Conservation Council of New Brunswick
Conseil de conservation du Nouveau-Brunswick
www.conservationcouncil.ca

May 3, 2018

Environment and Climate Change Canada
Mining and Processing Division
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Gatineau, Québec K1A 0H3

Fisheries and Oceans Canada, Gulf Region
Regulatory Reviews
343 Université Avenue
P.O. Box 5030
Moncton, NB E1C 9B6

Re: Sisson Project, proposal to amend MMER Schedule 2 and Application for Authorization under s.35(2) of the *Fisheries Act*

Dear Sirs and Madams:

The Conservation Council of New Brunswick (CCNB) respectfully requests that Environment and Climate Change Canada (ECCC) and Fisheries and Oceans Canada (DFO) reject Sisson Mine Ltd./Sisson Partnership's (SML) proposal to amend MMER Schedule 2 and its Application for Authorization under s.35(2) of the *Fisheries Act*. Detailed reasons supporting our request can be found in our attached submission.

In brief, the MMER Schedule 2 amendment proposal should be rejected by ECCC because SML's "Assessment of Tailings Management Alternatives" (ATMA) is not complete, rigorous, or objective. The ATMA is not complete because SML wrongly does not consider and therefore discuss the Project's open pit as part of the Tailings Impoundment Area that needs to be included in the proposed MMER Schedule 2 amendment. The ATMA's lack of rigour and objectivity is demonstrated by, among other things, its failure to meaningfully discuss a tailings management option that does not impact fish bearing waters and that its multiple accounts analysis provides little evidence-based or peer-science justification for the chosen indicators. In addition, the evidence presented in support of SML's preferred tailings management option (Site 1b) does not discuss uncertainties with water treatment at this site (e.g., need to treat for fluoride and sodium) and the impact these uncertainties have on the economics of Site 1b.

SML's Application for Authorization under s.35(2) of the *Fisheries Act* should be denied by DFO for two key reasons. First, it presents no clear evidence that any lost fish habitat will actually be offset, i.e., Nashwaak Lake supported alewife/gaspereau or that the Nashwaak Lake water control structure is preventing alewife/gaspereau from entering the lake. Second, the two habitats are not remotely the same. The lost habitat will be from a cold-water, riverine system that demonstrably supports COSEWIC listed species (Atlantic salmon, American eel), while the proposed offsetting habitat is a lacustrine system that *may* improve alewife/gaspereau productivity, a fish that is so plentiful in the lower Saint John River system it is caught and used as bait.

In addition to the above, using any measure of reasonable objectivity, neither SML's ATMA nor its *Fisheries Act* authorization application present enough evidence or information upon which either decision-makers or the public can make an informed decision. For this reason alone, both the amendment proposal and offsetting plan should be rejected by ECCC and DFO, respectively. Accepting

these documents as complete, and worse approving the proposed MMER Schedule 2 amendment and/or *Fisheries Act* authorization application despite this lack of complete information, would tarnish the reputation of ECCC and DFO decision-making and decision-makers.

Finally, CCNB requests that ECCC and DFO further the public's participation in the review of the amendment proposal and authorization application by committing to hold another public meeting and providing the public and those who filed comments with: 1) a "What you told us" document, and 2) with a formal, public announcement of the departments' respective final decisions with reasons and discussions of how public comments/concerns factored in the decisions.

Thank you for giving your time and attention to our comments and submission.

Sincerely,

Lois Corbett
Executive Director

Conservation Council of New Brunswick (CCNB)

Submission to Environment and Climate Change Canada and Fisheries and Oceans Canada regarding Sisson Mine Ltd./Sisson Partnership proposal for amendment of MMER Schedule 2 and Application for Authorization under s.35(2)(b) of the *Fisheries Act*

May 3, 2018

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1. SML's description and alternatives assessment of the TIA is not complete

Sisson Mine Ltd/Sisson Partnership's (SML) proposed mine design makes the open pit an integral part of the mine's tailings management system (TMS). At closure, a channel will be constructed between one part of the mine's proposed TMS (the tailings pond) and another (the open pit). Effluent, as defined by the MMER, will flow from the tailings pond to the open pit, where it will be treated before final discharge (SRK, 2013a: 2-3).

The open pit intersects parts of waters frequented by fish (Sisson Brook, McBean Brook). Effluent from the mine cannot be deposited into these waters unless it meets the conditions set out in s.4 of the MMER or the waters have been listed as a TIA in Schedule 2 of the MMER. It is unlikely the effluent from the tailings pond will meet the MMER s.4 conditions as SML has identified that treatment of the effluent is required during operation and after closure of the mine. Given this, this effluent has to be deposited into a TIA. However, the alternatives assessment prepared by SML does not discuss the portions of Sisson Brook and McBean Brook intersected by the open pit. As such, SML's description of the mine's proposed TIA is not accurate and consequently, the alternatives assessment is not complete. Therefore, the MMER Schedule 2 amendment that SML is seeking cannot be made until these deficiencies are corrected.

We recognize that when the effluent is deposited in the open pit, those portions of Sisson Brook and McBean Brook will no longer be technically fish bearing waters (FBW) because they will no longer exist 27+ years into the future. However, this can be said for many mines, except that construction and operation of the TIA occurs at the beginning of the project (i.e., the construction of a TIA at the beginning of a project will destroy the underlying FBW waters such that at the time the TIA is first used/operated, FBW no longer exist.) The MMER rightly makes no reference to the timing of the deposit or when the TIA will become operational. It simply provides that one cannot turn waters frequented by fish, e.g., Sisson Brook, into a TIA without those waters first being included in Schedule 2. See also ECCC's *Guidelines for the assessment of alternatives for mine waste disposal* (ECCC, 2013), which states, "These guidelines pertain to metal mines where a TIA has been proposed in a natural water body frequented by fish."

Suppose SML's present proposal/ATMA for a MMER Schedule 2 amendment detailed a plan to construct the same open pit 27 years in the future solely for the purpose of collecting and treating the same deleterious effluent from the tailings pond. Because it would occupy FBW and be part of the Project's TIA, there is no question the destroyed portions of Sisson and McBean Brooks would have to be included in the discussed amendment. Given this, the fact that in the intervening years the open pit portion of this TIA is used as a mine is irrelevant.

Further to this above, to not require the listing of these sections of Sisson and McBean Brooks in Schedule 2 would promote future circumvention of the MMER. For example, Company A is given approval to destroy a 10 km portion of a stream for a mine. Fish habitat compensation ensues and no MMER amendment is initially required because the tailings pond proposed by Company A will not be located over any waters frequented by fish. Over the course of the first year of construction of the mine the 10 km section is destroyed. Company A then "determines" that putting a dam across the lower portion of the destroyed stream and turning the bottom 5 km of the destroyed stream into the tailings pond is less expensive than building the earlier proposed tailings pond. Despite whatever other violations this might lead to, using the logic that seems to be in place for the Sisson mine, Company A would not need an MMER Schedule 2 amendment because this 5 km section is no longer water frequented by fish. Clearly, this is not the intent of the MMER. This supports our position that the above discussed portions of Sisson and McBean Brooks cannot be used as part of the mine's TMS without first being listed in Schedule 2 of the MMER.

Finally, as part of the Schedule 2 amendment process, an alternatives assessment for using the open pit as a TIA needs to be conducted. We appreciate there are no other options for the location of the open pit. However, options that could be investigated include not using the open pit as a TIA or not destroying the above discussed sections of Sisson and McBean Brooks in the construction of the open pit.

2. The ATMA for the proposed MMER Schedule 2 amendment is severely flawed

Our comments regarding the proposed MMER Schedule 2 amendment are grounded in three key principles of ECCC's *Guidelines for the assessment of alternatives for mine waste disposal* (the "Guidelines") (ECCC, 2013):

> This alternatives assessment must objectively and rigorously assess all feasible options for mine waste disposal. The project proponent must demonstrate through the EA and this assessment that the proposed use of the water body as a TIA is the most appropriate option for mine waste disposal from environmental, technical and socio-economic perspectives. (Section 1.3.2.)
>
> At least one of these alternatives should not impact a natural water body that is frequented by fish … (Section 2.4.)
>
> It is essential that the characterization remain factual, or where statements of judgement, risk or uncertainty are made, that they be explicitly defined and qualified. As previously stated, it should be clear to any external reviewer what the basis is for the characterization criteria stipulated for any alternative. In most cases there needs to be supporting information for these criteria in the form of technical reports completed by appropriately qualified specialists. … (Section 2.4.)

As will be elaborated upon below, SML's *Assessment of Tailings Management Alternatives* (ATMA) fails to fulfill these principles and as such, the proposal to amend MMER Schedule 2 should be rejected by ECCC.

2.1 Pre-screening analysis

In SML's ATMA, it conducts a pre-screening of three broad options for alternative tailings management technologies (Guidelines Step 2): conventional slurry tailings, paste tailings, and dry stack tailings.[1] It then goes on to summarily screen out two of these alternatives, paste tailings and dry stack tailings, using analysis that is neither objective nor rigorous and does not leave an alternative the does not impact fish bearing waters.

One obvious example of the above is that SML discusses a list disadvantages for the two rejected alternatives but does not for conventional slurry tailings (of which there are, such as the risk posed to the environment and public health and resource use by the failure of a tailings dam). As well, SML relies on the need for an "external, lined water management pond" as a reason for rejecting both alternatives. This seems pretty spurious when one considers that the slurry tailings option itself requires one massive tailings pond along with multiple collection ponds to collect seepage from the tailings pond. Also, how having an unlined pond for conventional slurry tailings, which allows for seepage, is more advantageous than a lined pond that prevents, or lessens, seepage is unclear to CCNB.

Further to this, SML claims that the two rejected options do not isolate PAG materials. It is unclear why the PAG materials from these two alternatives cannot be capped, "Installing a cover of clay, plastic, or soil over piles of waste rock prevents rain and other precipitation from contributing to ARD formation and transport, and reduces the amount of oxygen available to react with the sulphide minerals (Miningfacts.org, 2012). As well, one over-riding reason used to reject the dry stack tailings alternative is that it is technically challenging. Why this is also not a reason for rejecting SML's preferred option, being conventional slurry tailings at Site 1b incorporating the open pit as part of the Project's TMS, is unclear (and inconsistent) when one considers use of the open pit requires unproven technology:

> There are some concerns regarding design of the post-closure water treatment approach. First, the semi-batch treatment in the pit appears to be a new concept. Curtain systems in pit lakes have been known to fail, especially in freeze-thaw. Therefore the idea of a floating baffle curtain wall may not be feasible. An example of a successful full-scale operation at another site may help prove the feasibility of this concept. (AFW, 2015: Section 2.3.4.)

Finally, an over-riding issue for all of SML's pre-screening analysis is that the ATMA provides no external information, references, case studies, technical studies, etc., to support it discussion and conclusions. Without this information, an external reviewer cannot accurately assess the quality and correctness of the pre-screening assessment. As such and applying use of the precautionary principle espoused in Cabinet Directive on Regulatory Management (CRDM, 2012),[2] the proposal to amend MMER Schedule should be rejected.

[1] CCNB notes that SML did not discuss another alternative, being the separation of the non-PAG tailings from the PAG tailings, "The design of the TSF could be simplified and the long term liability associated with the facility reduced if the anticipated, relatively small amount of PAG tailings could be separated from the non-PAG tailings and disposed of separately. This would eliminate the need for a permanent water cover, which is the primary concern for this facility" (AFW, 2016: 45).

[2] "When regulating [e.g., amending MMER Schedule 2], the government will: … Make decisions based on evidence and on the best available knowledge and science in Canada and worldwide, <u>while recognizing that the application of precaution may be necessary</u> when there is an absence of full scientific certainty and a risk of serious or irreversible harm; …

2.2 Multiple accounts ledger (Guideline Step 4)
The above noted lack of rigour continues in the ATMA's multiple accounts ledger. For example, it provides no references/sources to support its chosen and excluded sub-accounts and indicators.

2.3 No discussion of water treatment uncertainties resulting in missing, vital economic information
A review of the EIS report and supporting technical studies for the Project shows that the tailings effluent is likely to have elevated levels of fluoride and sodium, among other things. The treatment costs to remove fluoride and sodium are much higher than if they do not have to be removed. (Based on 2012 details for the Mount Pleasant mine, N.B., SML will be required to have less than 3 mg/L fluoride in the effluent from its WWTP. As such, it is and has been CCNB's position that this treatment is required.) The need to treat fluoride increases the capital costs of the mine's WWTP from $8 million to $75 million and its annual operating costs from $800,000 to $8 million (SRK, 2013 at section 5.3). This uncertainty is not discussed in the ATMA.

Further, no decision has been made whether SML will have to treat for fluoride and/or sodium (L. Swanson, NBDELG, pers. comm.). Without knowing this, it is unclear how SML calculated the operating and closure costs of the two options (Sites 1b and 1c) (see ATMA Table 7.2). If these costs do not include the cost of constructing and operating the WWTP, but instead are simply for building and maintaining the tailings ponds and dams themselves, then this also should have been explained.

This point regarding the cost of water treatment is also important because it goes back to our earlier discussion regarding SML's unobjective rejection of paste and dry stack tailings. Both are described by SML as being more expensive than conventional slurry tailings. How can SML, ECCC and DFO, and the public know this is a) the actual costs of the slurry tailings option are not known, and b) the costs of the other two options are not provided for comparison?

2.4 There was only one real option presented in the ATMA (Site 1b)
Under the Guidelines, the ATMA is to provide an analysis of a number of viable tailings management alternatives. However, relying on the base case analysis and the sensitivity analysis in the ATMA comparing Sites 1b and 1c, it is clear Site 1c was a vastly inferior alternative. This leads to the question of why it was presented as an alternative at all? Why was it not pre-screened out? At the end of the day, the ATMA only presents one tailings management alternative.

To conclude, it is clear from a review of SML's original EIS report and ATMA, that SML's desired tailings management alternative was always the TSF at Site 1b and use of the open pit. This bias manifests itself in the lack of rigour and objectivity displayed in the ATMA.

3. SML's proposed fish habitat compensation plan should not be approved

Simply put, SML's proposal to remove the water control structure and culvert at Nashwaak Lake as the means for offsetting the direct and indirect losses of fish bearing habitat (FBH) in Sisson Brook, McBean Brook, Bird Brook, Napadogan Brook, and their tributaries, caused by the Project *does not pass the smell test.* What is wrong with SML's proposal is that it wants to offset the loss of cold-water, riverine Brook trout, Atlantic salmon (listed as endangered by COSEWIC), and American eel (listed as threatened by COSEWIC) habitat with lacustrine habitat for the purpose of increasing the productivity of alewife/ gaspereau. Alewife/ gaspereau are not a listed COSEWIC species and are so plentiful in the Saint John River system below the Mactaquac Dam that they are caught and used as bait. Given this, SML's proposed offsetting plan does not make ecological sense. It is also not in keeping with DFO's preferred

offsetting strategy, which states in part, "Offsets are most likely to balance losses when they benefit the specific fish populations and areas that are affected by a development project" (DFO, 2013: Guiding Principles, Principle 2).

Continuing the above discussion, it is clear that DFO's preferred offsetting strategy is "in-kind" offsetting, whereby, "the habitat that is destroyed or permanently altered is replaced by the same quantity and quality of the same type of habitat, with additional habitat offsetting required to account for uncertainty and time lags." Again, Nashwaak Lake does not provide the same quality of habitat for Atlantic salmon and American eel, if at all, as the FBH that will be destroyed by the Project. Further to this point, SML provides no reasons why it cannot locate or put forward any other cold-water, riverine FBH that could be used to offset the loss of Sisson Brooks, McBean Brooks, etc.

In its s.35(2)(b) *Fisheries Act* authorization application, SML provides no concrete evidence that removing the Nashwaak Lake water control structure will benefit Atlantic salmon, American eel, or Brook trout, and instead relies on a number of qualifiers, e.g., "Brook trout may make use …"; "… may also increase lake productivity…"; "It may also improve CRA fisheries productivity …". Further, it is not even clear from SML's application whether alewife/gaspereau historically were found in Nashwaak Lake or if there are other barriers preventing alewife/gaspereau from reaching the lake. As such, there is no evidence demonstrating that removing the water control structure will provide any increased habitat for any CRA fisheries. For all of these reasons, SML's Application for Authorization under s. 35(2)(b) of the *Fisheries Act* should not be approved.

Finally, CCNB does not have the expertise to comment critically on whether SML's calculation of the number of fish habitat units that need to be compensated for is correct. However, in its discussion of indirect habitat loss due to the Project (see SML's Application at section 3.2), we note that SML seems to only focus on the loss of stream flow. From this, it is not clear whether SML has considered the importance of the lost FBH as a contributor of cold water to downstream waters. Recent studies in the comparable Miramichi River system show how vital cold-water refugia are to the survival of salmonids (see for example Monk et al., 2013; Kurylyk et al., 2015). If the to-be-lost FBH contributes to downstream cold-water refugia, then the indirect effects of the Project on FBH may be larger than estimated by SML. We ask that DFO require SML to investigate this issue before proceeding with any decision-making on whether to approve SML's Application for Authorization under s. 35(2)(b) of the *Fisheries Act.*

4. Furthering trust in environmental decision-making

Neither SML's ATMA in support of its proposal to amend Schedule 2 of the MMER nor its information in support of its Application for Authorization under s. 35(2)(b) of the *Fisheries Act* are objective or rigorous. This does not come as a surprise to CCNB. SML's earlier EIA report was also of inferior quality (e.g., incomplete ML/ARD studies, incomplete hydrogeology studies, no discussion of the environmental effects of a failure of its proposed TSF, etc.). Combining these poor studies with SML's inability to provide the public with a completed financial securities plan (FSP) and SML's parent company's poor environmental and financial track market (see Kuyek, 2018) leads to legitimate questions about whether SML has the intent and/or wherewithal to carry out the project in a way that is environmentally and socially responsible and sustainable.

It is also clear the public is deeply concerned about the proposed MMER amendment and fish habitat offsetting application for the project, as evidenced by the large number of attendees at the public

meeting and subsequent large number of public comments submitted to ECCC and DFO. The public recognizes the ATMA is flawed as it does not examine enough legitimate TIA options and that the fish habitat offsetting plan does not demonstrate that any lost fish habitat will actually be offset. Based on this, the public in-turn knows that both the proposed amendment and *Fisheries Act* authorization application should be rejected by ECCC and DFO, respectively.

This is not a question of whether one supports the mine or not; simply, SML has not, for whatever reasons, provided good enough information to support its amendment proposal and offsetting plan. Allowing the project to proceed despite this lack of information would erode public confidence in ECCC's and DFO's objectivity and competence. Finally, it would also be counter to the Cabinet Directive on Regulatory Management (CRDM, 2012) which states in part:

> When regulating [e.g., amending MMER Schedule 2], the government will:
>
> - Protect and advance the public interest in health, safety, and security, the quality of the environment, and the social and economic well-being of Canadians, as expressed by Parliament in legislation; …
> - Make decisions based on evidence and on the best available knowledge and science in Canada and worldwide, while recognizing that the application of precaution may be necessary when there is an absence of full scientific certainty and a risk of serious or irreversible harm; …

5. Providing for further public participation

We believe there are two main ways that ECCC and DFO can provide further public consultation for the MMER amendment and Fisheries Act habitat compensation processes related to the Sisson Mine project. The first of these is to hold another public meeting(s). This would in-turn address two difficulties with the first public meeting held on March 15, 2018 in Stanley, NB. One of these is that we have been told the meeting was not well advertised, particularly outside of the Stanley area. As such, people who would have attended the public meeting, had they known about it, did not. The other is that despite any issues with the advertising of the meeting, a tremendous number of people still attended. So many, that not everyone could fit in the meeting room and hence they were not able to be part of the meeting. Another public meeting would help address the needs of these people who want to participate in the process.

The other way ECCC and DFO can enhance public participation is to ensure the process does not become a *black box*. This occurs in public participation processes when the public provides information to decision-makers and receives nothing back indicating their input was heard, valued, and used. To prevent this, we recommend that ECCC and DFO commit to:

- Providing a timeline for the processes.
- Acknowledging receipt of information, comments, letters, etc.
- Publicly reporting on this information, e.g., a "What you (the public) told us" report/summary.
- Publicly reporting on how this information was used in or influenced the decisions, and if it wasn't, reasons why not.
- Broadly advertising the final decisions.

References

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