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ECCC File: 6100 000 115/001
NIRB File: 12MN036



July 4, 2024

via email at: info@nirb.ca

Cassel Kapolak
Manager, Public Registry
Nunavut Impact Review Board
29 Mitik Street
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Dear Cassel Kapolak:

RE: 12MN036 – B2Gold Corporation (B2Gold) – Back River Project – 2023 NIRB Annual Report

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Impact Review Board (NIRB) regarding the above-mentioned 2023 Annual Report.

ECCC provides expert information and knowledge to project assessments on subjects within the department's mandate, including climate change, air quality, water quality, biodiversity, environmental preparedness and emergencies. This work includes reviewing proponent characterization of environmental effects and proposed mitigation measures. We provide advice to decision-makers regarding a proponent's characterization of environmental effects, the efficacy of their proposed mitigation activities, and may suggest additional mitigation measures. 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. Comparison of Monitored Nitrogen Dioxide (NO₂) Concentrations with CAAQS

Reference(s)

- Project Certificate Condition No. 2, Section 4.5.1: Air Quality (PC TCS 1 Through 5), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024
- Table 4.1-1: Relevant Ambient Air Quality Standards and Guidelines, Section 4.1: Air Quality, Back River Project, Air Quality Monitoring and Management Plan, July 2019



Comment

Section 4.5 of the 2023 Annual Report compares monitored NO₂ concentrations with the Nunavut Ambient Air Quality Standards (NAAQS). In Table 4.1-1 of the Air Quality Monitoring and Management Plan, the Proponent considers both NAAQS and Canadian Ambient Air Quality Standards (CAAQS). It would be of value, for reference purposes, to compare the annual NO₂ results with the CAAQS in the annual reports, as the CAAQS is formulated from health-based science.

ECCC Recommendation(s)

ECCC recommends that the Proponent compare monitored NO₂ concentrations with the CAAQS in the annual reports, in addition to the already considered standards.

2. Monitoring of Total Suspended Particulates (TSP) and Respirable Particulate Matter (PM_{2.5})

Reference(s)

- Project Certificate Condition No. 2, Section 4.5.1: Air Quality (PC TCS 1 Through 5), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024
- Section 7.3: Particulate Monitoring (TSP and PM_{2.5}), Back River Project, Air Quality Monitoring and Management Plan, July 2019
- Table 7.9-1: Air Quality Monitoring Schedule, Section 7.7: Summary, Back River Project, Air Quality Monitoring and Management Plan, July 2019

Comment

Section 4.5.1 of the 2023 Annual Report mentions the monitoring of passive NO₂ and dustfall in 2023. Table 7.9-1 of the Air Quality Monitoring and Management Plan indicates that particulate matter is planned to be monitored during construction and operation phases. Section 7.3 of the Air Quality Monitoring and Management Plan states that “As particulate monitoring requires dedicated line voltage power and shelter, monitoring will commence during the construction phase when power and shelter becomes available.”

It is unclear from the information in the 2023 Annual Report, the reasoning behind why particulate matter (TSP and PM_{2.5}) monitoring was not conducted in 2023. Reasoning for the absence of particulate monitoring in 2023 should be added to the report, including whether it was due to lack of voltage power and shelter.

ECCC Recommendation(s)

ECCC recommends that the Proponent provides the rationale of why particulate matter (TSP and PM_{2.5}) monitoring was not conducted in 2023, and if applicable, indicate when it is planned to occur.

3. Reporting Migratory Bird Mortalities

Reference(s)

- Project Certificate Condition No. 59, Section 4.5.11: Birds and Bird Habitat (PC TCS 53 through 61), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024
- B2Gold Nunavut, Back River Mine, 2023 Wildlife Mitigation and Monitoring Program Report, March 2024

Comment

Project Certificate Condition No. 59 in the 2023 Annual Report states that “Any incidents of bird mortalities associated with project activities are to be recorded and reported to Environment and Climate Change Canada (Canadian Wildlife Service). The Proponent shall work with the Canadian Wildlife Service to determine appropriate recording and reporting format and timing.” It is then reported below, that “Of the nine bird mortalities recorded at Back River in 2023, three were reported to ECCC directly”.

While the Proponent is in compliance for reporting mortalities in the annual report, one-time annual notification does not facilitate ongoing adaptive management. Timely notifications would allow ECCC’s Canadian Wildlife Service (CWS) to identify unknown species and provide targeted advice.

CWS prefers to receive all notifications of avian mortalities as they occur, with descriptions, photos, causes, and follow-up actions related to the mortality incident(s).

ECCC Recommendation(s)

ECCC recommends the Proponent notify ECCC’s Canadian Wildlife Service directly (cwsnorth-scfnorth@ec.gc.ca) for instances involving interactions and/or potential disturbance of migratory bird individuals or nests, and any mortality events of these species, as they occur.

4. Pre-Clearing Nest Surveys

Reference(s)

- Project Certificate Condition No. 56, Section 4.5.11: Birds and Bird Habitat (PC TCS 53 through 61), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024
- B2Gold Nunavut, Back River Mine, 2023 Wildlife Mitigation and Monitoring Program Report, March 2024

Comment

Project Certificate Condition No. 56 in the 2023 Annual Report requires that the Proponent schedule ground-disturbance and clearing activities prior to the seasonal return of migratory birds to the project area, and that non-invasive pre-clearing nest surveys be conducted “if clearing is to occur during the nesting season.” Furthermore, “information regarding

scheduling issues and/or results of surveys conducted by the Proponent in fulfillment of this Term and Condition shall be included in the Proponent's annual report to the Nunavut Impact Review Board."

Information in the Back River Project Wildlife Mitigation and Monitoring Program Report, indicates that clearing was required during the nesting season (July and August). While Project Certificate Condition No. 56 allows for clearing during breeding season, if necessary, it is not clear why the Proponent deemed the clearing necessary.

ECCC Recommendation(s)

ECCC recommends that the Proponent:

- a. Clarify the rationale for why clearing was conducted during breeding bird nesting windows, rather than scheduled for a time outside of this window; and
- b. Provide rationale, in future Annual Reports and/or Wildlife Monitoring and Mitigation Program Reports, for any occasion where a decision is made to clear during nesting times.

5. Species at Risk Updates

Reference(s)

- Project Certificate Condition No. 55, Section 4.5.11: Birds and Bird Habitat (PC TCS 53 through 61), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024
- Table 10-1: Species of Conservation Concern Known or Potentially Occurring at the Back River Mine, 2023, B2Gold Nunavut, Back River Mine, 2023 Wildlife Mitigation and Monitoring Program Report, March 2024

Comment

Species at Risk (SAR) are assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or added to Schedule 1 of the *Species at Risk Act* (SARA) on a regular basis.

ECCC commends the Proponent for adhering to Project Certificate Condition No. 55, by ensuring mitigation and monitoring is updated regularly to maintain consistency with changes to species at risk listings in the Back River Mine 2023 Wildlife Mitigation and Monitoring Program Report (WMMPR).

Table 10-1 of the WMMPR identifies Horned Grebe as a species of Special Concern by COSEWIC since 2023, and as not listed on SARA Schedule 1. While the information listed here is correct, ECCC would like to clarify that the Horned Grebe Western Population is listed on SARA Schedule 1 as a species of Special Concern (since 2017), and so the Proponent must continue to comply with the conditions of the SARA as they apply to Horned Grebe.

ECCC Recommendation(s)

ECCC recommends that the Horned Grebe Western Population, which is likely to be encountered in Nunavut, also be considered a 'Species of Conservation Concern Known or Potentially Occurring' at the Back River Mine within the Proponent's Wildlife Mitigation and Monitoring Program.

6. Responsibility Under the E2 Regulations

Reference(s)

- *Environmental Emergency Regulations*, 2019 (link: <https://laws.justice.gc.ca/PDF/SOR-2019-51.pdf>)
- Application for MLA Tank Farm Modification (Phase 3: Addition of Tank 5), B2Gold Nunavut, May 28, 2024
- Goose & MLA Project Sites – 2023 Annual Geotechnical Inspection, Back River Project, Nunavut, Canada, B2Gold Corp., April 2024

Comment

With the progress on the construction of the tank farms, ECCC would like to bring to the attention of the Proponent, that a 'notice of change' may be required as stipulated in subsection 3(5) of the Environmental Emergency Regulations, 2019, which state:

"A responsible person must, within 60 days after the day on which any of the following situations occurs, submit an updated notice to the Minister that contains the information referred to in Schedule 2:

(a) the information that was reported under section 1 or 2 of Schedule 2 has changed;

(b) the maximum expected quantity that was most recently reported under paragraph 3(d) of Schedule 2 in respect of a substance has increased by 10% or more; or

(c) the maximum capacity that was most recently reported under paragraph 3(f) of Schedule 2 in respect of a container system, in which a quantity of a substance is contained, has increased by 10% or more."

ECCC Recommendation(s)

ECCC recommends that the Proponent submit an updated 'notice of change', if a situation covered under subsection 3(5) of the Environmental Emergency Regulations occurs.

This recommendation was also provided in ECCC's comments, dated June 24, 2024, for the review of the Marine Laydown Area (MLA) Tank Farm Modification Request on the Back River Project, and in the NWB 2023 Annual Report.

7. Description of Spill Event

Reference(s)

- Table 4.4-1: Unauthorized Discharges in 2023 (Reportable), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024

Comment

Table 4.4-1 of the Annual Report indicates that a spill of 5000 L of 'Petroleum lubricating oil' occurred on the winter ice road on January 22, 2023. However, details regarding the cause of the spill, or if appropriate mitigation measures have been implemented to minimize the risk of future releases of this magnitude, are not provided.

Generally, a description of the events and circumstances surrounding a spill is necessary to analyze if the appropriate measures were taken in response. This helps ensure that effective steps are implemented to prevent similar incidents in the future.

ECCC Recommendation(s)

ECCC recommends that the Proponent update the 2023 Annual Report, to include a description of the events that led to the release of 5000 L of 'Petroleum, lubricating oil', and the corresponding measures taken to prevent future releases of this magnitude.

ECCC further recommends that future annual reports include both:

- Copies of spill reports; and
- Descriptions of spill events, including circumstances surrounding any spill events, and follow-up measures taken to mitigate future similar incidents.

8. Environmental Emergencies (E2) Regulated Commodities

Reference(s)

- Image M-43, Goose & MLA Project Sites – 2023 Annual Geotechnical Inspection, Back River Project, Nunavut, Canada, B2Gold Corp., April 2024

Comment

The Description of Image M-43, in Part 4 of the Geotechnical Inspection Report, states that "Oil was noted at the surface of the ponding water". ECCC is unclear from the information provided in the report, if the location was cleaned following the inspection.

ECCC Recommendation(s)

ECCC recommends that the Proponent clean-up the oil observed in Image M-43 of the Geotechnical Inspection Report, if this already hasn't been completed. ECCC further recommends that the Proponent implement procedures to help make sure that all future dismantling of secondary containments is completed without releasing the residual oil.

9. List of Hazardous Substances On-Site

Reference(s)

- Section 9.4: Hazardous Materials On-Site, Back River Project, Spill Contingency Plan, Version #4.0, February 2024
- Section 3.1: Overview, Goose & MLA Project Sites – 2023 Annual Geotechnical Inspection, Back River Project, Nunavut, Canada, B2Gold Corp., April 2024
- *Environmental Emergency Regulations*, 2019 (link: <https://laws.justice.gc.ca/PDF/SOR-2019-51.pdf>)
- Application for MLA Tank Farm Modification (Phase 3: Addition of Tank 5), B2Gold Nunavut, May 28, 2024

Comment

Section 9.4 of the Spill Contingency Plan, states that “A list of the main hazardous materials to be transported to and stored on-site is provided within the Hazardous Materials Management Plan (HMMP).” However, the only HMMP that ECCC could locate, dates back to November 2015 and does not provide an accurate account of the hazardous substances currently stored on-site. This information is necessary to evaluate if the Proponent has appropriate preparedness and response measures in place and compliance with the Environmental Emergency Regulations (E2 Regulations).

Additionally, with the recent construction and ongoing construction of large storage tanks, and significant infrastructure at the Project sites, it is unclear what fuels or hazardous substances are stored, and in what quantities.

ECCC Recommendation(s)

ECCC recommends that the Proponent provide an updated account of all hazardous substances stored at the various Project sites in the Spill Contingency Plan. This should include detailed information on the location, volume/mass, types of containment, and number of containers for each hazardous substance.

10. Inspection Results and Actions

Reference(s)

- Section 4.4.1: Agency Inspections and Site Visits, B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024

Comment

The report discusses inspections and site visits, and states that during the CIRNAC visits:

“Three actions were identified in the March inspection report, and 4 main topics that required action were identified in the September inspection. B2Gold Nunavut addressed the actions they could in 2023 and provided CIRNAC [Crown-Indigenous Relations and Northern Affairs Canada] with a response on January 2, 2024, which included an action

plan to address the remaining concerns and has hired a 3rd party engineer to assist with this.”

No additional information is provided on the topics identified by CIRNAC, or the actions that were taken by the Proponent to address the concerns.

ECCC Recommendation(s)

ECCC recommends that the Proponent update the 2023 Annual Report to provide a summary of the topics that were noted during the CIRNAC inspection/site visit, including any corrective actions that were taken to address the concerns.

11. 2023 Aquatic Baseline Data

Reference(s)

- Section 4.5.7: Groundwater and Surface Water Quality (PC TCs 21 Through 22), B2Gold Nunavut, Back River Project, 2023 Annual Report, April 12, 2024
- Sabina Gold & Silver Corp. Back River Project – 2021 Aquatic Baseline Report, June 7, 2022
- Sabina Gold & Silver Corp. Back River Project – 2022 Aquatic Baseline Report, March 9, 2023

Comment

Under the ‘Results’ header for Project Certificate Condition No. 21 in the 2023 Annual Report it states that “A summary of the 2023 baseline data is provided in Appendix F2.”

ECCC notes Appendix F2 only includes the 2022 Aquatic Baseline Report, and Appendix F1 includes the 2021 Aquatic Baseline Report. No results have been provided for 2023. It is unclear whether the reference to the 2023 Aquatic Baseline results is in error, or whether the results are missing from the annual report submission.

ECCC Recommendation(s)

ECCC recommends the Proponent provide updates to the 2023 Annual Report, correcting the reference for Appendix F2. ECCC further recommends that the Proponent provide the 2023 Aquatic Baseline results, either instead, or in addition, to the 2022 results attached in Appendix F2.

12. 2023 Compliance Monitoring

Comment

No authorizations from ECCC have been issued.

The B2Gold, Back River Project, is captured under several pieces of ECCC legislation, including subsection 36(3) of the *Fisheries Act* (FA), *Metal and Diamond Mining Effluent Regulations* (MDMER), *Canadian Environmental Protection Act* (CEPA), *Environmental*

Emergency Regulations (E2 Regulations), and Cross-border Movement of Hazardous Waste and Hazardous Recyclable Material Regulations (XBR).

In May 2023, one on-site inspection was conducted at the mine site and the port location / Marine Laydown Area (MLA). The following summary of the inspection is provided:

- The MLA and mine site proper, both trigger the E2 Regulations. Currently about 10 million litres of diesel are stored in these locations. This amount is expected to increase to 84 million litres in the future.
- No FA issues were noted at the time of the inspection.
- Due to the fact the sites are located on Inuit Owned Lands, the site does not trigger typical Federal site regulations, including *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations (STSR)*, or *Federal Halocarbon Regulations (FHR)*.
- The mine indicated that it was not currently discharging, but expects it may trigger MDMER legislation by the summer of 2025.
- The officer provided an ECCC Compliance Promotion contact for MDMER, in anticipation of triggering that legislation in the future.
- The office who attended the site, was made aware of a culvert issue, which may have caused sedimentation, that was reported to Fisheries and Oceans Canada (DFO). ECCC would like to note that a 'sedimentation event' could be classified as a 'deleterious deposit' under subsection 36(3) of the FA. This event, and any future similar events, should be reported to the NT-NU 24-Hour Spill Report Line at (867) 920-8130, even if the Proponent is also contacting DFO directly.

If you need more information, please contact Stephinie Mallon at Stephinie.Mallon@ec.gc.ca.

Sincerely,

[original signed by]

Stephinie Mallon
Environmental Assessment Officer

cc: Melissa Pinto, Acting Head, Environmental Assessment North (NT and NU)