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

Your file - Votre référence
2AM-WTP1826

January 17, 2019

Our file - Notre référence
CIDM# 1239058

Richard Dwyer
Manager of Licensing
Nunavut Water Board
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 January 15, 2019 responses on the Groundwater Monitoring Plan

Dear Mr. Dwyer,

Thank you for the email notice, received on January 15, 2019, regarding AEM's response to CIRNAC's November 30, 2018 comments on the May 2018 Version 1 Groundwater Monitoring Plan for the Whale Tail Pit Project. CIRNAC reviewed AEM's January 15, 2019 response 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 strongly recommends the NWB not approve the November 2018 Version 2 Groundwater Monitoring Plan for the Whale Tail Pit Project as it does not satisfy the objectives of a groundwater monitoring plan based on unresolved comment #2 (incorporation of well monitoring) and comment #3 (thermal monitoring). Given the short duration of the mine life and the small margin of error during operations and closure to prevent potential long-term water treatment from acid-rock drainage, CIRNAC remains firm on comment #4 (threshold and adaptive management), comment #9 (pit seep quality monitoring) and comment #11 (trigger level reporting).

Comment #2: the plan does not identify any groundwater monitoring wells (i.e. the installed 2016 Westbay Multiport Well System) in the Groundwater Monitoring Plan for monitoring during operations nor closure of the Whale Tail Pit Project. Without identifying the only active groundwater well, the 2016 Westbay Multiport Well System, in the Groundwater Monitoring Plan, AEM has effectively determined no groundwater monitoring wells will be monitored during operations and closure – which is unacceptable to CIRNAC. The lack of identified groundwater monitoring wells is inconsistent with the identified groundwater monitoring wells in the Meadowbank Groundwater Monitoring Plan.

Comment #3: The Groundwater Monitoring Plan relies heavily on the assumption of

continuous permafrost surrounding the Whale Tail Lake talik thereby impeding groundwater flow. 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 and monitor the vertical hydraulic head and groundwater quality changes in the AEM designated open and closed Whale Tail Lake talik during operations and closure.

CIRNAC maintains relevant thermal monitoring during operations and closure is essential to validate groundwater assumptions at the Whale Tail Pit Project. Sufficient thermal monitoring details are not provided in the Groundwater Monitoring Plan nor in Version 1 May 2018 Whale Tail Pit Thermal Monitoring Plan. CIRNAC therefore considers the Groundwater Monitoring Plan and corresponding Thermal Monitoring Plan inadequate, and comment #3 unresolved.

Comment #4: CIRNAC maintains, 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". In the October 17, 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 considers model updating and calibration insufficient mitigative actions when certain thresholds are exceeded, especially in addressing scenarios of Waste Rock Storage Facility (WRSF) water discharge or Whale Tail Pit water quality exceeding predictions and/or guidelines. CIRNAC remains firm that AEM identify which plan(s) will contain the details of the adaptive management actions for Waste Rock Storage Facility (WRSF) water discharge or Whale Tail Pit water quality exceeding predictions and/or guidelines, and that the plan(s) are submitted to the NWB for review by interested parties prior to additional waste rock deposition in the WRSF. CIRNAC considers comment #4 unresolved.

Comment #5: CIRNAC was not informed until October 17, 2018 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. At the conclusion of the October 17, 2018 meeting, AEM committed to providing a rational as to why they have proceeded as they have with respect to NIRB Project Certificate No.008 term and condition #15 and #16. To date, AEM has not provided the rational and CIRNAC remains firm that the delay in collection of the site-specific hydraulic data is not in accordance with the Project Certificate requirements. Additionally, CIRNAC reviewed the Thermal Monitoring Plan submitted to NIRB in May 2018[1] and concluded the proposed thermal monitoring is not adequate to properly

[1] The Version 1 May 2018 Whale Tail Pit Thermal Monitoring Plan is referenced in the Version 2 November 2018 Whale Tail Pit Groundwater Monitoring Plan.

document permafrost conditions, nor to identify changes in talik distribution and hydrogeological flow paths as per NIRB Project Certificate No.008 term and condition #10. CIRNAC has raised the issues through the NIRB process and comment #5 remains unresolved based on AEM's January 15, 2019 response.

Comment #9: CIRNAC agrees with Environment and Climate Change Canada (ECCC) that the seep minimum frequency of observations and monitoring parameters should adhere to Part I Item 15 and Schedule I Table 2 of the 2AM-WTP1826 water licence until Whale Tail site-specific data has been collected in order to characterize the different groundwater sources and implement the principles of adaptive management. Considering the uncertainties and risks around long term water treatment, CIRNAC requests seeps in the vicinity of lithologies with high acid rock draining and metal leaching (ARD/ML) potential are highlighted in reporting tables.

Comment #11: The Whale Tail Pit project is unique compared to other northern operations based on the small margin of error during operations and closure to prevent potential long-term water treatment from acid-rock drainage. As discussed in the October 17, 2018 meeting, potential long-term acid-rock drainage issues will not become immediately apparent. Given the short duration of the mine life and the benefits of having discussions and mitigating potential emerging concerns as early as possible, CIRNAC maintains proactive reporting if trigger levels are reached is essential in addressing uncertainties and potential risks around long-term water treatment unique to the Whale Tail Pit project.

CIRNAC maintains that AEM should install at least one additional deep groundwater monitoring well that extends into the subpermafrost groundwater regime to the north of the Whale Tail Pit. In combination with the existing 2016 Westbay Multiport Well system, the new well(s) will help to characterize the local groundwater regime. Installation should occur prior to dewatering of the Whale Tail Lake – North Basin. In the absence of installing at least one additional deep groundwater monitoring well (comment #1), CIRNAC would request 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 at an appropriate time as they involve modifying the water licence.

CIRNAC is satisfied with AEM's response to comment #6.

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

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