Ecology Action Centre

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Ecology Action Centre's Comments on Touquoy Gold Project Site Modifications

The following submission in response to the Touquoy Gold Project Site Modifications- Environmental Assessment Registration Document is on behalf of the Ecology Action Centre (EAC). The EAC is a member-based environmental charity in Nova Scotia; we are the province's oldest and largest environmental NGO. Since 1971, the EAC has been working at the local, regional, national and international level to build a healthier and more sustainable world. The EAC does not support the proposed modifications. Below we have outlined our concerns. In our comments, we include requests for additional information and questions that we ask the proponent to address.

Mistakes in figures or text

In Figure 2.1 (Site Layout Showing Proposed Modifications), the Legend indicates that Ship Harbour Long Lake Wilderness Area will be shown in light green. Instead, there is an arrow pointing to a portion of it on the map. **Please show the Wilderness Area in green.** The problem occurs again in Figure 8.2.

Acronyms and Abbreviations - **Missing "Pit" from definition of OPM**.

On page xiii, the proponent writes "Ship Harbour Wilderness Area." **This is not the correct name for the Wilderness Area, it is Ship Harbour Long Lake Wilderness Area.**

Local Assessment Area (LAA)

The LAA is defined slightly differently in different parts of the document. In one case it is defined as "the area in which both: a) project-related effects (direct or indirect) can be predicted or measured with a level of confidence that allows for assessment; and b) there is a reasonable expectation that those potential effects in the LAA will be an issue of public interest." LAAs are then delineated for different VCs. The map of the LAA for Surface Water is shown in Figure 7.1. The boundary of the LAA at times follows property boundaries but at other times follows physical features (e.g., watercourses, rivers).

If the LAA is defined by VC, its boundary should actually follow where there may be effects for that VC and should not stop at property boundaries. This inconsistency should be remedied and then modeling and monitoring adjusted to accommodate the new LAA boundaries.

Life of the Mine

On page 32, the proponent writes that "the original estimated life of mine was **five** years, based on a **9.3 Mt** mineable reserve with potential to lengthen the life of mine through ongoing mineral exploration activities

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at the Touquoy Gold Project as well as on the nearby mineral claims if approvals are received (Beaver Dam, Fifteen Mile Stream, Cochrane Hill)."

This **amount** matches with the life of the mine estimate from the Moose River Gold Project EARD and Focus Report ("least **9** million tonnes"). However, both Moose River reports estimated the production life of the mine to be **six** years. It started production in October 2017 and is predicting to be done in 2022… that's 5 years." The reserve was last updated in March 2019 with the revised estimate at **12.91 Mt**."

Does that mean the mine will mine more ore than previously approved?

Will the mine be operational longer than the original timeframe (five/six years)?

If the mine life may be extended, this should be stated with regards to predicting the temporal extent of potential effects, and impacts on monitoring should be discussed.

On page 33 the proponent writes that ore that was previously considered waste rock is now considered medium-grade ore, based on "…additional data collected during mining and influenced by fluctuating economic factors. Approximately 22% more tonnes of ore are now being processed to achieve the same number of forecasted ounces of gold, and over twice the quantity of medium grade ore has been identified for processing."

It seems that additional data may lead AMNS to request more modifications to the project.

Please discuss whether the current request will be the last modifications of the WRSA and Clay Borrow Area.

Climate Change

13.1.1 Climate and Climate Change

The proponent includes a discussion about the growing impacts of climate change writing that "the Project will be designed to accommodate extreme precipitation (rain and snow) events and high wind ranges."

Please provide more detailed information discussing how the project will accommodate extreme precipitation (rain and snow) events and high wind ranges. What constitutes extreme precipitation (rain and snow) events and high wind ranges? How were the impacts of climate change projected?

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Protected Areas

The nearby Wilderness Area is used for wilderness recreation. One aspect of the wilderness recreation experience is relative quiet compared to urban areas, and the experience of seeing less urban infrastructure.

It is stated that "areas of Scraggy Lake and Mooseland Road may have a viewshed that includes the WRSA depending on the observation location, although limited visibility of the WRSA is not expected to affect the use or enjoyment of recreational areas."

Please describe how this conclusion was reached. Also, please describe the effect of new traffic flows on sound receptors in the two closest Wilderness Areas.

Water

6.5.1 In-Pit Tailings Disposal

The proponent writes that "the deposition of tailings into the exhausted Open Pit has the potential to interact with groundwater quality around the Open Pit, as well as water quality in Moose River from groundwater seepage into the river. Groundwater in the filled Open Pit has the potential to seep to Moose River during the post-closure phase of the Project."

There is considerable concern about the impacts of the potential interaction of the tailings in the exhausted Open Pit with groundwater quality around the Open Pit, and the potential seepage into Moose River.

Please use studies and research from the post-closure phases of other mining sites to describe the impacts and consequences of this. Please describe what steps the proponent will take to mitigate these risks.

Please describe how the proponent will continues to monitor water quality during the post closure phase.

Please describe what actions the proponent will take should these potential interactions take place.

6.5.2 Waste Rock Storage Area Expansion

The proponent writes that "through subsurface flow pathways and seepage discharge, a minor percentage of the seepage from the WRSA may bypass the seepage collection system and report to adjacent surface water features."

Please provide more information about how much seepage may bypass the seepage collection system, and the potential consequences of this.

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Please provide information for how the proponent plans to monitor the bypass.

Table 7.1 outlines the potential effects, effects pathways and measurable parameters for surface water resources and includes information about the potential impacts to both surface water quality and quantity.

Please discuss the effect pathways outlined in the table in relation to other similar mining sites across Canada; that is, how have there been changes to surface water quantity and quality at other sites due to mining activity and what have been the consequences of these changes?

Please provide detailed information about how the proponent plans to mitigate these potential effects.

7.5.1 In-pit Tailings Disposal

The proponent states that "discharge from the TMF is not anticipated, but could occur under extreme climate events."

As Nova Scotia continues to experience the growing impacts of climate change, the province will face an increase in extreme weather events (e.g., hurricanes) in both frequency and severity. Please provide detailed information about how the proponent is preparing for the increase of extreme climate events during the operations and post-closure phases.

Please provide information outlining what actions the proponent will take should discharge from the TMF occur.

12.2 Failure of Water Management Infrastructure

The proponent states "failure of water management infrastructure could include a breach of retaining embankment through overflow or an embankment structure failure, resulting in an unintended discharge of sediment-laden water into the surrounding environment including watercourses, wetlands, and downstream terrestrial habitats containing rare plants."

Please provide more detailed information about the impacts (both direct and indirect) and consequences of the failure of water management infrastructure. Draw upon examples from other mine sites.

How will the water management infrastructure be monitored and/or decommissioned during the post closure phase of the mine? If they are to be monitored, who will conduct this monitoring, how often, and for how many years? What actions will the proponent take should the water management infrastructure fail?

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The proponent writes that "water management ponds and associated infrastructure are designed to attenuate the design storm event, thus preventing flooding. The design storm events consider climate change."

Please describe, in detail, how the design storm events consider climate change.

The proponent mentions that there have been reportable instances of siltation affecting onsite wetlands.

How many wetlands have been affected by these instances of siltation? What is the extent of the harms caused to these wetlands? Has the proponent compensated for the alteration of these wetlands (i.e. the compensation that is required under the Nova Scotia Wetland Conservation Policy)?

12.3 Tailings Line Failure

The proponent describes a failure that resulted in the release of approximately 300,000L to 400,000 L of tailings in January 2019. There is concern that even though the overall stewardship of the TMF met its expectations of good practice, this failure still occurred.

Given this information, there is concern that while the proponent has outlined their intentions to engage in best practices, another failure will happen causing significant impacts to the natural environment.

Please provide more detailed information about this incident. This information should include who discovered the failure, how long after the failure occurred that it was discovered, and why up to 400,000 L of tailings were released before it was stopped.

Please provide information for how the short term and long-term impacts of this failure are being measured. Please provide information for what the known short term and long-term impacts of this failure are.

Migratory birds

No new bird surveys were completed in the LAA. **A migratory bird survey should be completed in the area during nesting season. A least one other bird survey should be completed to document non-migratory birds that also use the area outside of breeding season. It is not acceptable to make assumptions about how birds will be impacted within the LAA without current data about birds that are using that specific area, especially because the area may host migratory birds protected under the *Migratory Birds Convention Act*.**

Rusty Blackbird should be considered a priority bird species. It "was assessed to have a moderate likelihood of using habitat within the project site, specifically treed wetlands, and adjacent uplands." These habitat types occur in the areas proposed for modification.

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Table 9.9 states that the Upland Community of Spruce Pine Forest Group is present within the LAA, including in a Late Successional Stage (**this is missed in the first paragraph of page 9.33**). **Because of this, Northern Goshawk should also be included as a priority bird species**, because Norther Goshawk "had a high likelihood of using habitat within the 2007 EARD project site, specifically mature forest stands."

Wildlife (other than birds)

If the modifications to the project are approved, the Wildlife Management Plan (last updated 2017) should be updated to reflect the potential impacts from the modifications to species within the LAA (i.e., don't just keep the 2017 version).

Section 9.6 proposed mitigation measures to reduce potential impacts on wildlife. **Please describe mitigation measure implemented since the mine opened in 2017 and describe any evidence of whether these measures are working or not. This analysis should then inform mitigation measures for the proposed expansion.**

Lichens

Figure 9.4 shows locations of SOCI lichen. There are 3 locations within the LAA where previously observed lichens are "No Longer Extant." These are very close to the location of Blue Felt Lichen in WL 15.

Why did these lichens disappear? How can impacts that might have lead to the disappearance of these lichens be reduced in order to no cause the Blue Felt Lichen nearby to also become extant?

Some of the research associated with edge effects on lichen, and effects of dust deposition on lichen, are discussed (pages 278 – 279). Although this research and additional research could support the delineation of an appropriate LAA for lichen, it is not used in this way. **The proponent should redefine the LAA for lichen based on research.**

The Lichen Monitoring Plan is described by the proponent on page 276. **This plan should monitor lichen SAR, but should also monitor lichen SOCI. SOCI may be impacts at the same time or while SAR are being impacted, which could provide a warning to reduce impacts before the SAR is impacted.**

The Plan will monitor within the "operational footprint of the Touquoy Mine Site." **It should instead monitor within the LAA for lichen since this is where potential impacts to lichen have been predicted to occur.**

Will there be benchmarks for knowing when monitoring results indicate a decline in lichen health? What will be the steps in the plan for action when a decline in lichen health is detected?

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Lichen collection is described on page 279. **How will "direct impacts to priority lichen be mitigated through species collection prior to development"? Removing a species from the wild is not a form of mitigation.**

9.4.1.1 Habitat and Vegetation

The proponent writes that the Touquoy Mine Site project site was surveyed for lichens in 2004 and 2005, and that during that time, Blue Felt Lichen, a species listed as Special Concern (COSEWIC and SARA) and Vulnerable (NSESA), was found in several locations**.**

There is concern that this survey is outdated, and Blue Felt Lichen, could now be present in other locations throughout the site.

The proponent also mentions in the discussion of Wetland Communities that other areas that could support Blue Felt Lichen were found.

Please provide more recent survey information about locations of this species throughout the site.

Wetlands

3.3.8 Wetland Monitoring

The proponent states that "while the total approved area of wetland alteration is greater than initially identified in the original EA due to ongoing changes in project design and further wetland delineation of wetlands for wetland alteration permitting, no significant habitat loss has been identified, and the principle of minimization of impacts is still applied, all wetland habitat loss is being compensated, and mine site reclamation mitigation measures will also be applied upon project completion."

Please describe how the term "no significant habitat loss" is being understood in this context. Please provide information about any habitat loss that has occurred due to the wetland alteration.

The proponent also writes that, "unintended wetland alteration has occurred; however, this has been relatively small, has been addressed by implementation of corrective actions, and is being captured during annual wetland monitoring, and covered under alteration amendments and compensation requirements." There is concern that more unintended wetland alternation will continue to occur during the expansion of the mine site.

There is concern that additional unintended wetland alteration will occur should the proposed modifications be approved.

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Please describe the scope of the unintended wetland alteration. Please provide information about how and why these alterations occurred. What is meant by the term "relatively small"? What corrective actions have been taken?

7.6 Mitigation

The proponent writes that work operation will be conducted in a manner to protect watercourses and wetlands from siltation and disturbance.

Please provide more detailed information regarding how watercourses and wetlands are to be protected from siltation and disturbance. Please use research and studies from other mine sites to demonstrate the success of the proposed protection measures.

9.1 Potential Effects, Pathways and Measurable Parameters

Table 9.1 outlines the potential effects, effects pathways and measurable parameters for the terrestrial environment.

There is concern about the potential effects related to the change in wetland habitat including both the direct and indirect impacts.

Please discuss the effect pathways outlined in the table in relation to other similar mining sites across Canada; that is, how have there been changes to wetland habitat at other sites due to mining activity and what have been the consequences of these changes?

9.2.1 Spatial Boundaries

The proponent states that, "for the purposes of the terrestrial environment, the LAA has been defined for each portion of the PDA based on expected maximum indirect impact to ecosystem habitats, vegetation communities and fauna, specifically from predicted edge effect and/or dust, and also based on the maximum indirect impact to wetland habitat from surface water management of mine contact water which may affect the hydrology of nearby wetlands."

Please clarify how the expected maximum indirect impacts were determined.

Table 9.14 Wetland Monitoring Conditions

With respect to Wetland 22, the proponent states that there was indirect alteration (0.06 ha) identified in the 2020 wetland monitoring annual report.

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Please provide more information about this alteration including why it occurred, why this occurrence was not prevented, and how the proponent plans to protect wetlands from similar indirect alterations from happening in the future.

With respect to Wetland 49 and 56 the proponent explains that there is no monitoring proposed at this time. Monitoring requirements will be reviewed upon EARD regulatory approval.

Please provide information about monitoring requirements and what they entail.

9.6 Mitigation

The proponent writes that, "intact forest stands and wetlands will be avoided wherever practicable during detailed Project planning and design in favor of previously disturbed areas (e.g., stands disturbed by timber harvesting, roads, or other development). Where natural, intact habitat cannot be avoided, maintain existing vegetation cover whenever practicable and minimize overall areas of disturbance."

Please describe what is meant by "wherever practical" in this context. Please provide an example describing a time when it may not be practical to disturb wetland and maintain existing vegetation cover.

9.7.1 Change in Vegetation and Vegetation Communities including Priority Species

The proponent states that "Wetland 15, which has one blue felt lichen occurrence (SAR), is expected to be partially altered by the WRSA expansion (Figure 9.4)." The Nova Scotia Wetlands Conservation Policy states "Government will not support or approve alterations proposed for a Wetland of Special Significance (WSS) or any alterations that pose a substantial risk to a WSS."

Because this project does not appear to align with the exceptions outlined in the Nova Scotia Wetlands Conservation Policy, this wetland cannot be altered by the proponent.