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

Water Resources Division
Resource Management Directorate
Nunavut Regional Office
P.O. Box 100
Iqaluit, NU, X0A 0H0

Your file - Votre référence
2AM-MEL1631
Our file - Notre référence
GCdocs #102637321

May 2, 2022

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

Re: Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC's) Review of the WRSF3 South Sump Design Report and Construction Drawings for Type "A" Water Licence No. 2AM-MEL1631

Dear Mr. Dwyer,

Thank you for your April 19, 2022 invitation to review the Meliadine Mine WRSF3 South Sump Design Report and Construction Drawings, submitted by Agnico Eagle Mines Limited, for Type "A" Water Licence No. 2AM-MEL1631.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the Report and its attachments 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 for the Nunavut Water Board's consideration.

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

Canada

Technical Review Memorandum

Date: May 2, 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 WRSF3 South Sump Design Report and Construction Drawings for Type "A" Water Licence No. 2AM-MEL1631

Region: ☐ Kitikmeot ✓ Kivalliq ☐ Qikiqtani

A. BACKGROUND

The current Meliadine Mine plan, according to Agnico Eagle Mines (AEM) on page 5 of the WRSF3 South Sump Design Report; *focuses on the development of the Tiriganiaq gold deposit, which will be mined using both conventional open-pit and underground mining operations. Existing or proposed mining facilities to support this development include a plant site and accommodations, waste rock storage facilities (WRSFs), a tailings storage facility (TSF), and a water management system comprised of collection ponds, diversion channels, dikes, sumps, and retention berms.*

In accordance with Water License 2AM-MEL1631 (Part D, Item 1), AEM provided a 60-Day Notice to Nunavut Water Board on April 19, 2022 stating that the WRSF3 report summarizes the design basis, design criteria, the estimated in-situ volumes, Construction Drawings and timeframe for construction of WRSF3 South Sump.

CIRNAC provides the following comments and recommendations pertaining to the Meliadine Mine WRSF3 South Sump Design Report and Construction Drawings. 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	Defined time-table for water quality monitoring
R-02	Design of WRSF3 South Sump
R-03	Sources of Waste Rocks

The referenced document on table 2 associated with AEM's Meliadine Mine WRSF3 South Sump Design Report and Construction Drawings was reviewed.

Table 2: Documents Reviewed

Report Title	Author/Date
WRSF3 South Sump Design Report and Construction Drawings; 65-695-132-REP-001	AEM, April 2022

B. RESULTS OF REVIEW

1. Defined time-table for water quality monitoring

Comment

As part of the Sump Design Basis and Water Management Strategy described on page 5 of the WRSF3 design report, AEM states:

"The overall objective of the water management strategy of the Meliadine Gold project is to develop a practical and feasible site wide water management plan to minimize the potential negative impacts of mining development on the surrounding environment including habitats for fish and wildlife, and to facilitate mine operation and long-term closure and reclamation of the mine site.

To achieve this objective, sumps are used to collect and temporarily store seepage water and overland runoff from mine facilities and disturbed mine catchments.

WRSF3 South Sump will be constructed to:

- *collect seepage from WRSF3, and runoff induced by precipitation in the southern catchment of the facility, and*
- *to prevent unwanted flow into the natural environment (i.e., tundra).*

The collected water will be regularly monitored for water quality constituents and pumped to CP1"

CIRNAC would like AEM to develop a definitive water quality monitoring time-table that should indicate specific months, weeks and days as well as frequency of samples to be collected; for water quality monitoring of "collected-water". CIRNAC is concerned that the term "regularly", does not provide specifics on how AEM plan to execute the water quality monitoring of "collected water", thus, requires AEM to clarify how it intends to implement the statement; "*The collected water will be regularly monitored for water quality constituents and pumped to CP1"*

Recommendation

(R-01) CIRNAC recommends that AEM provide a definitive water quality monitoring time-table indicating specific periods (i.e., months, weeks, days) of the year, and frequency (i.e., samples per week, month, etc.); for water quality monitoring of "collected water" and report this information in future Annual Reports.

2. Design of WRSF3 South Sump

Comment

In Section 3.1 of the WRSF3 design report, AEM provided a brief description of how the WRSF3 South Sump will be constructed and/or put in place, contrary to the requirement for the provision of a "detailed" report/description by the NWB Water Licence 2AM-MEL1631.

Part D, Item 2(d) of the Water Licence 2AM-MEL1631 states:

"The detailed report(s) referred to in Part D, Item 1 shall include:

Construction methods and procedures regarding how infrastructure will be put in place, including quality assurance and quality control measures and equipment to be used"

CIRNAC is concerned about the lack of detailed description of construction methods and procedures regarding how AEM plan to put in place the Waste Rocks sourced from the

open pit and used in the construction of the WRSF3 South Sump. The lack of sufficient detail makes it difficult to understand whether the quality of the proposed Sump would meet the standards, enough to contain/hold the intended "collected water" while protecting both the ground water and nearby water bodies from contamination that might occur as a result of an accidental over-flow/spill or waste rock barrier thickness breakdown within the banks of the Sump.

Recommendation

(R-02) CIRNAC recommends that AEM provide a detailed description of the construction methods and procedures to be implemented for the placement of Waste Rocks sourced from the Open Pit and used in the construction of the WRSF3 South Sump. This should include the quality assurance and quality control measures, as required by the NWB Water Licence Condition Part D, Item 2 (d)

3. Sources of Waste Rocks

Comment

In Section 3.1 of the WRSF3 design report, AEM confirmed that Waste Rocks for the WRSF3 South Sump construction will be sourced from open pits. CIRNAC would like AEM to confirm if there have been approved Geotechnical analysis performed on the Open pit sources of the Waste Rocks sites that demonstrate the Acid Rock drainage and Metal Leaching characteristics of the waste rock sources.

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

Recommendation

(R-03) 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 WRSF3 South Sump have been approved by a Geotechnical Engineer and the Acid Rock drainage and Metal Leaching characteristics of the waste rock sources confirmed to be within acceptable standards.

REFERENCES

Agnico Eagle Mines (AEM); April 2022; WRSF3 South Sump Design Report and Construction Drawings; 65-695-132-REP-001

NWB (Nunavut Water Board). June 2021. Amended Type A Water License No. 2AM-MEL1631