



Water Resources Division
Nunavut Regional Office
Iqaluit, NU X0A 0H0

Your file - Votre référence
2AM-WTP1826

November 30, 2018

Our file - Notre référence
CIDM# 1234021

Richard Dwyer
Manager of Licensing
Nunavut Water Board (NWB)
Gjoa Haven, NU X0B 1J0

Sent via email: licensing@nwb-oen.ca

Re: Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) reply to AEM's response on the Groundwater Monitoring Plan

Dear Mr. Dwyer,

Thank-you for the email notice, received on November 9, 2018, regarding AEM's response to CIRNAC's comments on the May 2018 Version 1 Groundwater Monitoring Plan for the Whale Tail Pit Project.

CIRNAC reviewed AEM's response and submission of November 2018 Version 2 Groundwater Monitoring Plan pursuant to its mandated responsibilities from the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Indian Affairs and Northern Development Act*.

CIRNAC recommends the NWB not approve the November 2018 Version 2 Groundwater Monitoring Plan for the Whale Tail Pit Project as the plan does not require any groundwater monitoring wells (i.e. the installed 2016 Westbay Multiport Well System) be monitored during operations nor closure of the Whale Tail Pit Project as per Schedule I Table 2 of the 2AM-WTP1826 water licence. Further, thermal monitoring to validate groundwater conditions is not specified in the Plan. With respect to adaptive management, insufficient actions are described when certain water quantity and quality thresholds are exceeded. Overall, CIRNAC is concerned that comments #1-5 and #7-11 remain unresolved, many of which are essential to achieve the objective of a Groundwater Monitoring Plan.

CIRNAC remains disappointed that agreed-upon critical pre-development period field activities, scheduled for the summer of 2018 to further refine the site-specific hydraulic data, were unilaterally decided by AEM to not be conducted. And furthermore, that CIRNAC was not informed about this decision until October 17, 2018. CIRNAC therefore considers comments #1 and #5 regarding Nunavut Impact Review Board (NIRB) Project Certificate Term and Conditions #15 and #16, respectively, unresolved. CIRNAC understands that AEM will be providing a rationale as to why they have





proceeded as they have with respect to Project Certificate term and condition #15 and #16.

At the October 17, 2018 meeting with AEM, CIRNAC requested thermal monitoring be included in the Groundwater Monitoring Plan to:

- validate and monitor the horizontal hydrogeological profile assumptions that continuous permafrost surrounding the Whale Tail Lake talik negates horizontal hydrogeological flow, in particular in the vicinity of the Whale Tail Pit 'north wall' area where metal leaching is of concern; and
- validate the vertical hydraulic head and groundwater quality changes in the AEM designated open and closed Whale Tail Lake talik during operations and closure.

Relevant thermal monitoring details are still not provided in the Groundwater Monitoring Plan. CIRNAC therefore considers comments #1 and #3 unresolved. CIRNAC requests Version 1 May 2018 Whale Tail Pit Thermal Monitoring Plan, referenced in the Version 2 November 2018 Whale Tail Pit Groundwater Monitoring Plan, be made available to the NWB and interested parties. CIRNAC reviewed the Thermal Monitoring Plan submitted to NIRB in May 2018 and concludes the proposed thermal monitoring is not adequate to properly document permafrost conditions, nor to identify changes in talik distribution and hydrogeological flow paths. CIRNAC understands that AEM will be providing a rationale as to why they have proceeded as they have with respect to NIRB Project Certificate term and condition #10.

As per water licence No. 2AM-WTP1826, *adaptive management* “describes a way of managing risks associated with uncertainty and provides a flexible framework for mitigation measures to be implemented and actions to be taken when specified thresholds are exceeded”. CIRNAC recognizes the information provided in section 2.5 of the Whale Tail Pit Groundwater Monitoring Plan¹, however considers model updating and calibration an insufficient action when certain thresholds are exceeded. For example, the aforementioned actions are insufficient in addressing CIRNAC's concerns for AEM to meet their long-term commitments if Waste Rock Storage Facility (WRSF) water discharge or Whale Tail Pit water quality exceeds predictions and/or guidelines. In the October 17 and 18, 2018 meeting with AEM, it was agreed that AEM would provide options available for mitigation if arsenic concerns materialized. AEM would incorporate these mitigation measures in the plans. The current versions of the plans submitted to the NWB lack this information. CIRNAC requests AEM to identify which plan(s) will contain the details of the adaptive management strategies for arsenic concerns, and that the plan(s) are submitted to the NWB for review by interested parties prior to Whale Tail Pit dewatering activities taking place. At this time, CIRNAC considers comment #4 unresolved.

The seep sampling frequency and monitoring parameters also contradicts Part I Item 15 and Schedule I Table 2 of the 2AM-WTP1826 water licence. For comment #9, CIRNAC requests the seepage survey be conducted quarterly as per Part I Item 15 of the water licence. Considering the uncertainties and risks around long term water treatment,

¹ Version 2, November 2018.



CIRNAC requests particular attention be paid to identifying and sampling seeps in the vicinity of lithologies with high acid rock draining and metal leaching (ARD/ML) potential.

The Plan indicates that CIRNAC will be informed if water concentrations exceed regulatory thresholds. Given the short duration of the mine life and the benefits of mitigating emerging concerns as early as possible, CIRNAC would appreciate AEM's proactive reporting if trigger levels are reached (comment #11).

In the absence of installing at least one additional deep groundwater monitoring well (comment #1), CIRNAC requests more frequent monitoring, data analysis and reporting to manage the uncertainties and long-term risks. CIRNAC will therefore address comments #7, #8 and #10 directly with the NWB as they involve modifying the water licence.

In summary, CIRNAC is generally satisfied with AEM's response to comment #6 however considers the remaining ten comments outstanding. CIRNAC will continue to work with AEM and the NWB to resolve the outstanding comments, as they are essential to achieve the objective of a Groundwater Monitoring Plan.

If you have any questions or require further information with respect to this matter, contact me at (867) 975-3877 or email michelle.blade@canada.ca, or Ian Parsons at (867) 222-9278 or email ian.parsons@canada.ca.

Regards,

Michelle Blade
Regional Coordinator, Water Resource Division – CIRNAC, NRO