



## MEMORANDUM

**TO** Agnico Eagle - Ryan Vanengen

**DATE** June 27, 2017

**CC** Sophia Granchinho – NIRB; Karen Kharatyan - NWB

**FROM** Ken De Vos, Valérie Bertrand

**REFERENCE No.** 1658927-Commitment 43

### COMMITMENT 43 – ARSENIC LEACHING IN THE TAILINGS FACILITY

#### Introduction

During the Technical Meeting and Pre-hearing Conference, held in Baker Lake, Nunavut on April 28 to May 2, 2017 Indigenous and Northern Affairs Canada (INAC) requested Agnico Eagle to provide a technical memo to outline the control of arsenic leaching in the tailings facility (Commitment 43).

#### Summary

Arsenic leaching from the tailings storage facility (TSF) will be controlled through freezing of the tailings. The mechanism is the same as that used in the frozen block method proposed to control arsenic leaching at Meadowbank (Agnico Eagle 2014) and in other northern mines (INAC 2017). For Whale Tail tailings, the contaminant source (arsenic within tailings porewater and arsenic in the tailings solids) will remain immobile and bound within frozen materials, in this case, the frozen mass of the Meadowbank TSF. The potential seepage pathway through groundwater will not be viable as the water along the pathway will be frozen and water will not be mobile. The tailings will be isolated from surface water contact by a capping layer which will also promote freezing of the underlying tailings.

Section 5.3.2 (Tailings Freezeback and Capping Thickness) of the Meadowbank 2016 Annual Report (Agnico Eagle 2017a), provides results and discussion of ongoing thermal monitoring and thermistor data collected from the TSF. Although the thermistor data has not fully stabilized, thermal monitoring to date, as presented in the 2016 Annual Report (Agnico Eagle 2017a) shows that the base of the tailings and dams are frozen. As exemplified in Figure 1, thermistor RF2 (T122-1) shows 2016 temperatures which vary from approximately -1.5 to -6.5°C, with a trend of decreasing temperature over time, and with depth, indicating that the RF2 foundation is in a frozen state, confirming that the method of source term control and pathway freezing is valid.

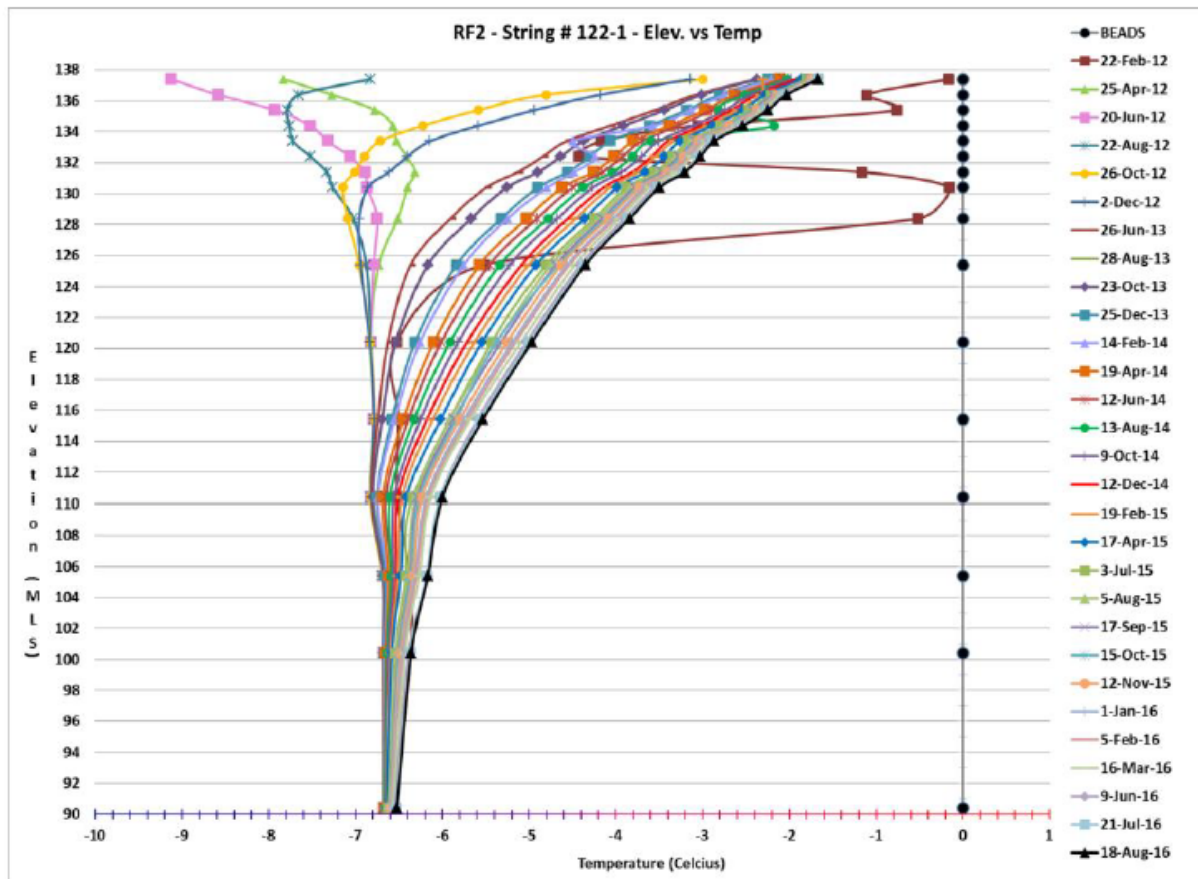
Given that both the source of arsenic will be frozen and the pathway for arsenic mobility is currently frozen and is expected to be frozen for the foreseeable future, there is not expected to be any migration of arsenic out of the TSF as a result of addition of the Whale Tail tailings. No changes to the proposed Tailings Management Plan (Agnico Eagle 2017b) are therefore proposed, nor necessary based on the current analysis.



## MEMORANDUM

**RF2 - T122-1**

AGNICO EAGLE



### References:

- Agnico Eagle (Agnico Eagle Mines Limited). 2014. Meadowbank Gold Project: Interim Closure and Reclamation Plan. Prepared by Golder Associates. January 2014.
- Agnico Eagle. 2017a. Meadowbank Gold Project 2016 Annual Report. Report to Nunavut Water Board, Nunavut Impact Review Board, Fisheries and Oceans Canada, Indigenous and Northern Affairs Canada, Kivalliq Inuit Association. Prepared by Agnico Eagle Mines Limited, Meadowbank Division. April 2017.
- Agnico Eagle. 2017b. Appendix WT: Meadowbank Tailings Storage Facility Management Plan for Whale Tail Pit. Version 1. January 2017.
- INAC (Indigenous and Northern Affairs Canada) 2017. Arsenic Trioxide and the Frozen Block Method. Available at: <https://www.aadnc-aandc.gc.ca/eng/1100100027422/1100100027423>