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NUNAVUT WATER BOARD
NUNAVUT IMALIRIYIN KATIMAYINGI
OFFICE DES EAUX DU NUNAVUT

File Nos: **2AM-BRP1831**

August 18, 2022

Merle Keefe
Manager, Environmental Permitting
Sabina Gold & Silver Corp.
Suite 1800 – 555 Burrard Street
Box 220
Vancouver, BC V7X 1M7

Email: mkeefe@sabinagoldsilver.com

**RE: NWB Technical Review of the 2021 Annual Report for the Back River Project;
Water Licence No: 2AM-BRP1831**

Dear Mr. Keefe:

The Nunavut Water Board (NWB or Board) has completed its technical review of the 2021 Annual Report submission provided to the Board by Sabina Gold & Silver Corp. (Sabina or Licensee) to fulfill the requirements of Part B and Schedule B of Water Licence No: 2AM-BRP1831 (Licence). This submission was provided to the Board on April 4, 2022 and was later supplemented by the following management plans on April 29, 2022:

- Mine Waste Management Plan, April 2022;
- Water Management Plan – Version 4, April 2022; and
- Tailings Management Plan, April 2022.

Copies of all documents received during public review can be accessed through the NWB's Public Registry and FTP site using the following link:

<ftp://ftp.nwb-oen.ca/registry/2%20MINING%20MILLING/2A/2AM%20-%20Mining/2AM-BRP1831%20Sabina/3%20TECH/B%20GENERAL/2%20ANNUAL%20RPT>

In the Annual Report, Sabina indicated that no mine waste and water management infrastructure were developed at the Goose site nor at the MLA site in the reporting year. Sabina clarified that only limited activities fell under the reporting requirements listed under Schedule B of the Licence. The 2021 Geotechnical Inspection indicated that the Back River site is performing in reasonable accordance with geotechnical expectations.

The NWB is of understanding that the final Hydrodynamic Model, including mixing zone design, and the updated Water and Load Balance Model with additional groundwater modelling and water quality modelling, as well as the updated Aquatic Effects Management Plan will be provided to the Board by August 31, 2022.

On April 5, 2021, the NWB distributed the 2021 Annual Report and additional associated information for public review with a deadline for comments set at July 5, 2022, which was later extended to July 28, 2022 at the request of Crown-Indigenous Relations and Northern Affairs (CIRNA). On or before the deadline, the comments were received from the Kitikmeot Inuit Association (KIA), CIRNA and the Environment and Climate Change Canada (ECCC). The table below summarises the issues and recommendations provided by the interveners and the NWB as part of the review process. For more detailed information about the issues raised by the interveners, please refer to the NWB public registry at the link referenced above, as well as the documents attached to this correspondence.

No.	Concerns/ Recommendations	Response Deadline
Kitikmeot Inuit Association (KIA)		
1.	<i>Comparisons to Previously Collected Baselines</i>	August 31, 2022
	<ul style="list-style-type: none"> Include comparisons between previously collected baseline data and data collected in 2021. Any differences observed between 2021 data and site conditions prior to Sabina's presence should be described to better determine whether ongoing activities at site are influencing the aquatic environment. 	
2.	<i>Water Quality Results for Marine Laydown Area (MLA) Discharge to Marine Environment</i>	All future Annual Reports
	<ul style="list-style-type: none"> Include results summary / discussion for water quality monitoring around the MLA in future annual reporting to provide clarity and ease of review as there exists the potential for interactions with the local freshwater receiving environment. <p>Note: While discharges into the marine environment are outside the NWB's jurisdiction, applicable water quality objectives/guidelines should be included in Appendix D to assist reviewers in identifying exceedances.</p>	
3.	<i>Implementation of Geotechnical Inspection Recommendations</i>	August 31, 2022
	<ul style="list-style-type: none"> Provide an update on the status of implementing the recommendations made in the 2021 Annual Geotechnical Inspection. The 2021 Geotechnical Inspection advised that the following should be implemented in 2022: increasing the thickness of camp pad and pond road section of concern; implementation of additional water management measures to address concerns with water pooling at southwest boundary; ensure the sufficiency of boulders at culvert outlets in preventing erosion; and limiting of vehicle traffic 1 m from shoulders. 	

4.	<i>Waste Rock Management Plan (WRMP) - Waste Rock Seepage and Runoff</i>	March 31, 2023
	<ul style="list-style-type: none"> • Include additional detail in future iterations of the Waste Rock Management Plan, which should be appended to the next year's annual report. Specific details should include parameters that will be monitored in seepage and runoff, response plans to exceedances/water treatment protocols, and the rationale behind the selection of discharge location(s). More specific actions that will be taken to ensure environmental protection (i.e., specific location of discharges, contaminants of concern that will be monitored in seepage and runoff, and treatment/removal of residuals and their eventual fate) should also be included. 	
5.	<i>Water Management Plan (WMP) – Discharge of Plant Contact Water to Tundra</i>	August 31, 2022
	<ul style="list-style-type: none"> • Provide more information on the safe and regulated release of contact water from the Plant site pond to the tundra to ensure that additional mitigation measures are not required. 	
6.	<i>WMP - Adaptive Management Actions for Breaching of Infrastructure</i>	August 31, 2022
	<ul style="list-style-type: none"> • Within Section 12, Adaptive Management, of the Annual Report, provide response plans/mitigation strategies for a potential overtop/breach of the Llama WRSA Pond, Ore Stockpile Pond, Saline Water Pond (SWP), and Echo and Goose Main WRSA Pond. 	
7.	<i>WRMP - Discrepancies between WRMP and Interim Closure and Reclamation Plan (ICRP)</i>	August 31, 2022
	<ul style="list-style-type: none"> • Clarify and update the volumes / areas of the waste rock and overburden as per the latest mine plan that was used in the development of the July 2021 ICRP. 	
8.	<i>WRMP - Frozen PAG Rock</i>	August 31, 2022
	<ul style="list-style-type: none"> • Explain why the fuel supply system was operating in manual mode without supervision, and what safeguards have been implemented since the spill to ensure that automatic shutdowns can function if a similar situation occurs in future. 	
9.	<i>WMP - Discrepancies between WMP and ICRP</i>	August 31, 2022
	<ul style="list-style-type: none"> • Clarify and update the volumes / areas of the mine waste and storage areas as per the latest mine plan that was used in the development of the July 2021 ICRP. 	
10.	<i>WMP - Design Flow</i>	August 31, 2022
	<ul style="list-style-type: none"> • Confirm that the selected design values are still valid for the design return period considering better understanding of local hydrology and improved climate change models. 	
11.	<i>Discrepancies between Tailings Management Plan (TMP) and ICRP</i>	August 31, 2022
	<ul style="list-style-type: none"> • Clarify and update the tailings deposition approximation as per the latest mine plan that was used in the development of the July 2021 ICRP. 	

Crown-Indigenous Relations and Northern Affairs (CIRNA)		
1.	<i>Use of Water</i>	August 31, 2022
	<ul style="list-style-type: none"> Clarify whether any of the activities carried out in 2021 at the Goose site, or any other Back River Project site, fall under Water Licence 2AM-BRP1831 and provide further justification why no fresh water use was reported under this Licence. If any of the 2021 activities do fall under Water Licence 2AM-BRP1831 and involved use of fresh water, provide details on the monthly and annual volumes used from all sources. 	
2.	<i>Water and Load Balance</i>	August 31, 2022
	<ul style="list-style-type: none"> Provide a summary update to the Water and Load balance results. This update was to have been provided within the timeline as set in the Licence. Since the timeline has elapsed, this summary update must be provided as soon as possible. 	
3.	<i>Waste Management and Reporting</i>	August 31, 2022 and all future Annual Reports
	<ul style="list-style-type: none"> Report the monthly and annual quantities of waste generated in cubic metres in all future reports; Provide information on the hazardous wastes shipped off site; Update the format and content of Table 1 to comply with condition #9 of Schedule B of the Licence and check the “Hazardous” box on the NWB Annual Report form if it applies. The territorial manifest number should be included in a separate column from the date, and the total waste volumes in cubic meters should be included where appropriate, not just the amount of each item per load; Provide further information on the reason as to why there are no manifest numbers listed for the shipment that occurred on August 17, 2021; and Update the NWB Annual Report Form to reflect the quantities of waste. 	
4.	<i>Monitoring Program- Shallow Groundwater Monitoring</i>	All future Annual Reports
	<ul style="list-style-type: none"> Compile all available (current and historical) water quality data compared to applicable criteria in tabular format (Excel spreadsheet) to summarize pre-construction conditions; Identify which baseline stations correspond to the proposed effects monitoring stations shown in the most recent Water Management Plan; If no baseline data has been collected from relevant stations since 2015, provide an explanation as to why; Include a discussion of how shallow flow zones in the active zone will be monitored for future impacts, specifically in zones directly adjacent to the active pits and the Waste Rock Storage Areas (WSRA); Include mapping of sandy seams or vertically and horizontally extensive sandy units, based on borehole lithology. If there are no shallow flow zones, present evidence from the borehole lithologies. 	
5.	<i>Monitoring Program – Reporting</i>	All future Annual Reports
	<ul style="list-style-type: none"> In all future Annual Reports, provide both the field readings and laboratory pH results in the water quality results tables. 	

6.	<i>Monitoring Program – General Monitoring</i>	August 31, 2022 and all future Annual Reports
	<ul style="list-style-type: none"> Clarify whether any general monitoring was conducted in 2021. If general monitoring was not conducted, provide a rationale, if general monitoring was conducted, provide the results to the NWB. Provide the results of general monitoring in all future annual reports. 	
7.	<i>Updating of Plans, Manuals and Reports</i>	August 31, 2022
	<ul style="list-style-type: none"> Provide a timeline for the anticipated submission of the updated Landfill and Waste Management Plan to the NWB 	
8.	<i>Tailings Management Plan (TMP)</i>	All future Annual Reports
	<ul style="list-style-type: none"> Provide the volumes or depth-area-capacity curves of the mined-out open pits in future TMPs. 	
9.	<i>Waste Rock Management Plan (WRMP) – Locations</i>	August 31, 2022
	<ul style="list-style-type: none"> Provide clarification on the location of the Echo/Goose Waste Rock Storage Area (WRSA). 	
10.	<i>WRMP - PAG vs Non-PAG</i>	August 31, 2022
	<ul style="list-style-type: none"> Provide PAG and NPAG distributions for the Echo open pit; Provide densities or PAG to NPAG distributions by volume for each deposit. 	
	<i>WRMP – Volumes</i>	August 31, 2022
	<ul style="list-style-type: none"> Provide volumes for each WRSA. 	
	<i>Water Management Plan (WMP)</i>	August 31, 2022
	<ul style="list-style-type: none"> Provide details on the complete water quality monitoring program, updated as appropriate, in the updated Water Management Plan. 	
Environment and Climate Change Canada (ECCC)		
1.	<i>Incinerator Stack Testing</i>	August 31, 2022
	<ul style="list-style-type: none"> Provide the results of any incinerator stack testing that may have already been performed, or indicate a timeframe for when incinerator stack testing will be performed in 2022 	
2.	<i>Geochemical Monitoring Results – Sample Classification and Use</i>	All future Annual Reports
	<ul style="list-style-type: none"> Classify all samples with a Neutralization Potential Ratio (NPR) greater than 1 and less than 2 as uncertain and as such not be used for construction because of its potential to generate acid. 	
3.	<i>Geochemical Monitoring Results – Cover for Tailings Facilities (TF)</i>	August 31, 2022
	<ul style="list-style-type: none"> Provide more details on how waste rock and overburden material will be used to cover tailings slurry in the Echo TF; and Demonstrate that a 5 m water depth covers for the Umwelt TF and Llama TF at closure will be adequate. 	

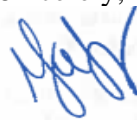
Nunavut Water Board (NWB)		
1.	<i>Management Plans Updates</i>	All future Annual Reports
	Provide a table listing all Management Plans modified in the reporting year and include the following information: <ul style="list-style-type: none"> • title of the plan; • most recent NWB Approval date (for approved plans); • most current update date; • brief description of the update including sections modified; • classification of the update (significant vs. insignificant as per Licensee). (Note that upon review of the plan, the Board will make their own determination of significance independent of the Licensee's suggestion). 	

After completing the technical review of the 2021 Annual Report Submission for Water Licence No: 2AM-BRP1831, the NWB has determined that the information provided generally addresses the requirements of current Water Licence. However, some information still needs to be provided to the Board in order for the 2021 Annual Report to be deemed acceptable. Please ensure the comments provided in the table above are addressed by the deadlines specified.

Additionally, the NWB is looking forward to reviewing the final Hydrodynamic Model, the updated Water and Load Balance Model, and the updated Aquatic Effects Management Plan, which Sabina committed to provide to the Board by August 31, 2022

Should you have any questions, please feel free to contact the undersigned at (867) 360-6338 (extension 29) or sergey.kuflevskiy@nwb-oen.ca, at your earliest convenience.

Sincerely,



 Sergey Kuflevskiy
 Technical Advisor
NUNAVUT WATER BOARD

Enclosure: Comments – KIA, CIRNA, ECCC

Cc: Distribution List – Back River