

SUBMITTED BY EMAIL

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December 17, 2021

To Whom It May Concern,

Re: East Coast Environmental Law Submission on the Updated Environmental Impact Statement for the Proposed Beaver Dam Mine Project

East Coast Environmental Law hereby submits the following comments concerning the updated “Beaver Dam Mine Project Environmental Impact Statement” that Atlantic Mining NS Inc. (“Atlantic Gold” or “the Proponent”) submitted to the Impact Assessment Agency of Canada (“IAAC”) and Nova Scotia Environment and Climate Change (“NSECC”) in October 2021 (“Updated EIS”), incorporating responses to Round 2 Information Requests (“Round 2 IRs”) by IAAC and NSECC.

Our comments in this submission are based on our review of the revised “Summary of the Beaver Dam Mine Project Environmental Impact Statement” (“Revised EIS Summary”), targeted reviews of the Round 2 IRs, and targeted reviews of the Updated EIS and its associated appendices. Our comments focus on the following issue areas:

- (i) information gaps concerning the proposed use of the exhausted Touquoy Mine pit for subaqueous deposition of tailings;
- (ii) environmental effects and cumulative effects of predicted greenhouse gas emissions;
- (iii) predicted impacts to wetlands and wetland functions; and,
- (iv) concerns raised by the Mi’kmaq of Nova Scotia.

We appreciate the opportunity to submit our questions and concerns, and we look forward to seeing them addressed as this environmental assessment process continues.

1.0 Information Gaps Concerning the Proposed Use of the Exhausted Touquoy Mine Pit for Subaqueous Deposition of Tailings

1.1 Clarification Required Concerning the Potential Expansion of the Existing Touquoy Mine

Atlantic Gold currently operates an existing open-pit gold mine, known as the Touquoy Gold Project, in Moose River Gold Mines, Nova Scotia (“Touquoy Mine”). Atlantic Gold has proposed to develop three new open-pit gold mines in Nova Scotia, of which the proposed Beaver Dam Mine Project is one. The other two are the proposed Cochrane Hill Gold Project and the proposed Fifteen Mile Stream Gold Project. All three of these proposed projects are currently undergoing joint federal and provincial environmental impact assessments under the *Canadian Environmental Assessment Act, 2012* (“CEAA 2012”) and Nova Scotia’s *Environment Act* and *Environmental Assessment Regulations* (“EAR”). Proposed modifications to the existing Touquoy Mine are currently undergoing a provincial environmental assessment. In July 2021, East Coast Environmental Law joined several community groups, organizations, and individuals in requesting that Canada’s Minister of Environment and Climate Change exercise his power under subsection 9(1) of the *Impact Assessment Act* to designate for impact assessment the proposed modifications to the Touquoy Mine; ultimately, that request was denied.

As is clear from the documents that Atlantic Gold has submitted to date in connection with all three of its proposed new open-pit gold mines, the Proponent’s plans for the proposed new mines depend on proposals to use the exhausted open pit at the Touquoy Mine site for the subaqueous deposition of tailings. The tailings in question will be generated from the processing of ore from the three proposed new mines and will also include some tailings generated at the existing Touquoy Mine.

To date, Atlantic Gold has provided inconsistent information about the predicted capacity of the exhausted Touquoy Mine pit, the volume of tailings that the Proponent proposes to deposit in the pit, and the level of water that will serve as a “cap” over those tailings. Not only do these inconsistencies create uncertainty about the viability of the exhausted Touquoy Mine pit as a permanent tailings solution for all three of the proposed new mines—the inconsistencies also raise concerns about the Proponent’s ability to manage its proposed effluent treatment measures effectively and ensure that groundwater and surface water impacts to Moose River will not occur.

In June 2021, NSECC provided noteworthy comments on this theme in the Round 1 Information Requirements that were delivered to Atlantic Gold concerning the proposed Fifteen Mile Stream Gold Project. We believe it is worth reproducing those comments at length:

I compiled the tailings numbers that AMNS is proposing to deposit in the exhausted Touquoy Pit in the following table:

Site	Tailings Tonnes (Mt)	Tailings Volume (Mm ³)	Reference
Touquoy	6.5	4.629 ^l	Jim Millard from April 13, 2021 EA Scoping Meeting
Beaver Dam	7.25	5.577	Beaver Dam EIS Document, Appendix G.2
FMS	0.534	0.411	FMS EIS Document, Appendix I.6
Total Tailings	14.284	10.617	

Total Water		8.589	FMS EIS Document, Appendix I.6 (Figure 4.5)
Total Water + Tailings		19.206	

¹ Density of 1.404 t/m³ reported in the Water Balance Revision #14 dated December 23, 2020.

² Total number does not include concentrate from the Cochrane Hill project which is also planned to be deposited into the Touquoy exhausted pit.

The FMS EIS Document states the following volumes (please note they presented two different capacities for the Touquoy exhausted pit, I have this as one of comments):

- Exhausted Touquoy Pit Capacity 1: **11.83 Mm³** (at the spillway elevation of 108 masl), EIS Document Section 8.5.4.2.2.4
- Exhausted Touquoy Pit Capacity 2: **8.962 Mm³** (at the spillway elevation of 108 masl), EIS Document, Appendix L.1
- Estimated total deposited tailings from all sites into exhausted Touquoy Pit: 7.91 Mm³, EIS Document Section 8.5.4.2.2.4

The numbers are not adding up, the exhausted pit will either be:

- a) Almost at capacity with tailings only (not including any water) or
- b) Cannot accommodate the total estimated tailings to be deposited in the exhausted Touquoy Pit (again, not including water and concentrate from Cochrane Hill)

I suggest requesting the Touquoy exhausted pit water balance for all 4 projects (Touquoy stockpile processing, FMS, BD and CH) because the numbers submitted separately are not adding up.¹

Our review of the Revised EIS Summary, Updated EIS, and associated appendices for the proposed Beaver Dam Mine Project indicates that confusion persists within the information that Atlantic Gold has provided to date. In several places throughout the Updated EIS, the Proponent refers to the total capacity of the exhausted Touquoy Mine pit as being 8.962 million cubic meters, and that figure is used in several of the Proponent’s assessments concerning pit capacity and related water management proposals. However, Appendix F-10 of the Updated EIS states that “[t]he total capacity of the expanded Touquoy pit at the proposed spillway elevation of 108.0 m is 11.83 million cubic metres”² [emphasis added], and that larger figure is the figure used in the cumulative effects modelling that the Proponent has submitted to demonstrate that the exhausted Touquoy Mine pit will have enough capacity to subaqueously store tailings from all three of the Proponent’s proposed new mines.

It is not clear to us whether Atlantic Gold is proposing to expand the Touquoy Mine pit in order to make the exhausted open pit capacious enough to store tailings from all three of the Proponent’s proposed new mines. If Atlantic Gold is proposing to expand the Touquoy Mine pit, it is not clear where that proposed expansion is being considered (that is, under what environmental assessment process it is being assessed). The proposed modifications to the existing Touquoy Mine that are currently undergoing a provincial environmental assessment do not include an expansion of the

¹ See Nova Scotia Environment and Climate Change, “Fifteen Mile Stream Gold Project Round 1 Information Requirements” (22 June 2021) at comment ECC 160 [“NSECC FMS IRs”].

² Atlantic Mining NS Inc, “Beaver Dam Mine Project Environmental Impact Statement” (October 2021) [“Updated EIS”], Appendix F-10 at page 1.2.

Touquoy Mine pit, and an expansion of the pit does not appear to be part of the environmental assessment of the proposed Beaver Dam Mine Project.

We note that Appendix F-6 of the Updated EIS indicates that the size of the Touquoy Mine pit in August 2019 was used in some modelling by Stantec and that model conditions were later adapted “to reflect the fully developed open pit, which is approximately 95 m deeper than the existing (i.e., August 2019) pit simulated during calibration”.³ Is this the “expansion” to which the Updated EIS refers?

We would like to see clarification on these points and to understand clearly the Touquoy Mine pit’s capacity to store several million cubic meters of tailings.

1.2 *Concerns Regarding Deferral of Water Treatment and Water Monitoring Plans Necessitated by the Proposed Tailings Pit*

In its Updated EIS, Atlantic Gold proposes to deal with several water treatment and water monitoring concerns in future instead of addressing them thoroughly as part of this environmental assessment.

For example, Appendix F-7 states that the water treatment design needed for long-term management of the tailings pit at the Touquoy Mine site “will be fully developed during operation and pit filling”.⁴ The time it will take for the exhausted Touquoy Mine pit to be filled with tailings and water is not clear from the Updated EIS—some portions estimate 14 years (apparently basing this calculation on the deposit of Beaver Dam Mine Project tailings without additional tailings from the Touquoy Mine and proposed new mines at Cochrane Hill and Fifteen Mile Stream); others estimate 10 years (taking the cumulative impacts of tailings from all four mines into account). Whichever estimate is more accurate, waiting until operations and pit filling have commenced before developing a water treatment design is inappropriate. The proponent should be prepared to propose a viable plan as part of this environmental assessment process.

As another example, Section 6.7.8.4.2 of the Updated EIS says cyanide destruction treatment will be carried out before tailings are sent to the exhausted Touquoy Mine pit, which is predicted to account for most, but not all, of the cyanide content. According to the Updated EIS, the remaining cyanide that is not destroyed will degrade and hydrolyze in a tailings pond before the tailings are sent to the exhausted Touquoy Mine pit for permanent storage.⁵ Section 5.2.1 of Appendix F-7 states: “Potential failures related to cyanide recovery and proposed Touquoy pit disposal will be addressed in updates to the existing Touquoy groundwater contingency plan (Stantec 2019a), as required in the Industrial Approval for the Touquoy mine site”.⁶ Waiting to address potential cyanide recovery and destruction failures in the Industrial Approval for the Touquoy Mine is inappropriate. The Proponent should be prepared to address cyanide treatment concerns fully in this environmental assessment process.

We also note that in Round 2 IR “NSE-2-115”, NSECC noted that the Proponent is currently proposing not to implement additional water monitoring on Moose River to monitor the discharge that will be sent from the proposed Touquoy Mine tailings pit to Moose River via a spillway, which will discharge water from the pit downstream from the monitoring station that is currently in the

³ Updated EIS, *supra* note 2, Appendix F-6 at page 5.3.

⁴ Updated EIS, *supra* note 2, Appendix F-7 at page 33.

⁵ Updated EIS, *supra* note 2, at page 6-306.

⁶ Updated EIS, *supra* note 2, Appendix F-7 at page 29.

river. In response to this Round 2 IR, the Proponent simply indicates that additional water monitoring will be added in future if necessary.

We would like to see all water treatment and water monitoring plans that are necessitated by the proposed use of the exhausted Touquoy Mine pit as a tailings repository addressed fully in this environmental assessment process, not deferred to a later date.

We also note that some of the Proponent's water treatment plans are simply unclear. For example, Appendix F-7 states: "An effluent treatment plant is planned to be located at the Touquoy open pit spillway to treat the pit lake water until MDMER discharge limits are met".⁷ The Updated EIS appears to provide few specific details about that effluent treatment facility. The Updated EIS sometimes refers to the existing effluent treatment plant at the site, and it is not clear whether the two facilities are the same.

In keeping with our comment above, we would like to see the Proponent's water treatment plans explained clearly and fully as part of this environmental assessment process. The work of developing viable plans should not be deferred to a later date.

1.4 *Concerns Regarding Impacts to Moose River and the Fish Species that Inhabit It*

As our comments above illustrate, the Updated EIS raises several reasons for concern regarding the long-term water treatment and water monitoring that will be necessitated by the proposed use of the exhausted Touquoy Mine pit as an enormous, permanent tailings repository that will cause groundwater seepage and surface water discharge to Moose River.

The current plan proposed in the Updated EIS is to use roughly 100 meters of Moose River as a "mixing zone" through which discharge from the Touquoy Mine pit (discharge said to be beginning once the pit has been filled to the spillway level and once its contents have been treated to comply with federal regulations) will mix with the river water and disperse contaminants to lower concentration levels. We recognize that the Proponent states repeatedly throughout the Updated EIS that water will not be discharged from the Touquoy Mine pit unless and until it is fully compliant with levels set out in Canada's *Metal and Diamond Mining Regulations* ("MDMER"); however, cumulative effects modelling conducted on the Proponent's behalf shows compliance with MDMER levels at the end of the proposed "mixing zone", 100 meters downstream from the discharge point in Moose River.⁸ This same cumulative effects modelling shows that NSE Tier 1 EQS and CCME limits will be exceeded for aluminium and arsenic at the end of the "mixing zone".⁹ In the cumulative effects scenario set out in Appendix F-10 of the Updated EIS, "average concentrations of arsenic (and other parameters" in the discharge to the river stabilize after about 100 years".¹⁰

The Proponent states that the predicted concentrations modelled in the appendices quoted above are below the levels that would be harmful to fish in Moose River. It is difficult to feel confident about the Proponent's assessment when the information provided about the capacity of the exhausted Touquoy Mine pit, the volume of tailings to be stored within it, and the water treatment and water monitoring plans that will be implemented is so unclear.

⁷ Updated EIS, *supra* note 2, Appendix F-7 at page 29.

⁸ Updated EIS, *supra* note 2, Appendix F-8 at pages 18-19.

⁹ *Ibid.*

¹⁰ Updated EIS, *supra* note 2, Appendix F-10 at pages 2-3.

We also think it important to emphasize that the Proponent has repeatedly recognized that Moose River provides habitat for Atlantic Salmon, among other fish species. Adverse effects to fish species in Moose River would not only cause ecological harm but would also impact Mi'kmaq in Nova Scotia, for whom salmon species have special cultural significance.

2.0 Environmental Effects and Cumulative Effects of Predicted Greenhouse Gas Emissions

Our review of the Round 2 IRs indicates that IAAC and NSECC have not pressed Atlantic Gold for additional information concerning the proposed project's predicted greenhouse gas ("GHG") emissions or the cumulative effects of those emissions. In our view, these issues are important and must be addressed more meaningfully in this environmental assessment process.

The "Guidelines for the Preparation of an Environmental Impact Statement pursuant to the *Canadian Environmental Assessment Act, 2012* and *Nova Scotia Registration Document pursuant to the Nova Scotia Environment Act*" for the proposed Beaver Dam Mine Project ("the EIS Guidelines") were issued in January 2016.

As the EIS Guidelines note, environmental assessment "is a planning tool used to ensure that projects are considered in a careful and precautionary manner in order to avoid or mitigate possible environmental effects and to encourage decision makers to take actions that promote sustainable development".¹¹

Requirements imposed by the EIS Guidelines that have special relevance for the treatment of GHGs (and climate change considerations more broadly) throughout the Updated EIS include:

- requirements to describe the proposed project's contribution to atmospheric emissions;¹²
- requirements to quantify the proposed project's direct greenhouse gas emissions;¹³
- a requirement to describe existing greenhouse gas emissions in the proposed project's study areas;¹⁴
- a requirement to describe "current provincial/federal limits for greenhouse gas emission targets";¹⁵
- a requirement to describe predicted "changes in greenhouse gas emissions levels";¹⁶
- a requirement to conduct cumulative effects assessment;¹⁷ and,
- a requirement that "ecological and social context" and the "existence of environmental standards, guidelines or objectives for assessing the impact" be used in determining the significance of predicted residual environmental effects.¹⁸

¹¹ Canadian Environmental Assessment Agency and Nova Scotia Environment, "Guidelines for the Preparation of an Environmental Impact Statement pursuant to the *Canadian Environmental Assessment Act, 2012* and *Nova Scotia Registration Document pursuant to the Nova Scotia Environment Act*" (January 2016) at page 2 ["EIS Guidelines].

¹² *Ibid* at pages 15, 16.

¹³ *Ibid* at pages 15, 16.

¹⁴ *Ibid* at page 20.

¹⁵ *Ibid* at page 20.

¹⁶ *Ibid* at page 26.

¹⁷ *Ibid* at pages 33-34.

¹⁸ *Ibid* at page 32. The EIS Guidelines go on to note: "In assessing significance against these criteria the proponent will, where possible, use relevant existing regulatory documents, environmental standards, guidelines, or objectives such as prescribed maximum levels of emissions or discharges of specific hazardous agents into the environment" (see page 32).

The EIS Guidelines also suggest that the environmental impact statement should “include a description of the project’s greenhouse gas emissions in a regional, provincial, national, or international context if applicable” in accordance with the requirement to address “[o]ther valued components that may be affected as a result of a federal decision or due to effects on federal lands, lands in another province or lands outside Canada”.¹⁹

2.1 *Concerns Regarding the Proponent’s Basic Assessment of Environmental Effects Associated with the Proposed Project’s Predicted Greenhouse Gas Emissions*

2.1.1 Failure to Properly Contextualize and Assess the Significance of Predicted Greenhouse Gas Emissions

Section 6 of the Revised EIS Summary presents the Proponent’s summaries of its environmental effects assessments. The predicted effects GHG emissions are addressed in subsection 6.4. The same section and subsection apply within the Updated EIS as well.

Section 6.4.2 of the Revised EIS Summary demonstrates that Atlantic Gold has determined that the proposed project’s primary sources of GHG emissions will be “stationary and mobile fuel combustion sources”.²⁰ The Proponent’s GHG emissions assessment focuses primarily on the levels of carbon dioxide equivalent (“CO₂e”) that it expects to emit through diesel fuel use during the construction, operation, and active closure phases of the proposed project.²¹ Diesel power generators at mine sites and diesel fuel burned by haul road trucks are identified as the primary sources of diesel fuel emissions.²²

The Proponent assesses the environmental effects of these anticipated GHG emissions by putting them in the context of the GHG emissions that Nova Scotia reported in 2018, which the Proponent cites as being 17,000 kilotonnes. Taking into account the predicted GHG emissions for the proposed Beaver Dam Mine site, proposed haul road / hauling of ore, and the proposed processing of ore at the existing Touquoy Mine site, the Proponent calculates the overall GHG emissions impact of the proposed project as follows:

In an average full year of operation of the Project (most GHG-intensive phase), including operation of the Beaver Dam Mine Site, hauling of ore, and the processing of ore at the Touquoy facility, the Project facilities would emit 21.69 kt CO₂e – approximately 0.128% of the reported 2018 GHG total for Nova Scotia (ECCC 2020).²³

The figures presented in Table 6.4-1 and Table 6.4-2 of the Revised EIS Summary suggest that the total predicted GHG emissions for the full life of the proposed project (assuming four years’ worth of annual emissions from the Touquoy Mine site, at 13,560.8 tonnes of CO₂e per year during the operational years from 2023 to 2027) will be 106,421.95 tonnes of CO₂e, which equates to approximately 106.42 kilotonnes of CO₂e.

¹⁹ EIS Guidelines, *supra* note 11 at page 30.

²⁰ Atlantic Mining NS Inc, “Beaver Dam Mine Project Environmental Impact Statement Summary” (October 2021) at page 6-23 [“Revised EIS Summary”]; see also Updated EIS, *supra* note 2 at page 6-118.

²¹ Revised EIS Summary, *supra* note 20 at page 6-23; see also Updated EIS, *supra* note 2 at page 6-118.

²² Revised EIS Summary, *supra* note 20 at page 6-23; see also Updated EIS, *supra* note 2 at page 6-118.

²³ Revised EIS Summary, *supra* note 20 at page 6-24; see also Updated EIS, *supra* note 2 at page 6-120.

In the Revised EIS Summary, the Proponent makes no effort to contextualize the significance of these emissions within the context of Nova Scotia's or Canada's GHG emissions reduction goals or decarbonization pathways. In our view, this fails to meet the requirement in the EIS Guidelines that "ecological and social context" and the "existence of environmental standards, guidelines or objectives for assessing the impact" be used in determining the significance of predicted residual environmental effects.

In subsection 6.4.2 of the Updated EIS, where the Proponent addresses the rationale for addressing the environmental effects of GHG emissions, the Proponent states that in Nova Scotia, "GHGs are the focus of provincial policies and regulations for the electricity sector; however, there exists no province-wide standard for greenhouse gas emissions".²⁴ The Proponent's discussion of "provincial and federal greenhouse gas limits" in subsection 6.4.4.1 of the Updated EIS addresses federal GHG reporting requirements and provincial reporting requirements under Nova Scotia's *Greenhouse Gas Emissions Regulations*, but it includes no discussion of federal or provincial GHG emissions reduction goals or decarbonization pathways.²⁵

Notably, in its discussion of "spatial boundaries" in section 6.4.6.1.1 of the Updated EIS, the Proponent states that its predicted GHG emissions "will be compared to Nova Scotia targets and totals", pointing to Figure 6.4-1.²⁶

In section 6.4.6.2 of the Updated EIS, the Proponent explains the thresholds it has used to determine the significance of the environmental effects associated with its predicted GHG emissions. As it did in its Environmental Impact Statement for the proposed Fifteen Mile Stream Gold Project, the Proponent uses GHG emissions reduction goals set out in Nova Scotia's *Environmental Goals and Sustainable Prosperity Act* ("EGSPA") as its benchmark.²⁷ It states:

The *Nova Scotia Environmental Goals and Sustainable Prosperity Act*, requires a reduction in provincial GHGs of at least 10 percent (%) below 1990 levels by the year 2020 (NS 2019). The *Environmental Goals and Sustainable Prosperity Act 2017-19 Progress Report* (NS 2019) indicated that NS achieved the goal for reducing greenhouse gas emissions four years early (2016), which is approximately 18% below 1990 levels. The electricity sector is responsible for about half of the province's GHG emissions. Guidance for targets to that industry are specific in regulation both provincially and federally. To achieve these reductions, Nova Scotia has imposed emissions caps on electricity generation sector for 2025 and 2030 and is working to increase efficiency in the transportation sector. Reduction of the use of electricity from fossil fuels helps to meet these targets through use of energy efficient LED lighting and low-emission sourced renewable power (e.g., solar, wind, water).

The transportation sector generates about a quarter of the province's GHG emissions. Reductions in GHG from onsite mining activity can be achieved implementing no idling policies, burning low-sulphur fuels, and regular equipment maintenance.²⁸

²⁴ Updated EIS, *supra* note 2 at page 6-112.

²⁵ *Ibid* at pages 6-112 to 6-113.

²⁶ *Ibid* at page 6-114. The same statement appears in Table 8.4-1 of the Updated EIS, which is part of the proponent's cumulative effects assessment section (see page 8-10).

²⁷ *Ibid* at page 6-116.

²⁸ *Ibid* at page 6-116.

In this section, the Proponent also reiterates its view that “there is no province or national wide standard for GHGs”, and it states that “in the absence of standards”, “relative change from 2018 levels provide [*sic*] a suitable alternative to determine magnitudes”.²⁹ In Table 6.4-2, the Proponent goes on to set thresholds for determining the magnitude of its predicted GHG emissions, establishing four magnitude levels as follows:

- **Negligible:** GHGs are predicted to be less than 0.1% of NS 2018 (CO_{2e}) levels.
- **Low:** GHGs are predicted to be greater than 0.1% but less than 0.2% of NS 2018 (CO_{2e}) levels.
- **Medium:** GHGs are predicted to be greater than 0.2% but less than 0.3% of NS 2018 (CO_{2e}) levels.
- **High:** GHG’s are predicted to greater than 0.3% of NS 2018 (CO_{2e}) levels.³⁰

Notably, these magnitude levels are backward-looking rather than forward-looking: they fail to consider that Nova Scotia has legislated GHG emissions reduction goals for the years between now and 2050, and they fail to measure the proposed project’s predicted GHG emissions impacts against those future goals. They also fail entirely to take national GHG emissions reduction targets into account as the EIS Guidelines require.

As we noted in the written submission we provided on August 30, 2021, addressing Atlantic Gold’s Environmental Impact Statement for the proposed Fifteen Mile Stream Gold Project, the GHG emissions reduction targets that were legislated in *EGSPA* are outdated and cannot be used as the basis for the Proponent’s assessment of the environmental effects of its proposed projects’ predicted GHG emissions.

In the autumn of 2019, the Government of Nova Scotia passed the *Sustainable Development Goals Act* (“*SDGA*”), which was designed to repeal and replace *EGSPA* and set new targets for provincial GHG emissions reductions. Although the *SDGA* had not been proclaimed in force by the time Atlantic Gold delivered its EIS on the proposed Fifteen Mile Stream Gold Project, the political and legal climate in Nova Scotia indicated clearly that the statute’s GHG emissions reduction goals were intended to shape government decision-making going forward.

The GHG emissions reduction goals established in the *SDGA* were as follows:

7 The Government’s goals in relation to greenhouse gas emissions reductions are that greenhouse gas emissions in the Province are

(a) by 2020, at least 10% below the levels that were emitted in 1990;

(b) by 2030, at least 53% below the levels that were emitted in 2005; and

(c) by 2050, at net zero, by balancing greenhouse gas emissions with greenhouse gas removals and other offsetting measures.

In October 2021, the Government of Nova Scotia enacted the *Environmental Goals and Climate Change Reduction Act* (“*EGCCRA*”), which replaced the *SDGA* but retained the GHG emissions

²⁹ Updated EIS, *supra* note 2 at page 6-116.

³⁰ *Ibid* at page 6-116.

reduction goals that the *SDGA* established. *EGCCRA* is now in force, and it is a clear statement of the Government of Nova Scotia's GHG emissions reduction commitments for the years between now and 2050.

We recognize that Atlantic Gold submitted its Updated EIS and Revised EIS Summary to IAAC and NSECC before *EGCCRA* was enacted; however, the GHG emissions reduction targets established in *EGCCRA* could not have come as a surprise. Since the *SDGA* was passed in 2019, the Proponent has been on notice that new and more ambitious GHG emissions reduction goals were being set for Nova Scotia. The Proponent should also be aware that the Government of Canada has established a national GHG emissions reduction regime, which is described in the *Canadian Net-Zero Emissions Accountability Act*. The Proponent's analysis of the significance of its proposed projects' predicted GHG emissions should be forward-looking and should take provincial and national GHG emissions reduction targets, goals, and objectives into account.

2.1.2 Characterization of Predicted Greenhouse Gas Emissions as Short- to Medium-Term and "Reversible"

In section 6.4.4 of the Revised EIS Summary, the Proponent assesses the predicted residual environmental effects of the proposed project's GHG emissions as being adverse but not significant. the Proponent states:

A significant adverse environmental effect for GHG has not been predicted for the Project for the following reasons, with consideration of the ecological and social context of the LAA surrounding the Project:

- **During Construction:** GHG will be elevated above baseline but not a significant contributor with a low magnitude (above 1% NS 2018 levels) that will be intermittent and short-term in duration and reversible.
- **During Operation:** GHG will be elevated above baseline during this period but not a significant contributor with a low magnitude (i.e., combined 21.69 kt CO₂e 21.69 kt CO₂e – approximately 0.128% above NS 2018 levels) that will be continuous but mid-term in duration and reversible.
- **During Active closure:** GHG will be elevated above baseline but expected to be negligible in magnitude (i.e., less than 0.1% [*sic*] above NS 2018 Levels) intermittent to allow for earthworks and reclamation activities and medium-term duration (i.e., 2 years in duration) and reversible.³¹

Nowhere in the Revised EIS Summary does the Proponent explain why these predicted GHG emissions are described as being "reversible" or explain how they will be reversed.³² This assessment of reversibility—in the complete absence of any explanation as to why the effects of predicted GHG emissions are considered to be "reversible" or how they will be reversed—also appears in Table 6.4-9

³¹ Revised EIS Summary, *supra* note 20 at page 6-25; see also Updated EIS, *supra* note 2 at page 6-122.

³² The proponent's criteria for residual effects of GHG emissions, including its criteria for determining the duration and reversibility of those effects, are set out in more detail in Table 6.4-2 of the Updated EIS; however, they provide no additional explanation for why the proponent has deemed the effects of its predicted GHG emissions to be reversible: see Updated EIS, *supra* note 2 at page 6-116.

of the Updated EIS, where, notably, there is no mention of any carbon capture, carbon sequestration, or carbon offsetting technology or method that the proponent intends to employ to reverse the effects of emitting approximately 106,421.95 tonnes of CO₂e into the atmosphere over the life of the proposed project.³³

It is also important to note that the Proponent's assessment of "duration" in this analysis refers to the duration of the activities that will cause GHG emissions, not to the duration of the GHG emissions themselves. In other words, the proponent's analysis proceeds from the assumption that because the construction of the proposed haul road and Beaver Dam Mine site will be of a relatively "short-term" duration, the duration of the GHG emissions associated with those activities can also be characterized as "short-term".³⁴ The same reasoning is applied to the "medium-term" duration of the operation and active closure of the proposed Beaver Dam Mine site.³⁵ Although the activities causing GHG emissions may be characterized as short- or medium-term, the GHG emissions themselves cannot be characterized in this way. The GHG emissions will persist in the atmosphere after they have been emitted—they do not simply disappear, like light or noise, once the activities cease.

2.2 *Concerns Regarding the Proponent's Cumulative Effects Assessment of the Proposed Project's Predicted Greenhouse Gas Emissions*

The cumulative effects assessment section of Atlantic Gold's Updated EIS indicates that the Proponent has failed to carry out a genuine cumulative effects assessment of the proposed Beaver Dam Mine Project's predicted GHG emissions.

In Table 8.4-2, the Proponent states that there are no anticipated cumulative effects of the proposed project's predicted GHG emissions, reasoning as follows:

All phases from this project would represent approximately 0.128% of the total GHG emissions for Nova Scotia. It is therefore considered that the proposed project contributes very little to the overall cumulative effects of regional industry to GHG emissions.³⁶

Based on this reasoning, the Proponent concludes that no further cumulative effects assessment of its proposed GHG emissions is warranted.

As our comments above have already noted, the figure of 0.128% of Nova Scotia's total GHG emissions is a figure that assesses the Proponent's proposed GHG emissions within the context of Nova Scotia's reported GHG emissions from 2018. Cumulative effects assessments are meant to be forward-looking: Proponents are expected to take into account the effects of anticipated future projects in the assessment area. Given the fact that Nova Scotia has legislated GHG emissions reduction targets for the years between now and 2050, the Proponent should be assessing the cumulative effects of its proposed project by considering the GHG emissions associated with anticipated future projects and assessing how the predicted emissions of this proposed project would impact Nova Scotia's GHG emissions reduction goals and decarbonization plans if all of the prospective future projects are approved. As we have already stated, national GHG emissions reduction goals, targets, and objectives should also be considered.

³³ See Updated EIS, *supra* note 2 at page 6-121.

³⁴ Updated EIS, *supra* note 2 at Table 6.4-9, page 6-121.

³⁵ *Ibid* at Table 6.4-9, page 6-121.

³⁶ *Ibid* at page 8-28.

At the very least, Atlantic Gold should be tallying the predicted GHG emissions of the other two “satellite” mines it has proposed to construct and operate in Nova Scotia and assessing how their cumulative GHG emissions would affect Nova Scotia’s GHG emissions reduction goals and decarbonization plans between now and 2050. In all of its environmental assessment materials, the Proponent writes as though all three of its proposed new open-pit gold mines will be approved—the Proponent should therefore be assessing the cumulative effects of the GHG emissions from all of the proposed new mining operations.

As we noted in the written submission we provided on August 30, 2021, addressing Atlantic Gold’s Environmental Impact Statement for its proposed Fifteen Mile Stream Gold Project, the proposed Fifteen Mile Stream Gold Project is projected to emit an estimated 385,169.4 tonnes of CO₂e in total, not counting the ongoing maintenance and monitoring that would be required after the reclamation stage. Estimates of the GHG emissions anticipated from the proposed Cochrane Hill Gold Project have not yet been provided, but we consider it reasonable to assume that those emissions would be at levels comparable to those of the proposed Beaver Dam Mine Project and Fifteen Mile Stream Gold Project.

We urge IAAC and NSECC to require the Proponent to address the cumulative force of the GHG emissions that would be emitted by its three proposed gold mining projects in Nova Scotia and explain how those emissions would cumulatively affect Nova Scotia’s and Canada’s GHG emissions reduction goals and decarbonization pathways.

2.3 *Justifying the Social Cost of Carbon*

In an environmental assessment being conducted under *CEAA 2012*, the Minister of Environment and Climate Change Canada (“the Minister”) must determine whether the proposed project is likely to cause any “significant adverse environmental effects”. If the Minister determines that the proposed project is likely to cause one or more significant adverse environmental effects, they must refer the matter to the Governor in Council, which must then decide whether those effects are “justified in the circumstances”.

The proposed Beaver Dam Mine Project is projected to emit approximately 106,421.95 tonnes of CO₂e into the atmosphere over its lifetime, and the loss of carbon-sequestering wetlands and forested areas will make the proposed project’s carbon footprint even heavier. At a time when Canada has already exceeded its fair share of the remaining global carbon budget by some calculations,³⁷ any consideration of what is “justified in the circumstances” must give serious thought to what stands to be gained and lost—and whom stands to gain or lose most—from projects of this kind.

Atlantic Gold’s environmental assessment documents regularly emphasize the economic benefits of its proposed open-pit gold mines, but its economic analyses do not consider the social costs of exacerbating climate change. In our view, this is unjustifiable accounting in the climate-imperilled world we inhabit, and we urge IAAC and NSECC to incorporate a social cost of carbon analysis into this environmental assessment.

³⁷ Gibson et al., [*From Paris to Projects: Clarifying the implications of Canada’s climate change mitigation commitments for the planning and assessment of projects and strategic undertakings: Summary Report*](#) (January 2019) at page 9.

Accounting for the social cost of carbon associated with the proposed project would mean assigning a dollar figure to each tonne of carbon dioxide (CO₂) or carbon dioxide equivalent (CO₂e) that the project would emit. That dollar figure would represent a valuation of the cost of future damages caused by emitting additional CO₂e into the atmosphere and exacerbating the consequential harms of climate change.³⁸

In our comments in this section, we draw on the work of legal scholars Meinhard Doelle and David V. Wright. Doelle and Wright have assessed the utility of accounting for the social cost of carbon in environmental impact assessments in Canada, and they have concluded that its use would be valuable.³⁹ Although their assessment focuses primarily on how social cost of carbon accounting could be included in impact assessment processes under the *Impact Assessment Act*, their analysis makes several points that are equally relevant to environmental assessments under *CEAA 2012*.

The analyses used to calculate the social cost of carbon are acknowledged to be imperfect; however, despite their limitations, they are accepted as being useful because it would clearly be inappropriate not to account for the future costs of climate harms when making relevant regulatory and policy decisions today.⁴⁰ The Government of Canada has been accounting for the social cost of carbon in regulatory analysis and decision-making since 2011 and is experienced in the practice.⁴¹

To our knowledge, the Government of Canada has not yet accounted for the social cost of carbon when conducting environmental assessments under *CEAA 2012*. We view this as an unreasonable failure to consider relevant information that should be informing the Governor in Council's determinations as to whether proposed projects that are likely to cause significant adverse environmental effects are justified in the circumstances.

We agree with the analysis presented by Doelle and Wright when they state that environmental assessments “that do not integrate a monetary value of climate change damages that would result from a proposed project's emissions can lead to decisions based on incomplete information, particularly insofar as decisions are made based on economic costs and benefits of the proposed project”.⁴² Accounting for the social cost of carbon “can be used to compare expected positive consequences expressed in quantitative figures, such as jobs, royalties, and other benefits, with negative consequences expected from carbon emissions impacts”, thus painting “a more accurate economic picture”.⁴³ As they go on to describe:

A look at the Joint Review Panel Report for the Northern Gateway project illustrates this point. That report included a sub-section on “economic burdens and benefits”, an “analysis of project costs and benefits”, and figures setting out expected economic benefits such as \$312 billion increase in Canadian gross domestic product, \$44 billion in federal government revenues, \$54 billion to provincial or territorial governments, and \$70 billion in Canadian

³⁸ Meinhard Doelle and David V Wright, “Social Cost of Carbon in Environmental Impact Assessment” (October 2019) 52 UBCL Rev 1007 at page 1020 [“Social Cost of Carbon”].

³⁹ *Ibid* at pages 1009-10.

⁴⁰ *Ibid* at pages 1022, 1024. See also David V Wright, “Carbonated Fodder: The Social Cost of Carbon in Canadian and US Regulatory Decision-Making” (2017) 29:3 Georgetown Environmental L Rev 513 at page 524 [“Carbonated Fodder”].

⁴¹ Carbonated Fodder, *supra* note 40 at page 522.

⁴² Social Cost of Carbon, *supra* note 38 at page 1030.

⁴³ *Ibid* at pages 1039-40.

labour income. Costs of carbon emissions were not included in the report, though it did present projected spill clean-up costs.⁴⁴

In the midst of our current climate emergency, it should be inconceivable that the Government of Canada would consider justifying a proposed project that would have significant adverse environmental effects without weighing the project's purported economic benefits against the costs of the GHGs it would emit.

To our knowledge, the March 2016 *Technical Update to Environment and Climate Change Canada's Social Cost of Greenhouse Gas Estimates* ("the Technical Update") identifies the current figures for the social cost of carbon that are informing Canadian analyses and decision-making. Those figures have been critiqued as being too low,⁴⁵ but at the very least they offer a starting point from which to begin considering how the purported economic benefits of a proposed project undergoing environmental assessment could be contextualized with a social cost of carbon analysis.

Under the Technical Update, the current "central value" for the social cost of carbon has been set at \$41 Canadian dollars (rounded up from \$40.7 and reflecting the 2012 Canadian dollar) per tonne of CO₂.⁴⁶ To our knowledge, Environment and Climate Change Canada ("ECCC") is currently using the same figure as the value for the social costs of methane and nitrous oxide—two other powerful GHGs.⁴⁷

Using the \$41 social cost of carbon figure that ECCC currently uses in its regulatory analysis and decision-making, we can translate the proposed Beaver Dam Mine Project's 106,421.95 tonnes of CO_{2e} emissions into an estimated future cost to Canadians in the amount of \$4,363,299.95. Importantly, this estimated cost only accounts for the GHG emissions that the proposed project will emit directly; it does not account for the climate costs of losing carbon-sequestering forests and wetlands.

3.0 Predicted Impacts to Wetlands and Wetland Functions

In addition to the GHG requirements and related climate change considerations discussed above, the EIS Guidelines for the proposed Beaver Dam Mine Project also require Atlantic Gold to provide information about the locale, size, type, species composition and ecological function of wetlands that may be affected by project activities.⁴⁸ The Proponent should assess the ecological function of all identified wetlands and evaluate any other notable site-specific functions that the wetland may provide.⁴⁹

For potentially affected wetlands where the *Federal Policy on Wetland Conservation* is applicable, the Proponent must further provide a detailed description of potential effects on for those wetlands where avoidance is not possible.⁵⁰ If there is the potential for the project to result in environmental changes on federal lands, then valued components ("VCs") of importance not already identified

⁴⁴ Social Cost of Carbon, *supra* note 38 at page 1040.

⁴⁵ See Carbonated Fodder, *supra* note 40.

⁴⁶ Environment and Climate Change Canada, *Technical Update to Environment and Climate Change Canada's Social Cost of Greenhouse Gas Estimates* (March 2016) at pages iii, 26-27.

⁴⁷ *Ibid* at page 14.

⁴⁸ EIS Guidelines, *supra* note 11 at section 6.1.5.

⁴⁹ *Ibid* at section 6.1.5.

⁵⁰ *Ibid* at section 6.1.5.

should be included; for example, if the project will result in generation of GHG emissions, the environmental impact statement should include a description of those emissions in a regional, provincial, national, or international context. VCs suggested in the EIS Guidelines include all direct and indirect effects on wetlands in Beaver Lake Indian Reserve 17 and those affected by project components that could require a federal decision.

In section 6.8 of the Proponent's Revised EIS Summary, which deals with effects on wetlands, the Proponent notes that wetlands were selected as a VC due to their ecological value in providing habitat, their importance for terrestrial species, and their capacity to store water, manage downstream flooding, improve water quality, and recharge or discharge groundwater aquifers.⁵¹ However, the Proponent has failed to highlight another key wetland function which must be considered to completely understand and evaluate the project's effects on wetlands—the role of wetlands in capturing and storing carbon.

The *Nova Scotia Wetland Conservation Policy* ("the WCP"), which was released by Nova Scotia Environment in 2011 and received a policy amendment in 2019, helps to guide wetland conservation and oversight by NSECC. The WCP provides guidance to Nova Scotia's Minister of Environment and Climate Change concerning the wetland alteration approval process under the *Activities Designation Regulations*, which exist under Nova Scotia's *Environment Act*. The policy goal of the WCP is to prevent the net loss of wetland in Nova Scotia.⁵² Its policy objectives include managing "human activity in or near wetlands, with the goal of no loss in Wetlands of Special Significance and the goal of preventing net loss in area and function for other wetlands".⁵³ The WCP identifies the ecosystem services and functions performed by wetlands, and it specifically includes "storing and sequestering carbon from the atmosphere, potentially moderating climate effects".⁵⁴

Likewise, the *Federal Policy on Wetland Conservation* ("the federal WCP") helps to guide federal decision-making processes with respect to effects on wetlands. Its objective is to "promote the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and in the future".⁵⁵ In support of this objective, the federal government strives to achieve goals that include:

- maintenance of the functions and values derived from wetlands throughout Canada;
- no net loss of wetland functions on all federal lands and waters; and,
- recognition of wetland functions in resource planning, management and economic decision-making with regard to all federal programs, policies and activities.

In managing wetlands on federal lands and waters, and in other federal programs, the federal government has committed all federal departments to the goal of no net loss of wetlands functions in areas affected by the implementation of federal programs where the continuing loss or degradation of wetlands has reached critical levels.⁵⁶ In the federal WCP, one of the important ecological functions of wetlands that is identified is natural storage of carbon.⁵⁷

⁵¹ Revised EIS Summary, *supra* note 20 at section 6.8, page 6-53.

⁵² Government of Nova Scotia, [Nova Scotia Wetland Conservation Policy](#) (September 2011) at page 9.

⁵³ *Ibid.*

⁵⁴ *Ibid* at page 4.

⁵⁵ Government of Canada, [The Federal Policy on Wetland Conservation](#) (1991) at page 5.

⁵⁶ *Ibid* at page 7.

⁵⁷ *Ibid* at page 2.

This important wetland function—capturing and storing carbon—begins when vegetation in a wetland absorbs carbon dioxide (“CO₂”) through the process of photosynthesis, releasing oxygen (and some smaller amounts of carbon) back into the atmosphere. The retained CO₂ is eventually converted into the materials of the plant, and, when the plant dies, it decomposes and the CO₂ is released, largely into the soil.⁵⁸ A 2017 study of Nova Scotian wetlands examined 55 wetlands (consisting of 5 different kinds of wetlands) and determined that the wetlands emit an average of 1.46 tonnes of CO₂e per hectare per year in the form of methane and capture 6.45 tonnes of CO₂e per hectare per year, resulting in an average net capture of 4.99 tonnes of CO₂e per hectare per year.⁵⁹ This means that not only does the destruction of wetlands lead to the release of carbon stored in the soil, but it also reduces the availability of natural carbon sequestration processes in the province.

Despite both the provincial and federal policies on wetland conservation identifying carbon sequestration as being a key ecological function of wetlands, the Proponent has not identified or evaluated in any way the effects that completely altering 35 wetlands, and partially altering another 73 wetlands, will have on the proposed projects GHG emissions.⁶⁰

The Proponent has proposed mitigation measures to reduce the overall loss of “function of wetland habitat”, as provided in Table 6.8-1, where direct and potential indirect impacts to wetlands are expected. The proponent proposes to compensate for permanent loss of wetland function through its Preliminary Wetland Compensation Plan (Appendix H.3);⁶¹ however, the proponent has failed to assess the effect of losing natural carbon sequestration processes and has failed to identify how this important ecosystem function can or will be compensated.

In Nova Scotia, the *Activities Designation Regulations* created under the *Environment Act* require an approval by the provincial Minister of Environment and Climate Change, or an administrator designated by the Minister, for any alteration of a wetland or alteration of the flow of water in a wetland.⁶² The Minister must determine whether the impact of an activity on the environment conforms with the *Environment Act* and applicable regulations and standards,⁶³ and the Minister may also consider the activity’s consistency with policies.⁶⁴ The Proponent has acknowledged that it will require approvals for all of its wetlands alterations, but has failed to show how it will accord with the province’s goal of no net loss in area and function for wetlands.

We must also highlight that the federal government has similar goals of no net loss of wetland function on federal lands, and recognition of wetland functions in resource planning with regard to all federal activities, which should include federal environmental assessment under *CEAA 2012*. The Proponent has not provided any information about how the loss of wetland function—and specifically, wetland ability to sequester carbon—accords with these goals in areas of federal jurisdiction or on federal land.

⁵⁸ Mark McCoy and Dr. Larry Hughes, “[Nova Scotia’s Carbon Sinks and 2050 Net-zero Scenarios](#)”(August 2021, revised October 2021) at page 3.

⁵⁹ *Ibid* at pages 13-14, referring to Kirsten Gallant, Patrick Withey, Dave Risk, G. Cornelis van Kooten, and Lysay Spafford, “[Measurement and economic valuation of carbon sequestration in Nova Scotia wetlands](#)” *Ecological Economics* (May 2020) 171.

⁶⁰ Revised EIS Summary, *supra* note 20 at section 6.8.1.1, page 6-53.

⁶¹ *Ibid* at section 6.8.2, page 6-54.

⁶² *Activities Designation Regulations* NS Reg. 47/95, amended to Reg. 120/16, at subsection 3(1) and section 5A.

⁶³ *Ibid* at subsection 9(1).

⁶⁴ *Ibid* at subsection 9(2).

The Proponent has concluded that the residual environmental effects of the project development and production on wetlands will be adverse but not significant, and that there will be no cumulative effects to wetlands.⁶⁵ It is difficult to reconcile this conclusion with the fact that the Proponent has not addressed either the important carbon capture and storage functions of the wetlands that will be partially or completely destroyed nor the long-term cumulative effects of the loss of carbon sequestration from the wetlands.

4.0 Concerns Raised by the Mi'kmaq of Nova Scotia

Finally, we wish to amplify several concerns that have been raised by the Mi'kmaq of Nova Scotia through representative bodies such as the Kwilmu'kw Maw-klusuaqn Negotiation Office and local community leadership. We see in the Round 2 IRs, the Updated EIS, and the Revised EIS Summary that Mi'kmaq in Nova Scotia have raised several concerns regarding direct damage to local ecosystems that support species with cultural significance for Mi'kmaq, including many species that are traditionally harvested. It is also clear that Mi'kmaq are raising significant concerns about the cumulative impacts of the proposed Beaver Dam Mine Project and the other new and modified mining projects that Atlantic Gold has proposed. Importantly, the cumulative impacts concerns being raised by Mi'kmaq are not only concerns about cumulative impacts to local ecosystems and other-than-human species—they are also concerns about cumulative impacts to constitutionally protected Indigenous rights.

We share our Mi'kmaw colleagues' serious concerns about adverse direct and cumulative impacts that will harm or permanently alter local ecosystems and make it more difficult, if not impossible, for Mi'kmaq to exercise inherent rights and treaty rights in their preferred locations within their unceded and unsurrendered traditional territory.

In our view, it would be useful for IAAC and NSECC to consider and employ the reasoning of the British Columbia Supreme Court in *Yahey v British Columbia*, 2021 BCSC 1287—a decision that deals squarely with the infringement of constitutionally protected Indigenous rights through cumulative effects. Although the Court's analysis in that decision focuses on treaty rights specifically (and on treaty rights recognized for the signatories and adherents of Treaty 8 in particular), much of the Court's commentary is germane to any consideration of adverse cumulative effects on Indigenous peoples in Canada. For example, the Court comments in one passage:

[...] rights must be ascertained (that is understood, found out, discovered with certainty) with regard to the places in which they are exercised. Learning about the places where rights are ascertained is more than a mapping exercise; it reveals the conditions that make the exercise of the rights possible and meaningful.⁶⁶

This theme of site-specific analysis runs throughout the decision as a whole—notably, the Court explicitly rejects arguments advanced by the provincial Crown that although members of Blueberry River First Nation had been prevented from exercising their rights in some parts of their territory, the rights had not been infringed because they could be exercised elsewhere. The analysis running through the decision, which draws on longstanding authority established in decisions by the Supreme Court of Canada, makes it very clear that locations in Indigenous peoples' territories are not

⁶⁵ Revised EIS Summary, *supra* note 20 at section 6.8.3, page 6-55.

⁶⁶ *Yahey v British Columbia*, 2021 BCSC 1287 at paragraph 258.

fungible—that is, they cannot simply be exchanged or substituted one for the other as though they were all the same. Site-specificity matters, both ecologically and culturally.

We emphasize these points because Atlantic Gold, throughout its Updated EIS, appears to assume at various points that although the proposed project will interfere with or prevent the exercise of Mi'kmaw rights in various locations and for various lengths of time, these impacts will not be significant because local Mi'kmaq can simply exercise their rights elsewhere. We urge IAAC and NSECC not to accept this reasoning.

5.0 Conclusion

Our review of Atlantic Gold's Revised EIS Summary, Updated EIS, and associated appendices indicates that many critical information gaps remain in its proposals for the proposed Beaver Dam Mine Project. We urge IAAC and NSECC to ensure that these issues are addressed as the environmental assessment process continues.