



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#102893713

May 6, 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) Reply to Agnico Eagle Mines' (AEM's) Response on Meliadine Mine WRSF3 South Sump Design Report and Construction Drawings for Type "A" Water Licence No. 2AM-MEL1631**

Dear Mr. Dwyer,

Thank you for your May 4, 2022 invitation to reply to AEM's response to CIRNAC's Review comments on the Meliadine Mine WRSF3 South Sump Design Report and Construction Drawings for Type "A" Water Licence No. 2AM-MEL1631.

### **1. CIRNAC-01: Defined time-table for water quality monitoring**

**(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.

**AEM's Response:** Agnico Eagle intends to conduct regular monitoring at a frequency that matches the frequency of Type A Water Licence 2AM-MEL1631 monitoring stations MEL-19 and MEL-23, which represent facilities CP2 and CP6, respectively. These stations are used to monitor the collection of drainage from WRSF3. As the proposed sump also meets this description, Agnico Eagle believes a sampling frequency of "Monthly during open-water or when Water is present" to be appropriate and in keeping with existing Water Licence monitoring program. Monitoring of the facility during its construction will also be in accordance with the conditions outlined in Part D of the Water Licence. Following this,



routine sampling of Group 1 parameters will be conducted monthly during open-water, or when water is present.

Water quality monitoring results will be included in future Annual Reports.

**CIRNAC is satisfied with AEM's response.** Recommendation-01 is resolved.

## **2. CIRNAC-02: Design of WRSF3 South Sump**

**(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).

**AEM's Response:** Agnico Eagle thanks CIRNAC for their comment and recommendation. Below are the detailed construction steps and methods for the WRSF3 South Sump:

- The first step prior to construction will be to delaminate the extents of the WRSF3 South Sump footprint (using survey stakes) and a field review by Agnico Eagle's Engineering and Environment departments;
- The sump will be excavated via drilling and blasting of the overburden and will be carried out according to the drill and blast pattern designed and approved by Agnico Eagle's Engineering department;
- Mucking of the overburden material to the lines and grades of the design after blasting will be conducted with an excavator immediately following blasting. Approximately 3,600 m<sup>3</sup> of material will be removed, as per Table 2 of the WRSF3 South Sump Design Report;
- A geotechnical inspection of the prepared foundation of the WRSF3 South Sump after mucking will be carried out and as-built surveying will be conducted by Agnico Eagle's Engineering Department;
- Unwoven geotextile fabric will be placed (if sufficient material is available on site as stated in the design report) on a surface area of 1,130 m<sup>2</sup>, and as-built surveying will be conducted by the Engineering department after placement;
- Waste rock sourced from Open Pit waste rock stockpiles of maximum particle size of 500 mm will be placed with an excavator on the geotextile, as per the stamped Construction drawings provided in the Design Report. Approximately 1,900 m<sup>3</sup> of waste rock will be placed as per Table 2 of the WRSF3 South Sump Design Report;
- As-Built surveying and reporting will be conducted after the waste rock placement by the Engineering Department.

Water management during construction is detailed in the WRSF3 South Sump Design Report, section 4.2.



The above steps will be carried out by qualified Agnico Eagle personnel in accordance with the submitted WRSF3 South Sump Design report and drawings and following best management practices to ensure the required construction quality is met.

Quality assurance and quality control measures will consist of visual observation of the works that are carried out and of the construction materials that are used by the Engineering team, in addition of the activities described above including the geotechnical inspection of the foundation and surveying activities.

**CIRNAC is satisfied with AEM's response.** Recommendation-02 is resolved.

### **3. CIRNAC-03: Sources of Waste Rocks**

**(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.

**AEM's Response:** As per the WRSF3 South Sump Design Report (Table 2), the waste rock to be used for construction will be sourced from open pit waste rock stockpiles and have a maximum particle size of 500 mm. Material to be used will be approved by a Geotechnical Engineer from Agnico Eagle's Engineering Department.

Geochemical monitoring is conducted on mined waste rock as per the Mine Waste Management Plan and as per the MEND (2009) recommendations. As detailed in the 2021 Annual Geochemical Report submitted as part of the Meliadine Gold Mine 2021 Annual Report, all Open Pit waste rock samples collected in 2021 (from Tiriganiaq Open Pits 1 and 2 and Containment Pond 2) showed Neutralization Potential Ratios (NPR) greater than 2, indicating non-PAG. Geochemical monitoring continued in 2022 and results received so far for Open pit waste rock samples are classified as non-PAG. Findings are consistent with predictions that the majority of operational waste rock would be non-PAG and that ARD potential is low.

For metal leaching and as detailed in the 2021 Geochemical Report, it was predicted by Golder (2014) to be low enough that management of waste rock to inhibit leaching was not required. However, based on project screening studies, arsenic was determined to be the main element of interest and analysis of this element (and all regulated elements) were part of operational monitoring since mining began. To ensure arsenic concentrations are within project predictions, results are compared against average and maximum arsenic concentrations reported by Golder (2014). Solid phase arsenic concentrations of 2021 and 2022 Open Pit waste rock samples mainly fall within or below the average concentration (of 218 mg/kg). All 2021 and 2022 samples collected to date are below the maximum concentration (of 8000 mg/kg) reported by Golder (2014).



Based on the above, Agnico Eagle is confident the waste rock material that will be used for construction of the WRSF3 South Sump will meet acceptable standards with regards to ARD/ML potential. In addition, as due diligence, the waste rock used for the construction of WRSF3 South Sump will be sampled for geochemical analysis to confirm expected geochemical characteristics.

Geochemical monitoring for operational waste rock, tailings and other excavated or construction material continues in 2022 and results are reviewed internally as they become available to ensure there is no risk to the receiving environment.

**CIRNAC is satisfied with AEM's response.** Recommendation-03 is resolved.

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](mailto:john.onita@rcaanc-cirnac.gc.ca); or (867) 975-3876 or Andrew Keim at (867) 975-4550 or [andrew.keim@rcaanc-cirnac.gc.ca](mailto:andrew.keim@rcaanc-cirnac.gc.ca)

Sincerely,

John Onita  
Regional Water Coordinator