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Cambridge Bay
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Richard Dwyer

Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, Nunavut
X0B 1J0

July 13th, 2022

Re: Review of AEM's Care and Maintenance Plan.

Dear Richard Dwyer, the KIA had reviewed AEM's Care and Maintenance Plan, Appendix B: Tailings Area Dust Control Strategy for Doris TIA, Appendix D: Figures, Appendix F: Dam Emergency Plan, and Appendix G: Trigger Action Response Plan (TARP).

Enclosed are our geotechnical engineering and aquatic sciences consultants' comments on AEM's Care and Maintenance.

Thank you

John Roesch

John Roesch, P.Eng.

Senior Hope Bay Project Officer
Kitikmeot Inuit Association, Department of Lands and Environment

Cc Geoff Clark, Director, KIA, Department of Lands and E

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Care and Maintenance Plan

KIA-NWB-1

Review Comment Number	KIA-NWB-1
Subject/Topic	Update to closure cost estimate Doris-Madrid Project
References	Hope Bay – Care and Maintenance Plan. April 2022 Version 1. Page 12. Table 1-2: Water License Requirements for Care and Maintenance.
Summary	Part J, Item 6 (Type A Water License 2AM-DOH1335) notes that within twelve months of AEM providing notice of intent to enter into C&M, AEM must submit to the Nunavut Water Board (NWB) an updated estimate of total mine closure liability and continue to do so every 3 years thereafter. The referenced table notes this task is 'To be completed'.
Detailed Review Comment	A closure plan and associated closure cost estimate was previously prepared for the project by TMAC Resources (subsequently acquired by AEM) as part of the Final Environmental Impact Assessment (FEIS). Based on this estimate, financial security was posted by the proponent and this security was split between KIA and CIRNAC. Any changes to the mine plan that occur during the C&M period may have an impact on both the closure plan and associated closure cost/security amounts.
Recommendation/Request	It is requested that AEM confirm the schedule for this update to be complete and to confirm the update will be provided in a level of detail consistent with the original closure cost estimated provided in the FEIS. AEM should also confirm if an update to the associated closure plan document will also be submitted.
Importance	Low

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KIA-NWB-2

Review Comment Number	KIA-NWB-2
Subject/Topic	Update to closure cost estimate Madrid Advance Exploration Project (MAEP)
References	Hope Bay – Care and Maintenance Plan. April 2022 Version 1. Page 12. Table 1-2: Water License Requirements for Care and Maintenance.
Summary	Part C, Item 4 (Type B Water License 2BB-MAE1727) notes that within six months of AEM providing notice of intent to enter in C&M, AEM must submit to the NWB an updated estimate of total mine closure liability and continue to do so every 3 years thereafter. The referenced table notes this task is 'To be completed'.
Detailed Review Comment	A closure plan and associated closure cost estimate was previously prepared for the project by TMAC Resources (subsequently acquired by AEM) as part of the Final Environmental Impact Assessment. Based on this estimate, financial security was posted by the proponent and this security was split between KIA and CIRNAC. Any changes to the mine plan that occur during the C&M period may have an impact on both the closure plan and associated closure cost/security amounts.
Recommendation/Request	It is requested that AEM confirm the schedule for this update to be complete and to confirm the update will be provided in a level of detail consistent with the original closure cost estimated provided in the FEIS. AEM should also confirm if an update to the associated closure plan document will also be submitted.
Importance	Low

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KIA-NWB-3

Review Comment Number	KIA-NWB-3
Subject/Topic	Madrid Naartok East Crown Pillar excavation/portal
References	Hope Bay – Care and Maintenance Plan. April 2022 Version 1. Page 21.
Summary	Surface contact water in the Naartok East Crown Pillar (NECP) area will be directed to a sump at the bottom of the NECP pit. Contact water collected in the sump will eventually be conveyed via truck or via the approved waterline to the TIA at Doris. Surface contact water from the Madrid NECP portal area will be directed into a contact water pond (CWP). Water is discharged to the tundra if water quality is lower than permit limits or conveyed by truck or via the approved water line to the TIA at Doris, when water quality does not meet permit limits.
Detailed Review Comment	The information regarding the sump and CWP located at the NECP area is limited in the referenced documentation and insufficient for review.
Recommendation/Request	- It is requested that AEM address the following questions: - Are the sump and contact water pond referenced above are the same facility? - What are the design details of the CWP? - Is contact water from the pad and portal area to be kept separate? If not, what is the reasoning for the different management plans described above and in the reference document? - What is the maximum allowed water level of the sump/contact water pond during the C&M period? - Will the closure of the NECP be detailed in the updated closure plan to be submitted by AEM?
Importance	Medium

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KIA-NWB-4

Review Comment Number	KIA-NWB-4
Subject/Topic	Madrid North Portal – permanent closure
References	Hope Bay – Care and Maintenance Plan. April 2022 Version 1. Section 3.1 Underground Mine workings. Page 23.
Summary	Development of the Madrid North portal has been stopped by AEM due to encountering challenging ground conditions. The portal for the Madrid North deposit is being relocated to the NECP. Temporary measures such as barricades and water management facilities (diversion berms, sumps, pumps) have been or will be constructed to manage the surface water in the portal area in the short term. No information has been provided with respect to the permanent closure of the abandoned Madrid North Portal.
Detailed Review Comment	No information has been provided with respect to the permanent closure of the abandoned Madrid North Portal.
Recommendation/Request	It is requested that AEM provide a permanent closure plan for the Madrid North portal and a schedule to complete the work.
Importance	Medium

KIA-NWB-5

Review Comment Number	KIA-NWB-5
Subject/Topic	Waste rock stockpile management
References	Hope Bay – Care and Maintenance Plan. April 2022 Version 1. Section 3.2 Waste Rock Stockpiles, Ore stockpiles and Overburden piles. Page 23/24.
Summary	Waste rock is temporarily stored at surface at both the Doris and Madrid North sites prior to placement as backfill in the underground mine workings during normal mine operations. Ore is also temporarily stockpiled on rockfill pads prior to processing. AEM also notes that a new surface waste rock stockpile within the approved project footprint at Doris, is required for temporary storage of rockfill associated with underground activities at Doris.

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Detailed Review Comment	The plan for continued transport of backfill from surface to the underground workings is unclear in the C&M plan. It is also unclear if any ore will continue to be stockpiled during the C&M period or it will be processed during the early stage of the C&M period.
Recommendation/Request	It is requested that AEM address the following questions: - What is the amount of waste rock estimated to be stored at surface at the time of the site being placed into C&M? What additional amount of waste rock is expected to be stockpiled during the C&M period? - What is the amount of ore stockpiled at surface as of the site being placed into C&M and will this ore all be processed during the initial stage of the C&M period? If ore is to remain stockpiled during the C&M period what is the plan for water management, what water quality impacts are expected and what additional management strategies are proposed to mitigate this impact? - What are the details regarding the new surface waste rock pile proposed for the Doris site?
Importance	Medium

KIA-NWB-6

Review Comment Number	KIA-NWB-6
Subject/Topic	Water Management at the Doris Tailings Impoundment Area (TIA)
References	Hope Bay – Care and Maintenance Plan. April 2022 Version 1. Section 3.3 Tailings Impoundment Area. Page 24.
Summary	During C&M there will be no active deposition of tailings in the Doris TIA thus activities will be limited to water management for discharge to the receiving environment. The reference notes “water management will require a new spillway and internal berms at the TIA to address an alternatives water management strategy for mine water and

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	for the TIA water to remain in regulatory compliance for discharge to the receiving environment.
Detailed Review Comment	Management of water in the TIA is critical to maintaining safe operation of the TIA during the C&M period. It was also noted in the annual geotechnical inspection report of the TIA (reviewed by KIA under separate cover) that transfer of water from the TIA to Roberts Bay was suspended in late 2021 due to the new water quality guidelines.
Recommendation/Request	It is requested that AEM provide a schedule for when the alternative water management strategy, including the details on the proposed spillway and internal berms, will be submitted for review and comment. Given dewatering of the TIA to Roberts Bay via the Roberts Bay Discharge System (RBDS) pumphouse was suspended in November 2021, how will water management during C&M be undertaken to achieve the goal of maintaining the water level at the "lowest possible levels" as noted in the reference?
Importance	High

KIA-NWB-7

Review Comment Number	KIA-NWB-7
Subject/Topic	Water Management in Contact Water Ponds during C&M
References	Hope Bay – Care and Maintenance Plan. April 2022 Version 1. Section 3.7.1 Pipelines, Ponds and Collection Sumps. Page 28.
Summary	During C&M sedimentation ponds, pollution control ponds, contact water ponds and groundwater interceptor sumps will continue to operate. Water collected in these facilities will be directed to the TIA at Doris.
Detailed Review Comment	The contact water ponds were design as unlined facilities and depend on permafrost conditions in the subsurface and foundation of the containment berms for water retention. The design documents submitted during the FEIS note a maximum retention period for any water to limit the impact on the permafrost conditions in the subsurface. These operational controls will need to be maintained during the C&M period to preserve the long-term integrity of the facilities.

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Recommendation/Request	It is requested that AE confirm that the facilities will be operated as designed during C&M including limiting the retention period during which water is to be stored in CWPs, as per the FEIS design documents.
Importance	Low

KIA-NWB-8

Review Comment Number	KIA-NWB-8
Subject/Topic	Surface waste rock stockpile impacts
References	Care and Maintenance Plan Section 3: Care and Maintenance Activities
Summary	The new surface waste rock stockpile at Doris was stated to have no impact on Nunavut waters, but the rationale supporting this statement is not provided. Consideration of any/all potential impacts of waste rock stockpile storage is necessary to ensure that potential groundwater/surface water impacts near Doris infrastructure are protected.
Detailed Review Comment	The Care and Maintenance Plan states that "A new surface waste rock stockpile within the approved project footprint at Doris, which will not impact any Nunavut waters, is required for temporary storage or rock fill associated with underground activities at Doris." The supporting rationale for this statement was not provided. Further evidence that the new waste rock stockpile will not impact Nunavut waters either through surface or subsurface interactions should be provided.
Recommendation/Request	Evidence is required within the Care and Maintenance plan to provide reviewers with confidence that the new storage of surface waste rock at Doris will not result in the degradation of the receiving environment.
Importance	Moderate

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KIA-NWB-9

Review Comment Number	KIA-NWB-9
Subject/Topic	Tailings Impoundment Area Water Quality and Non-Compliance Waters
References	Care and Maintenance Section 3: Care and Maintenance Section 3.7: Water Management Systems Hope Bay Project Doris and Madrid Water Management Plan Section 4: Madrid Water Management.
Summary	It is unclear whether the TIA will be sufficient to manage noncompliant contact water in an extended Care and Maintenance situation. Additional information is needed to provide confidence that Agnico Eagle can manage contact water in the TIA during Care and Maintenance.
Detailed Review Comment	The Care and Maintenance document states in Section 3.7: "During Care and Maintenance underground mine water will be pumped to the surface and sent to the TIA at Doris. The mine water will be segregated within the TIA. Compliant TIA water will be discharged to Roberts Bay via the RBDS Pumphouse located at the TIA." Section 3.2.5 (Tailings Impoundment Area): "In the event of effluent non-compliance, discharge pipeline malfunction or excessive mine water inflows, the TIA has the capacity to contain water without discharging." "The TIA is operated to maintain sufficient water to supply the mill, while not exceeding the full supply level of 33.5 m and allowing for contingency water holding capacity. The current water management strategy is to convey all mine surface contact water to the TIA." It is understood that any non-compliant water will be transported to the TIA, but no timeframes/formal plans are

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	provided. Additional information should be provided to clarify how Agnico Eagle will be able to manage non-compliant water given there will be a reduced site presence during Care and Maintenance. Specifically, Agnico Eagle should outline the duration water can be stored within the TIA and strategies that may be implemented to prevent noncompliant discharges.
Recommendation/Request	Agnico Eagle should provide more information within the Care and Maintenance plan outlining the TIA's capacity to store noncompliant water and what approaches may be considered if that capacity is reached given a reduced site presence during Care and Maintenance.
Importance	High

KIA-NWB-10

Review Comment Number	KIA-NWB-10
Subject/Topic	Additional wastewater treatment plant installation
References	Hope Bay Project Doris and Madrid Water Management Plan Section 3: Doris Water Management 3.2.7 Water Treatment Plant Care and Maintenance Plan Figure 5.1
Summary	The reason and timeframe for the installation of an additional water treatment plant to treat water prior to discharge to Roberts Bay has not been provided. Sufficient treatment of mine/process water cannot be evaluated without understanding capacity limits on current/future water treatment plants.
Detailed Review Comment	"Agnico plans to install an additional water treatment plant to treat TSS, in the vicinity of the reclaim pond at the TIA, that utilizes the Veolia Actiflo® technology. The water treatment plant will have the capacity to treat both underground and reclaim water streams prior to discharge to Roberts Bay. The water treatment plant will also have capability to be expanded to treat metals and ammonia when required."

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	Agnico Eagle has not outlined a timeline in Figure 5.1 of the Care and Maintenance Plan for when this additional treatment plant will be completed. It is unclear whether this treatment plant is needed to support Care and Maintenance activities or whether the existing on-site treatment approaches will be sufficient.
Recommendation/Request	The timeframe associated with the installation of the additional water treatment plant should be provided. Agnico Eagle should also clarify whether the additional water treatment plant is required to support Care and Maintenance or whether it is supplemental until such time as operations recommence.
Importance	Moderate