

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

ECCC File: 6100 000 012/008
NWB File: 2BB-MEL1424



January 19, 2024

via email at: licensing@nwb-oen.ca

Robert Hunter
Licensing Administrator
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU X0B 1J0

Dear Robert Hunter:

RE: 2BB-MEL1424 – Agnico Eagle Mines Limited – Meliadine Gold Mine – Renewal Amendment Application

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned Type B Water Licence Renewal Amendment Application.

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate, including climate change, air quality, water quality, biodiversity, environmental preparedness and emergencies. This work includes reviewing proponent characterization of environmental effects and proposed mitigation measures. We provide advice to decision-makers regarding a proponent's characterization of environmental effects, the efficacy of their proposed mitigation activities, and may suggest additional mitigation measures. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

The following comments are provided:

1. Drill Holes

Reference(s)

- Section 5. Reclamation of Drill Sites, Meliadine Gold Project, Interim Reclamation and Closure Plan – 2BB-MEL, December 2023

Comment

Section 5 of the Interim Reclamation and Closure Plan (IRCP) states that all “drill sites are reclaimed on a progressive basis. Following completion of a drill hole, the casing is pulled if



possible, or cut off at or below ground level. Water and drill cuttings flow down the hole or casing and freeze in place thereby plugging the drill hole.”

It is not clear whether the Proponent intends to plug the drill hole with material strong enough to ensure that the drill hole sealed or capped, and as such does not become a hazard when the frozen water in the hole thaws. The water that flows back into the drill hole, as indicated by the Proponent, will freeze in the cold months but then will thaw during warmer months, leaving the drill hole open and unsealed or unplugged.

ECCC Recommendation(s)

ECCC recommends that drill holes be plugged or sealed properly so that they do not become a hazard. The IRCP should be updated to reflect these procedures.

2. Remediation Criteria for Soil Treated in Landfarm

Reference(s)

- Meliadine Mine, Landfarm Management Plan – 2BB-MEL Water Licence, December 2023, Version 5
- Meliadine Gold Project, Interim Reclamation and Closure Plan – 2BB-MEL, December 2023
- Abandoned Military Site Remediation Protocol, Volume I – Main Report, Indian and Northern Affairs Canada, Northern Affairs Organization, Contaminated Sites Program, December 2008
- Environmental Guideline for Contaminated Site Remediation, Department of Environment, Government of Nunavut, March 2009

Comment

Several criteria for determining when hydrocarbon impacted soil is sufficiently treated and can be removed from the landfarm are discussed in Section 3.5 of the Landfarm Management Plan (LMP): “Agnico Eagle currently follows the Government of Nunavut Remediation Guidelines (as outlined in the following sections); however, as with the 2AM-MEL Licence will apply the soil remediation criteria used to the Abandoned Military Site Reclamation Protocol guidelines for the protection of human health and the management limit, which are more appropriate for the Meliadine site.”

It is not clear when the Proponent will apply the Abandoned Military Site Reclamation Protocol (AMSRP) guidelines, because they are not discussed further in the LMP. It is also unclear why the human health and management limits (for hydrocarbon products approximately equal to the sum of the F1 through F3 fractions below 0.5 m depth) from this protocol would be appropriate. This uncertainty stems in part because proposed disposal for treated soils includes two options, one where the soil would be exposed and another where it would not be at the ground surface. Section 2.1 of the LMP states: “the soils will be removed from the facility and can be used for construction purposes such as part of the cover of the Tailings Storage Facility (TSF) or stacked in the Waste Rock Storage Facility (WRSF).”

The agriculture/wildlife and industrial criteria from the Government of Nunavut Remediation Guidelines are listed as relevant. Section 3.5.1 of the LMP details “remediation to agricultural/wildlife criteria is targeted; however, if these criteria cannot be met, industrial criteria will be followed”, but does not specify if the soil meeting different criteria will be disposed of differently during operations. At closure, Section 3.7 of the LMP describes the different management of soils that meet the agriculture/wildlife criteria and those that meet the industrial criteria: “No excavation will be necessary if the agricultural/wildlife criteria are met. If industrial criteria are used, the Landfarm will be covered with a 2 m thick layer of waste rock, or other suitable material used for reclamation.”

The final disposal location of treated soils and the treatment criteria need to be linked. If soils will be used for cover, they need to meet agricultural/wildlife criteria, since the closure objective in the IRCP is to “return negatively impacted areas to productive and lasting use by wildlife and humans”. Soils only meeting industrial criteria disposed of at the surface have the potential to leach hydrocarbons in surface water over time, so they would have to be disposed of differently, as is acknowledged in the closure section of the plan. The proposed stacking in a WRSF should provide adequate protection, but as mentioned in Section 4.2.3 of the LMP, could require a suitable monitoring program for petroleum hydrocarbons.

ECCC Recommendation(s)

ECCC recommends that remediation criteria for treated soils be clarified in the Landfarm Management Plan, specifically:

1. If the AMSRP guidelines are to be used, the LMP should state the following:
 - i) In which circumstances the AMSRP criteria will be used;
 - ii) When treated materials have reached the AMSRP thresholds, where will they be disposed of; and
 - iii) An explanation of why the specific remedial objectives chosen are appropriate.
2. If the AMSRP guidelines are not used, the reference to them should be removed from the Plan.
3. The disposal locations of soils meeting different treatment criteria should be specified in the LMP, in order to achieve final closure objectives.

4. Freshwater Use at Landfarm

Reference(s)

- Meliadine Mine, Landfarm Management Plan – 2BB-MEL Water Licence, December 2023, Version 5
- Meliadine Gold Mine, Water Management Plan, Water Licence No. 2BB-MEL, December 2023

Comment

Section 3.4.3 of the LMP discusses the importance of sufficient soil moisture to prevent dust generation, and states if the “soil is too dry, non-contaminated water from within the

Landfarm containment area will be used as a moisture source. If no accumulated water is available, freshwater will be used.” The Water Management Plan (WMP) does not mention this possible water use when discussing general water management.

ECCC Recommendation(s)

ECCC recommends the Water Management Plan be updated to include possible use of water at the landfarm.

5. Segregation of Contaminants Treated at Landfarm

Reference(s)

- Meliadine Mine, Landfarm Management Plan – 2BB-MEL Water Licence, December 2023, Version 5

Comment

The LMP’s discussion of segregation of contaminants lacks some details and contains inconsistencies. Section 2.1 states that “when possible, materials contaminated with heavy hydrocarbons (e.g., hydraulic fluid, grease), are to be segregated, packaged, and shipped south for treatment and/or disposal.” It is not clear what actions are taken when it is not possible to segregate material.

Furthermore, Section 3.1.1 lists hydraulic oil as a product acceptable for treatment, even though it is a type of hydraulic fluid. Section 2.1 identifies hydraulic fluid as a product to be “segregated, packaged, and shipped south for treatment and/or disposal.”

Only soil with contaminants that can be treated on operational timescales should be kept in the landfarm.

ECCC Recommendation(s)

ECCC recommends the Landfarm Management Plan be updated to:

1. Describe procedures for when it is not possible to segregate materials contaminated with heavy hydrocarbons;
2. Consistently classify hydraulic oil as a contaminant requiring treatment off site or as appropriate for treatment in the landfarm.

6. Closure of Landfarm and Drill Hole Sumps in IRCP

Reference(s)

- Meliadine Mine, Landfarm Management Plan – 2BB-MEL Water Licence, December 2023, Version 5
- Meliadine Gold Mine, Water Management Plan, Water Licence No. 2BB-MEL, December 2023
- Meliadine Gold Project, Interim Reclamation and Closure Plan – 2BB-MEL, December 2023

Comment

The IRCP is missing details on reclamation of elements that are described in other plans. Compiling all proposed reclamation activities in the Plan will help ensure closure objectives will be met consistently for all elements and infrastructure covered by the water licence.

Section 4: Reclamation of Meliadine Exploration Camp Area of the IRCP lists termination activities for five different surface conditions, but does not include a landfarm or a bermed area. Section 3.7: Landfarm Closure and Reclamation of the LMP includes reclamation activities that would be appropriate in the IRCP.

Section 5: Reclamation of Drill Sites of the IRCP discusses removing casings and plugging drill holes with water and drill cuttings, but does not explain how sumps will be remediated or how drill cuttings will be disposed of. Section 3.4 of the WMP describes some of these elements as well, and could be integrated in the IRCP.

ECCC Recommendation(s)

ECCC recommends the Interim Reclamation and Closure Plan be updated to include how the landfarm and drill sumps will be reclaimed and how drill cuttings are disposed of.

If you need more information, please contact Stephinie Mallon at Stephinie.Mallon@ec.gc.ca.

Sincerely,

[original signed by]

Stephinie Mallon
Acting Senior Environmental Assessment Officer

cc: Melissa Pinto, Acting Head, Environmental Assessment North (NT and NU)