



NWB Tools

Richard Dwyer <richard.dwyer@nwb-oen.ca>

Fwd: Starter Pit (Quarry 2) Stripping

Richard Dwyer <richard.dwyer@nwb-oen.ca>

Fri, Sep 28, 2018 at 3:42 PM

Draft To: Karén Kharatyan <karen.kharatyan@nwb-oen.ca>

----- Forwarded message -----

From: **Blade, Michelle (AADNC/AANDC)** <michelle.blade@canada.ca>

Date: Fri, Sep 28, 2018 at 3:25 PM

Subject: RE: Starter Pit (Quarry 2) Stripping

To: Jamie Quesnel <jamie.quesnel@agnicoeagle.com>, karen.kharatyan@nwb-oen.ca
<karen.kharatyan@nwb-oen.ca>

Cc: Ryan Vanengen <ryan.vanengen@agnicoeagle.com>, Michel Groleau <michel.groleau@agnicoeagle.com>, Parsons, Ian (AADNC/AANDC) <ian.parsons@canada.ca>, Dewar, Spencer (AADNC/AANDC) <spencer.dewar@canada.ca>, Zhong, David (AADNC/AANDC) <david.zhong@canada.ca>, Allain, Erik (AADNC/AANDC) <erik.allain@canada.ca>, Hack, Justin (AADNC/AANDC) <justin.hack@canada.ca>, Morton, Tim (AADNC/AANDC) <tim.morton@canada.ca>, Theoret-Gosselin, Rachel (AADNC/AANDC) <rachel.theoret-gosselin@canada.ca>

Hello:

In response to the Starter Pit (Quarry 2) Stripping email sent by AEM on September 26, 2018.

CIRNAC's overall concerns are the potential for post-closure exceedance of arsenic in the flooded Whale Tail Pit, and the absence of hydraulic gradient validation field data:

These are not new concerns. CIRNAC can provide documentation on their repeated requests for hydraulic gradient validation of the models within both the NIRB and NWB Whale Tail Pit Project licence processes, including agreement that the validation data could be collected during the 2018 field season. It is incumbent on AEM to alleviate these concerns for this project to be able to proceed without post-closure long-term treatment of arsenic.

AEM has provided modeling information, including at the July 26, 2018 meeting, indicating best case scenario the flooded Whale Tail Pit is very close to exceeding arsenic guidelines. However, many arsenic modelling scenarios show arsenic levels will exceed guidelines in the flooded pit thereby requiring long-term arsenic treatment.

AEM's modeling of the hydraulic gradient through the Whale Tail Pit area, in the absence of at minimum triangulated groundwater field measurements, have revealed conflicting results of the Whale Tail Pit area being both a recharge and a discharge zone. If the Whale Tail Pit area is a recharge zone (i.e. baseline conditions in which groundwater flows into the Whale Tail Pit area), especially through the arsenic-leaching rock, a scenario of long-term arsenic treatment is most likely. AEM's proposed solution of removing the

arsenic-leaching rock from the Whale Tail Pit area still model arsenic levels within the flooded pit above guidelines, thereby requiring long-term arsenic treatment.

AEM's proposed solution of providing the hydraulic gradient baseline data during Whale Tail Pit construction and operation is insufficient to address CIRNAC's arsenic concerns. Baseline hydraulic gradient field measurements to validate the best-case scenario of the arsenic models are required pre-disturbance (i.e. pre excavation and dewatering of the Whale Tail Pit area), as the pre-disturbance groundwater flow conditions are what will effectively resume after Whale Tail Pit flooding - thereby influencing flooded pit arsenic levels. Baseline hydraulic gradient data needs to be obtained prior to disturbance of the water table (i.e. before the starter pit and/or Whale Tail Pit excavation are below the water table).

As per page 94 of the Nunavut Water Board's Reasons for Decision, validation of the hydraulic gradient is required by the Board in the updated Water Management Plan. CIRNAC's preliminary review of the Water Management Plan and additional information distributed on September 27, 2018 is that the hydraulic gradient has not been validated.

Starter Pit (Quarry 2) updated management plans:

CIRNAC recommended three key management plans be updated prior to operation of the Starter Pit (Quarry 2) and construction of the Waste Rock Storage Facility Berm in order to address concerns regarding:

- distinguishing NPAG/NML material from PAG/ML material; and
- ensuring the procedures are in place for PAG/ML material going to the Waste Rock Storage Facility area.

Updating these three key management plans is captured in Part B Item 15 of the Whale Tail Pit Water Licence and during final submissions in Table 1 (INAC; March 19, 2018 and AEM subsequent March 26, 2018 submission agreeing to Table 1), and are to be submitted 60 days prior to operation of Quarry 2 and construction of the Waste Rock Storage Facility Berm.

CIRNAC, along with other interested parties, will evaluate these plans in accordance with the process established by the NWB:

- Water Quality Monitoring and Flow Monitoring Plan by September 28, 2018,
- ARD and Metal Leaching Plan by October 22, 2018, and
- Waste Rock Management Plan by October 12, 2018.

The current starter pit design indicates ore will be removed in addition to overburden – and AEM confirmed in the teleconference on September 26, 2018 that ultramafic rock (i.e. arsenic-leaching rock) is part of that ore component.

The ARD and Metal Leaching Plan, which is currently being reviewed, indicates that the overburden will be placed in the waste rock storage facility rather than used for construction.

Regarding the starter pit commencing activities, outstanding concerns remain regarding the arsenic-leaching rock and validation of the hydraulic gradient, which will need to be addressed by AEM.

Moving forward, CIRNAC requires:

- 1) Only overburden material be removed from the starter pit and the depth of overburden removal cannot go below the water table until AEM has an NWB approved management plan that addresses the potential arsenic issue (the Plan should have field groundwater data to validate the hydraulic gradient).**
- 2) Overburden material cannot be used for construction as outlined in the ARD and Metal Leaching Plan submitted to the NWB.**

If you have any questions or require further information with respect to this matter, contact me at the details below, or Ian Parsons at 819-953-8988 or ian.parsons@canada.ca.

Michelle Blade

Regional Coordinator, Water Resources, Nunavut Regional Office

Crown-Indigenous Relations and Northern Affairs Canada

michelle.blade@canada.ca / Tel : (867) 975-3877

Coordinatrice régionale, Ressources hydriques, Bureau régional du Nunavut

Relations Couronne-Autochtones et Affaires du Nord Canada

michelle.blade@canada.ca / Tel : (867) 975-3877