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

May 28, 2026

via email at: info@nirb.ca

Brittany Hogaluk
Public Registry Coordinator
Nunavut Impact Review Board
29 Mitik Street
P.O. Box 1360
Cambridge Bay, NU X0B 0C0

Dear Brittany Hogaluk:

RE: 12MN036 – B2Gold Back River Corp. – Back River Project – 2025 Annual Report

Environment and Climate Change Canada (ECCC) has reviewed the information submitted to the Nunavut Impact Review Board (NIRB) by B2Gold Back River Corp. ("the Proponent") regarding the above-mentioned 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 emergencies preparedness and responses. 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. Unsatisfactory secondary containment

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix G Geotechnical Inspection Report Pt.1-IR1E; Table 3, p.35

Comment:

The geotechnical inspection identified multiple deficiencies in containment systems (Recommendation 2025-AGI-M-8) at fuel storage areas, including damaged or exposed high-density polyethylene (HDPE) liners, insufficient anchoring, and areas lacking adequate secondary containment (e.g., temporary fuel and lubricants storage facility). Compromised

containment systems increase the likelihood of uncontrolled releases of hazardous materials to the environment, particularly under extreme weather or operational stress and could negatively impact water quality, fish and fish habitat and migratory birds.

Recommendation:

ECCC recommends the Proponent:

1. Inspect and repair all containment liners to meet design specifications.
2. Ensure all containment systems are adequately anchored and protected from damage (e.g., UV exposure, mechanical stress).
3. Confirm that all fuel storage areas provide effective secondary containment at all times before any hazardous materials are stored.

2. Landfill dump in area of permafrost degradation

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix G - Geotechnical Inspection Report Pt.1-IR1E; Table 3, p.34

Comment:

The report identifies that a landfill dump has been established in an area exhibiting permafrost degradation and ponded water (Recommendation 2025-AGI-M-6), particularly at the former temporary fuel storage depot location. These conditions indicate a thermally unstable foundation and suggest that the landfill may be subject to ongoing thaw settlement, increased moisture infiltration, and reduced containment integrity. Landfill placement in areas affected by permafrost thaw and ponded water can significantly increase the risk of uncontrolled release of contaminants to surrounding soils and waterbodies, due to enhanced infiltration, loss of structural integrity, and potential mobilization of contaminants. Proactive management and appropriate siting/design of waste containment are required to minimize environmental risks, particularly under changing climatic conditions.

Recommendation:

ECCC recommends the Proponent:

1. Evaluate the potential for contaminant migration (e.g., leachate generation and transport) under current and projected thaw conditions considering the type of waste it contains.
2. Implement appropriate mitigation measures, which may include relocation of the landfill to a thermally stable, engineered containment area or enhancement of existing containment and drainage controls.

3. Hydrocarbon sheen on Goose Lake

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026); Table 4.4-1, p.4-8

Comment:

The report identifies the presence of a hydrocarbon sheen on Goose Lake, indicating that petroleum hydrocarbons have reached a natural waterbody. The report does not clearly explain how the existing containment and mitigation measures failed to contain residual spillage from refueling and if they were functioning as designed at the time of the incident. The presence of a hydrocarbon sheen in a natural waterbody indicates a failure of containment and/or mitigation systems. Without a clear understanding of the source and transport pathway, similar releases may reoccur. Enhanced mitigation and confirmation of effective preventive measures are required to reduce the risk of future releases to the aquatic environment and associated adverse effects on water quality, fish and fish habitat.

Recommendation:

ECCC recommends the Proponent provide a detailed analysis of the contributing factors to the incident, including any infrastructure deficiencies and operational practices. The Proponent should also confirm whether existing spill prevention and containment measures were in place and functioning as intended at the time of the incident. In addition, the Proponent should identify and implement appropriate mitigation measures to prevent recurrence, including improvements to secondary containment systems, inspection and maintenance procedures, and spill detection and response protocols.

4. Storage of hazardous materials on unstable ground (Sandvik Laydown Area)

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix G - Geotechnical Inspection Report Pt.1-IR1E; Picture G-199 & 200, PDF p. 130-131/143

Comment:

The geotechnical inspection identifies differential settlement affecting the northernmost seacan (picture G-199 & 200) in the Sandvik laydown area, which is reported to contain UN1942 hazardous material – ammonium nitrate. Differential settlement indicates uneven ground support and suggests that the container may be subject to instability, including potential shifting or tilting. Storage of hazardous materials on uneven or unstable ground increases the risk of container tipping, structural damage, or loss of containment, which could result in an accidental release to the surrounding environment. Ensuring stable and level storage conditions is a fundamental preventive measure to reduce the likelihood of spills and associated environmental impacts.

Recommendation:

ECCC recommends the Proponent:

1. Ensure that all seacans used for the storage of hazardous materials are placed on level, stable, and adequately engineered surfaces capable of preventing differential settlement.
2. Assess the current condition of the affected seacan(s) and confirm that they are structurally stable and not at risk of tipping, shifting, or compromising containment.
3. Regrade and/or reconstruct the laydown area, as necessary, to provide uniform support and minimize future settlement.
4. Implement routine inspection and monitoring of storage areas to identify and address early signs of ground instability.

5. **Diagnosis of NO2 continuous monitoring data**

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)

Project Certificate Condition No. 2

Comment:

Project Certificate Condition No. 2, Air Quality – Air Quality Mitigation and Adaptive Management, has as its objective "*To ensure that mitigation and adaptive management measures effectively mitigate impacts on-site*." There is a fairly comprehensive detailing of air quality and meteorological monitoring locations, instrumentation, results, and discussion. As can be expected, there are initial challenges in setting up new instrumentation to function properly in a remote location with extremes in meteorological conditions. Diagnosis of the dustfall and continuous monitoring of fine particulate (PM2.5) data incorporates measurement locations and emission sources, with wind direction a consideration for the influence of the Goose incinerator on PM2.5 values measured at the Hill Meteorological Station. However, diagnosis of nitrogen dioxide (NO2) concentrations did not consider ambient wind directions. Above a low wind speed threshold, wind directions at the Hill Meteorological Station would have a reasonable correlation with those at other monitoring stations. Incorporating wind direction in the analysis would assist in emission source attribution and thus enable refinements in mitigation measures. This is important as emission sources and intensities will evolve with the transition of the project from the construction to the operations phase.

The diagnosis noted an increasing trend in monitored NO2 at the Hill Meteorological Station from October to December that appeared to plateau before the end of the year. This observed trend was attributed to an increase in diesel fuel combustion emissions associated with heating the nearby Exploration Camp. However, the incidence of surface-based temperature inversions, which vertically trap air emissions, would also be expected to increase during the same period with the rapid lengthening of nighttime duration, and may also be a significant contributing factor.

Recommendation:

ECCC recommends the Proponent:

1. Consider likely wind direction and changes in emission source locations and intensities when diagnosing incidents of higher NO2 concentrations, and indicate what subsequent refinements in mitigation measures may be required.
2. Extend the analysis of monitored NO2 concentrations at the Hill Meteorological Station further towards the end of the winter to assess the influence of low-level temperature inversions which vertically trap some project emissions.

6. Uncontrolled contact water

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Executive Summary – page ii

Project Certificate Condition No. 22

Comment:

The executive summary for the annual report states, *"2025 experience*[d] *several challenges, including the management of contact water and uncontrolled dust deposition. The 2025 Aquatic Effects Monitoring Program (AEMP) confirmed an increase in trace metals and anions in Goose Lake relative to baseline studies and concentrations, which is a residual effect of uncontrolled contact water entering Goose Lake at freshet."* However, no additional information on the difficulties experienced in contact water management is included in Project Certificate Condition No. 22 (which relates directly to site water monitoring and management). The summary for PC No. 22 only states that the water management plan was implemented, and an updated version will be submitted in 2026, but no deficiencies or next steps are described.

The executive summary states that the Proponent is working to develop long-term contact water management structures, but no timeline is provided on when this work is anticipated to be completed, or if there are any interim mitigation measures to be used at site in advance of a long-term solution to prevent further impacts to water quality.

Recommendation:

ECCC recommends the Proponent:

1. Update the Annual Report to include a detailed description of the difficulties encountered in site contact water management that contributed to observed changes in Goose Lake water quality.
2. Provide a comprehensive outline of the planned next steps to improve site water management, including:
    a. a description of proposed upgrades to existing water management or new water management structures to be constructed;

b. anticipated timelines for design, construction, and operation of any new water management structures; and

c. whether any interim mitigation measures will be implemented to manage contact water and protect Goose Lake prior to commissioning of new water management structures.

7. **Toxicity testing**

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix H: 2025 Aquatic Effects Management Plan
  - Section 5.2 – Plume Delineation

Comment:

Section 5.2 of the Aquatic Effects Management Plan (AEMP) states, *"Survival and biomass of fathead minnows was significantly reduced, with a 50% lethal concentration (LC50) of 41%v/v and an IC25* [inhibitory concentration] *of 6.7&*[%]*v/v. Further information on dewatering discharge chemistry and toxicity results will be provided in the annual report."* It is unclear why additional information and interpretation was not provided as part of the AEMP results including in Appendix H, and which "annual report" is being referred to in the statement.

Recommendation:

ECCC recommends the Proponent provide additional discussion and interpretation on the dewatering discharge chemistry and toxicity results and/or clarify where this information will be provided.

8. Measured vs. modelled water quality

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix H: 2025 Aquatic Effects Management Plan
  - Section 5.4 – Comparison to Water Quality Predictions

Comment:

Section 5.4 provides a summary of measured water quality concentrations compared to modelled water quality predictions. Measured median and maximum concentrations for most parameters of interest in 2025 exceeded the 95th percentile concentration predicted in the West Bay and Central Bay. The number of parameters and magnitude of difference for certain parameters (e.g. nitrate, nitrite) is notable and suggests that key inputs or assumptions in the model might not be adequately representing site conditions. The Aquatic Effects Management

Plan (AEMP) report acknowledges the differences in the measured vs. modelled water quality but does not provide any interpretation or discussion on what may be contributing the model underpredicting concentrations for the majority of water quality parameters. To improve predictive accuracy, a review of the model is likely warranted, potentially requiring refinements for key model assumptions, including source terms, loading rates, and dilution factors.

Recommendation:

ECCC recommends the Proponent review the water quality model to assess discrepancies between measured and modelled water quality. Where discrepancies are identified, provide a detailed evaluation of the cause, and where necessary, update the model to improve accuracy of water quality predictions.

9. Action level assessment

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix H: 2025 Aquatic Effects Management Plan
    - Section 5.5 – Action Level Assessment

Comment:

The low action level for aquatic life was exceeded for nitrate, nitrite, and total and dissolved cobalt during the 2025 monitoring period. However, the Proponent is not proposing to establish the moderate action level at this time under the assumption that there will be no further increase in concentrations in Goose Lake in 2026. It is understood that the Proponent has identified possible causes of the increased concentrations in Goose Lake and intends to implement additional water management, however, this does not necessarily negate the need to establish the moderate action level. The intent of response frameworks is to establish action levels paired with specific actions to respond to increasing magnitudes of environmental change and deviations from expected conditions. Without a defined moderate action level it is unclear at what threshold and under what conditions the Proponent would implement additional response or intervention to prevent effects to aquatic life.

Recommendation:

ECCC recommends the Proponent establish moderate action levels for parameters that triggered low action levels.

10. Aquatic life benchmarks

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix H: 2025 Aquatic Effects Management Plan
    - Section 5.5.3 – Response Actions

Comment:

In response to the aquatic life guideline exceedances for nitrate, nitrite, and cobalt, the Proponent states that the existing benchmarks are *"appropriate for the early years of the* [Aquatic Effects Management Plan] *AEMP implementation and prior to the first year of biological monitoring (to be conducted in 2026). Derivations of site-specific water quality objectives for nitrite and cobalt may be warranted in future AEMPs."* No information is provided on what conditions may trigger development of site-specific water quality objectives, given that the generic guidelines have already been exceeded.

In addition, the Proponent provides discussion of other benchmarks, including the British Columbia guideline for nitrite. However, it is unclear whether they are proposing to update the benchmark for nitrite or retain the existing guideline.

Recommendation:

ECCC recommends the Proponent:

1. Define conditions under which site-specific water quality objectives may be developed.
2. Clarify whether any updates to the existing water quality benchmarks are proposed.

11. Supplementary Monitoring

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix H: 2025 Aquatic Effects Management Plan
    - Section 5.5.3 - Response Actions
    - Section 6.0 - Summary and Recommendations
- Appendix F: 2025 Water Quality Investigative Sampling

Comment:

Water quality monitoring efforts in 2025 included additional investigations to identify Project areas that may have contributed to the increase in nitrate, nitrite, and total and dissolved cobalt in Goose Lake. The results of this monitoring suggested 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 nitrite. Contact water, seepage and/or runoff flowing into these streams appear to be the likely source of increased parameter concentrations in Goose Lake in 2024 and 2025."* Section 5.5.3 proposes mitigation options, including comprehensive monitoring of runoff and tributaries entering Goose Lake. However, the final recommendation (Section 6 – Summary and Recommendations) for future monitoring is to continue Aquatic Effects Management Plan (AEMP) sampling per the AEMP study design, with the addition of sampling West Bay over the next three years, regardless of dewatering activities.

Continuation of monitoring at the locations established during the 2025 water quality investigative sampling may be warranted to confirm that any newly established mitigations and water management practices are functioning as intended.

Recommendation:

ECCC recommends the Proponent:

1. Continue comprehensive monitoring of the locations suspected as possible sources of the changes to water quality in Goose Lake.
2. Provide a summary and description of any proposed supplemental monitoring during the 2026 field season, in addition to the standard AEMP design plan.

12. Water quality time series plots

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix H: 2025 Aquatic Effects Management Plan
- Appendix E: Water Quality Time Series Plots

Comment:

Appendix E of the Aquatic Effects Management Plan provides time series plots for water quality. The figures depict the measured concentrations alongside the established baseline normal range, but do not currently include comparison to water quality guidelines. Including the guidelines would provide context for assessing the potential for effects to aquatic life and allow reviewers to more readily evaluate how the measured concentrations compare to the established water quality thresholds.

Recommendation:

ECCC recommends that future versions of the water quality time series plots include relevant water quality guidelines to aid in interpretation of results.

13. Marine monitoring plan – summary of changes

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix M: Marine Monitoring Plan, Table 1-1: Revision Log, Marine Monitoring Plan

Project Certificate Condition No. 62

Comment:

Project Certificate Condition No. 62 of the Annual Report and Table 1-1 of the Marine Monitoring Plan indicate that the Marine Monitoring Plan was updated in 2025, including revised reference stations, water and sediment parameters, and data analysis.

Reference stations outlined in Version 2 of the Marine Monitoring Plan include REF-04 and REF-05, which are the same reference station names provided in the 2024 Marine Monitoring Report, so it is unclear what updates to the reference stations were implemented in 2025 monitoring. In addition, the water quality monitoring parameter list appears to be consistent between the 2024 and 2025 monitoring reports, so it is unclear what changes have been made.

Recommendation:

ECCC recommends:

1. The Proponent provide a summary of the specific changes that were made to the reference stations, water and sediment parameters, and data analysis in the updated version of the Marine Monitoring Plan.
2. Future monitoring plan updates should clearly identify changes, either by referencing the specific sections where revisions have occurred or by using another clear method (e.g. bold, highlight, track changes) to facilitate efficient review.

14. Marine monitoring plan - errata

Reference:

Goose Project 2025 Annual Report (B2Gold, March 31, 2026)
- Appendix M: Marine Monitoring Plan, Figure 4-1: Marine Monitoring Plan Sampling Stations, Back River

Comment:

A page is dedicated to Figure 4-1 (Marine Monitoring Plan Sampling Stations, Back River) however, the figure is missing.

Recommendation:

ECCC recommends the Proponent update the Marine Monitoring Plan to include Figure 4-1.

If you need more information, please contact Erik Allen at Erik.Allen@ec.gc.ca.

Sincerely,

Allen, Erik

Digitally signed by: Allen, Erik
DN: CN = Allen, Erik C = CA O = GC OU = EC-EC
Date: 2026.05.28 10:45:08 -04'00'

Erik Allen
Senior Environmental Assessment Officer

cc: Eva Walker, Head, Environmental Assessment North (NT and NU)