



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 #99600717

December 14, 2021

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](mailto:licensing@nwb-oen.ca)*

**Re: Crown-Indigenous Relations and Northern Affairs Canada's (CIRNAC's) Reply to December 10, 2021 AEM Response on the 2020 Annual Report for Meliadine Gold Mine Project, Type A Water Licence No. 2AM-MEL1631**

Dear Mr. Dwyer,

Thank you for your December 10, 2021 invitation to reply to Agnico Eagle Mines (AEM) response to CIRNAC's comments on the 2020 Annual Report for the Meliadine Gold Mine Project, Type A Water Licence No. 2AM-MEL1631.

### **CIRNA-01: Higher than Expected TDS in CP1**

**CIRNAC Recommendation:** CIRNAC recommends that to obtain a better understanding of the contribution of the "rest of site" going forward, information on the concerns stated above should be provided and monitored.

**AEM Follow-Up Response:** AEM recognizes that CIRNAC is seeking further clarification of the term "rest of site", which was used in the report memorandum titled "Assessment of Water Balance and Water Quality Forecast around pond CP1 at Meliadine" provided during the NWB Water Licence amendment process. AEM would like to specify that this terminology was used during NWB Water Licence amendment process only and not the 2020 Annual Report. However, AEM clarifies that "rest of site" within the aforementioned memorandum refers simply to the CP1 catchment (i.e., runoff reporting directly to CP1 without being pumped from CP3, CP4, CP5 or CP6). AEM recognizes that the terminology generated confusion and that "CP1 catchment to CP1" would have been a more appropriate term.



To address CIRNAC's request for better understanding of TDS loading contributions, AEM will work towards a model reporting method within annual reports with a focus on improving clarity. Discussion will focus on behavior of TDS concentrations in surface Contact Water reporting to CP1 during the reported year, and, if any TDS concentration peaks are observed, identification of potential sources that might have contributed to higher loads of TDS. This will be adopted with the 2022 submission of the updated Water Balance and Water Quality model as per Schedule B and Part E Item 13 of the Amended Water Licence.

With respect to the requested information regarding areas and conditions of facilities such as WRSF1 and OP2, this information is provided in the most up to date versions of the Mine Waste Management Plan and Ore Storage Management Plan.

**CIRNAC Acknowledgement:** CIRNAC acknowledges AEM's commitment to work towards providing a model reporting method within annual reports for better understanding of TDS loading contributions with a focus on improving clarity.

### **CIRNA-03: Surface Disposition of Waste Rock**

#### **CIRNAC Recommendations:**

- **Bullet 2** - CIRNAC would like AEM to provide results of the non-PAG with a low ARD potential
- **Bullets 3 & 4** – CIRNAC's opinion is that this response only partially addresses the concern raised. It is not clear if AEM would like to discuss this with CIRNAC in the future. More clarity is required for these identified concerns.

#### **AEM Follow-Up Response:**

Relative to Bullet 1, Agnico Eagle takes note that CIRNAC considers the answer provided by Agnico Eagle on September 10th to fully address the concern raised.

Relative to Bullet 2, Agnico Eagle would refer CIRNAC to the 2020 Annual Geochemical Report, included as Appendix 11 of the 2020 Annual Report.

Section 4 presents the results and discussion on ARD potential for the waste rock:

- from underground: "The classification of all Meliadine waste rock samples from underground since testing began in 2017 are provided in Figure 4 and a summary of ratios are provided in Table 1. As predicted by Golder (2014), the majority of operational waste rock (i.e. muck) samples collected to date are non-PAG. Samples from 2017, 2018 and 2019 have also been included for ease of



comparison to historical results. There were a few samples with a NPR less than 1. These samples are considered a low risk given the excess neutralization in all other samples collected.”

- from open pit (Tiriganiaq Pit 2): “Mining for Tiri 2 began in 2020 and the ARD results followed similar trends with the underground waste rock results with the exception that all ratios were greater than 2 indicating non-PAG.”
- from SP4 Containment Pond: “The potential for SP4 to produce ARD was based on NPR ratios, but also a sulphur limit of 0.1%, meaning that any samples with 0.1% or less, sulphur would be non-PAG regardless of the NPR ratio. Based on the two criteria, there was no samples collected that were classified as PAG. However, there was one sample that would be classified as uncertain, which had an elevated sulphur content of 1.34%. This one sample does not appear to be consistent with all other samples collected to date and is not a material risk for water quality given the excess of carbonate in all other rocks tested in 2020.”

Hence, 2020 geochemical findings are consistent with the Final Environmental Impact Statement (FEIS) (Golder 2014) predictions that the majority of operational waste rock would be non-PAG and that ARD potential is low (SD 6-3 Geochemical Characterization of Waste Rock, Ore, Tailings and Overburden, Meliadine Gold Project, Nunavut).

Relative to Bullets 3 & 4, as per December 3rd, 2021 teleconference call with CIRNAC, Agnico Eagle will improve referencing to relevant sections of the Annual Geotechnical Report in future annual report.

As per the Meliadine 2020 Annual Report, Agnico Eagle welcomes the opportunity to clarify that information relative to the status of the WRSF at the end of 2020, including plans and sections can be found in the following sections of the 2020 Annual Geotechnical Inspection Report (Appendix 06 of the Meliadine 2020 Annual Report):

- Executive summary
- Section 14.0
- Appendix Q (provides plan views, sections, detailed designs, photographs and ground temperature profiles).

**CIRNAC Acknowledgement:** Relative to Bullets 3 & 4, CIRNAC acknowledges AEM’s commitment to improve referencing to relevant sections of the Annual Geotechnical Report in future annual reports.



## **CIRNA-04 – Tailings Storage Facility (TSF) Capacity**

### **CIRNAC Recommendation:**

- **Bullet 3** – CIRNAC's opinion is that this response only partially addresses the concern raised. It is not clear if AEM would like to discuss this with CIRNAC in the future. More clarity is required for this identified concern.

### **CIRNAC Comment to AEM Follow-Up Response:**

Relative to Bullets 1 and 2, Agnico Eagle takes note CIRNAC considers the answer provided by Agnico Eagle on September 10th addresses the concern raised.

Relative to Bullet 3, as per December 3rd, 2021 teleconference call with CIRNAC, Agnico Eagle will improve referencing to relevant sections of the Annual Geotechnical Report in future annual reports.

As per the Meliadine 2020 Annual Report, Agnico Eagle welcomes the opportunity to clarify that information relative to the physical status of the TSF at the end of 2020 can be found in the following sections of the 2020 Annual Geotechnical Inspection Report (Appendix 06 of the Meliadine 2020 Annual Report):

- Executive summary
- Section 6.0
- Appendix I (provides plans, photographs and ground temperature profiles).

**CIRNAC Acknowledgement:** Relative to Bullet 3, CIRNAC acknowledges AEM's commitment to improve referencing to relevant sections of the Annual Geotechnical Report in future annual reports.

## **CIRNA-05 – Reporting on Milling Operations**

**CIRNAC Recommendation:** CIRNAC's opinion is that AEM's response does not address the concerns raised in the CIRNAC Annual Report review. CIRNAC reiterates the request that this information be summarized in the Annual Report.

### **AEM Follow-Up Response:**

Agnico Eagle thanks CIRNAC for their comment and as per as per December 3rd, 2021 teleconference call with CIRNAC, Agnico Eagle wishes to clarify that information requested by CIRNAC can be found in the 2020 Annual Report and in operational management plans:



- Section 2.1.3 of the 2020 Annual Report provides information on mining activities and Agnico proposes to add information on days of milling in future reports.
- Section 4.4. of the 2020 Annual Report provides information related to tailings
- Section 3 of the 2020 Annual Report provides information related to water usage
- The Mine Waste Management Plan provides information relative to tailings management
- Information relative to cyanide management is in management plans referenced in answer to CIRNA-08. This information is being regrouped in a cyanide management plan which will be submitted in 2022.

The structure of the Meliadine Annual Report was developed to facilitate assessment of compliance with applicable Water Licences and Project Certificate. Due to the large number of stakeholders involved in reviewing the Meliadine Annual Report – and the fact the required reporting requirements are already addressed – Agnico Eagle does not feel restructuring of the Annual Report is required at this time.

**CIRNAC Acknowledgement:** Relative to Bullet 1, CIRNAC acknowledges AEM's commitment to add information on days of milling in future annual reports.

## **CIRNA-07: Geotechnical Concerns/Issues**

### **CIRNAC Recommendations:**

- **Bullet 1** – CIRNAC's opinion is that a summary of the Annual Geotechnical Report, that includes a section specific to CIRNAC's requests with respect to permafrost degradation should be provided with specific references.
- **Bullet 2** – AEM states that there are currently no operational inclinometers or piezometers on site. Once this instrumentation is present and operational then AEM will report on the monitoring results. CIRNAC is satisfied with the response. Would like to know the timing to have these instruments installed and when reporting will be initiated by AEM.

### **AEM Follow-Up Response:**

Relative to Bullet 1, Agnico Eagle would like to reiterate that the 2020 Annual Geotechnical Inspection (Appendix 6 of the 2020 Annual Report) presents the information relative to permafrost degradation, whenever observed on the site's infrastructures.

The geotechnical inspection is required to be conducted on Agnico Eagle's facilities by a geotechnical engineer and in accordance with the Canadian Dam Association (CDA) Dam Safety Guidelines (CDA 2013) where applicable. The inspection includes the observation of the geotechnical aspects of the Mine facilities/structures, as well as the review of the associated instrumentation data.



The performance of each facility/structure inspected is presented and discussed in distinct subsections of the report. Permafrost conditions (including degradation or thaw settlement issues, when observed), are reported for a given structure in its specific subsection. Below are 2 examples:

- Collection Pond CP4, Associated Channels, and Berms (section 3.4.5, p.10): “Collection Pond CP4 and its associated infrastructure is performing adequately. Thaw settlement has occurred in the original ground above the pond rockfill slope protection, but the slopes appear to be stable. The thaw settlement is like that observed in 2019. The settlement and the impact on the pond should continue to be monitored to determine if any remedial action is required.”
- Channel 3 (section 5.2, p. 17): “The road adjacent to the channel has some cracking and slumping on the side slopes adjacent to the channel. There was also settlement and slumping on the east side of the channel in the native ground. Both the settlement on the road slope and in the native ground is attributed to the thawing of permafrost due to ground disturbance.”

In addition, measured ground temperatures from instrumentation are also provided in Appendix of the Annual Geotechnical Inspection, and results are discussed throughout the report, for each structure, as applicable.

Agnico Eagle will improve referencing to the Geotechnical Inspection Report in future annual reports.

Relative to Bullet 2, Agnico Eagle considers the issue is solved.

### **CIRNAC Acknowledgement:**

Relative to Bullet 1, CIRNAC acknowledges AEM’s commitment to continue to monitor thaw settlement and the impact in original grounds above pond rock-fill slope protection to determine if any remedial action is required.

Relative to Bullet 2, CIRNAC reiterates that AEM should provide information on timing to have the *piezometric and inclinometer measurement* instruments installed and indicate when reporting will be initiated by AEM.

### **CIRNA-08: Cyanide Management and Use Handling**

**CIRNAC Recommendation:** CIRNAC’s opinion is that a summary of this cyanide management procedure should be provided in the Annual Report, that may reference other submissions provided throughout the year.





### **AEM Follow-Up Response:**

As clarified during the December 3rd, 2021 teleconference call with CIRNAC, cyanide management practices for the Meliadine Gold Mine are discussed in management plans rather than being part of the annual report process – similarly to other operational management practices.

As part of its ICMC certification process, Agnico Eagle is working on a comprehensive Cyanide Management Plan which will be submitted to regulators in 2022 and once Agnico Eagle is ICMC certified, all ICMC requirements will be publicly available in the certification audit report.

Agnico Eagle is looking forward to sharing its cyanide management plan with CIRNAC and other stakeholders and will be reporting on the 2022 ICMC certification audit in its 2022 Annual Report.

**CIRNAC Acknowledgement:** CIRNAC acknowledges AEM's commitment to provide a comprehensive Cyanide Management Plan in 2022.

### **CIRNA-10: Tracking Volume of Freshwater Obtained from Other Permitted Locations for Road Dust Suppression Activities**

**CIRNAC Recommendation:** CIRNAC's opinion is that more detailed information should be provided on the locations from which water was taken and the volume collected from each of these locations should be detailed in a matrix provided in Annual Reports moving forward (it is understood that AEM would not likely be able to provide the location of all the small proximal ponds along the AWAR).

**AEM Follow-Up Response:** AEM thanks CIRNAC for their comment and will implement better tracking quantity and locations of water taking activities along the AWAR for the purpose of dust suppression. However, as mentioned by CIRNAC, it is possible that Agnico Eagle will not be able to provide the location of all the small proximal ponds along the AWAR.

### **CIRNAC Acknowledgement:**

CIRNAC acknowledges AEM's commitment to implement better tracking of quantity and locations of water taking activities along the AWAR for the purpose of dust suppression.

CIRNAC requires AEM to provide locations of all small proximal ponds along the AWAR where water is taken for dust suppression activities.



Crown-Indigenous Relations  
and Northern Affairs Canada

Relations Couronne-Autochtones  
et Affaires du Nord Canada

CIRNAC appreciates the opportunity to participate in this review. If there are any questions, please contact John Onita at (867) 975-3876 or Andrew Keim at (867) 975-4550 or [andrew.keim@canada.ca](mailto:andrew.keim@canada.ca)

Sincerely,

John Onita  
Regional Water Coordinator