



Environmental Protection Operations Directorate
Prairie & Northern Region
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ECCC File: 6100 000 008/015
NWB File: 2AM-WTP1826

November 30, 2018

Via email at: licensing@nwb-oen.ca

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Mr. Dwyer:

RE: 2AM-WTP1826 – Agnico Eagle Mines Ltd. – Whale Tail Project – AEM's response to ECCC Comments on Ground Water Monitoring Plan and Operational ARD-ML Sampling and Testing Plan

Environment and Climate Change Canada (ECCC) has reviewed the responses submitted to the Nunavut Water Board (NWB) by Agnico Eagle Mines Ltd. (AEM, the Proponent) regarding ECCC comments on the above-mentioned monitoring plans and is submitting responses via email. ECCC's specialist advice is provided based on our mandate, in the context of the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act*.

The following comments are provided on both the Groundwater Monitoring Plan and the Operational Acid Rock Drainage (ARD)-Metal Leaching (ML) Sampling and Testing Plan responses by the Proponent.

Groundwater Monitoring Plan

1. ECCC 1 - Updates on the Groundwater Monitoring Plan

ECCC Original recommendation:

ECCC recommends that the Groundwater Monitoring Plan specify how frequently the Plan will be reviewed for potential updates and recommends that the Plan be reviewed and updated on an annual frequency.

Agnico Eagle Mines Ltd.'s Response to Recommendation:

The Groundwater Monitoring Plan will be reviewed annually and updated if required. If changes to the plan are necessary, it will be included with the annual report as per our License requirements.

The update process presented in the groundwater monitoring plan is aligned with the principles of adaptive management presented in the water licence 2AM-WTP 1826 Part D Item 25.

For clarification, Agnico Eagle will comply with Water Licence 2AM-WTP 1826 Part B Item 13 which describes the groundwater monitoring plan update process

ECCC Recommendation:

ECCC recommends that a statement be included in the Ground Water Monitoring plan that the Proponent commits to reviewing the plan annually and updating if required.

2. ECCC 2 – Seepage Surveys

ECCC's Original Recommendation:

ECCC recommends that the Proponent provide rationale for the timing and frequency of the seepage survey.

Agnico Eagle Mines Ltd.'s Response to Recommendation:

Agnico Eagle will comply with the Water Licence 2AM-WTP 1826 Schedule I Table 2 – Monitoring program. Seep (ST-S-1 to TBD) will be monitored on a Monthly or as found basis during operation and closure.

Agnico Eagle clarified that the bi-annual periodic seepage surveys presented in the groundwater management plan refers to the process initiated at Meadowbank with the support of SNC-Lavalin in 2017. Total inflow to the pit will be monitored throughout the year. The purpose of the seepage surveys is to identify if there are preferential pathways, such as enhanced permeability zones, for inflow of groundwater to the pit. These surveys can only be undertaken during the summer months when the ice in the walls of the pit has melted and when there is water to observe and sample. Previous experience at other mines has found that these pathways do not change over the summer months, and the biannual monitoring in the first year is to confirm this observation is applicable to the Project. The objective of the periodic seepage surveys is to complete a thorough analysis of the groundwater infiltration within the pit (i.e. Seep (ST-S-1 to TBD)) in order to characterize the different groundwater sources and implement the principles of adaptive management.

ECCC Recommendation:

ECCC recommends that the first year (i.e., biannual) results of the periodic seepage survey be used to determine the frequency for the following years. If the biannual monitoring results of the first year are either inconsistent or inconclusive with respect to determining preferential pathways, then biannual monitoring (i.e., early summer and late August) should be repeated in the following year(s).

3. ECCC 3 – Groundwater Monitoring During Closure/Post-Closure

ECCC's Original Recommendation:

ECCC recommends that the Proponent provide clarification on plans for groundwater monitoring past the operation phase.

Agnico Eagle Mines Ltd.'s Response to Recommendation:

Agnico Eagle will monitor groundwater if and as needed during the Closure and Post Closure phases as per Water Licence 2AM-WTP1826 monitoring requirements for this period. These will be established prior to the Closure phase in collaboration with ECCC and the Nunavut Water Board (NWB).

ECCC Response:

Groundwater monitoring during the Closure and Post Closure phases will help to assess potential water quality impacts from the project and inform water management decisions. ECCC looks forward to collaborating with the Proponent to develop closure-monitoring requirements prior to the closure phase.

4. ECCC 4 - Groundwater Monitoring Wells

ECCC's Original Recommendation:

ECCC recommends that the Proponent describe whether and how groundwater monitoring wells will be established to monitor groundwater flow and quality in flow paths adjacent to the pit and Waste Rock Storage Facility (WRSF). In addition, ECCC recommends that the Proponent clarify whether any existing or planned groundwater monitoring wells will be displaced by the pit and/or by the WRSF, and if so, how groundwater data collection will be maintained.

Agnico Eagle Mines Ltd.'s Response to Recommendation:

Agnico Eagle clarified that the main objective of the Groundwater Monitoring Program Report developed for Meadowbank was to monitor potential seepage from the Tailing Storage Facility. This document has no relevance to the Groundwater Monitoring Plan.

Agnico Eagle also clarified that no groundwater flow is expected at the WRSF because the base of the WRSF will be frozen. Potential seepage is considered a surface water management issue; contact water will be collected at the toe of the waste rock storage facility and in the Contact Water Collection System of the WRSF. There is no groundwater flow path identified as this infrastructure is built above permafrost.

Based on this reasoning, no additional groundwater wells are planned to be installed on site.

ECCC Response:

ECCC's original recommendation pertained to monitoring of deep groundwater flows, and the need to maintain data collection as was recommended by SNC-Lavalin in their report that was part of the Groundwater Monitoring Program Report for Meadowbank. ECCC's original recommendation requested clarification on whether the Proponent will be installing and monitoring deep groundwater flow and quality in the area of the pit and the waste rock storage area, as well as if the mine footprint would displace any monitoring wells.

The SNC-Lavalin report for Meadowbank concluded that pit seeps do not provide a good representation of groundwater quality/quantity. The use of groundwater monitoring wells provides much better data for groundwater quality overall.

The Proponent's response does not clarify if or how groundwater monitoring wells have been established and if they have been established, how will they monitor deep groundwater flow and quality in flow paths adjacent to the pit and WRSF. The Proponent's response also does not clarify whether any existing or planned groundwater monitoring wells will be displaced by the pit and/or by the Waste Rock Storage Facility, and if so, how will groundwater data collection be maintained if ground water monitoring well are displaced

ECCC Recommendation:

ECCC continues to recommend that the Proponent describe if and how groundwater monitoring wells will be established to monitor groundwater flow and quality in flow paths adjacent to the pit and WRSF.

ECCC recommends that the Proponent clarify whether any existing or planned groundwater monitoring wells will be displaced by the pit and/or by the WRSF, and if so, how groundwater data collection will be maintained.

5. ECCC 5 - Comparison of Monitoring Results Against Model Predictions

ECCC's Original Recommendation:

ECCC recommends that the Groundwater Monitoring Plan outline how measured groundwater quality will be compared against base-case (i.e., expected) model predictions, and what steps would be taken should significant variations from model predictions be observed. For consistency of comparison, ECCC also recommends that the groundwater quantity results be compared against base-case (i.e., expected) model predictions. The Groundwater Monitoring Plan should be updated to include these details.

Agnico Eagle Mines Ltd.'s Response to Recommendation:

The groundwater monitoring data (i.e. quality and quantity) will be compiled in the water balance/water quality forecast and reported on an annual basis as per water licence 2AM-WTP1826 Part E Items 7 and 8. Groundwater quality in the inflow to the open pit will be compared to model predictions on an annual basis. If significant variations from model predictions are observed, the assumptions behind the data will be reviewed and the analysis updated if required. Variation that would be considered significant and indicate the need for data review and analysis include the collected water samples in the pit seepage indicating the TDS is more than 25% higher than the estimated water quality, on a rolling monthly average over six consecutive months. Additional information was also provided in the response to CIRNAC#4 recommendation.

Agnico Eagle also refers ECCC to Agnico Eagle responses to recommendations ECCC#1 and ECCC#4 which details the management plan and model update process.

ECCC Response:

When comparing groundwater quality and quantity monitoring results against model predictions, it is important to distinguish between base-case and worst-case scenario predictions. The Proponent's response does not address this aspect of the ECCC recommendation.

ECCC Recommendations:

ECCC recommends that the information provided in the Proponent's response describe how groundwater monitoring data will be compiled/compared/interpreted be incorporated into the Groundwater Monitoring Plan.

ECCC continues to recommend that the Groundwater Monitoring Plan outline how measured groundwater quality will be compared against base-case (i.e., expected) model predictions, and what steps would be taken should significant variations from base-case model predictions be observed. For consistency of comparison, ECCC also recommends that the groundwater quantity results be compared against base-case (i.e., expected) model predictions. The Groundwater Monitoring Plan should be updated to include these details.

6. ECCC 6 - Monitoring Summary Table**ECCC's Original Recommendation:**

ECCC recommends including a tabular summary of the groundwater-monitoring program in the Groundwater Monitoring Plan, including the data specified in comment ECCC 5.

Agnico Eagle Mines Ltd.'s Response to Recommendation:

The Water Quality and Flow Monitoring Plan will comply with Water Licence 2AM-WTP 1826 Schedule I Table 2 – Monitoring program. Table 2 refers to the monitoring station related to groundwater monitoring requirements.

Agnico Eagle referred ECCC to the response to CIRNAC #4 recommendation for more details regarding the criteria/action levels definition.

ECCC Recommendation:

ECCC recommends incorporating Table 2, which was provided in the Proponent's response, into the Groundwater Monitoring Plan as it provides a summary of the groundwater monitoring program.

Operational Acid Rock Drainage-Metal Leaching Sampling and Testing Plan

7. ECCC 1 - Classifying Waste Rock

ECCC's Original Recommendation:

ECCC recommends that the Proponent explain the rationale for classifying waste rock that meets potentially acid generating (PAG) criteria be classified as waste type non-PAG.

Agnico Eagle Mines Ltd.'s Response to Recommendation:

Agnico Eagle does not agree with ECCC's recommendation. The dig limits assigned in the field will be based on the results of the blast hole sample analysis. The frequency of outlying data associated with the NPAG classification for waste in a specific blast will include a maximum frequency of outlying data (i.e. PAG samples) as described in Table 3.3. This approach considers the high neutralization potential of the waste rock.

ECCC Response:

The use of blended PAG rock and non-PAG rock for construction may still result in acid generating hotspots if not properly blended. If layering non-PAG rock over blended PAG rock is not sufficient for neutralization, the rock may be acid generating.

ECCC Recommendation:

ECCC continues to recommend that the Proponent explain the rationale for classifying waste rock as non-PAG/non-metal leaching (according to table 3.3) that may contain Potentially Acid Generating criteria or is of uncertain classification, as waste type non-PAG.

Should you require further information, please do not hesitate to contact Gabriel Bernard-Lacaille at (867) 669-4746 or Gabriel.Bernard-Lacaille@canada.ca.
Sincerely,

[Original signed by]

Eva Walker
Environmental Assessment Coordinator

cc:
Gabriel Bernard-Lacaille, Senior Environmental Assessment Coordinator
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