



Environmental Protection Operations Directorate
Prairie & Northern Region
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Yellowknife, NT X1A 2P7

ECCC File: 6100 000 012 /015
NWB File: 2AM-MEL1631

March 16, 2018

Via email at: licensing@nwb-oen.ca

Karen Kharatyan
A/Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Mr. Kharatyan:

RE: 2AM-MEL1631– Agnico Eagle Mines Ltd. – Meliadine Gold Mine – Groundwater Management Plan

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned management plan and is submitting comments via email as requested by NWB. 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:

1. Groundwater Monitoring Plan

ECCC notes that the Groundwater Management Plan provides a brief discussion about the groundwater monitoring program but does not include a groundwater monitoring plan. Section 4.1 (Water Quality and Quantity Monitoring) indicates that the groundwater quality monitoring plan will be further defined as the mine advances.

ECCC recommends that the current version of the Groundwater Management Plan be revised to include additional details on groundwater quality monitoring, and that a detailed groundwater monitoring plan be provided in subsequent versions of the Groundwater Management Plan.

2. Groundwater Model

Section 4.2 (Water Quantity) indicates that groundwater inflow rates will be compared to model predictions annually, and states that if “significant variations” from model predictions are observed, the assumptions behind the analysis will be reviewed and the analysis updated “if required”. Additionally, if the measured groundwater quantity represents a “significant difference” from the model predictions, a re-calibration of the model will “be considered”.

ECCC notes that Section 4.2 does not clearly explain what would trigger either model analysis updates or model recalibration. Additional information should be provided in order to clarify how monitoring results will be used to evaluate and potentially update/recalibrate the groundwater model.

ECCC recommends that Section 4.2 be updated to clarify under what circumstances groundwater model analysis (i.e., predictions) would be updated and what circumstances would trigger a model recalibration.

3. Inflowing Groundwater Quality

As per Section 4.3 (Water Quality), groundwater quality will be monitored opportunistically from DDHs (i.e., diamond drillholes) to assess and verify the quality of groundwater flowing into the underground mine.

ECCC recommends that the Groundwater Management Plan clarifies what is intended by monitoring “opportunistically”, and describes whether and how such sampling will provide data that fully characterizes the quality of groundwater flowing into the underground mine.

4. Sump Water Monitoring

Sump water samples will be analyzed for specific parameters, as described in Section 4.3 (Water Quality). ECCC notes that, in addition to the parameters listed in paragraph 2 of Section 4.3, an additional parameter, ammonia, should also be monitored.

Ammonium nitrate explosives used in mining operations could potentially elevate ammonia levels in groundwater. Un-ionized ammonia is toxic to aquatic organisms. As groundwater management involves discharge of treated groundwater to surface waters, ammonia level should be monitored.

ECCC recommends that ammonia is added to the monitoring parameters listed in paragraph 2 of Section 4.3 (Water Quality).

Should you require further information, please do not hesitate to contact me at (867) 669-4733 or Melissa.Pinto@canada.ca.

Sincerely,

[original signed by]

Melissa Pinto
Senior Environmental Assessment Coordinator

cc: Georgina Williston, Head, Environmental Assessment North (NT and NU)
ECCC Review Team
Alex Chernoloz, Environmental Compliance Counselor, Agnico Eagle Mines Ltd.