



April 8<sup>th</sup>, 2019

Richard Dwyer  
Manager of Licensing  
Nunavut Water Board  
P.O Box 119  
Gjoa Haven, NU X0B 1J0

**Re: Agnico Eagle Mines – Whale Tail Project Responses to East Diversion Channel Design Report Comments**

Dear Mr. Dwyer,

As requested, the following responses are intended to address the comments made in the below letter:

- CIRNAC – March 27<sup>th</sup>, 2019, Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) comments on Agnico Eagle Mines Limited's (AEM's) East diversion Channel Design Report – Whale Tail Pit Project under AEM's Type "A" Water Licence No. 2AM-WTP1826.

Should you have any questions or require further information, please do not hesitate to contact me.

Best regards,

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## **1 Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC)**

### **1.1 Peak Flow Estimate**

**Comment 1:** In the design report, peak discharge was estimated applying and using MTQ (2014) (i.e., Ministère des transports du Québec, Manuel de conception des pontons, Ouvrages routiers, Guides et manuels, Novembre 2014). Spring freshet is a hydrological event at the mine site. CIRNAC could not find clear information on whether or not consideration was given to the effects of freshet on the estimation of peak flow or discharge.

**Recommendation 1:** CIRNAC recommends that the effects of freshet on the estimation of peak flow or discharge should be considered by the licensee and explained or discussed in the design report.

**Agnico Eagle's Response:**

*Spring freshet generally leads to more important volumes of runoff (due to snowmelt), but heavy summer-fall rainfalls generally lead to the most critical conditions in terms of peak discharges (due to rainfall higher intensities). For the design of channels, peak discharge is the most critical factor. For this reason, peak discharge, generated by a summer-fall storm, computed according to MTQ (2014) methodology, and assuming completely saturated soil conditions, was adopted for the design of the East channel.*

### **1.2 TSS or Sediment Control**

**Comment 2:** Surface water quality can be significantly affected by soil erosion and high concentration of Total Suspended Solids (TSS) or sediments in water during freshet or heavy rain events. CIRNAC could not find clear discussion on erosion and TSS controls being provided in the design report.

**Recommendation 2:** CIRNAC recommends that the licensee consider and explain or discuss erosion and TSS controls in the design report.

**Agnico Eagle's Response:**

*The East Channel was designed with a riprap protection on its bottom and sides to avoid erosion problems due to the flow velocity. The riprap mean diameter was computed in the channel, during the design storm event, function of the maximum flow velocity (computed with the HEC-RAS hydraulic model). Figure 5-2 (Report Client ref. AEM-6118-E-132-002-TCR-018-Original-Rev. 01) shows the required riprap diameter for the different channel sections.*

### **1.3 Water Quality Monitoring**

**Comment 3:** During freshet or heavy rain events, the proposed diversion channel passes around ore stockpile and industrial area and may be subjected to other pollutants (e.g., spill of ore material, dust,



oil spill, etc.). If protection measures are in place, they should be discussed. However if there are no protective measures in place, the water that flows to Lake A55 or the South Whale Tail Lake through the East Diversion Channel needs to be monitored to make sure its quality meets the applicable discharge criteria.

**Recommendation 3:** CIRNAC recommends that the quality of water in the East Diversion Channel should be monitored by the licensee before it discharges to Lake A55.

**Agnico Eagle's Response:**

*As per the Water License 2AM-WTP1826, water flowing through the East Diversion Channel (ST-WT-7) (non-contact water) is to be monitored three times per calendar year at freshet, summer and fall for Group 3 that include the following parameters: MDMER parameters (arsenic, copper, lead, nickel, zinc, total suspended solids, pH), sulphate, turbidity and total aluminum. Agnico agrees to add the monitoring of Total Petroleum Hydrocarbons (TPH) to the list of parameters to be monitored. Agnico will use the applicable limit as set in Water License Part F Item 4 for Whale Tail Attenuation Pond discharge to Mammoth Lake (ST-WT-2). Monitoring could be increased if planned regular visual inspection show indications of water quality issues, as part of the Whale Tail (WT) Freshet Action Plan. If quality is found to be non-compliant, an action plan would be put forward that would prevent contaminant from reaching the receiving environment. Strategy could include, but not limited to, pumping to the WT Attenuation pond; on site treatment.*

#### **1.4 Closure**

**Comment 4:** The design report states that “At the end of Whale Tail Pit project, all channel and ditches will be backfilled so as to promote natural drainage. The restoration will be done in compliance with the closure plan.”

**Recommendation 4:** CIRNAC looks forward to reviewing the closure plan at the appropriate time.

**Agnico Eagle's Response:**

*Agnico acknowledge CIRNAC comments.*

#### **1.5 Conclusion**

**Comment 5:** The design report concludes by stating “The East Diversion Channel will be used to divert non-contact water from A-53 Lake to lake A55 and South Whale Tail Lake. The upper part of the channel will be sealed in order to block natural drainage going to North Whale Tail Lake. The channel will have a 1 meter width on most of its length and will be protected with riprap.” CIRNAC notes that there is no clear information or discussion provided in the report concerning the sealing of the upper part of the channel.



**Recommendation 5:** CIRNAC recommends that the licensee further explain how the sealing of the upper part of the channel will be accomplished, and what measures are in place to ensure that the “seal” is working as it should. The Licensee should also describe the consequences of a “seal” failure.

**Agnico Eagle’s Response:**

*The East Diversion Channel will be sealed with a bituminous geomembrane (BGM) from st. 0+000 to 0+300 in order to block natural drainage going to North Whale Tail Lake as shown in the drawing 651298-9000-40ER-0001 located in the Appendix A. The section will consist of a base layer of coarse filter to sit the BGM which in turn would be covered with another layer of coarse filter. The whole collection system will be covered by a riprap layer (50-100 mm). This type of geomembrane is well known for Agnico Eagle. They already constructed successfully at least 6 water management infrastructures with BGM without any failure. In case of failure of the seal (the BGM), some water would have to be managed at the Whale Tail Pit.*