



July 15, 2024

Attn: Mohammad Ali Shaikh
Technical Advisor
Nunavut Water Board
P.O. Box 119
Gjoa Haven, NU
X0B 1J0

Re: B2Gold Nunavut's Comment Responses for the MLA Tank Farm Modification (Phase 3: Addition of Tank 5)

Dear Ali,

Thank you for the opportunity to respond to comments received on the Back River Project's submission of the Marine Laydown Area (MLA) Tank Farm modification (Phase 3: Addition of Tank 5). Comments were received from the Kitikmeot Inuit Association (KIA), Fisheries and Oceans Canada (DFO), Environment and Climate Change Canada (ECCC), and Crown Indigenous Relations and Northern Affairs Canada (CIRNAC).

B2Gold Nunavut thanks all parties for their review of our submission. Should you have any questions regarding the above, please contact the undersigned at kbenoit@b2gold.com.

Sincerely,

Kristina Benoit
Manager, Environmental Permitting
B2Gold Nunavut

Enclosure: Comment Responses

Cc: Karén Kharatyan, Director Technical Services, NWB
 Richard Dwyer, Manager of Licensing, NWB
 Merle Keefe, Manager Environment, B2Gold Nunavut

**KIA Comment 1:**

The KIA has only one comment that a 100-year return period was used in culvert sizing, and we didn't see which culverts are being referred to and where they are located. The KIA wants to know if the 100-year return period had considered climate change, which wasn't clear to us.

B2Gold Nunavut Response:

There are no culverts around the MLA Quarry Tank Farm.

The design of the tank farm, however, considered a 100-year return period for 24-hr storm as part of the secondary containment checks. Estimated reported in the "Back River: Updated Feasibility Study – Hydrology Update" Draft Memo (SRK 2021) were considered in the design.

The effects of climate change were incorporated by adjusting the IDF curves. For each return period and duration, a rate of change over baseline was calculated from data obtained from the IDF-CC tool (ICLR 2018), which allows the user to select representative concentration pathway (RCP) and apply Pacific Climate Impact consortium (PCIC) bias correction methods to climate change data generated from multi-model ensemble. For SRK 2021 analysis, RCP 8.5 (represents a future where greenhouse gas emissions continue to increase rapidly) was selected to generate a conservative (larger values) precipitation duration frequency curve.

Project climate change 100-year return period for 24-hr storm, estimated as 74.5 mm in SRK 2021, was used for the MLA Quarry Tank Farm design.



DFO Comment 1:

The use of explosives in aquatic environments can cause harm to fish by rupturing the swim bladder, damaging other internal organs, or incubating eggs. It could also result in physical and/or chemical alterations to fish habitat from sedimentation.

The document states “Blasting near waterbodies frequented by fish will require lower powder factors, as determined by Guidelines issued by the Department of Fisheries and Oceans” but does not provide details on guidelines to be used and the distance of any waterbodies within the vicinity of the blasting location.

DFO Recommendation:

Please confirm the Guidelines for the Use of Explosives In or Near Canadian Fisheries Waters (Wright and Hopky, 1998) will be followed and that a blasting threshold limit of 50 kPa for instantaneous pressure change will be used in order to appropriately mitigate effects of blasting on fish as recommended in Cott and Hanna (2005)*

*Cott P and Hanna B. 2005. Monitoring Explosive-based Winter Seismic Exploration in Waterbodies, NWT 2000-2002. Pages 473-490. In: Proceedings of the Offshore Oil and Gas Environmental Effects Monitoring Workshop: Approaches and Technologies. Battelle Press. Columbus. 601 p + index.

Please provide which mitigations measures will be followed to protect marine mammals during blasting activities.

Please identify all waterbodies in the vicinity of the project that could be impacted by the blasting activities and provide the distance (m) of each water body from the blasting location.

B2Gold Nunavut Response:

Phase 3 expansion (addition of Tank 5, an 18.34 ML tank) will be constructed using a previously developed/blasted quarry and no additional blasting activities will take place.

**ECCC Comment 1:**

Section 1C: Operational Need for MLA Fuel Tank 5, indicates that an additional tank at the MLA is required because “increased power generation is required to ensure the safety of the underground mining team.” This also implies that greater traffic will likely occur on the winter ice roads, to bring more fuel to the Goose Bay site, and the potential for more trucks to be brought to the Project sites.

ECCC appreciates the Proponent's commitment to reduce the carbon footprint of the Project, in part to the proposed development of the Back River Renewable Energy Centre. Adding newer trucks with engines meeting cleaner emission standards would contribute to the Proponent's efforts to reduce their carbon footprint.

ECCC Recommendation:

ECCC recommends that the Proponent, for additions to their fuel transport fleet, commit to seeking newer trucks with engines, meeting cleaner Tier 4 emission standards, where practicable and available.

B2Gold Nunavut Response:

B2Gold Nunavut will endeavor to source Tier 4 equipment where practicable and available.

**ECCC Comment 2:**

Section 1A: Description of the Facilities and/or Works to be Constructed, of the Tank Farm Modification Application document, states that the “tank foundation pad will have a minimum total thickness of 900 mm of compacted crushed rockfill...” and that “Bermes will be constructed with blasted rockfill sourced from the existing quarry...” Section 3.2.3: Excavation in Quarry Areas, and Section 4: Drilling and Blasting, of the Technical Specifications document, further detail that blasted rock materials will be sourced for construction.

ECCC is of the view that all blasted rocks to be used in construction of the beam or the foundation, be tested for their acid rock drainage/metal leaching (ARD/ML) potential, and notes that all rocks used for construction should be non-potential acid generating (NPAG) rocks.

ECCC Recommendation:

ECCC recommends that the Proponent test all blasted rocks to be used in construction of the beam or the foundation, for their acid rock drainage/metal leaching (ARD/ML) potential. ECCC further recommends that all rocks used for construction, be non-potential acid generating (NPAG) rocks.

B2Gold Nunavut Response:

All materials for earthworks to be used for the construction of Phase 3 expansion will be sourced from a previously blasted/developed quarry, which had geochemical characterization completed.

**ECCC Comment 3:**

With the construction of a new large reservoir of fuel, 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:

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.

B2Gold Nunavut Response:

B2Gold Nunavut will submit a Schedule 2 notice of Change when applicable. All previous Schedule 2 notifications can be found on ECCC's SWIM registry.

**ECCC Comment 4:**

Sections 2A and 2D of the Tank Farm Modification Application document, indicate that the secondary containment will be enlarged to a 67,000 m³ capacity. It is not clear from the information presented, if the new reservoir will be equipped with essential safety features: including corrosion protection, overfill protection, leak detection, or other measures that would reduce the risks of accidents and malfunctions. This information is necessary to ensure that appropriate measures are in place to mitigate potential environmental impacts from reservoir failures.

ECCC Recommendation:

ECCC recommends that the Proponent provide detailed information in the Tank Farm Modification Application document, on the safety features of the proposed new fuel tank.

B2Gold Nunavut Response:

To monitor the performance of the facility, in addition to two vertical ground temperature cables (GTCs) and 14 (fourteen) surficial survey points are proposed to be installed around the quarry tank farm (see MLA QTFP3-500 and -501 for additional details), tank settlement markers or monuments are planned to be installed around all five tanks. These settlement points are suggested to be monitored via a total station (for improved monitoring accuracy).



CIRNAC Comment R-01:

Section A of the modification report states that the Phase 3 expansion includes the addition of an 18.34 ML fuel tank to be placed on a bedrock/blasted surface on the east side of the existing tank farm.

Section B states, *“The tank foundation pad will have a minimum total thickness of 900 mm of compacted crushed rockfill, which includes the liner system. The tank will be placed on top of the min 350 mm thick pedestal (placed on top of the compacted crushed rockfill) with a min 2m shoulder (pedestal offset) surrounding the tank and have side slopes of 2H:1V sloping away from the tank. The pedestal will also contain an additional 2 m wide fill on the northwest side of the tank that will consist of coarser rockfill.”*

CIRNAC notes that the source and composition of the crushed rockfill is not provided in the modification report.

CIRNAC Recommendation:

(R-01) CIRNAC recommends that B2Gold Nunavut provide information on:

- a) The source and composition of the crushed rockfill to be used to build the tank foundation pad. The crushed rockfill is must be made up of only non-acid generating materials.
- b) Ensure ongoing testing during construction must be maintained to ensure that the possibility of leaching from acid generating rock or minerals is minimized throughout the construction phase.

B2Gold Nunavut Response:

All materials for earthworks to be used for the construction of Phase 3 expansion will be sourced from a previously blasted/developed quarry, which had geochemical characterization completed.

**CIRNAC Comment R-02:**

With the proposed addition of the Phase 3 construction of the 18.34 ML fuel tank located at the Tank Farm, there may be a requirement to amend the reclamation security estimate currently held.

CIRNAC Recommendation:

(R-02) CIRNAC recommends that B2Gold Nunavut provide information/estimates to the Board on how the construction of Tank 5 at the tank farm may impact the current reclamation security estimates.

B2Gold Nunavut Response:

The Phase 3 expansion will see the Tank Farm footprint increase from ~35,900 m² to ~44,200 m². The MLA, including the Tank Farm, are located on Inuit Owned Lands. B2Gold Nunavut will discuss any changes to the reclamation security amounts directly with the Kitikmeot Inuit Association (KIA).



CIRNAC Comment R-03:

Section A of the modification report states, “Due to melting snow that accumulates over the winter and precipitation, contact water will be collected inside the secondary containment berms. During visual inspections, the quantity of contact water collected inside the secondary containment berms will be evaluated. If there is a visible sheen on the contact water or if water withdrawal is deemed necessary, water samples will be collected and analyzed. Accumulated water will be released into the receiving environment only if it meets discharge criteria.”

Part D, Item 21 of 2AM-BRP1831 defines contact water as, “...any water that may be physically or chemically affected by mining activities, including runoff and seepage from WRSA, Ore Stockpiles and other mine facilities.”

CIRNAC Recommendation:

(R-03) CIRNAC recommends that B2Gold Nunavut provide information on the management of all contact water collected inside the secondary containment berms, including the discharge criteria to be used to determine if the water will be released into the receiving environment.

B2Gold Nunavut Response:

Any discharge of effluent from the secondary containment berms will comply with Part F, Item 12, of the Type A Water License (2AM-BRP1831 Amendment No. 1). BRP-43 is the monitoring program station number for the MLA Fuel Tank Farm, and it will be applicable here. In accordance with Part F, Item 2, of the Type A Water License (2AM-BRP1831 Amendment No. 1), B2Gold Nunavut will provide at least ten days’ notice to the Inspector prior to any planned discharges from the MLA Fuel Tank Farm.

**CIRNAC Comment R-04:**

In Appendix A, B2Gold has provided permit drawings for the construction of Phase 3 and the addition of Tank 5. On each drawing provided, there is an area in proximity to the construction site that states, "no survey data is available for the area." There is potential for adverse impacts to this and adject areas including nearby waterbodies.

CIRNAC Recommendation:

(R-04) CIRNAC recommends that B2Gold survey this area and provide the results and/or information in its next Annual Report.

B2Gold Nunavut Response:

The area with no survey data at the time of issuing IFP drawings has since been surveyed.

Additionally, the survey of this area (where data formerly missing) will be incorporated into the Construction Summary Report in accordance with Schedule D, Item 1 of the Type A Water License (2AM-BRP1831), which will be submitted within ninety (90) days of completion of the MLA Phase 3 Tank Farm expansion.

**CIRNAC Comment R-05:**

Due to the proposed construction of Phase 3 and the addition of Tank 5 to the existing tank farm, changes will be required to the applicable approved Management Plans.

CIRNAC Recommendation:

(R-05) CIRNAC recommends that B2Gold review and update all applicable management plans related to this undertaking.

B2Gold Nunavut Response:

B2Gold Nunavut will provide updates for the following management plans with submission of the 2024 Annual Reports:

- Fuel Management Plan (figures and volumes)
- Hazardous Materials Management Plan (figures)
- Spill Contingency Plan (volumes)
- OPPP/OPEP