Crown-Indigenous Relations and Northern Affairs Canada
Relations Couronne-Autochtones et Affaires du Nord Canada

Water Resources Division
Resource Management Directorate
Nunavut Regional Office
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Your file - Votre référence
2AM-BRP1831
Our file - Notre référence
GCDocs148086692

August 19, 2026

Richard Dwyer
Manager of Licensing
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU, X0B 1J0
E-mail: licensing@nwb-oen.ca

Re: Crown-Indigenous Relations and Northern Affairs Canada's Review of the 2025 Annual Report Response to Comments for B2 Gold's Back River Project, Type A Water Licence No. 2AM-BRP1831.

Dear Richard,

Thank you for the August 4, 2026 invitation to review the 2025 Annual Report response to comments, submitted by B2 Gold, for Type A Water Licence No. 2AM-BRP1831.

Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) examined the application pursuant to its mandated responsibilities under the *Nunavut Waters and Nunavut Surface Rights Tribunal Act* and the *Department of Crown-Indigenous Relations and Northern Affairs Act* and provides the following Technical Review Memorandum for the Board's consideration.

If there are any questions or concerns, please contact me at (873) 800-5240 or Pauline.Firmin@rcaanc-cirnac.gc.ca or Andrew Keim at (867) 975-4550 or Andrew.Keim@rcaanc-cirnac.gc.ca.

Sincerely,

Pauline Firmin

Pauline Firmin, M. Sc,
Regional Coordinator

Canada

Table 1: Summary of Recommendations

Recommendation Number	Subject	Status
R-01	Stream/Lake Water Quality – Increasing Site Water Quality Exceedances	Partially Resolved
R-02	Infrastructure & Engineering – Goose Airstrip South Drainage Improvements	Resolved
R-03	Infrastructure & Engineering – Echo Haul Road Culverts	Resolved
R-04	Infrastructure & Engineering – Goose Tank Farm Phase 2 Liner Damage	Resolved with commitment
R-05	Infrastructure & Engineering – MLA Quarry Tank Farm Liner Damage	Resolved
R-06	Landfill & Waste Management – General	Partially Resolved
R-07	Landfill & Waste Management – Incinerator Testing	Resolved
R-08	Landfill & Waste Management – Waste & Waste Chemical Storage	Resolved
R-09	Acid Rock Drainage & Metal Leaching – Test Method for Determining Neutralization Potential	Unresolved
R-10	Acid Rock Drainage & Metal Leaching – Testing of Tailings and Treatment Sludges	Unresolved
R-11	Acid Rock Drainage & Metal Leaching – WRSA Water Management and Monitoring	Resolved
R-12	Acid Rock Drainage & Metal Leaching – SFE Testing	Resolved with commitment
R-13	Acid Rock Drainage & Metal Leaching – Monitoring of Seepage and Run-off from Waste	Resolved
R-14	Hazardous Materials Management and Monitoring – Hazardous Materials Tracking System	Resolved with commitment

R-15	Hazardous Materials Management and Monitoring – Post Remediation Sampling	Resolved with commitment

A. DOCUMENTS REVIEWED AND REFERENCED

The following table (Table 2) provides a list of the documents reviewed under the submission and reference during the review.

Table 2: Documents Reviewed and Referenced

Document Title	Author, File No., Rev., Date
Water Licence 2AM-BRP1831 (Amendment No.1)	Nunavut Water Board, August 31, 2021
Back river gold mine project 2025 water license annual report: Comment response	B2Gold Nunavut, August 2, 2026

B. RESULTS OF REVIEW

1. Stream/Lake Water Quality – Increasing Site Water Quality Exceedances

Reference:

260331-Goose Project 2025 Annual Report for Water Licence 2AM-BRP1831. Appendix I: Aquatic Effects Monitoring Report, Executive Summary; Goose Project 2025 Annual Rep, Table TC6-1.

Comment:

CIRNAC notes that as indicated in the Executive summary of Appendix I (pages iii and iv), *"In 2025, four water quality sampling programs were conducted for the Project: one during under-ice conditions (April) and three in open-water conditions (July, August, and September). Water samples and field measurements were collected from two areas in Goose Lake (West Bay and Central Basin) and one area in Reference B Lake. The dewatering discharge to Goose Lake West Bay occurred from mid-July to late-August.*

An investigation was initiated in June 2025 in response to the observed changes in Goose Lake water quality that were reported in the 2024 annual report (WSP 2025b). The results of the water quality investigation were analyzed as part of this AEMP report to identify factors from the Project that may have contributed to the increase in nitrate, nitrite, and total and dissolved cobalt concentrations in Goose Lake. This investigation used parameter concentrations as an indicator of potential sources.

The results suggest that the inflow from Llama and Umwelt Lakes and the inflow from Echo Lake contributed large concentrations of nitrate and cobalt parameters after September 2023. Other sources or processes at play are also likely, especially for nitrites. Contact water, seepage, and/or runoff flowing into these streams appear to be the source of increased parameter concentrations in Goose Lake in 2024 and 2025. Recommended mitigation options are to improve water management, dust control at site, and increase monitoring in 2026. These actions have the objective of mitigating future inputs into Goose Lake with the potential to reverse the changes to water quality identified in Goose Lake in 2024 and 2025".

CIRNAC appreciates B2Gold Nunavut's efforts to determine the possible source(s) of lake and stream contamination in the mine footprint area and implement further mitigation measures as may be required to address this developing concern.

However, it is understood that B2Gold Nunavut is currently using ANFO (Ammonium Nitrate Fuel Oil) for approximately two thirds of its annual explosives needs (1,745,501 kg), compared with 801,924 kg of emulsion explosives. Air emissions from the use of ANFO are known to be a significant source of nitrates, nitrites, and other waste products.

These are likely contributors to the progressively increasing concentrations of these contaminants found in the mine area streams and lakes.

Recommendation:

(R-01) CIRNAC recommends that additional mitigation measures be implemented to further improve water management during extreme precipitation events, improve dust control at site, and increase water quality monitoring in 2026. Efforts to ensure complete and full combustion of explosives used on site to prevent the transport of waste nitrates and nitrites from the blast should be undertaken and a report prepared for within 90 days to detail what has been done and what monitoring will be put in place to address the issue.

CIRNAC also recommends that B2Gold Nunavut consider reducing its use of ANFO and increasing its use of emulsion explosives, which offer enhanced performance in wet conditions, greater stability, more complete combustion, and reductions in the release of contaminants to the receiving environment.

Proponent's Response

- B2Gold Nunavut acknowledges the comment and would like to let CIRNAC know that an emulsion plant is currently under construction to enhance performance and reduce the use of ANFO. This will reduce potential release of residual chemicals (e.g., nitrate and nitrite to the receiving environment and improve water quality. B2Gold will provide updates when construction of the emulsion plant is completed and operational.
- B2Gold Nunavut is also implementing additional mitigations measures (e.g., erosion and sediment control, dust suppression and control) to improve water management and quality. Engineered water management structures are also being contemplated to effectively manage contact water.

CIRNAC's Response

CIRNAC thanks B2Gold Nunavut for its response and notes the proponent's commitment to construct and operate an emulsion plant to reduce reliance on ANFO. CIRNAC reiterates its recommendation that, until the emulsion plant is operational, measures be implemented to ensure complete combustion of explosives and prevent the transport of waste nitrates and nitrites. A report should be provided within 90 days outlining the measures taken and the monitoring program established to address this issue.

CIRNAC also notes the proponent commitment's to implement additional mitigation measures to improve water management and water quality, including erosion and sediment control, dust suppression, and consideration of engineered water management structures. The 2026 annual report should include an update on the status and effectiveness of these mitigation measures.

4. Infrastructure & Engineering – Goose Tank Farm Phase 2 Liner Damage

Reference:

- Nunavut Water Board – Water Licence No: 2AM-BRP1831 (Amendment No. 1) – Part D (Conditions Applying to Construction and Operation), Condition 20.
- Goose & MLA Project Sites – 2025 Annual Geotechnical Inspection (SRK 2026) – Section 6.1 (Goose Property Primary Observations), Table 3, Page 19

Comment:

CIRNAC notes that the 2025 Annual Geotechnical Inspection (Table 3, Page 19) identifies that the liner system in Phase 2 of the Goose Tank Farm was observed to be damaged:

> *"During a walkover inspection of the containment area, a damaged HDPE liner was observed at the toe of the northern berm of Phase 2 containment area."*

The damaged liner is recommended to be exposed, inspected, and repaired:

> *"The damaged liner should be exposed and inspected to assess the full extent of the tear. Repairs should be completed in accordance with project specifications and applicable liner repair procedures. Following repair, the area should be protected with the engineering fill material for protection."*

Recommendation:

(R-04) CIRNAC recommends that B2Gold Nunavut expose, inspect, and repair the damaged liner system within the Phase 2 Containment Area of the Goose Tank Farm, per the operational requirements outlined in the Project's Water Licence (Part D, Condition 20). This activity should be reported on/or within 180 days following the receipt of CIRNAC's comments.

Proponent's Response

B2Gold Nunavut will inspect and repair the damaged liner system within the Phase 2 Containment Area of the Goose Tank Farm. Updates will be provided when the work is complete.

CIRNAC's Response

CIRNAC thanks B2Gold Nunavut for its response and notes the commitment to inspect and repair the damaged liner system within the Phase 2 Containment Area of the Goose Tank Farm and provide an update on the completion of the commitment.

6. Landfill & Waste Management – General

Reference:

260331-Goose Project 2025 Annual Report for Water Licence 2AM-BRP1831; – Section 2.3 Schedule – Waste; Appendix A - 2025 Annual Geotechnical Inspection Report

Comment:

CIRNAC notes that the Annual report refers to compliance with Schedule B, Condition 9 of the Water Licence. It is stated that wastes that are categorized as dangerous good or non-regulated goods are backhauled to KBL. KBL provides services to transfer these wastes to approved facilities outside Nunavut. Records are included in Appendix F, Tables F-1, and F-2.

It is also stated that non-hazardous waste is identified as being suitable for landfill according to the Project Landfill and Waste Management Plan. These wastes were disposed at the Echo and Umwelt WRSA landfills (Figure G-420). Records are provided in Appendix F – Table F-5). Quantiles disposed are estimated to be 7,412 m3 at the Echo site and 3,071 m3 at Umwelt site.

B2Gold Nunavut reports that a “Landfill and Waste Management Plan” was submitted and approved in 2025.

The 2025 Annual Geotechnical report identifies the following:

- A Tote containment facility was completed in August 2025 – no concerns were identified in the report.
- The Report emphasizes that landfilled waste at Echo occurs within the central portion of the WRSA and any waste outside the approved WRSA footprint is removed.

Former temporary fuel storage Depot – a landfill has been established at this location. There is evidence of permafrost degradation and ponded water increasing the risk of soil contamination.

Recommendation:

(R-06) CIRNAC recommends that periodic compaction and cover be undertaken on landfilled waste and at the Echo and Umwelt WRSA locations. CIRNAC also recommends that the waste disposed at the temporary storage Depot be collected and disposed of in accordance with the Landfill and Waste Management Plan.

It is noted that Waste records have improved over the previous year, and CIRNAC recommends that B2Gold Nunavut continue with the current record keeping and reporting format in the 2026 Annual report.

Proponent's Response

B2Gold Nunavut acknowledges the comment and would like to assure CIRNAC that periodic compaction and cover are undertaken on landfilled waste following our approved landfill and waste management plan (Sections 6 and 7). We will continue with current record keeping and information will be included in the 2026 annual report.

CIRNAC's Response

CIRNAC thanks B2Gold Nunavut for its response and notes the commitment to continue following the approved landfill and waste management plan and annual reporting. CIRNAC notes that the proponent did not indicate whether the waste disposed at the temporary storage Depot has been, or will be collected and disposed of in accordance with the Landfill and Waste Management Plan and what actions or plan was put in place to mitigate the permafrost degradation and ponding observed at the site.

9. Acid Rock Drainage & Metal Leaching – Test Method for Determining Neutralization Potential

Reference:

- 260331-Goose Project 2025 Annual Report for Water Licence 2AM-BRP1831, Section 2.3
- Mine Waste Rock Management Plan (WRMP), Sabina 2022, Section 7.1.4

Comment:

CIRNAC notes that the 2025 Annual Report for Water Licence indicates the Neutralization Potential (NP) in Section 2.3 and in results tables is calculated based on the Modified Sobek analysis. The NP value is subsequently used in the calculation of the Neutralization Potential Ratio (NPR) value which is used to classify the samples as either NAG or PAG using the site-specific criteria.

Section 7.1.4 of the WRMP specifies that "total inorganic carbon (TIC) will be used to calculate the neutralization potential (NP)".

Recommendation:

(R-09) CIRNAC recommends that B2Gold Nunavut clarify if testing of total inorganic carbon is completed and justify the change in the method of calculating the NP value from what is presented in the WRMP. If B2 Gold Nunavut would like to modify the existing condition for total inorganic carbon analysis on all samples and use of TIC to calculate neutralization potential, as presented in Section 7.1.4 of the approved WRMP, then a new WRMP should be submitted for approval by the board.

Proponent's Response

- Neutralization Potential (NP) values reported in the 2025 annual report were calculated using the Modified Sobek Acid-Base Accounting (MSABA) method. In February 2026, B2Gold transitioned from Modified Sobek to Sobek Acid-Base Accounting (SABA) testing at the recommendation of its geochemical consultant, Stantec. The change was implemented for technical and standardization purposes, as the Sobek method is more widely recognized by commercial laboratories and is more commonly used throughout the mining industry, including B2Gold's external laboratory (i.e., ALS) for geochemical analyses. The transition was also intended to provide a more representative estimate of Neutralization Potential (NP) in carbonate-bearing materials, reduce some of the limitations associated with the Modified Sobek method that may result in over- or under-estimation of NP depending on sample mineralogy, and improve consistency with other ARD/ML characterization programs conducted by external laboratories.
- Total Inorganic Carbon (TIC) continues to be analyzed as part of the geochemical characterization program. The methodological change was reviewed and approved, and comparative evaluations indicate that the change has produced broadly similar classification results, with a modest increase in material classified as Non-Acid Generating (NAG) of approximately 2%.
- NP values derived from the selected ABA methodology are used to calculate Neutralization Potential Ratio (NPR) values that support the classification of material as NAG or Potentially Acid Generating (PAG).

CIRNAC's Response

CIRNAC thanks B2Gold Nunavut for its response and request that the proponent clarify the statement that the methodological change was "reviewed and approved," including who conducted the review and approval process and whether supporting technical documentation of the recommendation is available. CIRNAC also requests clarification on how the current approach aligns with Section 7.1.4 of the approved Waste Rock Management Plan, which states that TIC will be used to calculate NP, and whether the WRMP will be updated to reflect the methodology currently being applied.

10. Acid Rock Drainage & Metal Leaching – Testing of Tailings and Treatment Sludges

Reference:

- 260331-Goose Project 2025 Annual Report for Water Licence 2AM-BRP1831, Section 2.3 and Table F-7
- Tailings Management Plan V. 3.0 (TMP), Section 6

Comment:

CIRNAC notes that TMP Section 6 indicates that as part of the Monitoring Program, B2Gold Nunavut will conduct "*Grab sampling of tailings and treatment sludges as they are produced to evaluate the potential for remobilization of arsenic of these materials remains within predicted levels"*

The Annual Report Table F-7 shows tailings being placed in the Echo Tailings Storage Facility (ETSF) from June-December 2025.

CIRNAC could not locate the results of the grab sampling or confirmation that the grab sampling was conducted as outlined in the Tailings Management Plan Version. 3.0 (TMP), Section 6.

Recommendation:

(R-10) CIRNAC recommends that B2Gold Nunavut clarify if testing of the tailings product produced and placed in the ETSF was subjected to tests to evaluate the potential for remobilization of arsenic from these materials. If results are available, please provide them as per the Annual Reporting requirements. If not available, please advise what measures will be put in place to ensure that this sampling will be done as outlined in Section 6.0 of the TMP.

Proponent's Response

B2Gold Nunavut can confirm that the tailings are being tested and results will be provided in the annual report to NIRB. Test results from July to December 2025 are provided in Appendix CIRNAC 10. Review of the data collected from July to December 2025 shows that arsenic (As) concentrations are low and generally below the detection limits, suggesting that there is no remobilization of arsenic.

CIRNAC's Response

CIRNAC thanks B2Gold Nunavut for its response. The response indicates that B2Gold Nunavut will provide the results of testing in the annual report to NIRB, but does not indicate whether the result will be made available in the NWB annual report. CIRNAC notes that the response referenced Appendix CIRNAC 10, which appears to contain results for the Tailings Reclaim Water for Echo Pit results rather than the referenced testing for tailings and treatment sludges described in Section 6 of the Tailings Management Plan. CIRNAC requests clarification on whether this sampling is being conducted and, if so, where the associated results are located.

12. Acid Rock Drainage & Metal Leaching – SFE Testing

Reference:

- 260331-Goose Project 2025 Annual Report for Water Licence 2AM-BRP1831.
- Mine Waste Rock Management Plan (WRMP), Sabina 2022, Section 7.1.4

Comment:

CIRNAC notes that the WRMP specifies that "*Short-term leach testing following the shake flask extraction (SFE) method will be conducted on [a] subset [of the samples] to confirm the metal leaching potential of NPAG material, this testing is not required for PAG samples, as PAG waste rock will not be used in construction*".

The WRMP indicates that "NPAG samples analyzed for SFE will be compared to 10x CCME guidelines for aquatic life to confirm metal leaching potential. Material with a high metal leaching potential will also not be used for WRSA cover material.

As per Water Licence 2AM-BRP1831 Part D, Item 5, only waste rock to be confirmed to be NPAG and non-metal leaching may be used as construction material.

The annual report does not indicate that SFE testing was completed on any samples in 2025.

Recommendation:

(R-12) CIRNAC recommends that B2Gold Nunavut confirm if any SFE testing has been completed during 2025, and to provide a summary of the results or justification for the testing not having been completed as described in Section 7.1.4 of the WRMP (2022).

Proponent's Response

Based on the information currently available, no Shake Flask Extraction (SFE) testing was completed during 2025. To address the requirements of the WRMP and Water Licence, SFE testing has been incorporated into the 2026 geochemical monitoring program. A subset of NPAG samples will be analyzed to confirm metal leaching potential, and a summary of the results will be included in future annual report.

CIRNAC's Response

CIRNAC thanks B2Gold Nunavut for its response and notes the commitment to conduct SFE testing and testing of a subset of NPAG samples to confirm metal leaching potential and provide a summary of the results that will be included in future annual report.

14. Hazardous Materials Management and Monitoring - Hazardous Materials Tracking System

Reference:

- Goose Project 2025 Annual Report for Water Licence 2AM-BRP1831, Section 2.4 Schedule B – Spills, Appendix F and Appendix G
- Section 13e of Water Licence No: 2AM-BRP1831 (Amendment No. 1).

Comment:

CIRNAC notes that the Goose Project 2025 Annual Report for Water Licence 2AM-BRP1831, Section 2.4 Schedule B – Spills and Appendix G indicated that some material from cleanup activities was transported for storage pending future treatment at the new Waste Management Facility, scheduled to be constructed with a soil treatment facility. Appendix F Table F1 Goose Waste Backhauled, 2025 included entries for “Soil contaminated with hydrocarbons”.

The report does not identify which contaminated soil is being stored pending treatment, nor confirm that a tracking system has been implemented to prevent potential handling errors.

There is a potential for handling errors or incorrect disposal associated with the longer-term storage, pending acceptance of the updated Landfill and Waste Management Plan (LWMP) and commissioning of the proposed soil treatment facility.

Recommendation:

(R-14) CIRNAC recommends that a hazardous materials tracking system be implemented pending the formal acceptance of the updated LWMP. Hazardous materials should be tracked until they meet the requirements of the updated LWMP delisting protocol.

It is also recommended that details regarding the implementation of a hazardous materials tracking system be incorporated into a future version of the Hazardous Materials Management Plan (October 2017).

Proponent’s Response

B2Gold Nunavut acknowledges CIRNAC’s comment and will ensure hazardous materials are tracked until they meet the requirements of the LWMP. Additionally a hazardous materials tracking system will be implemented and incorporated into a future version of the Hazardous Materials Management Plan.

CIRNAC’s Response

CIRNAC thanks B2Gold Nunavut for its response and notes the commitments to ensure hazardous materials are tracked until they meet the requirements of the LWMP and that a hazardous materials tracking system will be implemented and incorporated into a future

version of the Hazardous Materials Management Plan. The results from the hazardous materials tracking system should be included in the 2026 annual report.

15. Hazardous Materials Management and Monitoring - Post Remediation Sampling

Reference:
Goose Project 2025 Annual Report for Water Licence 2AM-BRP1831, Section 2.4 Schedule B – Spills and Appendix G.

Comment:
CIRNAC notes that the Goose Project 2025 Annual Report for Water Licence 2AM-BRP1831, Section 2.4 Schedule B – Spills indicated that 13 of 14 spills were cleaned up.

Appendix G indicated that contaminated soil was removed following four spills. No information was provided on post-excavation confirmatory soil sampling to verify that all contaminated soil had been removed.

Recommendation:
(R-15) CIRNAC recommends that post-remediation sampling should be considered for spills that have impacted underlying soils if the spilled substance represents a potential longer-term risk to environmental receptors. If conducted, the results of post-remediation sampling should be included in Appendix G.

Proponent's Response
B2Gold Nunavut acknowledges CIRNAC's comment and confirms that post remediation sampling will be conducted for spills that have impacted underlying materials if the material can be sampled. Most of the spills occur on run of quarry fill material which are coarse texture materials that may be difficult to test. However, if tested, the results will be included in future annual report.

CIRNAC's Response
CIRNAC thanks B2Gold Nunavut for its response and notes the commitments that post remediation sampling will be conducted for spills that have impacted underlying materials, if the material can be sampled, and that the results will be included in future annual report.