

Memorandum

To: Michel Groleau – Permitting & Regulatory Affairs Superintendent, Agnico Eagle Mines Ltd.

From: Gillian Allen, Sr. Engineer

Our ref: 948-011-016 Rev0

Date: June 4, 202

Re: **Response to review of comments on the Adaptive Management Plan for the Whale Tail Project, Submitted by Agnico Eagle Limited for Water Licence 2AM-WTP1830**

Okane Consultants Inc. (Okane) received a copy of Mr. David Zhong's April 30, 2021 letter regarding Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) review of responses to comments on the Adaptive Management Plan for the Whale Tail Project, Submitted by Agnico Eagle Limited for Water Licence 2AM-WTP1830¹. Agnico Eagle Mines Ltd. (Agnico Eagle) has requested that Okane provide additional clarification in regard to CIRNAC's comment #4:

The monitoring depth of 7 m for the waste rock storage facilities (WRSFs) was selected as a threshold in the Adaptive Management plan as it is explicitly expected to remain beyond the active layer zone. The active layer is defined as the depth to which annual freezing and thawing is observed (i.e. the maximum depth of thaw above 0°C). The active layer is highly variable on an annual basis due to inter-annual climate variability. Thus monitoring temperature conditions slightly beyond the expected active layer is

¹ Crown-Indigenous Relations and Northern Affairs Canada. 2021. Letter to Mr. Richard Dwyer re: Crown-Indigenous Relations and Northern Affairs Canada review of responses to comments on the Adaptive Management Plan for the Whale Tail Project, Submitted by Agnico Eagle Limited for Water Licence 2AM-WTP1830. Submitted April 30, 2021 by David Zhong, Regulatory and Science Advisor.

preferable in order to observe and quantify long term trends in cover system performance. This methodology is explicitly defined within the AMP in Section 2.1.2 which states:

*"Performance of the WRSF is [...] defined by its ability to manage interaction between surface water (runoff) or near-surface water (interflow) with waste rock. Achieving freeze-back near surface will ensure conditions are not favourable for mobilization of oxidation products to the environment to occur. **Freeze-back near-surface, but outside the active layer zone, will be monitored to ensure that freeze-back near-surface is occurring. Focused monitoring outside of the active layer zone will allow for long-term trends to be observed dampening the influence of annual climate variability.**"*

The 7 m threshold was selected with consideration given to long term thermal and seepage modelling conducted under RCP8.5 climate change conditions (Okane, 2019²) which was submitted in support of the December 2019 submission package to the Nunavut Water Board (NWB). The threshold was not selected based on modelling results of the expected active layer depth under RCP8.5 conditions. Under RCP8.5 conditions, modelling indicates that the average active layer depth will be less than 7 m. Figure 12 from Okane, 2019², where expected average temperature at approximately 7 m below surface is shown for a south facing slope near the toe of the WRSF is appended for ease of reference. This location is expected to have the highest likelihood of infiltrating water transporting any potential contaminants of concern away from the WRSF landform. Long term, this depth is expected to remain below 0°C.

In the previous April 21, 2021 response provided by Agnico Eagle it was noted that under worst case RCP8.5 climate change conditions, that there is not expected to be adverse effects to WRSF water quality. The worst case water quality assessment (Golder, 2019³) was undertaken with the expected interflow rates, interaction depths and pore space temperatures outlined by thermal and seepage modelling under RCP8.5 climate change conditions (Okane, 2019²). The incorporation of the RCP8.5 thermal and seepage modelling results to the water quality assessment substantiates the site-wide water quality model as requested by CIRNAC.

Additionally, the thermal cover system design basis indicates a required minimum cover system thickness of 4.7 m. It is worth noting that along the slopes of the WRSF (locations most susceptible to transporting any potential contaminants of concern away from the WRSF landform due to the expected hydrology of the WRSFs) the cover system thickness ranges between 4.7 m and 7.7 m. The assumed proportion of contact vs. non-contact interflow water expected to report from the WRSF was based on a nominal 4.7 m cover system thickness resulting in a high degree of conservatism in inputs from the WRSF thermal and seepage modelling to the site-wide water quality model.

² Okane Consultants Inc. 2019. Agnico Eagle Mines Ltd – Landform Water Balance Modelling of Whale Tail and IVR WRSF under RCP8.5 Rev4. Submitted to Agnico Eagle Mines Ltd. December 19, 2019.

³ Golder. 2019. Whale Tail Mine Site and Downstream Receiving Water Balance and Water Quality Under Climate Change Scenario RCP 8.5. Submitted to Agnico Eagle Mines Ltd. December 20, 2019.

Thank you for your consideration of these clarifications. We trust information provided in this memorandum is satisfactory for your requirements. Please do not hesitate to contact me at 306-713-1568 or gallen@okc.sk.com should you have any questions or comments.

Appendix A

Okane, 2019 Relevant Figures

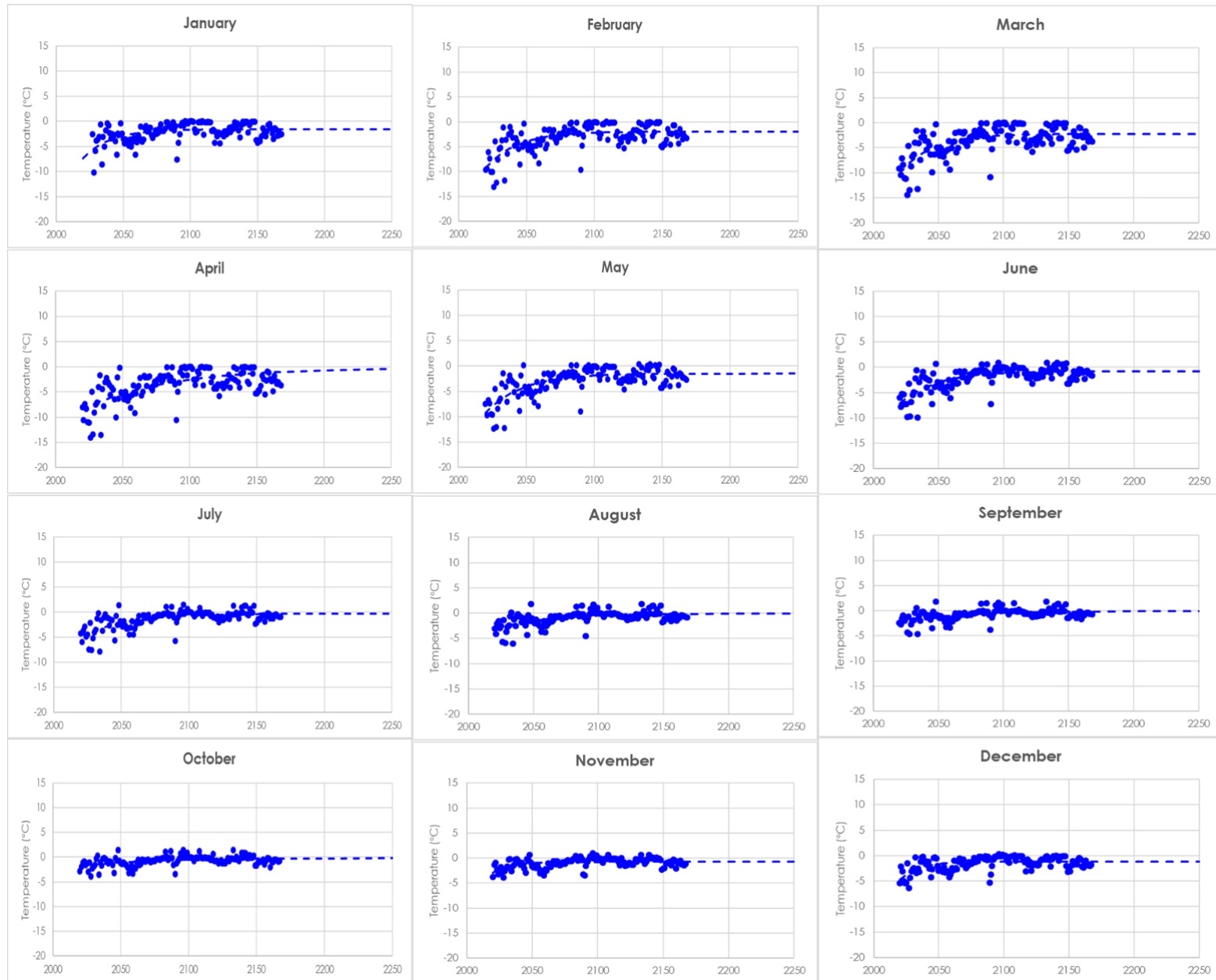


Figure 1: Temperature profile along Slope 5 below the cover system (4.7 to 9 m depth) (Okane, 2019).