained GroundProbe's Geotechnical Support Services (GSS) to provide 24/7 remote monitoring of the SSR. Alarms and unusual trends are communicated to the Rock Mechanics team, including a member on call during the night shift. As a result, someone from the Rock Mechanics team reviews all alarms promptly. The use of GSS reduces the likelihood that an unprecedented / unexpected instability is missed.	This recommendation is being closed. However, the development of a Red Alarm would provide a backstop to the current SSR monitoring process and may still be needed in the future depending on the slope performance or mining activities. If a Red Alarm will not be defined, it should be removed from the TARP.	-	P3) Closed	-	-	-	N/A
		(New Recommendation in 2023)	The TARP indicates that Rock Mechanics personnel are to be contacted if a Grey Alarm is triggered. However, the alarm notification itself says not to contact Rock Mechanics.	Revise the notification for the Grey Alarm so that it is consistent with the TARP.	The Grey Alarm notifications have been aligned with the TARP.	None.	-	(P2) Closed	-	-	-	Complete
		Explain in the GCMP or radar monitoring procedure why the SSR alarms have been set at their current values and provide guidance on how they can be adjusted based on different circumstances.	The Ground Control Monitoring Using Radar System Procedure sets out the current alarm triggers and when they can be adjusted. However, no guidance is provided on how to adjust them based on different circumstances.	Complete the original recommendation. While it is recognized that it is not practical to cover all eventualities, recommend providing additional guidance on how to define alarm criteria.	This work remains outstanding.	Complete the original recommendation.	Update the Ground Control Monitoring Using Radar System Procedure, include examples of normal and outstanding monitoring parameters such as the calculation period, velocity exceeding a certain threshold (e.g., X mm/h), and deformation exceeding a specific amount over a given duration. Indicate that these normal and outstanding monitoring parameters are for reference only and must be set on a case-by-case basis, taking into account external factors such as environmental conditions and the presence of machinery.	Open	2025-12-31	-	-	P4
		Implement an additional surface monitoring system, such as prisms or GPS beacons, to complement the SSR, provide a long-term deformation baseline, and to allow the true displacement vector to be measured.	The Rock Mechanics team has researched the use of GPS beacons but the purchase of these beacons had not been budgeted or planned at the time of the audit. The mine is trialling the use of corner reflectors as history / reference points for the SSR. This is endorsed.	Complete the original recommendation. The GPS beacons are promising. Recommend budgeting for the installation of several beacons.	Four GNSS/GPS beacons have been installed in the Whale Tail open pit, and the mine has budgeted for five more beacons in 2025.	None.	-	(P2) Closed	-	-	-	Complete
		(New Recommendation in 2024)			The existing GNSS/GPS beacons are installed in areas identified as having an increased potential or consequence of slope deformation. This is reasonable. However, there is value in having one or more beacons installed in areas expected to be stable in order to define a baseline.	Develop a comprehensive monitoring plan for the LOM. As part of the plan, Install GNSS/GPS beacons on the North Wall of the Whale Tail pit in the Greywacke. Installing the beacons in the lower North Wall will also allow them to be used to assess whether the Greywacke starts to deform during recovery of the crown pillar as predicted by the numerical model.	- A monitoring plan as been developed; 2025 LOM Ground Control Monitoring Plan Instrumentation. - A GNSS beacons has been installed in the lower north wall in the greywacke unit on bench level 5025.	Complete	2025-02-06	-	Adhere to the 2025 LOM Ground Control Monitoring Plan Instrumentation guidelines for the installation of future instrumentation in the designated area. During the 2025 Annual Open Pit Geomechanical Inspection, the consultant will be required to confirm that the AEM Implementation Action Plan and its measures fully satisfy the recommendations.	P3
		(New Recommendation in 2024)			The GNSS/GPS beacons have been installed but are not yet fully integrated into the mine's monitoring system. As a result, the data are not consistently available or reviewed for trends. Trigger thresholds, alarms, and a TARP have not yet been developed. There is considerable scatter (e.g., +/- 2 cm) in the data. It is likely that the raw data are being presented without processing.	Fully integrate the GNSS/GPS beacons into the mine's monitoring system, including MonitorIQ. Define a TARP and alarms for the beacons. Review the scatter in the data with the service provider. One option to better understand the accuracy of the instruments is to compare the data with the deformation reported by the SSR.	- The integration of GNSS beacons into MIQ has been successfully completed, incorporating mine grid coordinates and a 3D vector displacement map. - Thresholds and alarms have been established; however, further modifications are needed to eliminate outliers. - 3D displacement versus time graphs have been created. Explore the potential for generating these graphs automatically.	Ongoing	2025-07-01	-	Define a Triggered Action Response Plan (TARP) that accounts for potential outliers in the data, incorporating additional monitoring methods into the decision-making process for setting the TARP.	P2
		(New Recommendation in 2024)			The ramp above the South Wall failure in the Whale Tail pit is currently restricted to single lane traffic. The failure was reviewed in detail as part of the annual inspection. Further progression of the failure towards the ramp was identified as unlikely but possible. Re-opening the ramp to two-way traffic will require the implementation of monitoring and mitigation measures to manage the risk associated with this possibility.	Develop a monitoring and mitigation plan for the failure in the South Wall of the Whale Tail pit, below the ramp. One option discussed during the annual inspection would be to re-position the berm at the crest of the failure, to prevent access to the area affected by the plausible progression of the failure. The failure could then be monitored using a combination of the SSR and visual inspections. A location-specific alarm should be defined for the failure (e.g., using the criteria suggested by GroundProbe).	A specific alarm was established for the zone covering the failure and the remaining standing rocks on the western section. The Edge Protector System was installed outside the plausible progression of the failure, maximizing ramp width and allowing the main ramp to function as double lanes.	Complete	-	2024-11-21	During the 2025 Annual Open Pit Geomechanical Inspection, the consultant will be required to confirm that the AEM Implementation Action Plan and its measures fully satisfy the recommendations.	P2
		(New Recommendation in 2023)	The design of the IVR V2 open pit North Wall is sensitive to the position and orientation of the High Strain / Brittle Structures, as well as the presence of Komatite. This is one of very few design sectors at Amaruq where the potential for inter-ramp scale failures limited the slope design. As a result, increased monitoring is recommended.	Plan for full-time SSR coverage of the North Wall of the IVR V2 open pit once mining extends further to depth in 2024.	The purchase of a third SSR unit to allow for full time coverage of the IVR V2 open pit is being considered for the 2025 budget. Mining of the North Wall is currently paused as mining activities are focussed on the pushback to the west.	Plan for full-time SSR coverage of the North Wall of the IVR V2 open pit once mining of the North Wall resumes. The SSR should be supplemented with other monitoring systems (e.g., GNSS/GPS beacons, SAAs, etc.). Develop an overall monitoring plan for the IVR V2 North Wall.	The budget for 2025 includes the purchase of a third SSR unit to ensure full-time coverage of the IVR V2 open pit. This radar will be strategically positioned to monitor the north wall. A comprehensive monitoring plan has been developed for both the Whale Tail and IVR pits. The plan includes the installation of 2 GNSS and 2 SAAV units for the IVR north wall. However, the pit design for the IVR north wall may change, and the planned instrumentation may need to be adjusted accordingly.	Ongoing	2025-10-01	-	The timing for the commissioning and installation of the SSR will be contingent upon the barge arrival date and the priority assigned to the SSR.	P3
		(New Recommendation in 2023)	The mine has planned and budgeted the installation of Shape Array Accelerometers (SAAs) and Vibrating Wire Piezometers (VWPs) in the Northeast wall of the Whale Tail open pit. This is endorsed. The original plan was for three instrumented drillholes but this has since been reduced to two.	Recommend implementing the original plan for three instrumented drillholes. This will improve the coverage of the Northeast wall above the future ramp position and will provide additional redundancy in the event that an instrument is damaged.	Two instrumented drillholes were completed. One of the SAAs was damaged during installation and sub-surface deformation monitoring is limited to the upper Northeast wall as a result. Access to the benches above the ramp in the Northeast wall is no longer practical.	None.	-	-	-	-	N/A	
		Implement a mechanism within the Hazard Tracking Database to flag overdue corrective actions. If an action has been superseded or the hazard mitigated through other means the action should be closed out.	Hazards with overdue corrective actions or that have been unmitigated for extended durations are not flagged. In some cases, corrective actions that have been superseded are noted as such and the action closed out, but this is not consistently done. This aspect of this recommendation is discussed as part of the new recommendation below.	Complete the original recommendation.	A mechanism within the Hazard Tracking Database to flag overdue corrective actions remains outstanding. There is a need to clean up the database so that is it an effective tool.	Complete the original recommendation.	The database is cleaned during every official wall inspection, and conditional formulas are used in the spreadsheet to highlight overdue hazards. Additionally, other forms of reminders are being developed to ensure timely hazard management	Ongoing	2025-07-01	-	-	P2
		(New Recommendation in 2023)	Not all identified hazards are documented in the Hazard Tracking Database. For example, the rockfall hazard above the ramp in the IVR West 2 Pit identified during the 2022 annual inspection was not documented and had not been mitigated prior to the 2023 annual inspection. No hazards were recorded in the database in July or August 2023.	Review the use of the Hazard Tracking Database with the Rock Mechanics team. Ensure all identified hazards are documented. Consider tracking the number of entries each month to monitor both wall performance and how well the database is being used.	The Hazard Tracking Database has been regularly used since the last annual inspection and no hazards were observed to be missing.	None. Consider tracking the number of entries each month to monitor both wall performance and how well the database is being used. This is covered by the recommendation on the Quarterly Summary Reports, below.	-	(P2) Closed	-	-	-	Complete
		(New Recommendation in 2023)	There are multiple hazards documented in the Hazard Tracking Database that have not been closed out but are noted as being removed from the Hazard Maps as mining is not currently occurring in the area. There is no mechanism to ensure these hazards are revisited or mitigated before mining in the area resumes.	Develop a process to track hazards that have not been eliminated but are being managed through exclusion zones (or other means of limiting exposure). The intent is to ensure they are identified, communicated to personnel and mitigated prior to resuming work in the area. For example, this could be accomplished using a new status in the database and/or with a separate layer on the Hazard Maps.	This work remains outstanding.	Complete the original recommendation.	A new status map and database will be created for the Rock Mechanics personnel, outlining long-term hazards such as wedges, known problematic areas, and regions sensitive to seasonal effects and environmental conditions.	Open	2025-07-01	-	-	P2

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Observations, Comment and Recommendations							AEM Implementation Action Plan					
Category	Topic	2022 Recommendations	2023 Status and Comments	2023 Recommendations	2024 Status and Comments	2024 Recommendations	AEM Action Plan / Follow-up	Status	Due Date	Completion Date	AEM Comments / Update	Priority
	Hazard Tracking	(New Recommendation in 2023)	Not all rockfalls have been documented in the Rockfall Database. This is a key tool for understanding failures and for refining/validating the slope design and other control measures.	Document all rockfalls (at least to the extent practical) in the rockfall database. Define criteria for what type of events are recorded in the rockfall database. Events that resulted in injury or damage to equipment, or could plausibly have done so under different circumstances, should always be recorded in the database.	All rockfalls since the last annual inspection have been documented in the database, regardless of whether or not they are reportable to the mine inspector (> 50 t). However, the criteria for which rockfalls are to be documented is still limited to reportable rockfalls in the GCMP.	Define criteria for what type of events are recorded in the rockfall database. Events that could have plausibly resulted in injury or damage to equipment under different circumstances, should always be recorded in the database. Priority decreased to P4.	Define the criteria based on the proximity of personnel and equipment; report any rockfall under 50 tonnes as a near miss if it occurs near a working area, continue documenting these smaller rockfalls as they may indicate larger events, and include these criteria in the GCMP during the next update session.	Open	2025-12-31	-	-	P4
		(New Recommendation in 2024)			A rockfall report is completed for all rockfalls and slope failures. The content of the reports varies but typically focuses on a factual description of the event (conditions and chronology), the consequences of the event, and the immediate corrective actions to be taken. While the reports are typically well done, they consider the events in isolation. Often the preliminary report issued within 24 hours of the event is not updated or elaborated on. Intellex reports are completed for rockfalls deemed to be Near Misses. There is a need to complete a more detailed review and back-analysis of some of these failures, both to identify root causes / lessons learned and to better anticipate similar failures in the future. Examples include: - Trends, such as the repeated failures along the Brittle / High Strain Structure in the Northwest Wall of the Whale Tail pit. - Failures with an increased consequence, such as the failure below the ramp on the Southwest Wall of the Whale Tail pit. - Unusual occurrences (e.g. larger failures) or cases where the existing procedures did not function as intended or desired.	Complete a detailed review and back-analysis of clusters of slope failures, unusual failures, or failures with an increased consequence. The review should consider: - The primary and contributing causal factors, including lithology, structure, water, temperature, blasting, etc. - The effectiveness of the applied controls - Lessons learned - The potential for other similar failures. - Action or follow-up items Define a commitment for these reviews in the GCMP.	Conduct a detailed review and back-analysis of slope failures, considering factors like lithology, structure, water inflow, seasonal effect, blasting methods, efficacy of controls, lessons learned, potential for similar failures, and necessary actions. Analyze historical data to identify trends in targeted areas, such as the northeast and northwest corners, southwest wall, and east wall sector P6 of the Whale Tail Pit. Define a commitment for these reviews in the GCMP.	Open	2025-09-01	-	This exercise is partially completed within the Quarterly report; however, no separate document is produced specifically on the subject. AEM has a solid understanding of the potential for failures with increased consequences in targeted areas where rockfall clusters have been recorded. Producing a dedicated report on this subject could be beneficial.	P3

TABLE 2

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2024 ANNUAL OPEN PIT GEOMECHANICAL INSPECTION

AMARUQ

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Observations, Comment and Recommendations							AEM Implementation Action Plan					
Category	Topic	2022 Recommendations	2023 Status and Comments	2023 Recommendations	2024 Status and Comments	2024 Recommendations	AEM Action Plan / Follow-up	Status	Due Date	Completion Date	AEM Comments / Update	Priority
Implementation: Other Controls	Managing Exposure / Barricades	(New Recommendation in 2024)			Mining in the IVR V1 open pit and Whale Tail Extension is complete, but both are still accessed as part of the long-term water management strategy for the mine. As a result, personnel will be travelling on the ramps in these pits on an on-going basis. The mine currently manages geotechnical risks along the ramps, including rockfall hazards, through regular inspections by the Rock Mechanics team.	Evaluate the use of a rockfall berm along the inside of the IVR V1 open pit and Whale Tail Extensions ramps instead of relying on regular inspections to manage the rockfall hazard.	A berm will be installed in sections deemed necessary. However, AEM will continue to manage geotechnical risks along the ramps, including rockfall hazards, through regular inspections by the Rock Mechanics team.	Open	2025-07-01	-	As part of the bi-weekly pit wall inspection, the Rock Mechanics team visits all working areas to assess ground conditions. If any changes are detected, appropriate mitigation measures are implemented.	P4
		(New Recommendation in 2024)			The partial or complete loss of catch benches in the lower Southeast Wall of the Whale Tail pit directly above the ramp increases the rockfall hazard for the ramp in this area. While rockfalls have not been reported or observed in this area, the potential for rockfall has been identified.	Evaluate and implement measures for mitigating the rockfall hazard. For example, installing a rockfall barrier on the crest of the bench above the ramp.	Following the recommendation, AEM mandated Construction & Expertise PG to install a GEOBRUGG rockfall barrier. The barrier, measuring slightly over 30 meters in length and 4 meters in height, is positioned in a targeted zone with significant crest loss, forming a double bench height wall above the WHL main ramp. The barrier is intended to catch loose rocks coming from the two benches above.	Complete	-	2024-11-14	During the 2025 Annual Open Pit Geomechanical Inspection, the consultant will be required to confirm that the AEM Implementation Action Plan and its measures fully satisfy the recommendations.	P2
		(New Recommendation in 2024)			The loss of catch benches as a result of the failures in the Northwest Wall of the Whale Tail pit increases the hazard associated with rockfall in this area.	Construct a rockfall berm on the catch bench below the Northwest Wall failure.	A berm was permanently left on the larger catch bench at the 5025 elevation, below the WHL northwest corner multi-bench failure. Furthermore, when excavating sensitive zones, AEM systematically leaves a berm underneath as part of the Komatitle procedure released in 2024.	Complete	-	2024-12-01	During the 2025 Annual Open Pit Geomechanical Inspection, the consultant will be required to confirm that the AEM Implementation Action Plan and its measures fully satisfy the recommendations.	P2
Ground Control Program	Training	Develop a skills matrix to help identify training needs.	A skills matrix has not been developed. The Rock Mechanics team has experienced significant turnover, with only three staff remaining from a year ago. This puts an increased demand on training and knowledge sharing.	Complete the original recommendation.	This work remains outstanding.	Complete the original recommendation. The recently developed Roles and Responsibilities document for the Rock Mechanics team is a good starting point.	- Identify the specific skills and responsibilities required for each role within the team. - Create a comprehensive skill matrix that highlights the strengths and areas for development within the team.	Open	2025-12-31	-	AEM ensures that the rock mechanics team receives adequate training and information sharing through established procedures, various documents, and cross-shift notes. Additionally, team members can be quickly reached via phone or text outside the mine site, ensuring that questions are answered and knowledge is transmitted.	P4
	Documentation	Add the following to the Quarterly Summary Reports to improve the communication of the completed rock mechanics activities and their effectiveness: a) The reports include a dashboard summary of the activities complete, but there is no reference to the commitments in the GCMP. Recommend including a column in the dashboard indicating the target frequency for the tracked items. b) Consider including a slide commenting on the effectiveness of the mine's controls (e.g. radar alarms, prior identification of rockfalls, etc.)	The recommended changes have not been implemented. While the reviews of the bench performance summarized in the reports are well done, the results are not consistently compared to expectations / the design basis.	Complete the original recommendation. Directly compare the results of the bench performance reviews to the bench design. For example, does the backbreak exceed the amount that was designed for?	The Quarterly Summary reports are comprehensive and well done. However, while they summarize the various activities of the Rock Mechanics team, they do not compare them to the relevant commitments. The effectiveness of the controls (e.g., radar alarms, visual inspections, etc.) have not been quantified. The reviews of the catch bench performance now compare the measured catch bench width to the 8 m minimum.	Complete the original recommendation.	A comparative table, including variances to relevant commitments, was included in the Q3 & Q4 2024, quarterly report. The next quarterly report should add the effectiveness of the controls, including radar alarms and visual inspections in comparison to line drilling efficiency. Additionally, continue including the catch bench compliance width for newly developed benches in future reports.	Ongoing	2025-07-01	-	-	P4
		(New Recommendation in 2023)	The commitment to issue the Quarterly Summary Reports is not being met. Reports were issued in Q1 and Q3 2023 but not in Q2.	Issue the Quarterly Summary Reports each quarter.	Quarterly Summary Reports were issued for Q3 and Q4 of 2023 and Q1 and Q2 of 2024.	None.	-	(P3) Closed	-	-	-	Complete
		The following comments are provided for the GCMP: a) Consider adding a one-page overview of the deposit geology and mine plan, including key information such as the ultimate pit dimensions, approximate mine life, major lithologies, etc. b) (5.2.1.3) - Review and revise the commitments for drone monitoring so that they are focussed and achievable c) (5.3.2) Clarify that the collected data should be compared to the design basis for the open pit in addition to looking for trends d) (5.4.1) Note that crack meters and extensometers have not been installed and clarify that vibrating wire piezometers and thermistors are not currently being monitored. A plan with the location of the instrumentation should be included or referenced. e) (5.5) Reference a register that tracks who has received what geomechanical training f) (8) Provide greater clarity and detail on the input the team provides to the mine planning and approval process. For example, the input to the Bench Master and 3MR g) Describe and include a commitment to the bench approval process	The updates to the GCMP incorporated changes b), c), d), f) and g). While the GCMP now includes a plan showing the location of the instrumentation, the plan is out of date.	a) Consider adding a one-page overview of the deposit geology and mine plan, including key information such as the ultimate pit dimensions, approximate mine life, major lithologies, etc. Focus on the major lithologies/domains and how they perform in the open pits. b) Reference a register that tracks who has received what geomechanical training. c) Update the plan showing the position of the instrumentation.	The GCMP was comprehensively updated in June 2024. As part of this, the plan showing the position of the instrumentation was updated. The GCMP now includes a brief discussion of Geotechnical Areas of Concern in each pit. This is a good practice. However, the discussion often does not include an overview of the slope instabilities and rockfalls that have occurred to date in those areas. The other recommendations remain outstanding.	Additional comments on GCMP content include the following: a) Consider adding a one-page overview of the deposit geology and mine plan, including key information such as the ultimate pit dimensions, approximate mine life, major lithologies, etc. Focus on the major lithologies/domains and how they perform in the open pits. b) Include a discussion of expected failure modes. For example, kinematic wedge or planar failures on the S1/S2 foliation are the dominant control on bench performance. c) Reference a register that tracks who has received what geomechanical training. d) Briefly describe the rockfalls that have occurred in the geotechnical areas of concern (Sec 3.1.2).	During the next GCMP update exercise, include a comprehensive overview of the deposit geology and mine plan, highlighting key information such as ultimate pit dimensions and major lithologies. Discuss expected failure modes, reference a geomechanical training register, and provide a brief description of rockfalls in geotechnical areas of concern.	Open	2025-12-31	-	-	P4