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Prairie & Northern Region  
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ECCC File: 6100 000 115/001  
NWB File: 2AM-BRP1831



July 22, 2022

via email at: [licensing@nwb-oen.ca](mailto:licensing@nwb-oen.ca)

Richard Dwyer  
Manager of Licensing  
Nunavut Water Board  
P.O. Box 119  
Gjoa Haven, NU X0B 1J0

Dear Richard Dwyer:

**RE: 2AM-BRP1831 – Sabina Gold and Silver Corp. – Back River Project – 2021 Annual Report**

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Water Board (NWB) regarding the above-mentioned 2021 Annual Report.

ECCC is providing technical, science-based information and knowledge based on our mandate pursuant to the *Canadian Environmental Protection Act* and the pollution prevention provisions of the *Fisheries Act*. These comments are intended to inform the assessment of this project's potential effects in the receiving environment and on valued ecosystem components. Any comments received from ECCC in this context does not relieve the proponent of its obligations to respect all applicable federal legislation.

The following comments are provided:

**1. Air Quality**

Reference(s)

- Sabina Gold & Silver Corp. Back River Project, 2021 Annual Report for Water Licence 2AM-BRP1831, Section 2.9: A Summary of all General Waste Disposal Activities Including Monthly and Annual Quantities in Cubic Meters of Waste
- Sabina Gold & Silver Corp. Back River Project, 2021 Annual Report for Water Licence 2AM-BRP1831, Section 2.10: Reporting of Incinerator Test Results Including the Materials Burned and the Efficiency of the Incinerator in Relation to Effects on Water and the Potential Deposit of Waste into Water
- Sabina Gold & Silver Corp. Back River Project, 2021 Annual Report for Water Licence 2AM-BRP1831, Appendix B: Waste Disposal



- Sabina Gold & Silver Corp. Back River Project 2021 Annual Report, Section 4.5.1 Air Quality (PC TCs 1 through 5), Project Certificate Condition No. 5

#### Comment

Project Certificate Condition No. 5 states that “complete stack emissions testing for all incinerators will occur upon commissioning when testing thresholds are met to ensure achievement of the Canada-wide Standards for Dioxins and Furans and the Canada-wide Standards for Mercury (CCME 2000, 2001).”

Section 2.9 states that “wastes incinerated at the MLA (Marine Laydown Area) were not tracked in 2021 due to a record keeping oversight.” Section 2.10 states that ‘no incinerator testing was conducted in 2021.’ Appendix B contains daily waste incineration amounts but no annual total is provided. Annual amount looks like it may be greater than 26 tonnes per year.

#### ECCC Recommendation(s)

ECCC recommends that the Proponent provide the results of any incinerator stack testing that may have already been performed, or indicate a time frame for when incinerator stack testing will be performed in 2022.

## **2. Geochemical Monitoring Results**

#### Reference(s)

- Sabina Gold & Silver Corp. Back River Project, 2021 Annual Report for Water Licence 2AM-BRP1831, Section 2.6: Geochemical Monitoring Results

#### Comment

In Table 2.6-1: Geochemical Characterization Results, several samples are indicated to have  $\text{NPR} \leq 2$ , and are classified by the proponent as NPAG, based on its classification of NPAG (low Sulphur based on having a NPR less than 3 and a total sulfur content less than 0.16 wt. %). This includes samples 8211055; U/G Sample Triplicate, PS Blast Pattern #63 (1of6), PS Blast Pattern #63 (4of6), and Surface Sample (77-2). As indicated by the Proponent, these “are suitable for use in construction based on the material classification criteria outlined in the Quarry Management Plan.”

ECCC is of the view that the  $\text{NPR} \leq 2$  based on conventional ABA classification indicate that there is not enough neutralization potential available despite low sulfur content. Therefore, if the NPR falls between 1 and 2, it should be classified as uncertain. If these rock samples are with an NPR range between 1 and 2, are classified as uncertain, it is recommended that they not be used for construction.

#### ECCC Recommendation(s)

ECCC recommends that samples with an NPR greater than 1 and less than 2 should be classified as uncertain. As such not be used for construction because of its potential to generate acid.

### 3. Geochemical Monitoring Results

#### Reference(s)

- Sabina Gold & Silver Corp. Back River Project, Tailings Management Plan, Section 5.1: Tailings Management Plan

#### Comment

The Proponent states, “approximately 18.7 Mt of tailings will be produced over the 15-year LOM. All tailings will be deposited as slurry. Initially, tailings will be deposited in the Echo TF, then transition to Umwelt Open Pit and Llama Open Pit once mining operations have ceased in each location (called Umwelt TF and Llama TF, respectively).” The Proponent further states that the “Echo TF will be covered with waste rock and overburden material once tailings deposition is complete. Water covers with a minimum water depth of 5 m will be used for closure of the Umwelt TF and Llama TF.”

ECCC notes that given the time of slurry tailings deposit in Echo TF, and the time when the Echo TF is covered with waste rock and overburden material, it is not clear whether the tailings slurry would have consolidated enough for a solid waste rock cover, or whether the Echo TF is intended to be a co-disposal facility. It is also not clear what the implications using Echo TF as a co-disposal facility might be.

There is also no supporting information provided, to demonstrate that the cover of slurry tailings in the Echo TF would not result in a spill over the edge or any adverse environmental issue if ground and/or surface water continue to discharge into the Echo TF. Furthermore, it is not clear whether 5 m water cover in the Umwelt and Llama TFs would be adequate to prevent remobilization of contaminant by water upwelling through the tailings or by wave action.

#### ECCC Recommendation(s)

ECCC recommends that the Proponent:

- Provide more details on how they plan to use waste rock and overburden material to cover tailings slurry in the Echo TF; and
- Demonstrate that a 5 m water depth covers for of the Umwelt TF and Llama TF at closure will be adequate.

If you need more information, please contact Stephinie Mallon at [Stephinie.Mallon@ec.gc.ca](mailto:Stephinie.Mallon@ec.gc.ca).

Sincerely,

*[original signed by]*

Stephinie Mallon  
Environmental Assessment Officer

cc: Jody Small, Acting Head, Environmental Assessment North (NT and NU)