

CIRNAC Comments to NIRB Re: Comment Request for Agnico Eagle Mine's Doris North Gold Mine and Phase 2 Hope Bay Belt Projects 2022 Annual Report



GCDOCS # 114929350



Canada

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Your File: Votre référence
05MN047 & 12MN001
Our File: Notre référence
GCdocs # 114929350

June 26, 2023

Keith Morrison
Manager, Impact Assessment
Nunavut Impact Review Board
P.O. Box 1360
Cambridge Bay, NU, X0B 0C0
Via electronic mail to: info@nirb.ca

Re: Comment Request for Agnico Eagle Mine Ltd.'s Doris North Gold Mine Project and Phase 2 Hope Bay Belt Project, 2022 Annual Report

Dear Brittany Hogaluk,

On May 11, 2023, as per section 12.7.3 of the *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty The Queen in Right of Canada (Nunavut Agreement)*, and section 135(4) of the *Nunavut Planning and Project Assessment Act (NuPPAA)*, the Doris North Gold Mine Project Certificate 003, Amendment 002 and Phase 2 Hope Bay Belt Project Certificate 009, the Nunavut Impact Review Board (NIRB) requested parties to review Agnico Eagle Mine's (AEM's) 2022 Annual Report with respect to effects and compliance monitoring.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) has conducted a review of the 2022 Annual Report and related documents in areas under its mandate and jurisdiction pertaining to effects and compliance monitoring. On this basis, CIRNAC would like to provide the comments attached for the NIRB's consideration.

CIRNAC appreciates the opportunity to review AEM's 2022 Annual Report and looks forward to working with the NIRB and AEM through future reviews for these projects. Should you have any questions, please do not hesitate to contact Vincent Okonkwo at vincent.okonkwo@rcaanc-cirnac.gc.ca

Sincerely,



Felexce Ngwa
Manager, Impact Assessment



1. Effects Monitoring

The 2022 Annual Report has been evaluated to assess the measurable changes to the valued components/indicators under CIRNAC areas of interest, compared to the potential effects that were predicted to result from a proposed development of Doris North Gold Mine and Phase 2 Hope Bay Belt Projects, taking into account the Final Environmental Impact Statement (FEIS), previous years' monitoring reports and the requirements included in the two Projects Certificates. The assessment considered the following:

- a. ***Whether the conclusions reached by Agnico Eagle Mine Ltd. in the 2022 Annual Report are valid; and***
- b. ***Any areas of significance requiring further supporting information or any changes to the monitoring program which may be required***

Within the areas under its mandate and jurisdiction, CIRNAC did not identify any information or data that would invalidate the conclusions reached by AEM in the 2022 Annual Report. CIRNAC is providing the following comments to assist with continuous improvement in subsequent monitoring and reporting processes.

Comment Number:	CIRNAC #1
Subject:	Annual Updates on Hope Bay Decision-Making
Reference:	<ul style="list-style-type: none">▪ 2022 Annual Report Submitted to NIRB (April 2023),▪ NIRB Revised Term and Condition (T&C) 34 of Project Certificate (PC) No. 003▪ 2022 Annual Report Submitted to NWB (March 2023)
Issue/Rationale:	In February 2022, AEM announced its decision to place the Doris Mill into Care and Maintenance and suspend production at the Hope Bay Project. On March 30, 2022, AEM provided the Nunavut Water Board with formal written notice of Care and Maintenance for the Doris-Madrid operations under Part J, Item 4 of the Water Licence 2AM-DOH1335 (Water Licence). As required by Part J, Item 5 of the Water Licence, AEM developed and submitted a Doris-Madrid Care and Maintenance Plan (C&M plan). In accordance with the Water Licence, the C&M plan provides details of the site activities to continue and/or to be initiated through the temporary suspension period. The C&M plan describes the activities to be implemented for the maintenance of mine site facilities, management and monitoring measures, and procedures to be implemented in accordance with temporary closure goals and regulatory requirements.



Comment Number:	CIRNAC #1
	<p>The 2022 Annual Report describes the operational and monitoring activities AEM is performing at the site during the Care and Maintenance phase. However, the 2022 Annual Report does not provide information that would allow reviewers to understand the status of AEM's decision-making process regarding if, why, and how long the Care and Maintenance phase will continue.</p>
Recommendation:	<p>CIRNAC recommends that AEM provide updates to all regulators and interested parties on the status of decision-making regarding the future of the Hope Bay Project in the subsequent Annual Reports and/or periodic project status meetings. These updates will:</p> <ul style="list-style-type: none"> a) Include a discussion of critical factors determining the duration of C&M and ability to restart operations and information on any potential changes to the Life of Mine Plan. b) Describe the actions AEM is taking to inform decisions, the anticipated timelines, and adaptations that AEM is making to the C&M plan to ensure ongoing and future environmental compliance.

Comment Number:	CIRNAC #2
Subject:	New Tailings Impoundment Area Water Treatment Plant
Reference:	<ul style="list-style-type: none"> ▪ 2022 Annual Report Submitted to NIRB (April 2023) ▪ 2022 Annual Report Submitted to NWB (March 2023)
Issue/Rationale:	<p>Water discharged from the Tailings Impoundment Area (TIA) needs to comply with the criteria prescribed in regulatory authorizations issued by NWB, as well as limits established under the Metal and Diamond Mining Effluent Regulation (MDMER). In addition, as per the NIRB's approval of the project, AEM is required to demonstrate that discharges from the TIA do not result in significant adverse impacts on the environment.</p> <p>Regarding water quality in the TIA, the following five (5) parameters have consistently been flagged as potential water quality challenges: TSS, total arsenic, total copper, total cyanide, and unionized ammonia.</p> <p>The 2022 Annual Report (Section 3.1.1) indicates that work was</p>



Comment Number:	CIRNAC #2
	initiated during 2022 to build a new TIA effluent water treatment plant with commissioning planned to occur before freshet 2023. However, no additional details were provided for the new treatment plant. Given the importance of the plant in maintaining the long-term environmental performance of the site, CIRNAC is of the opinion that AEM should provide further details on the progress made towards the construction and commissioning of the water treatment plant and its operation.
Recommendation:	CIRNAC recommends that AEM provide further details on the progress of the construction and commissioning of the new TIA effluent water treatment plant, including but not limited to any updates on the design basis, the technologies used, treatment throughput, anticipated effluent quality, discharge locations/periods, sludge management.

Comment Number:	CIRNAC #3
Subject:	Care & Maintenance Actual and Planned Activities
Reference:	<ul style="list-style-type: none"> ▪ 2022 Annual Report Submitted to NIRB (April 2023) ▪ NIRB Revised T&C 34 of PC No. 003 ▪ 2022 Annual Report Submitted to NWB (March 2023) ▪ Hope Bay Care and Maintenance Plan, V1 (April 2022) ▪ CIRNAC Technical Review memorandum re AEM's Updated Management Plans for Care and Maintenance Activities (July 2022) ▪ Proponent's Response to Comments Received on the Hope Bay Care and Maintenance Plan, V1 (April 2022)
Issue/Rationale:	<p>Pursuant to its notification to move the operations into care and maintenance, AEM developed and submitted an initial Doris-Madrid C&M plan as required on 29 April 2022. The Plan described activities to be implemented for the maintenance of mine site facilities, management and monitoring measures, and procedures to be implemented in accordance with temporary closure goals and regulatory requirements.</p> <p>CIRNAC reviewed the Plan and supporting documents in association with the review of the 2021 Annual Report, which resulted in the creation of four (4) Technical Review Comments (TRCs) that were submitted to the NWB on 11 July 2022. In its response to CIRNAC Recommendation R-01 Water Treatment Plant Construction</p>



Comment Number:	CIRNAC #3
	<p>Omission in the Schedule, AEM stated that “<i>Figure 5-1 will be revised to indicate that the Water Treatment Plant (WTP) will be constructed and installed in the fourth quarter of 2022. The WTP commissioning is now anticipated to occur prior to freshet 2023.</i>”</p> <p>CIRNAC notes that the WTP construction was not completed nor commissioned in 2022 as stated in the C&M Plan. The C&M plan provided together with the 2022 Annual Report is the same version that was provided in April 2022 and Figure 5.1 was not updated as committed.</p> <p>Given the potential environmental implications of transitioning to Care and Maintenance, it is important for CIRNAC, NIRB, NWB, other regulators, and intervenors to have a clear understanding of the status of works undertaken and completed, underway and planned during the Care and Maintenance period. In the absence of an updated Care and Maintenance Plan, it is challenging to assess the actual schedule status of the described activities.</p>
Recommendation:	<p>CIRNAC recommends that AEM provide an updated Figure 5.1 of the Care and Maintenance Plan that includes:</p> <ol style="list-style-type: none"> a) The addition for construction of the WTP; b) Any additional activities AEM has identified as necessary during the C&M period; c) Update to the 2022 to 2024 schedule to include actual timelines for each activity so as to illustrate actual vs. planned comparison; and d) Discussion of any major variance to the plan.

Comment Number:	CIRNAC #4
Subject:	Short-Term and Long-Term Saline Water Management
Reference:	<ul style="list-style-type: none"> ▪ 2022 Annual Report Submitted to NIRB (April 2023) ▪ NIRB Revised T&C 34 of PC No. 003 ▪ 2022 Annual Report Submitted to NWB (March 2023) ▪ Hope Bay Care and Maintenance Plan, V1 (April 2022) ▪ Proponent’s Response to Comments Received on the Hope Bay Care and Maintenance Plan, July 2022
Issue/Rationale:	In February 2020, the Project began effluent discharge into Roberts Bay in accordance with the MDMER. Consistent with requirements



Comment Number:	CIRNAC #4
	<p>Environmental Effects Monitoring (EEM) studies including effluent characterization sampling, acute and sublethal toxicity testing, and receiving environment water quality monitoring have been undertaken. The results showed no non-compliances with the authorized limits set out in Schedule 4 of MDMER occurred and no effluent samples were acutely toxic. Similarly, monthly Surveillance Network Program (SNP) reports show project discharges have been in compliance with NWB requirements stipulated in the water licences. Notwithstanding this record of compliance, AEM now finds itself challenged to continue discharging to the marine environment since the implementation of new MDMER toxicity testing requirements for the species <i>Acartia tonsa</i> for marine discharge.</p> <p>As noted in the C&M plan report, this new requirement has necessitated the development of an “<i>alternative water management strategy for mine water and for the TIA water to remain in regulatory compliance for discharge to the receiving environment</i>” including a series of short-term mitigation measures such as a constructing a separate pond to segregate saline mine water from other contact water collected and stored in the TIA. This was initially accomplished in 2022 with an AquaDam built across the end of the tailings beach to provide a storage reservoir for saline mine water between the AquaDam and the South Dam of the TIA. AEM is also in the process of constructing a more permanent solution for the storage of saline water, as well as the construction of a new water treatment plant to manage potential contaminants of concern in TIA water prior to discharge. AEM anticipates that these efforts will allow it to continue its activities during the site’s Care and Maintenance period.</p> <p>While these short-term mitigation measures have been sufficient during the Care and Maintenance phase, it is unclear to CIRNAC whether the measures will be adequate to address the MDMER <i>Acartia tonsa</i> requirements if/when AEM re-initiates mining activity.</p>
<p>Recommendation:</p>	<p>CIRNAC recommends that AEM provide descriptions of its:</p> <ul style="list-style-type: none"> a) Options for carrying out mining operations within the context of compliance with the new toxicity criteria for <i>Acartia tonsa</i> as required by the MDMER; and b) Plans for a permanent long-term water segregation strategy when the site resumes production.



Comment Number:	CIRNAC #5
Subject:	Report Improvements/Clarifications – Updated Management Plans
Reference:	<ul style="list-style-type: none"> ▪ 2022 Annual Report Submitted to NIRB (April 2023) ▪ NIRB Revised T&C 32 ▪ 2022 Annual Report Submitted to NWB (March 2023) ▪ Hope Bay Care and Maintenance Plan, V1 (April 2022) ▪ Proponent’s Response to Comments Received on the Hope Bay Care and Maintenance Plan, July 2022 ▪ Waste Rock, Ore and Mine Backfill Management Plan, Rev 11, March 2023 ▪ Doris and Madrid Water Management Plan, Rev 17, March 2023
Issue/Rationale:	<p>CIRNAC’s review of the updated Management Plans provided as part of the 2022 Annual Report found revision update document control was appropriate for the most part to allow for efficient review. However, documents control issues/ improvements, as noted below, were identified with respect to two of the Management Plan updates:</p> <p>Waste Rock, Ore, and Mine Backfill Management Plan, March 2023</p> <p>The cover sheet of this plan has no Revision Status. The document control section is unclear, as it shows a Version 10 dated June 2022 in which updates in Section 2.2.4 and Figure 2.2 were made, which included updating Figure 2.2 with Madrid Waste Rock Stockpile (WRSP) as-built and expansion. This is followed by a Version 11 update date of September 2023 with no change summary or sections identified.</p> <p>Doris and Madrid Water Management Plan, Rev 17, March 2023</p> <p>The document control section of the Plan states that updates were made in sections “as per comments from the 2021 NWB/NIRB Annual Reports and C&M Plan Comment Responses, and addition of Doris Crown Pillar Recovery Trench (CPRT) and vent Raise diversion berm.” No specific sections or pages were noted for these updates to allow for effective review of the updated plan.</p> <p>In addition, it is difficult to identify the actual nature and extent of the updates without referring to the source documents. For example, CIRNAC reviewed the C&M response document as noted in the document control (C&M Plan Comment Responses as noted above)</p>



Comment Number:	CIRNAC #5
	<p>which indicated that Sections 3.1.3 (Mine Water), Section 3.2.7 (Water Treatment Plant), Section 4.1.1 (Non-Contact Water), Section 4.1.3 (Mine Water), and Section 4.2.2 (Madrid Contact Water Pond Sumps) would be updated to reflect the Care and Maintenance status of the site. From review of these sections, it is not clear what was updated.</p>
<p>Recommendation:</p>	<p>CIRNAC recommends that AEM:</p> <ul style="list-style-type: none"> a) For the Waste Rock, Ore and Mine Backfill Management Plan, March 2023, clarify if the reference to V11 in the document control is an editorial error or otherwise; b) Update the document control section accordingly; and c) Update the cover page of the plan with the proper version number. d) For the Doris and Madrid Water Management Plan, Rev 17, March 2023, revise the document control section to be more specific on updates made; and e) In general, endeavour to ensure that document control for all future plan updates is as specific as reasonably possible and avoid generic statements or references to other documents without additional detail.

2. Compliance Monitoring

- a) **Provide a summary of any compliance monitoring and/or site inspections undertaken in association with the Projects, including specifically;**
 - i. ***Identify the Terms and Conditions from the Projects Certificates which have been incorporated into any permits, certificates, licences or other approvals issued for the Projects, where applicable***

CIRNAC has a broad mandate for the co-management of water resources and the management of Crown land in Nunavut under the following applicable acts and regulations:

- *The Department of Crown-Indigenous and Northern Affairs Canada Act;*
- *The Nunavut Land Claims Agreement Act and the Nunavut Agreement;*
- *The Arctic Waters Pollution Prevention Act and Regulations;*
- *The Nunavut Waters and Nunavut Surface Rights Tribunal Act and Regulations;*
and
- *The Territorial Lands Act and Regulations.*



In terms of water management in Nunavut, CIRNAC has a number of different responsibilities. The Minister of Northern Affairs has a decision-making role with regard to the Nunavut Water Board's (NWB) issuance of Water Licences associated with a project. Furthermore, CIRNAC participates as an intervenor in the water licensing process, providing advice and expertise.

When a proposed project is approved to proceed, CIRNAC is responsible for inspecting and enforcing any Terms and Conditions contained within Water Licence associated with the project. The NWB ensures that Project Certificate Terms and Conditions are incorporated in Water Licences.

In December 2007, CIRNAC issued a ten-year land lease (Nunavut Lease 77A/3-1-2) for the construction and operation of the Roberts Bay Jetty and Marine Outfall Berm. Land lease 77A/3-1-7 was renewed for the Jetty and Marine Outfall Berm for 30 years and expires in June of 2047. CIRNAC also issued land lease 77A/3-3-2 for the marine outfall pipe in 2018 for a 30-year period.

CIRNAC has reviewed the Type 'A' and Type 'B' Water Licences associated with the Doris North Gold Mine and Phase 2 Hope Bay Belt Projects with respect to Project Certificates 003, Amendment 002 and Project Certificate 009 and included a concordance table (Appendix A) which outlines how the Terms and Conditions have been incorporated in the Water Licences and CIRNAC land leases.

In 2022, the project's activities and monitoring were conducted under the following Water Licences:

- Type A Water Licence 2AM-DOH1323 Amendment #2
- Type A Water Licence 2AM-DOH1335 Amendment #2
- Type B Water Licence 2BB-MAE1727
- Type B Water Licence 2BB-BOS1727
- Type B Water Licence 2BE-HOP1222

ii. A summary of any inspections conducted during the 2022 reporting period, and the results of these inspections

CIRNAC's Water Resource Officers (WRO, CIRNAC Inspector) conducted two inspections of the AEM's Doris North Gold Mine and Phase 2 Hope Bay Belt Projects on June 20 and November 16, 2022.

The purpose of the inspection was to ensure that the licensee was in compliance with the terms and conditions of the Water Licence and Land Lease number N2015H003.

Facilities inspected during the June 20, 2022 inspection included, but were not limited to: Storage areas, banks of windy lake, Jetty and immediate surroundings, culverts, bridges, roads, berms, marine outfall berm, discharge pipeline and quarries.



Areas of concern noted in the CIRNAC WRO's inspection report include:

- About 304 barrels of sulfuric acid and multiple sea cans of expired Jet A (33 barrels in a sea can) outside containment and there were no berms at the lined pads.
- The main containment pond in the waste rock pile was leaking, although the licensee constructed a sump with a pump to catch the seepage. CIRNAC is working with the licensee to mitigate ongoing issues related to this infrastructure.
- At the warehouse storage area, 64 drums of gear oil and a sea can filled with hydrochloric acid (HCL) sitting at the edge of the pad close to the receiving environment were not contained.
- Secondary containment for the aircraft fuel at the helicopter pad was cracked.
- Generator oil storage was leaking, the building was lined but it was leaking through the liner. A drip tray was placed under the leak, and totes of glycol were seen in the area outside of a containment structure.
- At the stagg area for the Madrid portal, material placed for the building of a pad leached chemicals upstream of the creek causing some damage to the flora.
- No flow meter was installed at Windy Lake withdrawal location, and the Licensee depended on the number of truckloads in determining the amount of water used.
- Erosion was noticed at the shoreline at the Windy camp, as a result of discharge from the camp.

CIRNAC inspector recommended that the licensee:

- Manage and contain all wastes in such a manner approved by the NWB by ensuring that all waste fuels, glycol and consumable chemicals are stored within lined containment areas.
- Provides details of work being done to ensure that all seepage from the waste rock pad does not flow past the sumps, and submit detail report for the leaking containment at the generator oil storage.
- Provide evidence that shows the construction material used at the Madrid portal laydown that constituted damage to the flora was approved and free of contaminants.
- Install and maintain flow meters or implement suitable methods required for the measuring of the water and effluent discharge; and
- Implement sediment and erosion controls to prevent sediment entry into any water body.

AEM was given three(3) weeks on receiving the inspection report to provide a plan and a time line to address the concerns listed by the CIRNAC inspector.

On August 30, 2022, AEM responded to the CIRNAC June 20, 2022 inspection report, in its letter tagged (Re: Agnico Response to CIRNAC Inspection Report June 20, 2022). AEM, also provided time lines to address some of the issues raised during the inspection.

CIRNAC inspector, in an email reply to AEM's response, pointed out outstanding concerns ranging from the upper reagent pads or "consumable" chemicals not being lined or stored in a lined facility surrounded by berms, runoff and seepage from Waste Rock



Pad, Oil leaks at the generator oil storage, reasons it took more than six(6) months to install flow meters, to the quality of the secondary containment that houses totes at the powerhouse.

AEM provided an email follow-up on September 15, 2022 to inform the CIRNAC inspector of their effort in responding to the outstanding issues raised in the reply letter, and on September 20, 2022, provided a response to the CIRNAC inspector's further concerns. AEM prepared and submitted a spill report, on the request of the CIRNAC inspector. and committed to ordering an appropriate sized secondary containment for the totes at the powerhouse.

On November 16, 2023, CIRNAC inspector returned to the Hope Bay site to complete another round of inspection. Areas of concern noted in the inspection report include:

- Good number of sea cans with fuel and hazardous materials placed outside of a secondary containment, contrary to AEM's claim that these issues have been addressed.
- No berms built around the decommissioned reagent and cyanide storage facility to stop any potential spills from flowing into the surrounding environment.
- Glycol totes close to the generator was not adequately placed in a secondary containment.
- No further concerns on the water usage as the licensee has installed flow meters at the windy lake pump house as previously recommended by the CIRNAC inspector.

CIRNAC in November 16, 2023 report warned that section 90, subsection 2 of the NWNSRTA shall be invoked if AEM continues to provide inspectors with misleading information, and recommended that the AEM provides a plan to ensure that all hazardous materials are stored within secondary containment.

iii. A summary of Agnico Eagle Mine Ltd.'s compliance status with regard to authorizations that have been issued for the Projects.

CIRNAC inspector noted several concerns during the two inspections in the 2022 reporting period, with a non-compliance with project authorizations bordering around the hazardous materials not properly stored in a secondary containment.

CIRNAC will continue to work with AEM to ensure continued compliance with all water licence and Crown land lease requirements associated with the Doris North Gold Mine and Phase 2 Hope Bay Belt Projects.



Appendix A: Project Certificate Terms and Conditions incorporated into Project Water Licences and Land Use Permits or Leases, where applicable:

Project Certificate 003, Amendment 002 Terms and Conditions		Incorporation in NWB Type 'A' Water Licence (2AM-DOH1323 Amendment No. 2)	Incorporation in CIRNAC land lease (Nunavut Lease No.: 77A/3-1-7 and 77A/3-3-2)
5	The Proponent shall report by January 1st of each calendar year to NIRB on its development plan for future phases of the Hope Bay Belt, including identifying development plans that may affect the selection of TIA as the preferred alternative for tailings management.	Part B (Items 6 and 14)	
10	Should water from the TIA be discharged into Doris Creek, the Proponent shall ensure that monitoring of Tail Lake and Doris Creek water quality occurs, above and below the waterfall, and is verified by an independent, third party laboratory. The Proponent must provide copies of the results directly to the NIRB and NIRB's Monitoring Officer.	Part J (Items 3, 8, and 9) and Part K (Item 2)	
13	The Proponent shall collect additional water quality data for the 2006 field season and incorporate it into a revised water quality model to be submitted to the NWB as part of the water licence application. To ensure the protection of the receiving environment at the point of discharge, the Proponent will meet discharge criteria: <ul style="list-style-type: none"> a. Where discharge is to the freshwater environment, on a site specific basis set by the NWB where possible and as set by the Metal Mining Effluent Regulations (MMER); and, b. Where discharge is to Roberts Bay, discharge criteria set by the MMER and the Arctic Waters Pollution Prevention Act. 	Part G (Items 3, 23, 24, 27, 28, 29, 30, 32) and Part J (Item 8)	
15	The Proponent shall not permit the water discharged into Doris Creek to exceed the criteria set by the NWB.	Part G (Items 28, 29 and 30)	Part 32
16	The Proponent shall take all reasonable steps to prevent any discharge that is not in compliance with applicable regulatory approvals or requirements. If such a situation is encountered, the Proponent shall take immediate action to address the noncompliant discharge.	Part G (Items 28, 29, 30, 32) and Part J (Item 8)	Part 32
18	The Proponent shall submit to the NWB, as part of the water licence application, a program detailing the methodology for testing quarried rock for acid generation and metal leaching potential. The sampling, testing, and analysis must be done by a professional geologist registered in Nunavut.	Part D (Items 9 and 10) and Part G (items 14 and 15)	
19	The Proponent shall install thermistor cables and	Part J (Items 14, 18,	Part 41.1



Project Certificate 003, Amendment 002 Terms and Conditions	Incorporation in NWB Type 'A' Water Licence (2AM-DOH1323 Amendment No. 2)	Incorporation in CIRNAC land lease (Nunavut Lease No.: 77A/3-1-7 and 77A/3-3-2)
	and 19)	Clause 55 (77A/3-3-2)
31	The Proponent shall maintain a complete Closure and Reclamation Plan on file with the NWB prepared in accordance with requirements of the NWB and other regulators.	Part L (Items 5, 6, and 7)
32	Prior to the commencement of operation the Proponent shall have a complete Environment, Health and Safety Management System in place which includes the following: <ul style="list-style-type: none"> ▪ Wildlife Mitigation and Monitoring Plan; ▪ Environmental Protection Plan; ▪ Emergency Response and Spill Contingency Plan; ▪ Occupational Health and Safety Plan; ▪ Human Resources Plan; ▪ Community Relations Plan; ▪ Monitoring and Follow-up Plan; and ▪ Auditing and Continuous Improvement Plan. When complete, these Plans shall be forwarded to the NIRB's Monitoring Officer.	Part I Parts 25 to 31; and 35.
33	The Proponent shall ensure spill kits are at hand at the Roberts Bay oil handling facility at all times, and that appropriate containment measures are used to prevent, contain and respond to a spill in accordance with the Most recent version of the Oil Pollution Emergency Plan and Oil Pollution Prevention Plan reviewed by Transport Canada.	Part G (Items 10, 11, and 12) Part 37
36	The Proponent shall continue year-round monitoring and recording of Doris Lake water levels during construction and operations. This will allow for detection of actual Doris Lake draw down below the sill level; computation of the amount of drawdown, quantification of the project impact, and implementation of adaptive mitigation and management measures as appropriate.	Part G (Item 34c) Part J (Items 3 and 11) Schedule B (Item 6b)
37	The Proponent shall develop and submit a detailed Groundwater Management Plan for review during the water licensing process and to the NIRB as part of the plans available on the Doris North project. The plan shall acknowledge uncertainties pertaining	Part B (Item 6i) Part G (Item 3)



Project Certificate 003, Amendment 002 Terms and Conditions		Incorporation in NWB Type 'A' Water Licence (2AM-DOH1323 Amendment No. 2)	Incorporation in CIRNAC land lease (Nunavut Lease No.: 77A/3-1-7 and 77A/3-3-2)
	to predictions of groundwater quantity and quality and inform the Groundwater Management Plan. Indigenous and Northern Affairs Canada should be consulted with respect to the contents of the Plan and any required mitigation measures.		
39	At least six (6) months prior to operation of the effluent pipeline and diffuser system, the Proponent shall conduct and submit to the Board a hazard and operability study of the pipeline and marine outfall system as part of the land authorization process.		Clause 42 (77A/3-3-2)

Project Certificate 009 Terms and Conditions		Incorporation in NWB Type 'A' Water Licence (2AM-DOH1335 Amendment No. 2)	Incorporation in CIRNAC land lease (Nunavut Lease No.: 77A/3-1-7 and 77A/3-3-2)¹
1	The Proponent shall maintain an Air Quality Management Plan that addresses the following areas/issues: <ul style="list-style-type: none"> a) regular stack testing of incinerators to demonstrate emissions are within levels predicted or within applicable guidelines or standards; b) continuous NO2 monitoring and demonstration that NO2 emissions do not exceed levels impact predictions nor relevant guidelines; and c) implementation of dust suppression measures and demonstration that dustfall and concentrations of suspended particulate matter are within levels predicted or committed to, and within levels or limits established by applicable guidelines and regulations. 	Part B (Item 13) Part E (Item 12) Part F (Items 1 and 6) Schedule D (Item 2m)	
3	The Proponent shall maintain a Mine Closure and Reclamation Plan that addresses the following areas/issues: <ul style="list-style-type: none"> a) adaptive management approaches for monitoring and mitigation measures to 	Part B (Item 13) Part J (Items 1, 2, 3 and 8) Schedule B (Items 4, 5, and 7)	

¹ The terms and conditions of Project Certificate 009 are not applicable to the lease agreements issued by CIRNAC Land Administration as they are contained within the project approved under Project Certificate 003.



	Project Certificate 009 Terms and Conditions	Incorporation in NWB Type 'A' Water Licence (2AM-DOH1335 Amendment No. 2)	Incorporation in CIRNAC land lease (Nunavut Lease No.: 77A/3-1-7 and 77A/3-3-2)¹
	<p>ensure long-term containment of the Tailings Storage Facility and Waste Rock Storage Areas;</p> <p>b) measures to maintain the integrity of the groundwater quality within and adjacent to the Project; and</p> <p>c) estimates of the approximate fill time for the mine pits.</p>		
5	<p>The Proponent shall maintain a stand-alone Acid Rock Drainage and Metal Leaching Management Plan (or equivalent as may be specified under the Type "A" Water Licence) that includes the following information:</p> <p>a) procedures for inspection and sampling/testing of waste rock, ore, tailings storage facilities, and quarry source material;</p> <p>b) thermal monitoring of waste rock and tailings storage facilities, including tailings management areas;</p> <p>c) seepage management and monitoring;</p> <p>d) a schedule for reporting of results and periodic updating of predictions for seepage water quality;</p> <p>e) planning for optimal cover conditions above-ground mine- and quarry-related material storage facilities;</p> <p>f) contingency measures that may be implemented if required, including measures to address the potential for leaching of arsenic from waste rock and ore stockpiles, and tailings under neutral pH conditions;</p> <p>g) plans for comparing monitoring results from receiving waters to model predictions; and</p> <p>h) identification of thresholds that will trigger specific management actions, including active water treatment, if trends analyses indicate water quality objectives may be exceeded.</p>	<p>Part B (Item 13)</p> <p>Part D (Items 2, 8, 11, 18, and 19)</p> <p>Schedule B (Item 2)</p> <p>Schedule D (Items 1c and 2e)</p> <p>Part F (Items 1, 14, 18, 19[b,d,e,f,g,h,i,k], 20b, 21, and 22)</p> <p>Part I (Items 3, 7, 8, 9, 10, 11, 12, 14, 16, 17, and 19)</p> <p>Schedule I</p> <p>Part J (Items 7 and 8)</p>	
6	<p>In consultation with applicable regulatory agencies and experts such as Natural Resources Canada, the Proponent shall undertake additional site-</p>	<p>Part B (Items 13 and 15)</p> <p>Part D (Items 1 and 21)</p>	



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<p>specific geotechnical investigations, permafrost monitoring, mapping and thermal analysis to:</p> <ul style="list-style-type: none"> a) document permafrost conditions, including seasonal thaw, amount of ground ice; b) inform the detailed design of project infrastructure, including foundations, such as water management structures, mine site and haul roads, waste rock storage facilities, and tailings storage facilities, including dam structures associated with the Doris North Tailings Impoundment Area; c) inform updates/revisions to management plans related to waste rock, ore, and tailings storage facilities, including adaptive management strategies with clear thresholds for implementation to minimize the potential for impacts from these facilities; and d) ensure the integrity of project infrastructure and components, including tailings cover, is maintained post-closure. 	<p>Schedule D (Items 1o and 1p) Part I (Item 9) Part J (Items 8 and 10) Schedule B (Item 2)</p>	
<p>7 The Proponent shall maintain an Erosion Management Plan designed to prevent or minimize erosion and its resulting effects from project-related land disturbance. The Plan shall include the following:</p> <ul style="list-style-type: none"> a) identification of specific project activities that require erosion control; b) description of associated erosion issues; and c) specific measures to prevent or minimize erosion. 	<p>Part B (Item 13) Part D (Item 6) Schedule D (Items 1e and 2l) Part E (Item 10) Part F (Items 4 and 19c) Part G (Item 3g) Part I (Items 9 and 10) Part J (Items 13 and 14)</p>	
<p>8 As part of the Mine Closure and Reclamation Plan (or equivalent), the Proponent shall develop and implement a program to progressively reclaim disturbed areas within the project footprint, with an emphasis on restoring the natural aesthetics of the area through re-contouring to the extent practicable. Acceptability of reclamation efforts should be confirmed through the Proponent's public engagement with local communities and discussion of local aesthetic values (e.g., acceptability of the topography and landscape of the project areas following progressive reclamation efforts). Progressive reclamation efforts should also</p>	<p>Part B (Item 13) Part J (Item 12)</p>	



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9	The Proponent shall implement a Thermal Monitoring Plan to identify potential changes in talik distribution and flow paths that may result from the development of project infrastructure, including underground workings, tailings storage facilities, and water impoundment areas.	Part B (Item 13) Part I (Items 7, 8, 9 and 10) Schedule I
10	Subject to potential receipt of more detailed direction from the Nunavut Water Board, the Proponent shall: <ul style="list-style-type: none"> a) monitor the effects of project activities and infrastructure on surface water quality conditions; b) ensure the monitoring data is sufficient to compare the impact predictions made for the Project with actual monitoring results; c) ensure that the sampling locations and frequency of monitoring is consistent with and reflects the requirements of the Aquatic Effects Monitoring Plan, and Water Management Plan; and d) on an annual basis, compare monitoring results with the impact assessment predictions in the FEIS and will identify any significant discrepancies between impact predictions and monitoring results. 	Part B (Item 13) Part D (Items 8 and 9) Part E (Items 2 and 11) Part F (Items 5b, 18a,b, 22, and 24) Part I (Items 1, 12, 13, 14, 15 and 19) Schedule B (Item 4) Schedule I
11	The Proponent shall, reflecting any direction from responsible authorities, maintain an Aquatic Effects Monitoring Program (AEMP) designed to appropriately characterize the receiving environment and ensure that adequate data is available to assess impact predictions made for the Project and prevent adverse impacts from occurring. The AEMP should include measures to: <ul style="list-style-type: none"> a) determine the short and long-term effects in the aquatic environment resulting from the Project; b) evaluate the accuracy of Project effect predictions; c) assess the effectiveness of mitigation and management measures on Project effects; 	Part B (Item 13) Schedule B (Items 1, 7, 9, 17 and 18) Part I (Items 1, 3, 6, 14, 17, and 19) Schedule I



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	<ul style="list-style-type: none"> d) identify additional mitigation measures to avert or reduce environmental effects due to Project activities; e) comply with Metal and Diamond Mining Effluent Regulations requirements, should an Environmental Effects Monitoring program be triggered; f) reflect site-specific water quality conditions; g) include details comparing the watershed features from the Aimaokatalok, Windy, and Doris watersheds to the reference watersheds (Reference A, Reference B, Reference C and Reference D lakes and streams); and h) evaluate the mixing and non-mixing portion of the pit. 		
12	Unless otherwise authorized, the Proponent shall maintain an appropriate setback distance between project quarries and borrow pits from fish-bearing or permanent water bodies as required to prevent acid rock drainage or metal leaching into such Water bodies and to mitigate the potential for impacts from runoff/sedimentation associated with project quarries and borrow pits.	Part B (Item 13) Part D (Item 18) Part F (Item 1)	
13	The Proponent shall ensure that all project infrastructure in watercourses are designed and constructed in such a manner that they do not unduly prevent or limit the movement of water or fish species in fish bearing streams and rivers, unless otherwise authorized by Fisheries and Oceans Canada.	Part D (Items 16 and 17)	
15	The Proponent shall implement all applicable Fisheries and Oceans Canada best management practices to avoid and mitigate serious harm to fish as a result of the construction, operations, and decommissioning of winter ice roads, and from under ice water withdrawals. This includes adequately screening the water intake pipes to prevent impingement and entrainment of fish.	Part D (Item 16) Part E (Item 8)	
16	The Proponent shall implement all applicable Fisheries and Oceans Canada best management practices to avoid and mitigate serious harm to fish as a result of water crossing construction, operations, and decommissioning for all fish-bearing water crossings.	Part D (Items 16 and 17) Part I (Item 13) Part J (Item 13)	



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18 The Proponent shall ensure that the progressive reclamation efforts outlined in its Mine Closure and Reclamation Plan or equivalent encourage recolonization by native plant species. These efforts are expected to be informed by revegetation trials in the Project area and must include monitoring protocols over sufficient timeframes to measure success and ensure invasive plant species have not established.	Part B (Item 13) Part J (Items 12 and 16)	
19 The Proponent shall maintain a Road Management Plan which includes: a) maintenance of traffic logs and traffic counters along the all-weather road between the Doris-Madrid mine sites and Madrid-Boston mine sites. Where traffic levels exceed levels predicted for the Project, the Proponent shall develop and implement appropriate enhancements to its wildlife protection measures; b) information regarding the road design, safety barriers, berms and features designed to ensure safe wildlife movement; c) description of safety protocols and enforcement by the Proponent, including restrictions imposed during periods of low visibility, and training provided to road users; and d) program to monitor snow bank heights along Project roads to ensure they do not pose a barrier to movement of wildlife or other land users.	Part B (Item 13) Part D (Items 1, 10, 11 and 21)	
43 The Proponent should ensure that the development of all project monitoring plans, associated reporting and updates are undertaken with active engagement of Kitikmeot communities, land users, and harvesters. The Proponent should work with the Kitikmeot Inuit Association, the local Hunters and Trappers Organizations and the Kitikmeot Socio-Economic Monitoring Committee to report on the collection and integration of Inuit Qaujimaningit through its monitoring programs for the Project.	Schedule B (Item 14)	
44 The Proponent is strongly encouraged to consult with outfitting and guiding businesses that operate in or travel through the regional study area regarding whether project infrastructure or activities is adversely affecting their use and experience of the surrounding environment.	Schedule B (Item 14)	



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<p>49 The Proponent shall maintain a current Community Involvement Plan which reflects relevant stakeholders with respect to the Project.</p> <p>a) Records of communication and engagement undertaken by the Proponent with stakeholders, including potentially impacted communities, are to be maintained throughout the life of the Project with outcomes reflected in this Plan.</p>	<p>Schedule B (Item 14) Part J (Item 18)</p>	
<p>51 The Proponent shall conduct additional studies prior to and during operations as part of its freshwater and marine aquatic effects analyses to ensure that toxic trace elements concentrations anticipated to increase in the aquatic and marine environments during operation (and potentially accumulating in fish tissue) do not exceed regulatory requirements. The results of these studies should inform the Proponent's assessment of potential risks from consumption of fish, using Health Canada's hazard quotients as a descriptive tool.</p>	<p>Part I (Items 1, 2, 3, 4, 12, 13, 14, 15, 16, 17 and 19) Schedule I</p>	
<p>52 The Proponent shall ensure that areas used to store fuel or hazardous materials include sufficient secondary containment and that all oil handling facilities have the required Oil Pollution Emergency Plan (OPEP) in place. The OPEP or other emergency response plans applicable to fuel or hazardous material storage areas are expected to include, as a minimum, the following:</p> <p>a) information on the placement of spill prevention and response equipment as necessary to initiate rapid response during an emergency;</p> <p>b) an up to date listing of critical TMAC and government spill response contacts, and a list of authorised emergency response personnel;</p> <p>c) an up to date listing of emergency response training conducted by TMAC's emergency response personnel;</p> <p>d) easily accessible and up to date spill report forms; and</p> <p>e) a listing of community organizations that would be contacted to inform traditional land users of any spills or response actions implemented to ensure continued public</p>	<p>Part B (Items 11, 13 and 15) Part H (Items 1, 7, 8, 9 10, and 11)</p>	



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<p>safety.</p> <p>The Proponent shall also demonstrate that the provisions of the OPEP or other applicable emergency response plans associated with the fuel tank farm at Roberts Bay are coordinated with the individual shipboard OPEPs required for vessels servicing the Project, and that the Shipping Management Plan addresses how response procedures between ship and shore will be coordinated.</p>		
<p>53 The Proponent shall implement a monitoring and mitigation program for the tailings pipelines that includes the following:</p> <ul style="list-style-type: none"> a) regular inspections to assess the stability of the tailings pipeline and land within the footprint of this infrastructure; b) early warning system(s) to identify a pipeline breach; c) measures to respond to and mitigate any accidental spills of tailings from the d) pipeline; and e) adaptive management to address unanticipated changes to land within the footprint of the tailings pipeline to ensure that the integrity of this infrastructure is maintained for the life of the Project. 	<p>Part B (Item 13) Part D (Item 21) Part F (Items 1 and 19) Part I (Item 9) Schedule B (Item 5)</p>	

