



**Environment and Climate Change
Office of the Minister**

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File number: 40100-30-315
10700-400-58151

May 12, 2022

Andrew Taylor
Atlantic Mining NS Inc.
Bedford office
30 Damascus Rd Suite 201
Bedford, NS B4A 0C1

Dear Andrew Taylor:

**Re: Environmental Assessment – Atlantic Mining NS Incorporated
Touquoy Gold Project Site Modifications Addendum
Halifax County Nova Scotia**

The review of the environmental assessment (EA) Addendum of the proposed Touquoy Gold Project Site Modifications in Halifax County, Nova Scotia has been completed.

This letter is to advise that I have determined that the information provided in Registration Document and Addendum is insufficient to allow me to make a decision. Atlantic Mining NS Inc. (AMNS) did not provide the information I requested in the September 8, 2021 EA decision. Pursuant to Section 13 (1)(a) of the Environmental Assessment Regulations I have determined that additional information is required. Specifically, the review determined that the information listed below was not provided, and it is required in order to evaluate potential environmental effects that may be caused by the undertaking.

In consultation with Nova Scotia Environment and Climate Change (ECC), please provide the following information:

Water Modelling

The third-party water modelling review I requested identified issues with water modelling and the recommendations from the review were not implemented by AMNS.

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- Address the recommendations proposed by Wood Environmental & Infrastructure Solutions in the *Water Modelling Third-party Review of the Touquoy Gold Project Site Modifications* including but not limited to:
 - All comments and questions regarding identified in the Hydrogeological Site Investigation, modelling and present analysis of findings.
 - Complete hydraulic connectivity testing in all fracture/fault zones, identified underground mine workings, Ground Penetrating Radar anomalous areas and the overburden and upper weathered bedrock layers surrounding the pit.
 - Provide a clear conceptual outline with all significant processes for the groundwater flow of a conservative solute from the pit to the Moose River. Evaluate the hydraulic and attenuation factors being assumed and describe how these are incorporated into the groundwater model. Describe what mechanisms in the model would result in limitations to non-reactive solute transport. If the new evaluation indicates a change in conceptual approach, update and re-run the groundwater solute transport model.
 - Provide particle flowpath tracking for the area of the groundwater model between the pit and Moose River.
 - Present information to validate predicted tailings pore water quality and predicted open pit lake discharge water quality. Compare predicted values against water quality within the existing Tailings Management Facility.
 - Define the stratigraphy geologic layers (including overburden and upper weathered bedrock layers) and corresponding hydraulic conductivity measurements within and surrounding the open pit mine show how these are matched with the layers used in the groundwater model.
 - Provide in graphical cross-section format, data showing stratigraphic layering through the southern pit wall including geology, fault zones, underground working zones, elevations of the final pit water level, groundwater level and Moose River seasonal water elevations.
- Use all of the above information to update ground and surface water modelling and provide analysis.

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Ground and Surface Water

- Groundwater quality must be in compliance with the Industrial Approval for the site. Submit groundwater predictions for the site and compare to potable criteria and freshwater aquatic life criteria, as per the requirements in the Industrial Approval.
- AMNS did not describe how discharges would be protective of fish and fish habitat under the *Fisheries Act*:
 - Complete the assimilative capacity study of Moose River to be compliant with the Industrial Approval which uses SW-11 as the background station for quality and propose discharge criteria that will be protective of fish and fish habitat, in all areas of the Moose River. Incorporate Fisheries and Oceans Canada recommendations to determine summer flow conditions.
 - Complete an assimilative capacity study of Watercourse #4 that will be protective of fish and fish habitat. Incorporate Fisheries and Oceans Canada recommendations to determine summer flow conditions.
 - Options were provided for in-pit water treatment but a plan was not provided. Provide a detailed plan of how the open pit water will be treated to meet discharge requirements that will be protective of fish and fish habitat. Provide of schedule of when treatment will commence and end.

Mitigation Measures

Mitigation measures were not adequately described in the Addendum:

- Provide signed stamped drawings of the proposed liner and/or all other proposed mitigation measures for the Touquoy pit and Watercourse #4. If concentrated grouting is proposed in localized fault zone(s) for the Touquoy pit, explain how the geological conditions will make this possible given its failure at the Tailings Management Facility in 2017 and, describe its durability and proposed schedule (i.e., before or after deposition).
- Provide information on the need and potential methodologies for grouting underground mine workings and fracture zones between the open pit and the Moose River.

Wetlands:

- No alternatives to altering Wetland #15, a Wetland of Special Significance were provided. Provide analysis for avoidance of Wetland #15, a WSS under the ECC Wetland Policy.

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Historic Tailings:

- Options were provided by AMNS to manage the historic mine tailings but a plan was not provided. Provide a detailed plan to manage the historic mine tailings on site.

Fish and Fish Habitat:

- AMNS did not provide adequate fish sampling data. Conduct additional fish sampling in Moose River. Survey methods and level of effort are to be designed in consultation with Fisheries and Oceans Canada.

This information must be provided by Atlantic Mining NS within one year, as an addendum to the original EA Registration Document. Upon submission of the information, I will have 50 days to make my decision. Registration of the Addendum will require publication of a Notice to inform the public of the 30-day Addendum public comment period.

If you have any questions regarding this decision, please contact Helen MacPhail, Supervisor, Environmental Assessment Branch, at (902) 483-2696 or via email at Helen.MacPhail@novascotia.ca.

Sincerely,



Timothy Halman, MLA
Minister of Environment and Climate Change

C: Lorrie Roberts, Executive Director, Policy, ECC