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

Water Resources Division
Resource Management Directorate
Nunavut Regional Office
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Your file - Votre référence
2AM-MEL1631
Our file - Notre référence
GCDocs#105880009

September 16, 2022

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
E-mail: licensing@nwb-oen.ca

**Re: Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC's) Review of the Meliadine Mine CP6 Ramp Redesign for Type A Water Licence No. 2AM-MEL1631**

Dear Mr. Dwyer,

Thank you for the August 25, 2022 invitation to review the issued for construction Meliadine Mine CP6 Ramp Redesign, submitted by Agnico Eagle Mines (AEM) Limited, for Type A Water Licence No. 2AM-MEL1631.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the application pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act*. Please find CIRNAC comments and recommendations in the attached Technical Memorandum.

CIRNAC appreciates the opportunity to participate in this review. If there are any questions, please contact John Onita at john.onita@rcaanc-cirnac.gc.ca; or (867) 975-3876 or Andrew Keim at (867) 975-4550 or andrew.keim@rcaanc-cirnac.gc.ca

Sincerely,

John Onita
Regional Water Coordinator, CIRNAC

# Technical Review Memorandum

**Date:** September 16, 2022

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

**From:** John Onita – Regional Water Coordinator, CIRNAC

**Subject:** **Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC's) Review of the Meliadine Mine CP6 Ramp Redesign for Type A Water Licence No. 2AM-MEL1631**

**Region:** ☐ Kitikmeot ☒ Kivalliq ☐ Qikiqtani

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## A. BACKGROUND

CP6 was constructed between March 8 to April 23, 2020 by Agnico Eagle Mines (AEM) Limited as part of the water management infrastructure in Meliadine Gold Mine located approximately 25 km north from Rankin Inlet, Nunavut, to collect runoff water from the Waste Rock Storage Facility 3 (WRSF3) and to also serve as temporary water storage during mine operation.

AEM states that the request to redesign the access ramp for CP6 is in response to recurring difficulties for site operations to dewater CP6 as the existing access ramp does not fully extend to the base of the collection pond. This prevents operations from fully dewatering the pond in an efficient and timely manner.

According to AEM, the design volume of CP6, requires that the pond be fully dewatered after freshet and remains nearly empty prior to the winter season to ensure that the necessary storage volume in CP6 is available for the next freshet period. AEM intends to redesign the access ramp for CP6 to fully extend to the bottom of the collection pond, in order to facilitate both the placement of the pump intake and dewatering operations.

CIRNAC provides the following comments and recommendations for the construction of the Meliadine Mine CP6 Ramp Redesign. A summary of the subjects of recommendations can be found in Table 1. Documents reviewed as part of this submission can be found in Table 2 of Section B. Detailed technical review comments can be found in Section C.

**Table 1: Summary of Recommendations**

| Recommendation Number | Subject |
|---|---|
| R-01 | Thaw Settlement and Erosion Concern |
| R-02 | Quality Assurance and Quality Control Concern |

## B. DOCUMENTS REVIEWED AND REFERENCED

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

**Table 2: Documents Reviewed and Referenced**

| Document Title | Author, File No., Rev., Date |
|---|---|
| CP6 Ramp Redesign and Issued for Construction Drawings AEM Document Number: 65-695-230-MEM-001 | Tetra Tech, August 8, 2022, 704-ENG.EARC03140-29 |
| NWB Technical Review of the 2021 Annual Report for the Meliadine Project; Water Licences Nos: 2AM-MEL1631 and 2BB-MEL1424 | Nunavut Water Board, August 19, 2022 |
| Nunavut Water Board, Amended Water Licence No: 2AM-MEL1631 | Nunavut Water Board, May 13, 2021 |

## C. RESULTS OF REVIEW

### 1. Thaw Settlement and Erosion Concern

**Comment:**

During the course of its 2021 Geotechnical Inspection, AEM's consultants, Tetra Tech, reported that thaw settlement and erosion were observed in the area between WRSF3 and CP6. CIRNAC is concerned that construction activities associated with the redesigned access ramp for CP6 (to fully extend to the bottom of the collection pond), might directly or indirectly worsen the existing structural performance problem occurring in the area between CP6 and WRSF3, resulting in an increase in the previously observed thaw settlement and erosion issue.

CIRNAC notes that AEM did not include (as part of the construction steps described in Section 4.0 of the CP6 Ramp Redesign report), measures to mitigate compromised structural performance (as expected) during and/or after construction activities related to the redesigned access ramp for CP6. Even so, no detailed measures were provided for sedimentation or erosion control, hence AEM states:

*"The construction steps and methodology for the CP6 ramp extension include: Pumping CP6 down as much as practical to minimize total suspended solids resulting from placing materials in CP6. No other sedimentation or erosion controls are required"*

**Recommendation:**
(R-01) CIRNAC recommends that AEM:

a) Continue to monitor soft ground conditions between CP6 and WRSF3 to determine if additional waste rock is needed to mitigate associated risks resulting from construction activities associated with the access ramp extension work.

b) Provide detailed measures for sedimentation or erosion control for CP6 and the area between WRSF3 and CP6.

## 2. Quality Assurance and Quality Control Concern

**Comment:**
In Section 4.0 of the CP6 Ramp Redesign Report, AEM states that, *"The ramp extension and safety berm will be constructed of clean rockfill material that will be sourced from mine development. The clean rockfill will be free from snow, ice, frozen chunks, organic matter, and debris and can have a wide variation of gradation with a maximum particle size of 600 mm. The clean rockfill will be non-potentially acid generating (NPAG)"*

Contrary to the statement above that the clean rockfill will be non-potentially acid generating (NPAG) , AEM further states that the quality assurance and quality control measures for the CP6 ramp redesign construction activities will only be validated by visual observation of the works and the construction materials that will be used by Agnico Eagle (see Section 4.0 of the CP6 Ramp Redesign Report, Bullet #5).

CIRNAC requests that AEM confirm if it plans to validate the NPAG status of the sourced rockfill by visual observation or by geotechnical analysis.

In accordance with Part D, Item 2 (c) of Water Licence 2AM-MEL1631, AEM is required to provide the Geotechnical approval of all Waste Rock sources to ensure that the materials are safe and would not contaminate the ground water and/or other water bodies within the vicinity of CP6 via the process of "Metal Leaching".

**Recommendation:**
(R-02) CIRNAC recommends that AEM provide information confirming that the source(s) of the Waste Rock fill materials to be used in the construction of the CP6 Ramp Extension have been approved by a Geotechnical Engineer and that the Acid Rock drainage and Metal Leaching characteristics of the waste rock sources will remain within acceptable standards.

## D. REFERENCES

Nunavut Water Board (NWB), August 19, 2022, NWB Technical Review of the 2021 Annual Report for the Meliadine Project; Water Licences Nos: 2AM-MEL1631 and 2BB-MEL1424

Nunavut Water Board (NWB), May 13, 2021, Nunavut Water Board, Amended Water Licence No: 2AM-MEL1631

Tetra Tech, August 8, 2022, 704-ENG.EARC03140-29, CP6 Ramp Redesign and Issued for Construction Drawings AEM Document Number: 65-695-230-MEM-001