

APPENDIX C WATER AND LOAD BALANCE REPORT



Goose Project 2026 Water and Load Balance Report

Prepared by BGC Engineering Inc. for:

B2Gold Back River Corp.

June 25, 2026

Project 1829001

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Attention: Ali El Takch, Corporate Civil Engineer

Goose Project – 2026 Water and Load Balance Report

Please find the above-referenced report attached for your review and comment. We appreciate the opportunity to collaborate with you on this challenging and interesting project.

Should you have any questions, please do not hesitate to contact the undersigned.

Yours sincerely,

BGC Engineering Inc.
per:

Paolo Chiaramello, P.Eng.
Principal Hydrotechnical Engineer

EXECUTIVE SUMMARY

B2Gold Back River Corp. (B2Gold) is developing the Goose Project within the west Kitikmeot region of southwestern Nunavut, 95 km southeast of the southern end of Bathurst Inlet. The Goose Project is comprised of two main areas: the Goose Mine and the Marine Laydown Area. The Goose Mine considers mining of approximately 18.8 million tonnes of ore from four deposit areas (i.e., Echo, Umwelt, Llama, and Goose Main) using both open pit and underground methods. The total mine life of the Goose Mine from beginning of Operations to the end of Closure is approximately 20 years.

In June 2025, B2Gold initiated production at the Goose Mine, with the processing of ore material that had been stockpiled during the mining of Echo Pit. Tailings have been deposited in the Echo Pit, that has become the Echo TF.

As part of its commitment under Type A Water Licence (2AM-BRP1831), B2Gold is required to periodically review the Water and Load Balance Model to reflect changes in operations and/or technology. This report describes the water and load balance model (Model) developed for the Goose Mine area to support the 2026 Water Management Plan (WMP; B2Gold, June 2026). This report represents an update of the water and load balance model presented in WSP Golder (August 30, 2022), to reflect changes to the mine plan, mine layout, and water management strategies. The structure of the report and the content of specific sections have been generally maintained from WSP Golder (August 30, 2022).

The objective of the Model is to provide water quantity and quality estimates based on the Goose Project timeline, WMP, and available input data. The Model was used as a tool to assess water management options and treatment needs, potentially required during the life of the Goose Project. The water management strategy for the Goose Mine area is based on managing the inventory of the mine water stored on site, and separating saline, contact, and non-contact water, to the practicable extent. The model provides water quality predictions in the main mine facilities, including open pits, tailings facilities, storage ponds and at predefined prediction nodes. Water quality predictions at the predefined prediction nodes were compared to Metal and Diamond Mining Effluent Regulations discharge limits (Government of Canada, 2002).

The Model results indicate that there is sufficient capacity on site to store tailings, contact water, and saline water for the Goose Project life. The volume of water collected was also confirmed to be adequate to support the water demands for the Process Plant when supplemented by freshwater from Goose Lake and Big Lake while staying within their maximum consumption limits. Water treatment is expected to be required during the operations phase (not at mine start up) to manage saline water inventory before the final repository location (Goose Main Reservoir) becomes available. With the support of treatment during late Operations and Closure, concentrations in discharge from the mine site to Goose Lake are predicted to be below Metal and Diamond Mining Effluent Regulations discharge limits.

TABLE OF REVISIONS

Date	Revision	Remarks
March 20, 2026	A	Draft for B2Gold review
March 31, 2026	0	Final
June 11, 2026	1	Revision
June 25, 2026	2	Revision

CREDITS AND ACKNOWLEDGEMENTS

BGC would like to acknowledge Isabelle Cheff and Zennin Mittal Mercer for their contributions to this report.

This report represents an update of the water and load balance model presented in WSP Golder (August 30, 2022), to reflect changes to the mine plan, mine layout and water management strategies. The structure of the report and the content of specific sections have been generally maintained from WSP Golder (August 30, 2022). The following table provides a brief description of the nature of the changes made to the individual sections of the report and credit to WSP for the sections that were not significantly modified.

Section	Changes/Credits ⁽¹⁾
Executive Summary	Content maintained from WSP Golder (August 30, 2022), with updates limited to changes to mine plan and schedule
1.0 Introduction	Updated
2.0 Model Framework	Content maintained from WSP Golder (August 30, 2022) except for change B2Gold 2026 water management plan report (instead of 2022 version)
2.1 Mine Infrastructure	Content maintained from WSP Golder (August 30, 2022) only change is Figure numbering.
2.2 Mine Schedule and Mine Phases	Structure of the section maintained from WSP Golder (August 30, 2022); updates made based on changes in mine plan and schedule
3.1 Water Balance Overview	Structure of the section maintained from WSP Golder (August 30, 2022); updates made based on changes in mine plan and schedule
3.2.1 Hydrology	Content maintained from WSP Golder (August 30, 2022)
3.2.2 Climate Change	Content maintained from WSP Golder (August 30, 2022)

Section	Changes/Credits⁽¹⁾
3.2.3 Catchment Delineation	Content updated to reflect update mine plan and schedule
3.2.4 Site Specific Hydrology	Content maintained from WSP Golder (August 30, 2022)
3.2.5 Runoff Coefficients	Content maintained from WSP Golder (August 30, 2022)
3.2.6 Milling Quantities and Freshwater Demand	Content updated to reflect update mine plan and schedule
3.2.7 Permafrost and Groundwater	Content updated to reflect updated groundwater inflow estimates by BGC
4.1 Load Balance Overview	Content maintained from WSP Golder (August 30, 2022)
4.2 Load Balance Inputs	Content maintained from WSP Golder (August 30, 2022)
4.2.1 Background Surface Water Quality and Lake Initial Water Quality	Content maintained from WSP Golder (August 30, 2022)
4.2.2 Groundwater Quality	Content maintained from WSP Golder (August 30, 2022), with exception of reference to BGC estimate of groundwater inflows quantity and quality
4.2.3 Waste Rock Storage Areas, Pit Walls, High Walls, Ore Stockpile, and Industrial Pad Runoff	Content maintained from WSP Golder (August 30, 2022)
4.2.4 Process Water Effluent	Content maintained from WSP Golder (August 30, 2022)
4.2.5 Swage Treatment Plant (STP) Treated Effluent	Content maintained from WSP Golder (August 30, 2022)
4.2.6 Blasting Residues	Content maintained from WSP Golder (August 30, 2022)
4.2.7 Cyanide Degradation Reactions	Content maintained from WSP Golder (August 30, 2022)
4.2.8 Brine Residues	Content maintained from WSP Golder (August 30, 2022)
4.2.9 Process Plant Outflow Water Quality	Content maintained from WSP Golder (August 30, 2022)
4.2.10 Cryoconcentration	Content maintained from WSP Golder (August 30, 2022)
5.1.1 Time step	Content maintained from WSP Golder (August 30, 2022)
5.1.2 Stochastic Water Balance Model	Content maintained from WSP Golder (August 30, 2022)
5.1.3 Stochastic Load Balance Model	Content maintained from WSP Golder (August 30, 2022)

Section	Changes/Credits ⁽¹⁾
5.2 Modelled Constituents and Discharge Limits	Content maintained from WSP Golder (August 30, 2022)
5.2.1 Water Treatment	Updated to reflect water management strategies implemented in the Model
6.0 Water Balance Results	The structure of Section 6.0 and associated sub-sections is maintained from WSP Golder (August 30, 2022), with changes associated with the description of the updated water balance results.
7.0 Load Balance Results	The structure of Section 7.0 and associated sub-sections is maintained from WSP Golder (August 30, 2022), with changes associated with the description of the updated load balance results.
8.0 Model Assumptions and Uncertainties	Content maintained from WSP Golder (August 30, 2022)
8.1 Water Balance Model	Content maintained from WSP Golder (August 30, 2022), with changes limited to updates to Model assumptions and uncertainties specific to the Model update presented in this document
8.2 Load Balance Model	Content maintained from WSP Golder (August 30, 2022), with changes limited to updates to Model assumptions and uncertainties specific to the Model update presented in this document
9.0 Conclusions	Content maintained from WSP Golder (August 30, 2022)
10.0 Closure	Updated

Note:

WSP Golder (August 30, 2022) = *“Back River Project. Water and Load Balance Report”*. Submitted by WSP Golder to Sabina Gold & Silver Corp. (now B2Gold Back River Corp.) on August 30, 2022. Reference No. 21505757-122-R-Rev0-100.

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1.0 INTRODUCTION

B2Gold Back River Corp. (B2Gold) is developing the Goose Project within the west Kitikmeot region of southwestern Nunavut, 95 km southeast of the southern end of Bathurst Inlet. The Goose Project is comprised of two main areas: the Goose Mine and the Marine Laydown Area. A winter ice road connects the two main areas. The Goose Mine considers mining of approximately 18.8 million tonnes of ore from four deposit areas (i.e., Echo, Umwelt, Llama, and Goose Main) using both open pit and underground methods. The total mine life of the Goose Mine from beginning of Operations to the end of Closure is approximately 20 years.

In June 2025, B2Gold initiated production at Goose Mine, with the processing of ore material that had been stockpiled during the mining of Echo Pit. Tailings have been deposited in the Echo Pit, that has become the Echo Tailings Facility (TF).

BGC Engineering Inc. (BGC) was retained by B2Gold (purchase order [PO] number 4700001104, dated February 25, 2026) to update the water and load balance model (Model) developed for the Goose Mine to support the 2026 Water Management Plan (WMP) (B2Gold, June 2026). The objective of the Model is to provide water quantity and quality estimates based on the Goose Mine timeline, WMP, and available input data. The Model was used as a tool to assess water management options and treatment needs, potentially required during the life of the Goose Mine.

This report is structured as follows:

- A summary of the Goose Mine plan, including timelines, infrastructure, and water management plan (Section 2.0)
- A description of the water balance component framework (Section 3.0)
- A description of the load balance component framework (Section 4.0)
- Model implementation (Section 5.0)
- Water balance results (Section 6.0)
- Load balance results (Section 7.0)
- Limitations of the Model (Section 8.0)
- Conclusions (Section 9.0).

2.0 MODEL FRAMEWORK

The Model was developed using GoldSim, a graphical, object-oriented, mathematical modelling program where all input parameters and functions are defined by the user and built as individual objects or elements linked together by mathematical expressions. The object-based nature of the program is designed to facilitate an understanding of the various factors that control an engineered or natural system and predict potential changes in the system.

GoldSim was selected as a modelling platform for the following reasons:

- It facilitates probabilistic simulations, allowing descriptive statistics and probabilities to be assigned to the model outputs.
- The model framework can be easily adjusted to account for changing conditions of the Goose Mine site, allowing the model to be used as a planning tool.

- Water balance (i.e., quantity) and load (i.e., quality) components of the Model can be directly linked, allowing both to be updated simultaneously when conducting sensitivity scenarios for alternate water management strategies.

The GoldSim Model was developed to be used as a tool to analyze water management options during the life of Goose Mine. Water management options are focused on managing the inventory of the mine water stored on site and maintaining the separation of saline, contact, and non-contact water, to the practicable extent. When required, treatment of mine water discharges was also assessed to meet water quality guidelines downstream of the discharge points from the Goose Mine.

A detailed description of the WMP can be found in B2Gold (June, 2026). The following subsections provide an overview of the major infrastructure at the Goose Mine, as well as the timelines for key water management activities and development sequencing.

2.1 Mine Infrastructure

The major infrastructure at the Goose Mine at full build out is shown in Drawing 2-1, which includes the following:

- Goose Plant Site (i.e., Goose Camp Accommodations and Process Plant)
- Ore Stockpile
- Open pits and underground mine workings (i.e., Echo, Umwelt, Llama, and Goose Main open pits and undergrounds)
- Tailings management facilities (i.e., Echo Open Pit as Echo Tailings Facility [TF], Umwelt Open Pit as Umwelt TF, and Llama Open Pit as Llama TF)
- Waste Rock Storage Areas (WRSAs) (i.e., Umwelt WRSA, Llama WRSA, Echo/Goose Main WRSA, Umwelt Overflow WRSA)
- Temporary NPAG Stockpile and Temporary Underground PAG Stockpile
- Goose Mine All-weather Airstrip
- Saline Water Pond (SWP) (i.e., Umwelt Lake, once dewatered)
- Primary contact water storage pond (i.e., Primary Pond)
- Goose Main Reservoir (i.e., Goose Main Open Pit as meromictic lake²)
- Event ponds (i.e., Llama WRSA Pond, Echo/Goose Main WRSA Pond, Plant Site Pond, Ore Stockpile Pond)
- Non-contact water diversion and contact water collection berms
- Haul and service roads.

2.2 Mine Schedule and Mine Phases

On June 2025 gold production was initiated at the Goose Mine. The construction activities for Goose Mine (Phase 1) were largely completed ahead of June 2025. As such, the timeframe of the Model was updated to initiate in May 2025, approximately 1 month before the gold

² A meromictic lake is a lake where the water layers do not mix, resulting in distinct layers with different properties like temperature and salinity, and a lower layer that is isolated and often lacks oxygen.

production. Construction activities that have extended past June 2025 (i.e., dewatering of Llama Lake and Umwelt Lake) are now included in the Operations Phase.

Water management throughout the mine life is described in a series of phases:

- Phase 1: Construction
 - This phase is not included in the water and load balance model. Construction activities that extended beyond June 2025 are now accounted for in the Operations Phase (Phase 2)
 - Information about the Construction Phase, including implemented water management strategies and monitoring data are provided under a separate cover.
- Phase 2: Operations (Year 1 to Year 13)
 - The dewatering of Llama Lake and Umwelt Lake was initiated during Year 1 (Operations Phase) and is planned to be completed in Year 2. The lake dewatering activities are therefore included within the Operations Phase.
- Phase 3: Closure (Year 14 to Year 20).
- Phase 4: Post-Closure (Year 21+).

The Operations Phase (Phase 2) is further subdivided into three stages, representative of the different active Tailings Facilities (TFs):

- Phase 2: Operations, Echo Open Pit (Echo TF) (Year 1, Q2 to Year 5, Q1)
- Phase 2: Operations, Umwelt Open Pit (Umwelt TF) (Year 5, Q1 to Year 11, Q4)
- Phase 2: Operations, Llama Open Pit (Llama TF) (Year 11, Q4 to Year 13, Q3).

The Operations Phase is expected to end in Q3 of Year 13. For the Model described herein, the Closure Phase was assumed to begin in Year 14; however, some closure activities may initiate in the last quarter of Year 13.

A summary of the key water management activities and mine development sequencing for the Goose Mine during the Operations, Closure and Post-Closure Phases is provided in Table 2-1. An overview of the timelines for mining and water management elements/activities is provided in Appendix A and is illustrated conceptually by flow diagrams in Appendix B. The Construction Phase is completed; for reference, a summary of the key activities that occurred during the Construction Phase (i.e., before Year 1) is provided in Table 2-2.

Table 2-1 Summary of the key water management activities at the Goose Mine.

Phase/Stage	Mine Year	Mine Development Sequence and Key Activities
Phase 2: Operations, Echo TF Active	1	<ul style="list-style-type: none"> • Llama Lake dewatering was initiated during the open water season (i.e., Q3), with approximately 50% of the volume removed from the lake. The majority of the water was conveyed to Goose Lake. A portion of the water was pumped to Primary Pond to support initiation of mine operations. • Umwelt Lake dewatering was also initiated during the open water season (Q3), with approximately 50% of the volume removed from the lake. Similarly to Llama Lake the majority of the water was conveyed to Goose Lake without treatment. A portion of the water was pumped to Primary Pond to support initiation of mine operations. • Echo Open Pit mining and deposition of waste rock in Echo WRSA is complete. • Milling operations initiated in June 2025 and tailings are deposited in Echo TF. • Water from Echo WRSA is collected in Echo TF, directly or through temporary collection sumps. • Umwelt Open Pit mining and deposition of waste rock in Umwelt WRSA continues. Underground production at Umwelt continues. • The Primary Pond collects contact water across the Goose Mine, including flows collected in the Ore Stockpile Pond, runoff from Umwelt WRSA, and inflows to Umwelt Open Pit. • Runoff from the Plant Site is collected in the Plant Site Pond, which is released to the tundra without treatment; if water is found not suitable for discharge it will be pumped to Primary Pond. • Water for the Process Plant is sourced from the contact water collected in Primary Pond during the open water season, and from Echo TF for the remainder of the year. • Water from Goose Lake (through the intake structure) is used to meet the freshwater demands for domestic, construction, operation, and associated uses, including mining and milling activities, as needed.
Phase 2: Operations, Echo TF Active	2	<ul style="list-style-type: none"> • The dewatering of the remaining approximately 50% of Llama Lake is completed during the open water season (Q3). It is assumed that approximately 80% of the remaining volume in Llama Lake would have total suspended solids (TSS) concentrations in excess of discharge limits and will require treatment prior to discharge directly to Goose Lake or will be pumped to Primary Pond to support mining operations. The remaining 20% is expected to have high TSS concentrations and will be pumped and contained in Umwelt Lake. • The dewatering of the remaining approximately 50% of Umwelt Lake is completed during the open water season (Q3). It is assumed that approximately 50% of the remaining volume in Umwelt Lake would have total suspended solids (TSS) concentrations in excess of discharge limits and will require treatment prior to discharge directly to Goose Lake or will be pumped to Primary Pond to support mining operations. The other 50% of the volume is expected to have high TSS concentrations and will be kept in Umwelt Lake. • Mining continues in Umwelt Open Pit and Underground. • Mining of Llama Open Pit begins (Q4).

Phase/Stage	Mine Year	Mine Development Sequence and Key Activities
		<ul style="list-style-type: none"> • Diversion and collection berms around Llama Open Pit are constructed. • Engineered berms are proposed to be constructed around the rim of Echo Open Pit to expand storage capacity for tailings (information regarding these engineered berms will be provided through a subsequent application package). • Waste rock is placed in Llama WRSA, but only in the catchment area immediately upstream of Llama Pit (catchment LD2 in Drawing 3-1). Contact water from the Llama WRSA is intercepted at the Llama Open Pit collection berm and pumped to Primary Pond. • NPAG waste rock placement in the Temporary NPAG Stockpile begins. Water from the Temporary NPAG Stockpile is discharged to the environment (if water quality is suitable), or (if water quality is not suitable for discharge) collected locally and pumped to Primary Pond. • The SWP Stage 1 dams are constructed around Umwelt Lake and Round Lake to create the SWP. • Umwelt Underground groundwater inflows are managed locally or pumped to Umwelt Lake (after lake dewatering is complete). • The contact water collected in the Primary Pond or Echo TF is used as reclaim in the Process Plant.
Phase 2: Operations, Echo TF Active (cont'd)	3	<ul style="list-style-type: none"> • Waste rock placement in Umwelt WRSA is completed (Q3). • Waste rock placement in Umwelt Overflow WRSA is initiated (Q4). • The contact water collected in the Primary Pond or Echo TF is used as reclaim in the Process Plant. • Construction of perimeter berms around Umwelt Lake and Round Lake to create the Stage 2 SWP are completed. Saline groundwater inflows in Umwelt Underground and Llama Open Pit are pumped to the SWP.

Phase/Stage	Mine Year	Mine Development Sequence and Key Activities
Phase 2: Operations, Umwelt TF Active	4	<ul style="list-style-type: none"> • Predevelopment activities for Llama Underground mining starts (Q3), and mining continues in Llama Open Pit and Umwelt Underground. • Umwelt Open Pit mining is complete (Q1) and starts to fill with site contact water within its catchment and stored (Umwelt TF) to be used as reclaim in the Process Plant. • Excess water from the closure of Echo TF is pumped to Umwelt TF. • Waste rock placement in the Umwelt Overflow WRSA is completed (Q1). • Placement of PAG waste rock material in the Temporary Underground PAG Stockpile begins (Q3). • A non-contact water diversion berm, the Goose Main diversion berm, is constructed south of Goose Main Open Pit to divert water away from the facility and into Goose Lake. • Construction of Echo/Goose Main WRSA Pond. • Saline groundwater encountered is pumped to the SWP and treated by reverse osmosis (RO) starting in Q3, sending brine effluent back to the SWP and treated effluent to Umwelt TF. • The Llama WRSA Pond is constructed and starts receiving contact water from the Llama WRSA (Q3). • The contact water collected in the Primary Pond or Echo TF is used as reclaim in the Process Plant.
	5	<ul style="list-style-type: none"> • Mining begins in Goose Main Open Pit and continues in Llama Open Pit and Umwelt Underground. Predevelopment activities continue in Llama Underground • Waste rock from Goose Main Open Pit is deposited in Echo/Goose Main WRSA. Waste rock from Goose Open Pit is used for the closure cover of Echo TF. • Tailings deposition transitions from Echo TF to Umwelt TF in Q1. • Mill reclaim water during the non-open water season source transition from Echo TF to Umwelt TF • Contact water from the Echo/Goose Main WRSA is collected in Echo/Goose Main WRSA Pond and pumped to the Primary Pond. • Contact water in Llama WRSA Pond is pumped to Primary Pond. • Contact water from the Goose Main Open Pit is pumped to Umwelt TF along with excess water from the Primary Pond. • Other water management strategies from Year 4 continue.
	6	<ul style="list-style-type: none"> • Llama Open Pit mining and deposition of waste rock in Llama WRSA is complete, and the open pit starts to fill with site contact water (Q2). • Mining continues in Goose Main Open Pit, Umwelt Underground and commences in Llama Underground (Q2). • Waste Rock placement in the Temporary NPAG Stockpile terminates (Q1). The stockpile is expected to be mostly depleted throughout the life of mine with material used for construction throughout the Goose Mine. • Contact water collected in the Llama WRSA pond is pumped to Llama Open Pit. • Tailings deposition in Umwelt TF continues. • Other water management strategies from Year 5 continue.

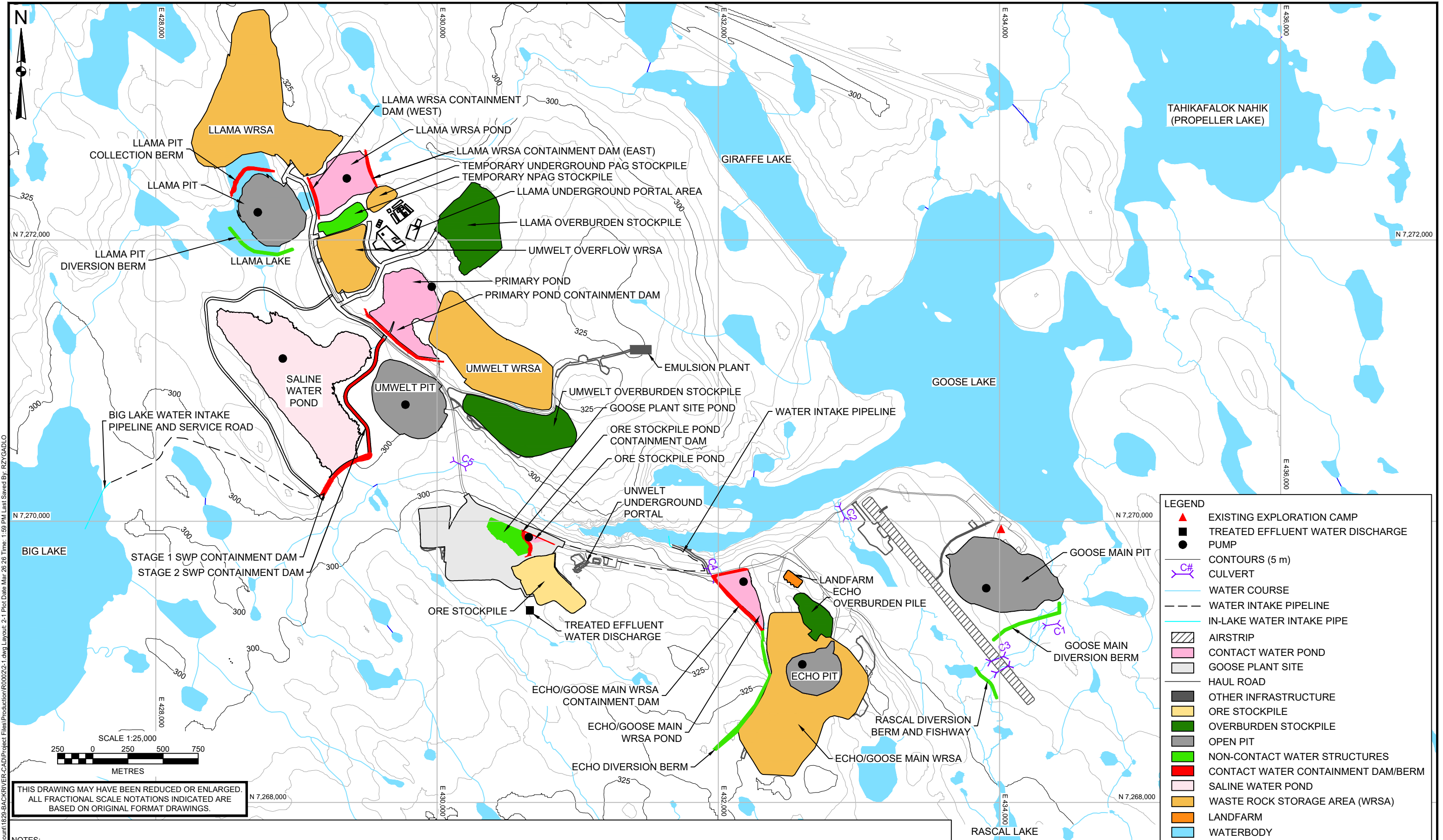
Phase/Stage	Mine Year	Mine Development Sequence and Key Activities
	7	<ul style="list-style-type: none"> • Mining continues in Goose Main Open Pit, Umwelt Underground, and Llama Underground. • Water level in SWP is kept low through RO treatment to provide contingency storage for saline water, as required. • Water management strategies from Year 6 continue.
Phase 2: Operations, Umwelt TF Active (cont'd)	8	<ul style="list-style-type: none"> • Mining continues in Goose Main Open Pit, Umwelt Underground, and Llama Underground. • Predevelopment activities for Goose Main Underground (Q1) and Echo Underground (Q4) begins. • Placement of waste rock material in the Temporary Underground PAG Stockpile terminates (Q4). • Water management strategies from Year 7 continue.
	9	<ul style="list-style-type: none"> • Mining in Goose Main Open Pit finishes (Q2) and the Goose Main Open Pit transitions to Goose Main Reservoir. • Predevelopment activities for Goose Main Underground and Echo Underground continues. • Mining continues in Umwelt Underground and Llama Underground. • Waste rock placement in Echo/Goose Main WRSA is completed. • Goose Main Reservoir begins to fill (Q3) and becomes available to receive saline water. Freshwater from Goose Lake or Big Lake may be pumped to Goose Main Reservoir to supporting the closure filling • RO treatment ceases and water level in SWP is kept low through pumping to Goose Main Reservoir to provide contingency storage for saline water, as required. • Backfilling of Llama Underground with material from the Temporary Underground PAG Stockpile begins. • Saline water from various mine developments is pumped to Goose Main Reservoir. • SWP is pumped empty, and all saline sediments are removed and placed in Goose Main Reservoir • Water management strategies from Year 8 continue.
	10	<ul style="list-style-type: none"> • Mining continues in Umwelt Underground and Llama Underground, and starts in Goose Main Underground (Q2) and Echo Underground (Q3). • Water management strategies from Year 9 continue.

Phase/Stage	Mine Year	Mine Development Sequence and Key Activities
Phase 2: Operations Llama TF Active	11	<ul style="list-style-type: none"> • Mining in Umwelt Underground is completed in Q4; mining continues in Llama Underground, Goose Main Underground and Echo Underground. • Umwelt Underground is also available for permanent storage of saline water as required. • Tailings deposition transitions to Llama TF (Q4). • Water management strategies from Year 10 continue.
	12	<ul style="list-style-type: none"> • Llama Underground mining is complete (Q3). • Mining continues in Goose Main Underground and Echo Underground. • Llama Underground is also available for permanent storage of saline water as required. • Primary Pond and Umwelt TF continue to be used as reclaim source to the mill. • Recirculation treatment in Umwelt TF begins and freshwater from Goose Lake or Big Lake may be pumped to Umwelt TF to supporting the closure filling. • Water management strategies from Year 11 continue.
	13	<ul style="list-style-type: none"> • Goose Main Underground mining completes in Q3 and Echo Underground mining completes in Q2. • Tailings deposition in Llama TF is complete (Q3). • Milling operation in the Process Plant is completed and reclaim water is no longer needed. • Ore Stockpile Pond is decommissioned. • Closure activities may be initiated (Q4)
Phase 3: Closure ^(a)	14 – 17	<ul style="list-style-type: none"> • Primary Pond discharges by gravity to the SWP (then called Umwelt Treatment Pond). • The Llama containment dams are breached, and Llama WRSA runoff flows by gravity to Llama TF. • Recirculation treatment starts in Llama TF and continues in Umwelt TF. • Freshwater from Goose Lake or Big Lake is pumped to Umwelt TF, Llama TF and Goose Main Reservoir, as needed, until they are full. • Echo WRSA Pond is diverted to PN08. • Water from Rascal diversion berm is diverted to expedite filling of Goose Main Reservoir, as required. • Llama TF is full (Year 14) and passively discharges to Umwelt Treatment Pond. Recirculation treatment continues in Llama TF. • Water in the Umwelt Treatment Pond is treated prior to discharge to the Environment (PN04). • Goose Reservoir is full and passively discharges to the environment (PN05) (Year 17). • Goose reservoir outflows are treated, as required, before discharge to the environment
	18 - 20	<ul style="list-style-type: none"> • Recirculation treatment is complete in Umwelt and Llama TF. • Umwelt (Year 19) is full and discharge by gravity to Umwelt Treatment Pond. • Water in the Umwelt Treatment Pond is treated prior to discharge to the Environment (PN04). • All remaining water management structures are decommissioned.

Phase/Stage	Mine Year	Mine Development Sequence and Key Activities
Phase 4: Post-Closure	21+	<ul style="list-style-type: none"> • Subject to runoff meeting discharge limits. WRSAs, open pits/TFs, and down gradient ponds passively runoff/spillover.

Table 2-2 Summary of the key activities that occurred during the Construction Phase.

Phase/Stage	Mine Year	Mine Development Sequence and Key Activities
Phase 1: Construction	-3 to -1	<ul style="list-style-type: none"> • Water intake infrastructure constructed at Goose Lake to meet the freshwater demands for domestic, construction, operation, and associated uses, including mining and milling activities. • Construction of Goose Plant Site, Camp area and all-weather roads/crossings and pads. • The Plant Site Pond/Ore Stockpile Pond constructed at the Goose Plant Site. • The Primary Pond was constructed. • Pre-stripping and mining of Echo Open Pit; mining of Umwelt Open Pit began. • Waste rock was placed in Echo WRSA; contact water runoff from Echo WRSA was collected locally, treated and discharged if necessary to the environment. • Contact water in the Ore Stockpile Pond was pumped to the Primary Pond (once it became available). • Umwelt Open Pit mining was initiated, and inflows were pumped to the Primary Pond. Waste rock was placed in Umwelt WRSA; contact water runoff from Umwelt WRSA was collected in the Primary Pond. • Predevelopment activities for Umwelt Underground were initiated. • Contact water from the Plant Site was collected in the area of Plant Site Pond, then released to the environment.



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DATE:	MAR 2026			TITLE:	GOOSE MINE AREA AND LAYOUT, END OF OPERATIONS
DRAWN:	AA			PROJECT No.:	1829001
REVIEW:	ZMM			DWG No.:	2-1
APPROVED:	PC				



3.0 WATER BALANCE MODEL DESCRIPTION

3.1 Water Balance Overview

The water balance component of the Model is based on mass balance principles, available hydrology monitoring data, mining and production schedules, and the water management plan, with consideration of geochemistry data. The Model tracks all inputs, outflows, and available storage at the Goose Mine site which include:

Water Input: saline groundwater inflows from Llama Open Pit and the underground mines (Llama, Umwelt, Goose Main, and Echo), and precipitation in the form of direct precipitation and surface runoff.

Water Storage: contact water ponds, saline water ponds, open pits, underground mine workings, and tailings void spaces.

Water Output: discharge such as pumped contact/saline water to treatment or contact/saline water storage facilities, open pit overflow, evaporation, and seepage.

The cumulative water storage is calculated for each specified time step in a simplistic form using the following equation:

$$\text{Water Storage (m}^3\text{)} = \text{Water Input (m}^3\text{)} - \text{Water Output (m}^3\text{)} \quad [\text{Eq. 3-1}]$$

The water storage calculated for each time step is added to the water storage at the previous time step.

Direct precipitation and surface runoff are calculated as a function of precipitation, where the runoff coefficient accounts for losses such as evapotranspiration, infiltration, and seepage (for waste rock storage areas only). Direct precipitation and surface runoff can be represented as follows:

$$\text{Direct Precipitation (m}^3\text{)} = \text{Water Surface Area (m}^2\text{)} \times \text{Runoff Coefficient (unitless)} \times \text{Precipitation (m)} \quad [\text{Eq. 3-2}]$$

$$\text{Surface runoff (m}^3\text{)} = \text{Land Surface Area (m}^2\text{)} \times \text{Runoff Coefficient (unitless)} \times \text{Precipitation (m)} \quad [\text{Eq. 3.3}]$$

3.2 Water Balance Inputs

3.2.1 Hydrology

The Model's hydrological inputs are based on the hydrological analysis for the Goose Project (SRK, July 16, 2021). Site-specific and regional precipitation data were analyzed to estimate annual precipitation for the Goose Project which included a correction for undercatch based on published data from Environment and Climate Change Canada (ECCC) for the region (details are provided in SRK, July 16, 2021).

The mean annual precipitation (MAP) for the Goose Mine was estimated to be 427 mm/year. As described in Section 3.1, runoff is a function of precipitation and can be further defined as rainfall runoff and snowmelt runoff. Snowmelt is generated predominantly by the melting of

accumulated snowpack and is concentrated during the period of spring freshet. The snowmelt is simulated in the model when the average temperature (T) rises above a base temperature (T_b) and is calculated using the following equation:

$$\text{Snowmelt} = \text{Melt factor} \times (T - T_b) \quad [\text{Eq. 3-4}]$$

A melt factor (Mf) of 3.3 mm/°C and base temperature (T_b) of 0°C were applied, based on previous local studies (SRK, April 2015). Average daily temperatures (T) previously derived for the Goose Mine were also applied (SRK, June 2020).

Ice formation is modelled in each water reservoir, to a maximum of 2 m. Ice formation is linear with time and starts to form in October reaching its maximum depth in February and is completely melted by the start of July (SRK, April 2015).

The mean annual lake evaporation for the Goose Mine was estimated to be 324 mm/year. Table 3-1 summarizes the monthly distribution of precipitation, evaporation, and temperature estimates for the Goose Mine. Table 3-2 summarizes the frequency analysis of annual precipitation used to evaluate water volumes for a range of hydrological conditions (i.e., wet, average, and dry). Climate change projections were also applied as described in Section 3.2.2.

Table 3-1 Summary of mean hydrological inputs and monthly distributions.

Month	Precipitation		Evaporation		Average Air Temperature (°C)
	Distribution (%)	Mean (mm)	Distribution (%)	Mean (mm)	
January	4.7	27.9	0	0	-28.7
February	4.1	23.3	0	0	-26.6
March	5.9	30.3	0	0.1	-25.1
April	6.2	28.9	1.8	5.9	-15.6
May	6.4	30.0	8.0	25.8	-5.1
June	9.8	40.9	29.8	96.4	5.4
July	12.5	43.2	33.1	107.0	11.4
August	18.2	63.4	20.3	65.8	9.3
September	11.4	41.8	6.9	22.4	2.3
October	9.7	40.8	0.1	0.4	-7.3
November	6.3	30.8	0	0	-18.4
December	4.8	26.0	0	0	-25.4
Annual	100	427.3	100	323.8	-10.3

Note:

Source: SRK (July 16, 2021) (precipitation and evaporation, adjusted to fix rounding errors) and SRK (June 2020) (average air temperature, calculated from daily averages).

Table 3-2 Summary of frequency analysis results.

Hydrological Conditions	Return Period (year)	Annual Precipitation (mm)
Wet	200	653
	100	628
	50	601
	20	561
	10	527
	5	486
Average	-	427
Dry	5	341
	10	306
	20	278
	50	247
	100	227
	200	209

Note:

Source: SRK (July 16, 2021)
 mm = millimetre

3.2.2 Climate Change

A climate change analysis was completed for the Goose Project in 2015 (SRK, November 2015a) which projected the rate of change in precipitation and temperature in the future on an annual basis. While most surface water management infrastructure will have short lifespans and be breached at Closure, open pits filled with tailings and saline water, and waste rock storage areas will remain in perpetuity and long-term climate change effects were considered.

The long-term air temperature and precipitation projections used as inputs to the Model are provided in Table 3-3, based on trends from 1979 to 2005. Temperature and precipitation projections in the Model were linearly interpolated and centred for 2025, 2055, and 2085, with climate projections beyond 2085 assumed to remain constant.

Table 3-3 Climate change projections.

Period	Change with Respect to Baseline (1979 to 2005)	
	Mean Annual Air Temperature (°C)	Total Annual Precipitation (%)
2020s (2011-2040)	2.0	6.0
2050s (2041 – 2070)	3.7	11.0
2080s (2071 – 2100)	5.3	16.0

3.2.3 Catchment Delineation

Mine infrastructure and upstream catchments were delineated for the Goose Mine based off the most recent mine plan and mine facilities layout, where applicable (B2Gold, A. El Takch, personal communication. December 12, 2025 and January 7, 2026). In the Model, each mine facility reaches its final footprint as soon as it becomes active according to the Goose Mine schedule (Section 2.2). This assumes that the entire ultimate footprint of each mine facility will be stripped and/or prepared ahead of operating the facility.

The delineated catchment areas and associated infrastructure are summarized in Table 3-4 and shown in Drawing 3-1, including the road areas, where available. A total of 10 prediction nodes (PN) were included in the Model to assess the hydrology and water quality effects of the proposed development. The total area of mine infrastructure (including roads) at the Goose Mine encompasses approximately 5.0 km², which consists of 5.3% of the total Goose Lake watershed; however, the total extent of the affected area varies depending on the phase of the Goose Mine.

Table 3-4 Goose property catchment areas and associated infrastructure areas.

Prediction Node Catchment	Catchment ID	Catchment Description	Area (m ²)		
			Local Catchment ^(a)	Infrastructure	Roads
01	PN01	Downstream of Propeller Lake outlet	6,486,915,400	-	-
02	PN02	At the outlet of Propeller Lake	108,970,700	-	-
03	PN03	Outlet of Goose Lake	10,495,000	-	87,900 ^(b)
04	PN04	West inlet of Goose neck	15,750,500	-	141,400 ^(b)
	LD1	Upstream of Llama diversion	134,000	-	-
	LD2	Upstream of Llama diversion	691,900	-	-
	LCP	Llama WRSA Pond surface	151,500	151,500	-
	LP1	Llama Open Pit ultimate surface	178,400	178,400	-
	LP	Upstream of Llama Open Pit	152,900	-	26,000
	LL	Llama Lake	269,000	-	3,100

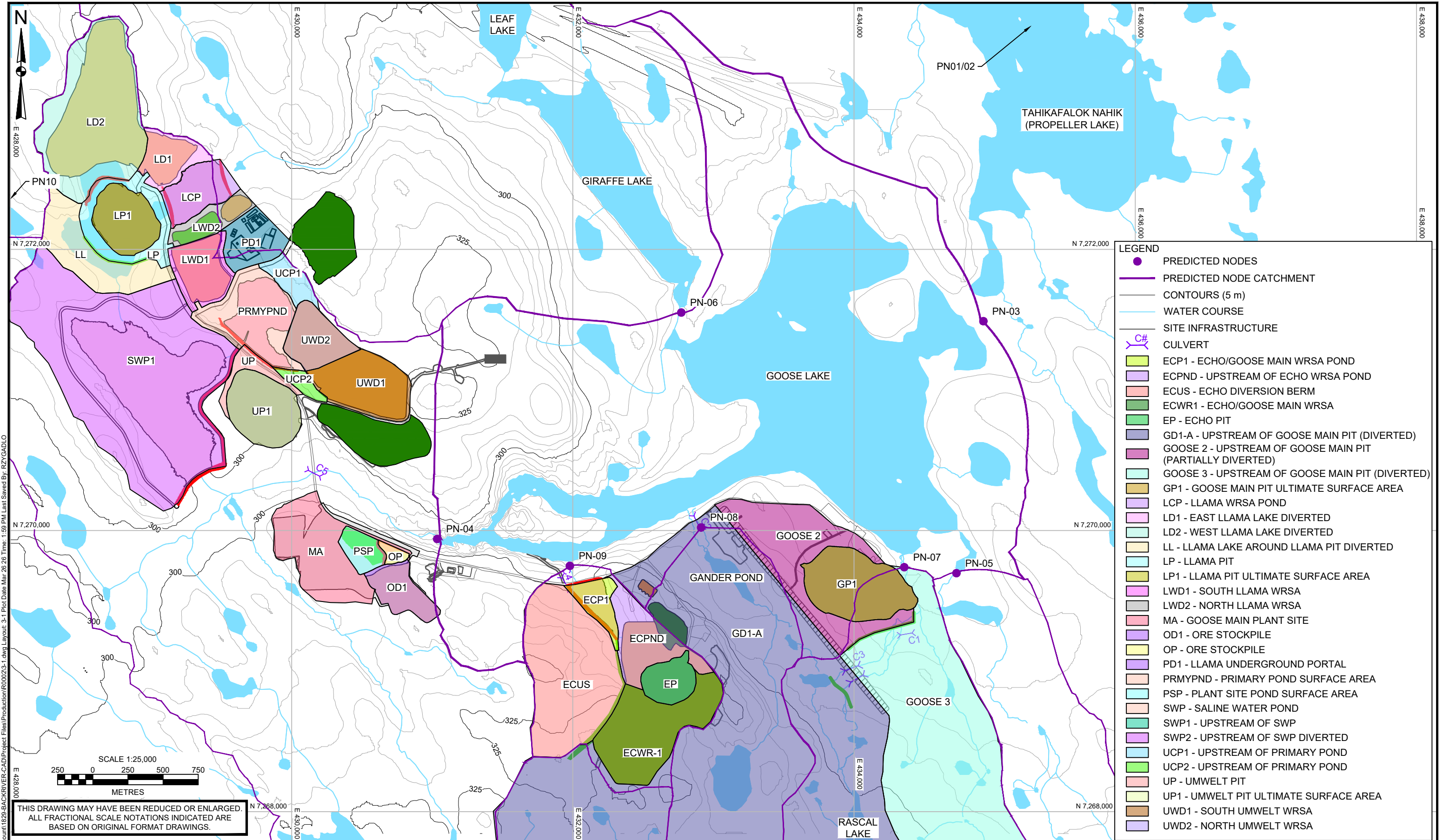
Prediction Node Catchment	Catchment ID	Catchment Description	Area (m ²)		
			Local Catchment ^(a)	Infrastructure	Roads
04	LWD1	Llama WRSA	162,500	162,500	-
	LWD2	Llama WRSA	102,200	102,200	-
	SWP1	SWP1 total catchment	1,635,400		8,500
		SWP surface	992,200	992,200	
		Upstream of SWP	630,500	-	42,400
	UCP1	Upstream of Primary Pond	71,900	-	-
	PRMYPND	Primary Pond surface	307,600	307,600	31,900
	UP	Upstream of Umwelt Open Pit	59,800	-	6,100
	UP1	Umwelt Open Pit ultimate surface	220,600	220,600	-
	UCP2	Upstream of Umwelt Open Pit	35,900	-	-
	UWD1	Umwelt WRSA	249,900	249,900	-
	UWD2	Umwelt WRSA	151,000	151,000	-
	MA	Goose Plant Site	337,100	250,800	-
	OP	Ore Stockpile Pond surface	19,400	19,400	-
	OD1	Ore Stockpile	120,100	113,000	6,000
PSP	Plant Site Pond Surface	70,700	70,700	-	
05	PN05	Discharge from Goose Main Open Pit	2,652,000	-	101,100 ^(b)
06	PN06	Outlet of Giraffe Lake	27,543,400	-	28,500
	PD1	Underground PAG Temporary Stockpile	160,700	150,100	10,600
07	PN07	Upstream of PN05	35,266,900	-	-
	GOOSE2	Upstream of Goose Main Open Pit	465,000	465,000	17,900
	GOOSE3	Upstream of Goose Main Open Pit	2,760,400	-	-
	GP1	Goose Main Open Pit ultimate surface	306,000	306,000	0

Prediction Node Catchment	Catchment ID	Catchment Description	Area (m ²)		
			Local Catchment ^(a)	Infrastructure	Roads
08	PN08	Gander Pond outlet	1,794,600	-	45,100
	GD1-A	Goose Main diversion berm	34,156,900 ^(b)	-	52,400
09	PN09	Echo outlet	1,517,500	-	13,300
	ECP1	Echo WSRA Pond surface	85,100	85,100	-
	ECUS	Echo Pond diversion	637,700	-	-
	ECPND	Upstream of Echo Pond	213,000	-	-
	EP	Echo Open Pit ultimate surface	102,900	102,900	-
	ECWR1	Echo WSRA surface	379,700	303,400	-
10	PN10	Mam Lake Outlet	10,858,400	-	21,600

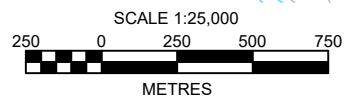
Notes:

- a) Local catchment represents total area of the catchment as delineated in Drawing 3-1; where applicable, the portions of the local catchment occupied by mine infrastructure and roads are provided.
- b) WSP Golder (August 30, 2022)

m²= square meter



- LEGEND**
- PREDICTED NODES
 - PREDICTED NODE CATCHMENT
 - CONTOURS (5 m)
 - WATER COURSE
 - SITE INFRASTRUCTURE
 - C# CULVERT
 - ECP1 - ECHO/GOOSE MAIN WRSA POND
 - ECPND - UPSTREAM OF ECHO WRSA POND
 - ECUS - ECHO DIVERSION BERM
 - ECWR1 - ECHO/GOOSE MAIN WRSA
 - EP - ECHO PIT
 - GD1-A - UPSTREAM OF GOOSE MAIN PIT (DIVERTED)
 - GOOSE 2 - UPSTREAM OF GOOSE MAIN PIT (PARTIALLY DIVERTED)
 - GOOSE 3 - UPSTREAM OF GOOSE MAIN PIT (DIVERTED)
 - GP1 - GOOSE MAIN PIT ULTIMATE SURFACE AREA
 - LCP - LLAMA WRSA POND
 - LD1 - EAST LLAMA LAKE DIVERTED
 - LD2 - WEST LLAMA LAKE DIVERTED
 - LL - LLAMA LAKE AROUND LLAMA PIT DIVERTED
 - LP - LLAMA PIT
 - LP1 - LLAMA PIT ULTIMATE SURFACE AREA
 - LWD1 - SOUTH LLAMA WRSA
 - LWD2 - NORTH LLAMA WRSA
 - MA - GOOSE MAIN PLANT SITE
 - OD1 - ORE STOCKPILE
 - OP - ORE STOCKPILE
 - PD1 - LLAMA UNDERGROUND PORTAL
 - PRMYPND - PRIMARY POND SURFACE AREA
 - PSP - PLANT SITE POND SURFACE AREA
 - SWP - SALINE WATER POND
 - SWP1 - UPSTREAM OF SWP
 - SWP2 - UPSTREAM OF SWP DIVERTED
 - UCP1 - UPSTREAM OF PRIMARY POND
 - UCP2 - UPSTREAM OF PRIMARY POND
 - UP - UMWELT PIT
 - UP1 - UMWELT PIT ULTIMATE SURFACE AREA
 - UWD1 - SOUTH UMWELT WRSA
 - UWD2 - NORTH UMWELT WRSA



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CLIENT:
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PROJECT:	GOOSE PROJECT, 2026 WATER AND LOAD BALANCE REPORT	
TITLE:	GOOSE MINE CATCHMENTS, END OF OPERATIONS	
PROJECT No.:	1829001	DWG No.:
		3-1

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3.2.4 Site Specific Hydrology

Local hydrometric stations are installed at the prediction nodes mentioned in Section 3.2.3. As described in the Hydrology Report (SRK November 2015b), some stations experience significantly higher unit flows than others due to catchments spilling over into adjacent catchments during high flows. The equivalent area transferred from one catchment to the adjacent catchment is provided in Table 3-5, which include:

- PN10 to PN04; however, the overflow is contained by Llama diversion berms when in place (see Drawing 3-1).
- PN06 to PN04; however, the overflow is contained by Llama diversion berms when in place (see Drawing 3-1).
- PN05 to PN08; however, the overflow is contained by Goose Main diversion berm when in place (see Drawing 3-1).

Table 3-5 Site-specific hydrology inputs.

Overflows from	Transferred to	Equivalent Area Transferred
PN10	PN04	2.2 km ²
PN06	PN04	2.2 km ²
PN05	PN08	3.1 km ²

Note:

Source: SRK, November 2015b.
 km² = square kilometer

3.2.5 Runoff Coefficients

Specific runoff coefficients were assigned to each area depending on its surface cover. Because the Goose Mine is in a continuous permafrost zone, the thermal state of the waste rock deposited was considered which assumed the waste rock storage areas were in an unfrozen state until the first frost after waste rock placement was initiated and then frozen thereafter. The runoff coefficients applied to each surface cover are presented in Table 3-6. These coefficients were adopted from previous studies (SRK, June 2020).

Table 3-6 Runoff coefficient by surface cover.

Surface Cover	Runoff Coefficient (Unitless)
Undisturbed Area	0.36
Waste Rock Storage Area (unfrozen)	0.30
Waste Rock Storage Area (frozen)	0.60
Open Pit Wall Area	0.80
Underground/Industrial Pads Area	0.30
Road Surface Area	0.30
Ponded Area	1.00

3.2.6 Milling Quantities and Freshwater Demand

The Goose Mine consists of open pit and underground mining that will feed a whole-ore leach Process Plant. Before the start of the Process Plant (June 2025), ore was stockpiled at the Goose Plant Site and was used for commissioning of the Process Plant in Year 1. The Process Plant will be operational for 13 years, processing a total of 18.8 million tonnes of ore. Table 3-7 summarizes the milling production rates during the Operations Phase, which were used in the Model as an input in conjunction with the tailings parameters in Table 3-8, to calculate tailings solids produced, water lost to tailings voids, reclaim water demand, freshwater demand, and the tailings storage capacity.

Table 3-7 Milling production rate.

Mine Year	Production Rate (tonnes/day)
Year 1, Q1	0
Year 1, Q2 ^(a)	300
Year 1, Q3	1,500
Year 1, Q4	2,300
Year 2, Q1	2,400
Year 2, Q2	2,800
Year 2, Q3	2,900
Year 2, Q4	3,200
Year 3, Q1	3,500
Year 3, Q2	3,500
Year 3, Q3	4,000
Year 3, Q4 to Year 13, Q	4,000

Note:

Source: received from B2Gold (A. El Takch, personal communication. February 5, 2026).

(a) Production started in June of Year 1.

Table 3-8 Tailing parameters.

Parameters	Value
Tailings Specific Gravity	3.1
Initial Dry Density	1.4 tonne/m ³
Ore Precent Solid	97%
Water Density	1.0 tonne/m ³
Tailings Slurry Solids Concentration – Year 1	46%
Tailings Slurry Solids Concentration – Year 2 to end of operations	58%
Process Plant Minimum Fresh Water Requirement	22 m ³ /hr

Source: received from B2Gold (A. El Takch, personal communication. February 25, 2026)

Freshwater requirements will be sourced primarily from Goose Lake and as needed, from Big Lake. Table 3-9 summarizes the freshwater consumption requirements for domestic and industrial use, excluding process freshwater demand. For modeling purposes, the maximum water withdrawal from Goose Lake includes 1,500 m³/day of freshwater year-round and an additional 400 m³/day during the open water season, for a total of 1,900 m³/day. The maximum water withdrawal from Big Lake is 750 m³/day of freshwater year-round for the life of the Goose Mine.

Table 3-9 Domestic and industrial freshwater demands.

Demand	Rate
Domestic Water Supply	300 m ³ /day during Operations 15 m ³ /day during the Closure Stage
Industrial Water Supply (excluding process water demand)	300 m ³ /day during Operations, (does not include Process Plant water)

Source: received from B2Gold (A. El Takch, personal communication. March 18, 2025).

The waste rock from each Open Pit (Echo Open Pit, Umwelt Open Pit, Llama Open Pit and Goose Main Open Pit) will be placed in the associated WRSA (Echo WRSA, Umwelt WRSA, Llama WRSA and Echo/Goose Main WRSA). The mine plan used for the Model assumes that a small amount (approximately up to 4.4 tonnes) of waste rock from Umwelt Open Pit will be placed in Umwelt overflow WRSA, located near Primary Pond. NPAG waste rock material will be temporarily placed in the Temporary NPAG stockpile, also located near Primary Pond. Throughout the life of mine, the material in this stockpile will be removed and used as construction material at Goose Mine. PAG material from predevelopment activities and mining of the Llama Underground will be temporarily placed in the Temporary Underground PAG Stockpile located east of Primary Pond. Throughout the life of mine material in this stockpile will be removed and used to backfill the Llama Underground.

3.2.7 Permafrost and Groundwater

The Goose Mine is located in a continuous permafrost region of the Canadian Arctic. It is expected that Llama, Umwelt, Goose Main, and Echo underground developments will extend below the permafrost layer (i.e., at least 400 m below the ground surface) into unfrozen soil and rock referred to as taliks. In addition, open pit mining at Llama Open Pit will occur in the footprint of Llama Lake, which is also associated with taliks. Other developments (i.e., Umwelt, Echo, and Goose Main open pits) are expected to be fully within permafrost. Although, groundwater may flow through the top 1 to 3 m of overburden during the warmer months of the year (unfrozen conditions), the volume of flow is likely insignificant in comparison to the surface water runoff. A summary of the estimated annual groundwater inflows and associated total dissolved solids (TDS) for the mining developments that extend into unfrozen rock is presented in Appendix C. The groundwater inflows for Scenario 1 in Appendix C were used for the model simulation. As detailed in Appendix C, BGC used the groundwater inflows and associated total dissolved solids (TDS) presented in WSP Golder (August 30, 2022) and scaled them by

comparing the timing and depth of the mine openings (i.e., BGC did not update the groundwater model developed by WSP Golder (August 30, 2022)).

Inherent uncertainties associated with the estimated groundwater inflows are always present until operational information can verify inflows. The estimate of the groundwater inflows will be refined as additional groundwater information becomes available during mine development. Also, strategies mentioned in WSP Golder (August 30, 2022) to reduce groundwater inflows, such as grouting of the faults, will be considered based on actual groundwater inflows encountered during operations.

3.2.8 2025 Site Monitoring Data

Throughout the construction phase of the Goose Mine, B2Gold installed a network of stations to monitor pumped flows/volumes, water levels, mining volumes/tonnages, process flows/volumes and snowpack. The Goose Mine meteorological station has also continued collecting climate data (e.g. rainfall only, temperature).

As mine production started in June of Year 1, site data are available for only a short period of time (less than 1 year) and were not considered sufficient to support a calibration of the Model. Also, the data are related to the start up of the process plant and may not be representative of conditions during the rest of the life of mine. However, some of the data collected in Year 1 were implemented in the Model such that the Model reflects the actual site conditions at the end of Year 1, which represent the start of the model projection period. It is noted that due to some uncertainties in the precipitation data collected at the Goose Mine meteorological station in Year 1, precipitation data collected at the ECCC Robertson Lake station (approximately 200 km southeast from Goose Mine) were applied as a surrogate to the site data.

4.0 LOAD BALANCE MODEL DESCRIPTION

4.1 Load Balance Overview

The load balance component of the Model was developed to evaluate the potential effects of the Project on water quality of the receiving environment. The Model was also used to inform optimal water management and identify water treatment requirements during Operations and Closure. The Model was based on conservation of mass and does not consider geochemical reactions or physical processes such as settling of suspended solids.

Mine components were treated as source terms (Table 4-1). For each source term, the constituent's concentration was calculated based on humidity cell test (HCT) data, geochemical modelling, and extrapolation of monitoring data from geologically similar sites in the area.

Loading rates were generated based on the predicted corresponding flows in the water balance component of the Model. Loading rates in the load balance component of the Model were defined as:

- Direct loadings based on a defined input source term
- Linked loadings from GoldSim reservoirs (representing open pits, ponds, lakes, etc.). Most often loading rates were direct loadings calculated using source term concentrations.

$$\text{Loading Rate} = \text{Flow Rate} \times \text{Source Terms Concentration} \quad [\text{Eq. 4-1}]$$

Linked loading rates were used for flows from upstream facilities. They were derived using the calculated concentration in the upstream GoldSim reservoir representing that facility and the associated flow from the upstream facility in the water balance. Loading rates provide a rate at which mass is being added to the receiving GoldSim reservoir, which is then divided by the volume of water in that reservoir to determine the concentration (Equation 4-2).

$$\text{Calculated Concentration GoldSim reservoir} = \frac{\text{Mass Parameter}}{\text{Volume}_{\text{GoldSim reservoir}}} \quad [\text{Eq. 4-2}]$$

$$\text{Loading Rate} = \text{Flow Rate} \times \text{Calculated Concentration}_{\text{GoldSim reservoir}} \quad [\text{Eq. 4-3}]$$

The Model also accounted for mass loading from reagent addition rates in the Process Plant and drilling brine in the underground developments.

Table 4-1 Summary of source terms applied in the load balance component of the model.

Source Term	Units	Applies to	Associated Mine Component	Mining Phase
Background surface water quality	mg/L	Undisturbed catchments, initial water quality in lakes, and non-contact runoff	Undisturbed catchment areas, Llama Lake dewatering, Umwelt Lake dewatering, Goose Lake withdrawals, non-contact runoff	Operations, Closure, and Post-Closure
Groundwater quality	mg/L	Groundwater inflows into open pits and underground mining	Llama Open Pit, Umwelt Underground, Llama Underground, Echo Underground, Goose Main Underground	Operations
Ore stockpile runoff	mg/L	Stockpile areas (all Project phases)	Ore Stockpile	Operations
Waste rock storage area runoff	mg/L	Waste rock surface areas	Umwelt WRSA, Llama WRSA, Echo/Goose Main WRSA, Umwelt Overflow WRSA	Operations, Closure, and Post-Closure
NPAG Stockpile	mg/L	NPAG Stockpile	Temporary NPAG Stockpile	Operations
PAG Stockpile	mg/L	PAG Stockpile	Temporary Underground PAG Stockpile	Operations
Pit wall runoff	mg/L	Pit wall areas below pit overflow elevation	Umwelt Open Pit, Llama Open Pit, Echo Open Pit, Goose Main Open Pit	Operations
			Umwelt Tailings Facility, Llama Tailings Facility, Echo Tailings Facility	Operations
High wall runoff	mg/L	Pit wall areas above pit overflow elevation	Umwelt Reservoir, Llama Reservoir, Goose Main Reservoir	Closure
Industrial pad runoff	mg/L	Process Plant area, roads, and underground pads	Process Plant area, roads, Umwelt Underground, Llama Underground, Echo Underground, Goose Main Underground	Operations, and Closure
Process water effluent	mg/L	Tailings slurry supernatant	Umwelt Tailings Facility, Llama Tailings Facility, Echo Tailings Facility	Operations

Source Term	Units	Applies to	Associated Mine Component	Mining Phase
Blasting residue	mg/year	Ore, WRSAs, roads, and underground pads	Ore Stockpile, Umwelt WRSA, Llama WRSA, Echo/Goose Main WRSA, Umwelt Underground, Llama Underground, Echo Underground, Goose Main Underground	Operations
Brine residue	mg/year	Underground waste rock and ore	Umwelt Underground, Llama Underground, Echo Underground, Goose Main Underground	Operations, Closure

Note:
 mg/L = milligram per litre, WRSA = waste rock storage area.

4.2 Load Balance Inputs

Site-specific data, such as measured concentrations of background surface water and groundwater quality, were used as model inputs where available. Similarly to the water balance component of the Model (Section 3.2.8), site-specific data collected in Year 1 were considered not sufficient to support a model calibration. Also, these data were collected during the start-up of mine operations and may not be representative for the rest of the life of mine. These data were therefore not considered for this Model update.

Where data were not available, assumptions were used to simulate the complex interplay of climate, the geochemical characteristics of the rock materials, and the physical characteristics of the mine facilities (e.g., WRSAs and blasting residue). This modelling approach is consistent with industry practices and was appropriate for evaluating the potential effects associated with the Goose Mine. Actual contact water quality during Operations, Closure, and Post-Closure may differ from the predictions presented.

Model inputs and assumptions are presented in the following subsections and reflect the updates made to the Goose Mine WMP (B2Gold, June 2026).

4.2.1 Background Surface Water Quality and Lake Initial Water Quality

WSP Golder compiled and analyzed water quality data collected at the Goose Mine from 2011 to 2018 (Golder, July 2019). Stream water samples were collected and analyzed during freshet and the remaining open water season. The median concentrations were used as inputs in the load balance component of the Model (Appendix D).

Measurements below the detection limit were conservatively assumed to be equal to the detection limit, with the exception of mercury which was treated as half the detection limit.

Initial concentrations were assigned to Llama and Umwelt lakes in the model based on data collected in 2011 by Rescan (Rescan, June 2012) (Appendix E). Initial concentrations for Goose Lake in the model were based on data as part of the monitoring for the Aquatic Effects Monitoring Program by WSP Golder (Golder, July 2019) (Appendix E).

4.2.2 Groundwater Quality

Groundwater quality was unchanged from the 2020 version of the load balance component of the Model (SRK, June 2020), with the exception of flow rates, chloride and TDS concentrations. Westbay well (13-GSE-319) installed by SRK adjacent to the Umwelt deposit at the Goose Mine was used as groundwater quality for the load balance. Data from the well were corrected for the concentrated calcium chloride drilling brine used to avoid freezing during drilling (SRK, April 2015). An average from the Westbay well Zone 3 and Zone 5 monitoring results was applied in the model.

The salinity of groundwater inflows into the Goose Mine is expected to be more saline than sea water. The dominant ions in the groundwater inflows are calcium, sodium and chloride. Westbay well monitoring data indicate that salinity concentrations likely increase with depth.

WSP Golder (August 30, 2022) updated the flow rates and TDS and chloride concentrations for the developments that extend into unfrozen rock as part of their water and load balance model. This represents the last update of the groundwater numerical model. To support the 2026 Model update, BGC scaled the WSP Golder (August 30, 2022) estimates by comparing the timing and depth of the mine openings (Section 3.2.7), as the mine schedule has since been updated by B2Gold, including the timing of the mining of the undergrounds.

The average groundwater inflow quantity and quality (expressed as TDS concentrations) expected during mine operations are included in Appendix C. Scenario 1 in Appendix C was used in the Model. It was assumed that 60% of measured TDS is composed of chloride. Estimated salinities used in the Model are of similar concentrations to those reported for other sites situated in continuous permafrost environments (e.g., Meliadine³, Hope Bay⁴) (SRK, April 2015).

4.2.3 Waste Rock Storage Areas, Ore Stockpile, Pit Walls, High Walls, and Industrial Pad Runoff

4.2.3.1 Waste Rock Storage Areas and Ore Stockpile

Dissolved source concentrations for water in contact with the WRSAs and the Ore Stockpile were developed by SRK (April 2015), and subsequently refined by WSP Golder in different stages, last by WSP Golder (August 30, 2022) for use in the load balance component of the Model. In support of the 2026 modification package, Stantec confirmed that the source concentrations included in the WSP Golder (August 30, 2022) version of the Model remains suitable (received from Stantec, Brenda Bailey, personal communication. March 03, 2026).

Source concentrations were predicted using HCT results and included the application of correction factors (i.e., temperature, coarseness, and flow channeling), geochemical modelling, and extrapolation of monitoring data from geologically similar sites in the area. The hydrological

³ Meliadine Gold Project, Agnico Gold, Nunavut, Advanced Exploration.

⁴ Hope Bay, TMAC, Nunavut, Historical Drilling / Advanced Exploration.

inputs for these predictions were based on an average hydrological year and assumed infiltration rate as described in Section 3.2.5. Calculations (Equation 4.4) to derive source term concentrations were built into the Model to allow for source term concentrations to update based on predicted proportions of lithologies in the WRSAs or exposed areas in the pit walls.

$$\text{Source Term} = \frac{(\text{HCT Avg Loading Rate} \times \% \text{lithology})_{\text{Lithology,Parameter}} \times 52 \frac{\text{weeks}}{\text{year}} \times \text{RockMass}}{\text{Pile Flow}} \times TC \times CC \times FCC \quad [\text{Eq. 4-4}]$$

Where:

- TC = Arrhenius temperature correction factor (0.2)
- CC = Coarseness correction factor (0.2)
- FCC = Flow channelization correction factor (0.5).

Values for these correction factors are consistent with the geochemical characterization and source term development performed by SRK (April 2015).

After developing the mass balance-based source term concentration for the WRSAs and Ore Stockpile, the concentrations were adjusted using regional limits (SRK, April 2015) and geochemical modelling using PHREEQC (ver. 3.6.2; Parkhurst & Appelo, 2013), a publicly available thermodynamic equilibrium modeling software. Maximum concentrations from each mining phase were selected from the time series of the WRSA and Ore Stockpile source terms and used for geochemical modelling using PHREEQC. The goal of this modelling was to balance ion charges, allow for mineral equilibrium reactions, and reflected the application of the regional limits developed by SRK. Source term concentration inputs were adjusted as follows using PHREEQC:

- Alkalinity set to 0.1 mg/L as CaCO₃ to allow for geochemical convergence within PHREEQC.
- pH set to 5 based on kinetic testing data.
- Charge balance on chloride (for positive charge imbalance) and sodium (for negative charge imbalance).
- Equilibration with an atmospheric pCO₂ value of -3.4.

The outputs from the PHREEQC modelling were then further adjusted for constituents that were below background regional limits. Upper-bound regional limits (SRK, June 2020) were applied for: aluminum, antimony, arsenic, cadmium, calcium, cobalt, copper, iron, magnesium, manganese, mercury, molybdenum, nickel, selenium, silver, and zinc. The source terms used in the Model are provided in Appendix D.

The conceptual model for the WRSAs includes seasonal freezing of the piles resulting in a permanently frozen core and a minimum 5 m active layer during any period of the year. This active layer thickens with deposition of new material during the unfrozen portion of the year and is reduced to 5 m during the winter months. Once material is no longer being added to a WRSA, a 5 m NPAG cover will be added to the pile. The load model assumes that the NPAG cover will

be comprised of NPAG lithologies proportional to the final year of mining from the associated pit.

4.2.3.2 Pit Walls, High Walls, and Industrial Pads

The HCT results used for the pit walls are based on pre-acidity measurements, while high wall concentrations are based on post-acidity measurements of PAG materials. The reactive mass of the pit walls was determined based on the exposed surface area, an assumed reactive depth of 1 m and a percentage of 5% of reactive rock within the reactive rock volume. The source term calculation for the pit walls was the same as Equation 4-4, but without the coarseness and flow channelization correction factors. PHREEQC modelling was not conducted on the pit wall runoff source term.

Runoff from industrial pads, roads, and berms were calculated using Equation 4-4 with inputs being NPAG HCT data and rock masses based on infrastructure areas in the mine plan and an average thickness of 2 m.

Appendix D includes a summary of constituent concentrations for the Ore Stockpile and the WRSA runoff applied in the Model.

4.2.4 Process Water Effluent

The process water source term represents a single pass of ore processing through the Goose Process Plant. This source term was refined using samples provided to WSP Golder by Sabina Gold and Silver that represent thickener overflow solutions (M. Keefe, February 4, 2022). Average concentrations were used for the source term (Appendix D).

4.2.5 Sewage Treatment Plant (STP) Treated Effluent

Source terms concentrations for the STP treated effluent discharged during Operations and Closure are presented in Appendix D (received from B2Gold, Chris LeGoffe, personal communication. March 04, 2026).

4.2.6 Blasting Residues

The loads associated with blasting residues (i.e., ammonia, nitrate, and nitrite) applied to blasted rock used as backfill are derived from methods described by Ferguson and Leask (1988). Equation 4-5 was included in the Model with several assumed input parameters (Table 4-2).

$$NH_4NO_3 - N = W_r \times P_f \times A_{Nc} \times N_c \times R_f \quad [\text{Eq. 4-5}]$$

Where:

- $NH_4NO_3 - N$ (kg of ANFO [ammonium nitrate/fuel oil] / day) = annual release of total ammonium nitrate as nitrogen;
- W_r (tonne rock / day) = waste rock production rate;
- P_f (kg ANFO / tonne rock) = powder factor;
- A_{Nc} (constant) = fraction of ammonium nitrate in ANFO;

- Nc (constant) = fraction of nitrogen content in ammonium nitrate; and
- Rf (%) = residual nitrogen remaining.

Table 4-2 Blast residue input parameters.

Parameter	Label	Value
ANFO : NH ₄ NO ₃	ANc	1:0.94
NH ₄ NO ₃ : NH ₄ NO ₃ as N	Nc	1:0.35
Surface Rock Powder Factor	Pf	0.27 kg ANFO / tonne rock
Underground Powder Factor	Pf	0.9 kg ANFO / tonne rock
Residual ANFO Factor	Rf	5%
Annual Flush Rate	n/a	40%

Note:

The residual ANFO factor (1%) specified by Ferguson and Leask (1988) was increased by a factor of five. ANFO = ammonium nitrate/fuel oil. The powder factor data were provided by B2Gold (Chris LeGoffe, personal communication. March 09, 2026)

The total nitrogen was portioned between ammonia, nitrate, and nitrite according to the speciation of nitrogen in the blast residues: 37% ammonia, 60% nitrate, and 3% nitrite (Morin & Hutt, 2009).

Pads made of fill (i.e., underground pads and roads) were based on a 2 m thickness and total surface areas of the infrastructure (Section 3.2.4). The annual nutrient loads were distributed monthly based on the annual hydrograph (Table 3-1) and assume that 40% of the residue would be flushed annually. Nitrogen loadings from blasting residue from all WRSAs, Ore Stockpile area, roads, and underground pads were included in the Model.

4.2.7 Cyanide Degradation Reactions

SRK derived degradation rates for total cyanide (TCN), cyanate (OCN⁻), thiocyanate (SCN⁻), and ammonia (NH₄⁺). The relevant degradation pathways for these species (Table 4-3) were included in the Model. WSP Golder (August 30, 2022) conservatively assumed that the final product of the degradation pathway (i.e., ammonia degradation) is nitrate (NO₃) to maintain a mass balance for nitrogen species. The WSP Golder (August 30, 2022) model iteration only accounted for the decrease in ammonia concentration and did not track the gaining species (attributed to various N forms).

Table 4-3 Degradation reactions and relevant species.

No.	Degradation Reaction	Losing Species	Gaining Species
1	TCN degrades to OCN ⁻	TCN	OCN ⁻
2	OCN ⁻ degrades to NH ₄ ⁺	OCN ⁻	NH ₄ ⁺
3	SCN ⁻ degrades to NH ₄ ⁺	SCN ⁻	NH ₄ ⁺
4	NH ₄ ⁺ is transformed to a variety of other forms of nitrogen (attributed to nitrate)	NH ₄ ⁺	NO ₃

Note:

TCN = total cyanide; OCN⁻ = cyanate; SCN⁻ = thiocyanate; NH₄⁺ = ammonia; NO₃ = nitrate.

SRK calculated degradation rates from mass balance data from the Colomac Mine (SRK, March 2004). The methods are described in the 2020 Water and Load Balance Report (SRK, June 2020). The degradation rates were preserved in this version of the Model (Table 4-4).

Table 4-4 Summary of degradation rates.

Constituent	Degradation Rate (mg/m ² /day)
TCN-N	-218
OCN-N	-300
SCN-N	-674
NH ₄ ⁺ -N	-249

Note:

mg/m²/day = milligrams per meter squared (of surface area) per day. TCN = total cyanide; OCN- = cyanate; SCN- = thiocyanate; NH₄⁺ = ammonia.

4.2.8 Brine Residues

Calcium chloride will be required for mining the underground portions of Umwelt, Llama, Goose Main, and Echo deposits. Brine loading concentrations used in the Model (Table 4-5) were based on Hope Bay⁵ (SRK, April 2015), which were derived from shake flask tests and runoff monitoring data from waste rock piles for drilling in permafrost. Brine residues were assumed to be flushed out over time at a rate of 40% per year, and the brine mass from ore was assumed to be 100% flushed upon entering the Process Plant.

Table 4-5 Brine addition details.

Material	Location	Calcium Chloride Load (mg/kg)
Underground Waste Rock (on surface)	Permafrost	780
Underground Ore	Permafrost	390

4.2.9 Process Plant Outflow Water Quality

The water quality of the Process Plant outflow was informed by the reclaimed water concentrations from Echo and Umwelt TFs and the Primary Pond, as well as the additional load from ore porewater, release of load from ore dissolution, brine and ANFO flushing, and the Process Plant reagent addition for gold cyanidation and products of cyanide destruction.

The Process Plant reagent addition rates (Table 4-6) are based on work by JDS Energy and Mining Inc. (JDS, October 28, 2015). The total nitrogen generated by the cyanide addition was determined by the weak acid dissociable (WAD) cyanide concentration in the carbon adsorption tanks reporting to the cyanide destruction circuit. The nitrogen speciation was derived from the proportion of the cyanide breakdown products in the process water source terms. Sulphate

⁵ Hope Bay, Doris North Project – Water and Load Balance.

generated in the cyanide destruction was calculated using a $\text{SO}_2(\text{g})$: $\text{CN_WAD}(\text{g})$ ratio of 5.5. Reagent loads were determined by multiplying the reagent concentrations by the Process Plant inflow rate.

Solubility limits were applied to the following metals to account for precipitation in the Process Plant circuit: aluminum, cadmium, copper, iron, lead, cobalt, magnesium, manganese, mercury, nickel, silver, strontium, thallium, tin, titanium, and zinc (JDS, October 28, 2015). Sulphate concentrations were determined considering calcium concentrations and calcite precipitation, as well as sodium concentrations and sodium sulphate generation.

Table 4-6 Summary of process plant reagent additions used in the load balance component of the model.

Reagent Dose (kg/tonne)	
Sodium Cyanide (NaCN)	1.4
Sodium Metabisulphite ($\text{Na}_2\text{S}_2\text{O}_5$)	1.5
Species Addition (g/tonne)	
Ammonia (NH_3)	53 ^(a)
Nitrate (NO_3)	0.14 ^(a)
Nitrite (NO_2)	0.15 ^(a)
Cyanate (OCN^-)	21 ^(a)
Thiocyanate (SCN^-)	24 ^(a)
Total Cyanide	0.62 ^(a)
Weak Acid-Dissociable Cyanide	180 ^(a)
Sodium	1000
Sulphate (5.5g SO_2 / g of WAD CN)	1500

Note:

^(a): g-nitrogen/tonne.

4.2.10 Cryoconcentration

It was assumed there will be 100% exclusion of dissolved constituents from ice formation in water bodies within the Model, resulting in higher concentrations in the underlying water. Water bodies modelled as GoldSim reservoirs in the load balance (i.e., lakes, ponds, and open pit reservoirs including Llama, Umwelt, and Goose Main) therefore experience cryoconcentration. Each water body has an associated volume of liquid water in the water balance that fluctuates based on the ice thickness, but the mass of each constituent is unaffected by these volume changes, and therefore the concentration increases or decreases with each freeze-thaw cycle. The inclusion of cryoconcentration in the model improves accuracy by capturing seasonal water quality variations of these water bodies.

A maximum ice thickness of 2.0 m was applied to water bodies modelled. Ice was assumed to form in October, reaching a maximum depth in February, and receding to a zero-ice thickness by the start of the open water season in July (Table 4-7). These assumptions are based on

observations recorded during the freshwater baseline study performed by Rescan ERM (June 2012).

Table 4-7 Ice thickness input.

Day of the Year	Average Ice Thickness (m)
1	1.6
31	2
60	2
180	0
274	0
366	1.6

Note:

Thicknesses interpolated linearly between points.

5.0 MODEL IMPLEMENTATION

5.1 Modelling Approach

5.1.1 Time Step

The Model relies on a daily timestep from Year 1 to Year 46, which is when the pit lakes and conditions at the prediction nodes reach steady-state conditions (depending on climate conditions, such conditions may be reached earlier). Although most Model input parameters are entered on a monthly time step, the Model calculates daily values by dividing monthly values by the number of days in each month.

5.1.2 Stochastic Water Balance Model

The Model results for the water balance component were generated using a Monte Carlo simulation. A Monte Carlo simulation is a mathematical technique which builds an ensemble of possible results by using a probability distribution. The Model utilizes precipitation probability distribution developed for the Goose Mine (see Table 3-2) to estimate an annual precipitation. The annual precipitation is then multiplied by the monthly distribution, a runoff coefficient (based on the surface type), and the catchment area to estimate the runoff volumes. A total of 100 model runs were completed with a randomly generated annual precipitation for each year. At the end, all results were compiled, and a probability distribution of runoff results was generated for the 5th (i.e., representing lower than average precipitation), 50th (i.e., median precipitation, similar to average precipitation conditions), and 95th (i.e., representing greater than average precipitation) percentiles.

5.1.3 Stochastic Load Balance Model

The Model results for the load balance component were generated using the stochastically modelled annual precipitation of the water balance model. Similar to the water balance component of the Model, a total of 100 runs were completed. Once results (i.e., predicted daily concentrations) of these 100 runs were compiled, the 5th, 50th, and 95th percentiles of the results from the 100 runs were calculated for each daily time step and then monthly mean concentrations were calculated.

The assessment of the load balance results focussed on the 50th percentile of predicted concentrations, which represents median hydrological conditions (i.e., similar to an annual precipitation of 427 mm/yr) and are consistent with conditions used in the derivation of the source terms. The 5th and 95th percentiles of the predicted concentrations are also included in this report to provide a range of predicted concentrations that could potentially occur under different hydrological conditions.

5.2 Modelled Constituents and Discharge Limits

Water quality constituents included in the load balance component of the Model are listed in Table 5-1. Results of the load balance component of the Model were screened against the

Metal and Diamond Mining Effluent Regulations (MDMER) discharge limits (Government of Canada 2002, current to 5 May 2025) (Table 5-2). It is acknowledged that additional requirements for discharge limits may be applicable (e.g., Water Licence discharge limits) to meet in-lake (i.e., Goose Lake) water quality objectives.

Table 5-1 Constituents included in the load balance component of the model.

TDS	Total Ammonia as N ^(a)	Cadmium	Molybdenum	Thorium
TSS	Orthophosphate as P	Calcium	Nickel	Tin
Free Cyanide	Phosphate as P	Chromium	Phosphorus	Titanium
Total Cyanide	Total Organic Carbon	Cobalt	Potassium	Uranium
Weak Acid-Dissociable Cyanide	Aluminum	Copper	Selenium	Vanadium
Cyanate	Antimony	Fluoride	Silicon	Zinc
Thiocyanate	Arsenic	Iron	Silver	-
Sulphate	Barium	Lead	Sodium	
Chloride	Beryllium	Lithium	Strontium	
Nitrate as N	Bismuth	Manganese	Tellurium	
Nitrite as N	Boron	Mercury	Thallium	

Note:

N = nitrogen; P = phosphorous.

(a) Total ammonia was used to calculate un-ionized ammonia based on conservative estimates of effluent temperature (15°C) and pH (8.5).

Table 5-2 MDMER discharge limits applied to discharge at the prediction nodes.

Constituent	MDMER Discharge Limit ^(a) (mg/L)
TSS	15
Un-ionized ammonia	0.50 ^(b)
Cyanide	0.50
Arsenic	0.10
Copper	0.10
Lead	0.080
Nickel	0.25
Zinc	0.40

Notes:

(a) Maximum authorized monthly mean concentration.

(b) mg-nitrogen/L.

MDMER = Metal and Diamond Mining Effluent Regulations.

5.3 Water Treatment

Model results are the basis for understanding the level of treatment required for the Goose Mine to meet MDMER discharge limits at the discharge points to Goose Lake.

In Year 1 of Operations, approximately 50% of the water in Llama Lake was dewatered either to Goose Lake or to Primary Pond for use at project startup (process plant initial water supply, development of initial water cap in Echo TF). The remaining approximately 50% of Llama Lake will be dewatered in Year 2 of Operations (Y2, Q2-Q3). It has been assumed that 80% of the water to be removed in Year 2 (i.e., 40% of total original volume of Llama Lake) will have medium TSS concentration (i.e., a concentration of TSS larger than maximum allowed for discharge but that is treatable) and will be treated at the TSS treatment plant prior to discharge to Goose Lake. The last 20% of the volume to be dewatered in Year 2 (i.e., 10% of total original volume of Llama Lake) is assumed to have high TSS (i.e. higher than the maximum acceptable by the TSS treatment plant) and will be stored in Umwelt Lake.

In Year 1 of Operations, approximately 50% of the water in Umwelt Lake was dewatered either to Goose Lake or to Primary Pond for use at project startup (process plant initial water supply, development of initial water cap in Echo TF). The remaining approximately 50% of Umwelt Lake will be dewatered in Year 2 of Operations (Y2, Q2-Q3). It has been assumed that 50% of the water to be removed in Year 2 (i.e., 25% of total original volume of Umwelt Lake) will have medium TSS concentration and will be treated at the TSS treatment plant prior to discharge to Goose Lake. The last 50% of the volume to be dewatered in Year 2 (i.e., 25% of total original volume of Umwelt Lake) is assumed to have high TSS and will remain in Umwelt Lake.

Saline water from Llama, Umwelt, Echo, and Goose Main underground workings and from Llama Open Pit will be sent to the SWP for holding prior to being treated by reverse osmosis (RO) at the RO plant for reuse in the mining process or storage in the TFs. A treatment efficiency (in terms of contaminant removal) of 98% was assumed for the RO process (Sabina, March 2021), with permeate (i.e., desalinated portion of the treated effluent) being sent to Umwelt TF and brine being cycled back into the SWP. The incoming flow volume will be split 80% to permeate and 20% to brine. If needed to manage water in the SWP and/or in case of an emergency at the RO plant, saline water from the SWP could be transferred to Llama TF, when available.

Water quality predictions indicate that water treatment will be required to treat water in Umwelt and Llama TFs before discharge to the environment. As the Umwelt and Llama TFs are filling up, after deposition is complete, water treatment for some constituents included in Table 5-1 (ammonia, nitrate and nitrite, aluminium, arsenic, chromium, copper, iron and selenium) will be circular at a rate of 5,000 m³/day for each pit (total of 10,000 m³/day), with treated water being sent back to the TFs. When they reach capacity, the Umwelt and Llama TFs will discharge to the SWP, which becomes the Umwelt Treatment Pond (after the saline water and contaminated sediments have been removed from SWP) to provide flow attenuation for additional treatment prior to discharge to the environment, as required. The proposed treatment in Umwelt Treatment Pond is year-round at an average flow rate of 5,000 m³/day, and a potential

maximum rate of 65,000 m³/day. Treatment rates required in Umwelt Treatment Pond will be refined during future updates of the Model.

Treatment for the Goose Main Reservoir before discharge to Goose lake (via PN05), if needed, will begin in Year 18 (following freshet after the filling of Goose Main Reservoir) and continue until the start of Post-Closure. Brine will be sent back to Goose Main Reservoir. Circular treatment in Goose Main Reservoir, with treated water being sent back to the Goose Main Reservoir, can also be considered to improve water quality in this reservoir prior to reaching its capacity, if required.

Treatment was assumed to be available year-round; for the RO treatment year-round may only be required for during the first year of treatment, when the RO treatment is needed to remove saline water accumulated in SWP during previous years. After the first year, seasonal (summer only) RO treatment may be sufficient. Future evaluation of treatment needs will assess opportunities to further concentrate treatment only during the open-water season.

For all types of treatment required, modular treatment plants will likely be employed as they can be relocated and combined as necessary to achieve the appropriate water quality at different phases of the Goose Mine. The expected required treatment, including a list of primary constituents that will require treatment, is provided in Table 5-3.

Table 5-3 Goose Mine treatment summary.

Phase	From	To	Start	End	Flow Rate	Primary Constituents
					(m ³ /d)	
Operations	Llama Lake	Goose Lake	Yr 2 Q2	Yr 2 Q3	10,800	TSS
Operations	Umwelt Lake	Goose Lake	Yr 2 Q2	Yr 2 Q3	10,800	TSS
Operations/ Closure/ Post-Closure	Saline Water Pond (SWP)	Umwelt TF ^(a)	Yr 4 Q3	Yr 9 Q2	5,000	TDS
	Llama TF	Llama TF	Yr 15 Q1	Yr 20 Q4 ^(b)	10,000	TDS, ammonia, nitrate, nitrite, aluminum, arsenic, chloride, chromium, copper, iron, phosphorus, selenium, uranium ^(c)
	Umwelt TF	Umwelt TF	Yr 12 Q1	Yr 19 Q2 ^(b)		
	Umwelt Treatment Pond	Goose Lake (via PN04)	Yr 18	Yr 19 ^(b)	Variable (0 - 65,000 ^(c))	TDS, ammonia, nitrate, nitrite, aluminum, arsenic, chloride, chromium, copper, iron, phosphorus, selenium, uranium ^(d)
	Goose Main Reservoir	Goose Lake (via PN05)	Yr 18	Yr 20	5,000 ^(e)	TDS, ammonia, nitrate, nitrite, aluminum, arsenic, chloride, chromium, copper, iron, phosphorus, selenium, uranium ^(c)

Notes:

- (a) 80% of flow from SWP treated and sent to Umwelt TF; 20% returned to SWP. Llama TF, when available, could also receive treated saline water, if required.
- (b) Approximate timing, estimation based on the average climate scenario. Options to reduce duration of recirculation treatment will be evaluated as part of future updates of the water and load balance model.
- (c) Potential maximum treatment rate; required treatment rate in Umwelt Treatment Pond to be refined during future updates of the water and load balance
- (d) Full list of potential constituents; treatment is expected to be required only for some constituents.
- (e) Contingency treatment; not required based on current results of the water and load balance.

6.0 WATER BALANCE RESULTS

Results of the water balance component of the Model are presented at key locations to provide context to other linked modules including water management planning and load balance predictions. To the extent practicable, water quantities for Year 1 are based on monitoring data received from B2Gold (see Section 3.2.8). Quantities for the period after Year 1 are based on the inputs provided in Section 3.2, using a Monte Carlo simulation for the 5th, 50th, and 95th percentiles as described in Section 5.1.2. The simulated percentiles represent lower than average (i.e., 5th percentile), average (i.e., 50th percentile, equal to median precipitation), and greater than average (i.e., 95th percentile) hydrological conditions with the average representing the most likely occurrence, and upper and lower assessed bounds represented by 95th percentile and 5th percentile, respectively.

Most of the results are provided for the Operations and Closure Phase, except for facilities where conditions have not stabilized yet by the end of the Closure Phase.

6.1 Saline Water Pond

Umwelt Lake was partially dewatered during Year 1 of operation and is planned to be fully dewatered in Year 2 to allow completion of the construction of the Stage 1 of SWP. In Year 3, the Stage 1 SWP will be operational with a maximum storage capacity (maximum operating water level [MOWL]) of 1.1 M-m³. The Stage 2 SWP will become available in Year 4 for a maximum capacity (MOWL) of 1.9 M-m³.

The purpose of the SWP is to provide temporary storage of saline water encountered during the mining of Llama Open Pit, and Llama, Umwelt, Echo, and Goose Main undergrounds (see Section 3.2.7). Other inflows to the SWP include natural runoff and direct precipitation. Starting in the third quarter of Year 4, saline water collected in the SWP will be sent to a RO plant for treatment, with 80% of the treated effluent being sent to Umwelt TF, for use as reclaim water, and the other 20% of the volume recirculating back to the SWP as brine reject.

Once Goose Main Open Pit mining is complete (Q2 of Year 9), remaining saline water in the SWP will be transferred to Goose Main Open Pit (then called Goose Main Reservoir) for permanent storage. At this time saline water reporting to the operating underground mines will also be sent directly to Goose Main Reservoir. This strategy will allow maintaining low water levels in SWP for the rest of the Operations Phase to provide contingency storage for saline and contact water, as needed.

After Goose Main Reservoir becomes available, and when the SWP is no longer considered required for contingency storage, the top layer of sediment within the dewatered SWP will be excavated to remove potential chloride concentrations. This may occur during operations (for modeling purpose it was assumed to occur approximately in Year 10 after all saline water has been removed to Goose Main Reservoir) or during closure. Following excavations, the upstream catchments, including Llama TF (at that point Llama Reservoir), Primary Pond (through breach of the containment dam), and Umwelt TF (at that point Umwelt Reservoir), will be allowed to discharge to the SWP area. Water reporting to the SWP (then called the Umwelt Treatment Pond) will be treated prior to discharge to the environment, as required. It has been assumed

that the SWP containment dam will be maintained in place during Closure Phase to attenuate flow to the water treatment plant (WTP) and to provide contingency storage, as required. Monitoring of water levels in the Umwelt Treatment Pond during the early years of Closure will inform timing for breaching the SWP containment dam later in the Closure or Post-Closure Phase. Breaching of the dam will be dependent on water quality, and as such its timing may vary within the Closure/Post-Closure phase. Once the SWP containment dam is breached, the storage capacity of the Umwelt Treatment Pond will ultimately reduce to a volume similar to the original Umwelt Lake (~250,000 m³).

Table 6-1 provides the maximum storage volume accumulated in the SWP during Operations for the 5th, 50th, and 95th percentile water balance results. The results show that the SWP requires a volume of about 1.7 M-m³ to store the saline water encountered during Operations Phase until Umwelt TF, and ultimately Goose Main Reservoir are available for storage. Between Year 9 and end of Operations, low water levels will be generally maintained in the SWP, providing contingency storage for saline water, as required.

Table 6-1 Saline water pond maximum storage volumes.

Saline Water Pond Maximum Storage Volume (m ³)		
5 th Percentile	50 th Percentile	95 th Percentile
1,100,000 ^(a)	1,300,000 ^(a)	1,700,000 ^(a)

Note:

- a) Storage capacity required for Operations Phase before water can be sent to Umwelt TF (Year 4, Q3). During Closure Phase a minimum 1.9 M-m³ storage capacity has been assumed.

Figure 6-1 summarizes the water storage for the 5th, 50th, and 95th percentile water balance results. The SWP will be available starting in Year 3; some storage is available in Umwelt Lake, which is represented in the results for Year 1 and 2. Results are provided on a monthly basis for the period Year 1 to Year 6 (Echo TF and initial stages of RO treatment period; Figure 6-1a) to capture the monthly and seasonal variability of the water management strategies during this period. For the period Year 7 to the start of Post-Closure, the results are provided on an annual basis (Figure 6-1b). Monthly based results for this latter period will be provided in future updates of the Model, as water management strategies and mine plan are finalized and refined.

The following adaptive management strategies to reduce the amount of water reporting to the SWP have been identified and will be evaluated, as required, particularly during the early years of mine operations (i.e., before treatment at the RO unit commences):

- Construction of diversion berms around the SWP to reduce the runoff from undisturbed ground reporting to SWP,
- Snow removal from the frozen surface of the SWP to reduce the amount of water reporting to SWP during freshet,
- Use of evaporators during summer months to remove part of the water in SWP.

B2Gold is also exploring options to expand the capacity of SWP (Stage 3) and increase the robustness of the saline water management strategy at the site.

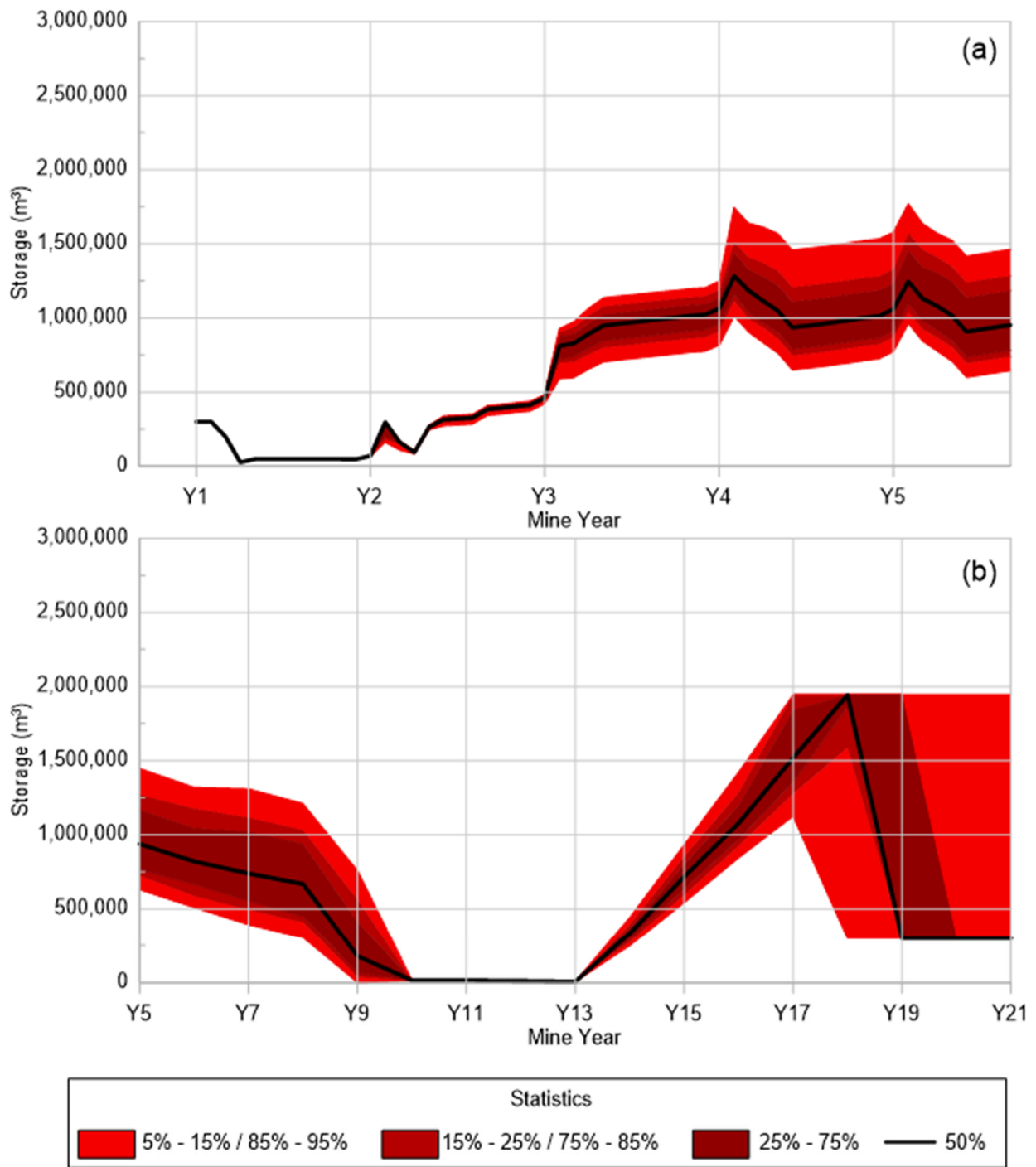


Figure 6-1 Saline Water Pond (SWP) storage volume: (a) monthly for Year 1 to Year 6; (b) annual for Year 6 to Year 21.

6.2 Echo Open Pit and Echo TF

Mining of Echo Open Pit, including waste rock deposition in the Echo WRSA (later called Echo/Goose Main WRSA), was completed during the construction phase of the Project (not included in the Model, as mentioned in Section 2.2). During mining of Echo Open Pit ore has been stored at the Ore Stockpile.

When production at the process plant initiated in June of Year 1, the Echo Open Pit became the active tailings facility (known as Echo TF). Echo TF will have a total capacity of 3.6 M-m³. As tailings slurry is being deposited into Echo TF, a minimum water cover depth of 3 m will be maintained to reduce risk of developing frozen layers within the deposited tailings. The initial water cover (ahead of initiating tailings deposition) in Echo TF was developed in Year 1 using water from Umwelt and Llama Lake dewatering and water from the Primary Pond.

Approximately 239,000 m³ of water was pumped to Echo Open Pit in Year 1 to develop the initial water cover. In Year 2, some of the water from the completion of the dewatering of Llama Lake and Umwelt Lake will be pumped to Echo TF to support maintaining the minimum water cover.

During the Echo TF period, runoff collected in Echo TF will be kept in Echo TF and used as reclaim water for the Process Plant. When mining of Goose Main Open Pit begins runoff from the Echo/Goose Main WRSA⁶ will be collected in the Echo/Goose Main WRSA pond and pumped to Primary Pond or Umwelt TF.

During the open water season the Primary Pond will be the primary source of water for the Process Plant, resulting in excess water from tailings deposition to accumulate in the Echo TF. This accumulated water will be used as the primary source of water for the Process Plant during the subsequent winter season. Freshwater from Goose Lake (or Big Lake as needed) will supply make-up water for process, if reclaim from Primary Pond and Echo TF is insufficient.

During the later stages of tailings deposition in Echo TF (tailings deposition expected to be completed in Q1 of Year 5), supernatant water in Echo TF will be pumped to Umwelt TF and then waste rock material (part of Echo/Goose Main WRSA) will be placed in Echo TF, completely covering the facility.

Figure 6-2 summarizes the water storage volume of Echo Open Pit (or Echo TF) for the 5th, 50th, and 95th percentile water balance results (except for Year 1, where model results are based, to the extent practicable, on monitoring data provided by B2Gold). As per the SWP, the results are provided on a monthly basis for the period Year 1 to Year 6. In Year 5 of Operations, Echo TF will be covered with waste rock and will no longer store any surface water. Runoff from the catchment will be captured in the Echo/Goose Main WRSA Pond and pumped to the Primary Pond during Operations. In Closure, pond outflow is diverted to PN08.

⁶ Waste rock from the Goose Main Open Pit will be deposited within the Echo WRSA footprint, forming the Echo/Goose Main WRSA.

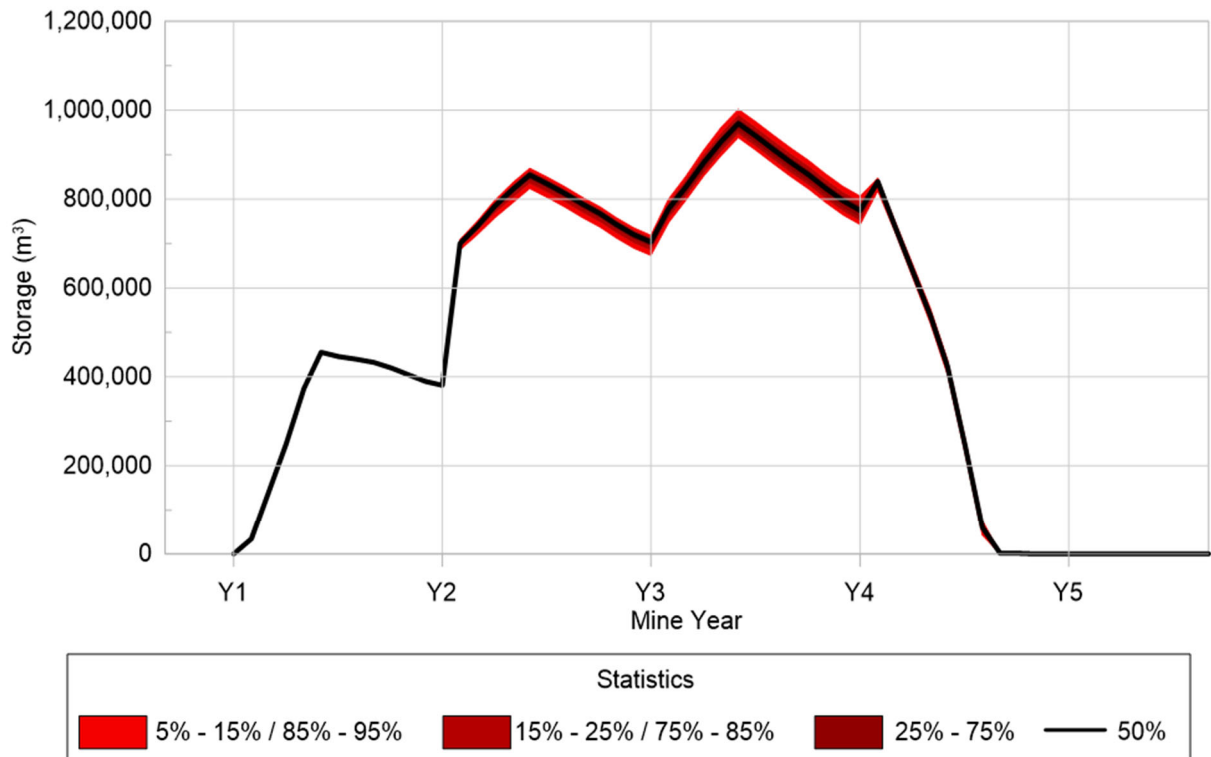


Figure 6-2 Echo open pit water storage volume: monthly results for Year 1 to Year 6.

6.3 Umwelt Open Pit and Umwelt TF

Stripping of Umwelt Open Pit was completed during the construction phase of the Project (not included in the Model, as mentioned in Section 2.2). Mining of Umwelt Open Pit is in progress at the time of writing of this report, with waste rock being disposed of in the Umwelt WRSA and ore placed at the Ore Stockpile for subsequent use at the Process Plant.

Runoff collected in Umwelt Open Pit will be pumped to the Primary Pond for reclaim use in the Process Plant. Once the use of Echo Open Pit for tailings storage (Echo TF) is complete (expected in Q1 of Year 5), tailings deposition will be transferred to Umwelt Open Pit, then known as Umwelt TF, with a total capacity of 11.7 M-m³. Similar to Echo TF, a water depth of 3 m will be maintained to reduce risk of developing frozen layers within the deposited tailings. The initial minimum 3 m water cover will be formed using RO-treated water from the SWP and water pumped from Echo TF. During tailings deposition in Umwelt TF, the Primary Pond will remain the main source of reclaim water to the Process Plant during the open water season. Umwelt TF will provide reclaim water to the Process Plant during the winter season.

As tailings slurry is being deposited into Umwelt TF, saline water collected in the SWP will be treated at the RO unit and sent to the Umwelt TF for use as reclaim water and for generating contingency storage in the SWP. RO treatment will terminate when Goose Main Open Pit mining is complete and saline water can be transferred directly to Goose Main Reservoir (Q2 of

Year 9). Once the use of Umwelt Open Pit for tailings storage (Umwelt TF) is complete (expected in Q4 of Year 11), tailings deposition will be transferred to Llama TF. At the time of transition to tailings deposition in Llama TF, Umwelt TF would have had received 7.0 M-m³ of tailings, approximately 60% of the total capacity of Umwelt Open Pit. For the purpose of this Model update, the time of transition of tailings deposition to Llama TF was assumed based on providing sufficient tailings volume in Umwelt TF and Llama TF, to expedite closure filling of the two pits. B2Gold will continue to refine the time of transition from Umwelt TF to Llama TF; an update to this timing will be provided in future updates of the Model. During tailings deposition in Llama TF, Umwelt TF will continue to be the main source of reclaim water for the Process Plant during the winter season.

At the end of Operations and in Closure phase, Umwelt TF (now known as Umwelt Reservoir) will be filled with catchment runoff and will discharge by gravity to Goose Lake via SWP, known as Umwelt Treatment Pond in the Closure Phase. To meet water quality guidelines at PN04 (i.e., ultimate discharge point to Goose Lake), water in Umwelt TF will be treated and recirculated to the pit once tailings deposition is complete (Q4 of Year 11) until the pit is filled (approximately Year 18 to Year 21, depending on climate conditions). Once filled with water, Umwelt TF will overflow to Umwelt Treatment Pond; if required, treatment of water in Umwelt Treatment Pond will occur until the water quality meets discharge criteria. To further expedite the filling of the pit and improve its water quality, freshwater from Goose Lake (or Big Lake) may be pumped to Umwelt TF until it is filled.

Figure 6-3 summarizes the storage volume of Umwelt Open Pit for the 5th, 50th, and 95th percentile water balance results (except for Year 1). The results are on an annual basis. As described in Section 6.1, monthly results will be provided in future updates of the Model, as required. These results show that Umwelt Reservoir will be full and will initiate discharging by gravity in the later stages of the Closure Phase of early stages of Post-Closure Phase (i.e., Year 18 to Year 21 depending on the hydrological conditions during this period).

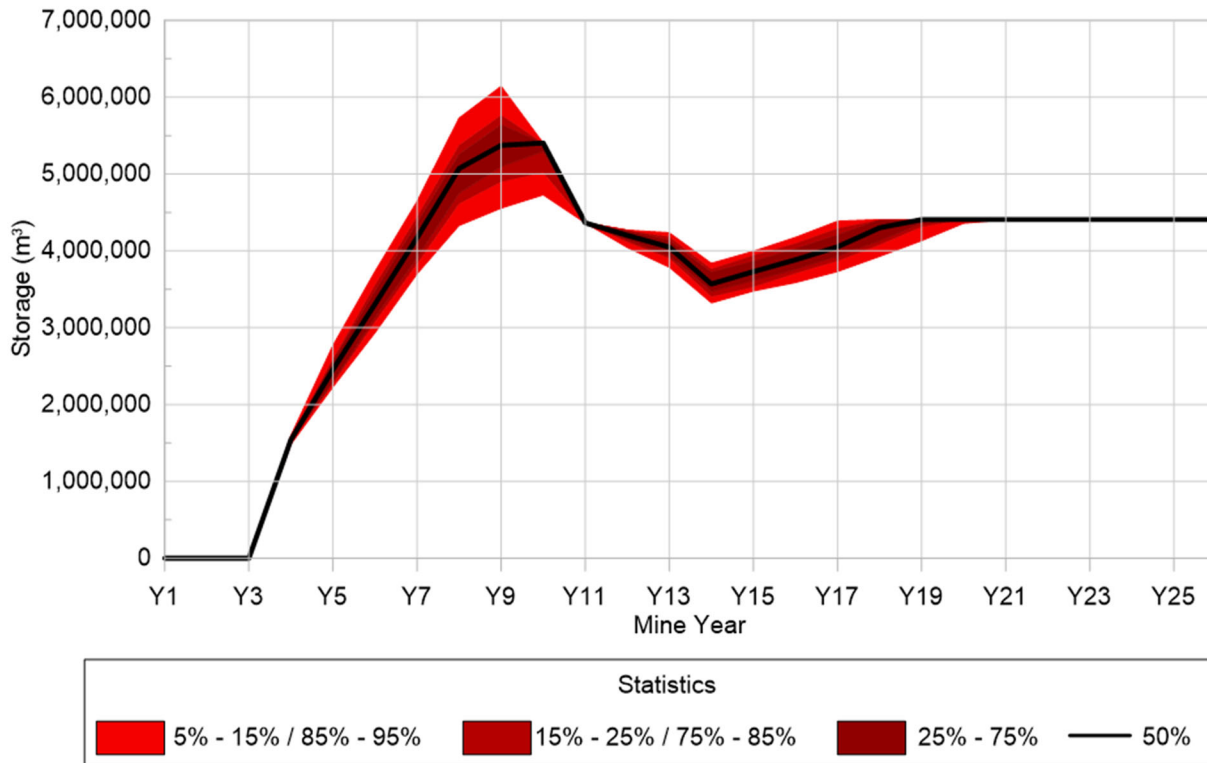


Figure 6-3 Umwelt reservoir water storage volume; annual results.

6.4 Llama Open Pit and Llama TF

Dewatering of Llama Lake, which has a natural capacity of approximately 1.13 M-m³ was initiated in Year 1. Approximately 50% of the volume of Llama Lake was dewatered either to Goose Lake or to Primary Pond to develop the initial water cover in Echo TF or to supply the Process Plant. The remaining 50% of Llama Lake will be dewatered in Year 2 (Q2-Q3). It is assumed that this remaining volume in Llama Lake will have TSS concentration not suitable for direct discharge to Goose Lake. It has been assumed that 80% of this remaining volume will be treated for TSS before discharging to Goose Lake. The remaining 20% of the lake volume will be stored in Umwelt Lake (future SWP).

Mining of Llama Open Pit will begin in Q4 of Year 2. This will include the construction of the Llama Diversion berms around the footprint of Llama Open Pit and the Llama Collection Berm. Waste rock placement in Llama WRSA will be limited to the catchment area LD2 (Drawing 3-1) until Llama WRSA Pond is constructed in Q3 of Year 4. Runoff and seepage from Llama WRSA will be intercepted at the Llama Collection Berm and pumped to Primary Pond, or to Llama WRSA Pond when it becomes available. Water collected in Llama WRSA Pond will be transferred to Primary Pond.

During the Llama Open Pit active mining inflows to Llama Open Pit include runoff and groundwater inflows. The Llama Open Pit will be dewatered to the SWP until mining is complete in Q1 of Year 6 and then allowed to passively fill to support pit flooding at Closure. At

completion of Llama Open Pit mining, the Llama Collection Berm will be breached to support filling of the pit. Water in Llama WRSA Pond will also start being pumped to Llama TF to support its closure filling. During the RO treatment period, treated effluent may be pumped to Llama TF, to support pit flooding. Starting in Q4 of Year 11 (assumed date as mentioned in Section 6.3), tailings will be disposed in the mined-out open pit, then known as Llama TF with a total capacity of 11.9 M-m³. During tailings deposition in Llama TF, excess water from tailings deposition and runoff will be allowed to collect in Llama TF. Due to the saline groundwater inflows, Llama TF is not planned to be used to provide reclaim water to the Process Plant.

At Closure the Llama Diversion Berm and the Llama Collection Berm will be breached and runoff from the catchment upstream of Llama Open Pit will be allowed to drain to the Llama TF (then known as Llama Reservoir). To meet water quality guidelines at PN04 (i.e., ultimate discharge point to Goose Lake), the water in Llama Reservoir will be recirculated through a WTP during the Closure Phase until the reservoir is full. Once full, overflow from Llama TF (now Llama Reservoir) will be directed to Goose Lake via the re-established Umwelt Treatment Pond (formerly the SWP). Treatment will occur at the Umwelt Treatment Pond prior to discharge to the environment during the Closure Phase until the water quality meets discharge criteria.

During the Closure Phase, freshwater from Goose Lake (or Big Lake) will be pumped to Llama Reservoir to expedite filling and improve water quality, as required. Alternatively, to the recirculation treatment, the top layer of water in Llama Lake could be treated and replaced with freshwater ahead of discharge from Llama TF to PN04 via the Umwelt Treatment Pond. This option will be further evaluated in future updates of the Model.

Figure 6-4 summarizes the storage volume of Llama Reservoir for the 5th, 50th, and 95th percentile water balance results. The results are on an annual basis. As described in Section 6.1, monthly results will be provided in future updates of the Model, as required. These results show that Llama Reservoir will start to overflow by gravity toward Umwelt Treatment Pond between Year 17 and Year 19, depending on hydrologic conditions at that time.

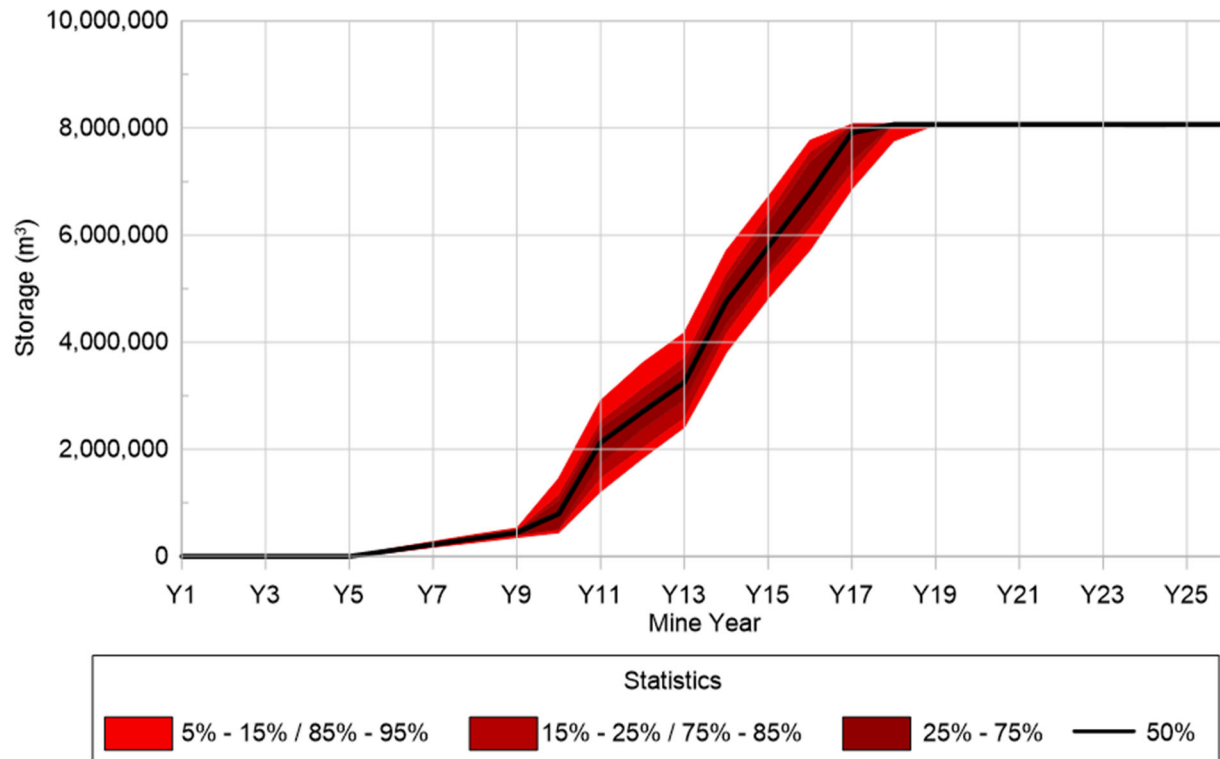


Figure 6-4 Llama Reservoir storage volume; annual results.

6.5 Goose Main Open Pit and Goose Main Reservoir

Stripping of Goose Main Open Pit will begin in Year 4 to prepare for the mining starting in Q1 of Year 5. Runoff collected in the open pit will be pumped to Umwelt TF for reclaim use in the Process Plant. Once mining is complete in Year 9 (Q2), the mined-out open pit, now known as Goose Main Reservoir, will be filled with contact water and saline water collected across the Project site for permanent storage and to support pit filling at Closure. At Closure, the Goose Main diversion berm and the Rascal Diversion berm will be breached to re-establish pre-development flows. At this point, the filling of Goose Main Reservoir will continue with runoff from the upstream catchment and freshwater from Goose Lake or Big Lake (as needed). The model results show that the non-contact inflows from the re-established catchment are sufficient to improve the water quality in Goose Reservoir such that no treatment is needed of its discharge to the environment. If found to be required, water in Goose Main Reservoir will be treated prior to discharge to the environment.

Figure 6-5 summarizes the storage volume of Goose Main Reservoir for the 5th, 50th, and 95th percentile water balance results. The results are on an annual basis. As described in Section 6.1, monthly results will be provided in future updates of the Model, as required. These results show that Goose Main Reservoir will initiate discharging by gravity within the Closure Phase (i.e., Year 16 or Year 17 depending on the hydrological conditions during this period).

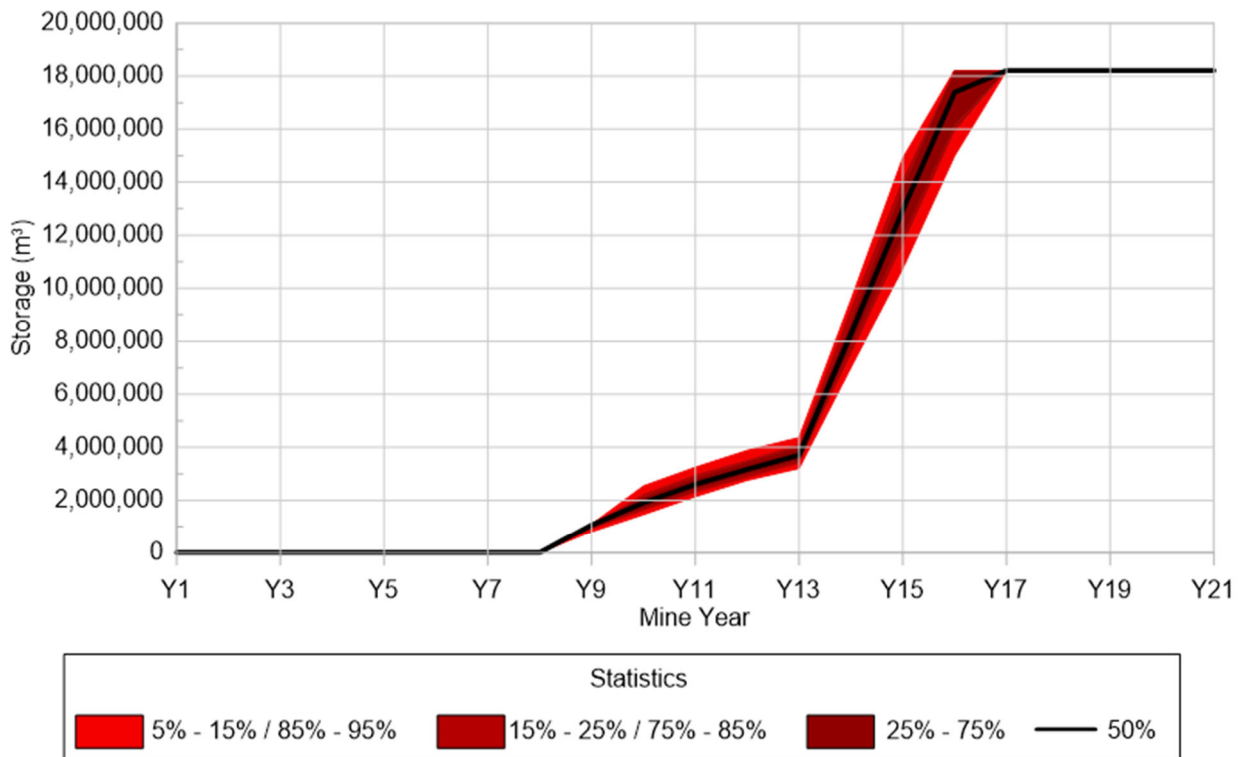


Figure 6-5 Goose Main Reservoir storage volume.

6.6 Primary Pond

The Primary Pond will be available by Year 1 to collect contact water from across the site. The contact water collected is used as reclaim in the Process Plant as well as to support pit filling (as required) once milling productions finish in Year 13. Throughout Operations, the water level in Primary Pond will be maintained generally low during the winter season, to provide storage capacity for contact water reporting and/or being pumped to the pond during freshet and the summer season. The Primary Pond will received runoff from its direct catchment area, which includes the Umwelt WRSA and the Umwelt Overflow WRSA. During the period before the Llama WRSA Pond becomes available (Q3 of Year 4), runoff and seepage from the Temporary NAG Stockpile, the Underground PAG Temporary Stockpile and the platform for the Llama Underground portal will be collected locally and pumped or allow to flow by gravity to Primary Pond. However, drainage from these facilities (particularly the Temporary NAG Stockpile and the platform for the Llama Underground portal) will be discharged to the environment if the water quality meets discharge criteria.

During the open water season, the Primary Pond will be the main source of reclaim water for the Process Plant, resulting in the pond reaching low water levels ahead of freeze up. The Primary Pond will have a capacity of approximately 0.4 M-m³. Throughout most of the life of mine, contingency storage capacity is available in the other ponds at site (e.g. SWP, Echo TF, Umwelt

TF or Llama TF) to manage excess water in the Primary Pond, if needed. At closure, the Primary Pond will be breached, and water will be allowed to report to the SWP (future Umwelt Treatment Pond).

Figure 6-6 summarizes the water storage of the Primary Pond for the 5th, 50th, and 95th percentile water balance results. The results are provided on a monthly basis for the period Year 1 to Year 6 (Echo TF, Umwelt TF and RO treatment period; Figure 6-6a) and on an annual basis thereafter (Figure 6-6b). Monthly based results for this latter period will be provided in future updates of the Model, as required.

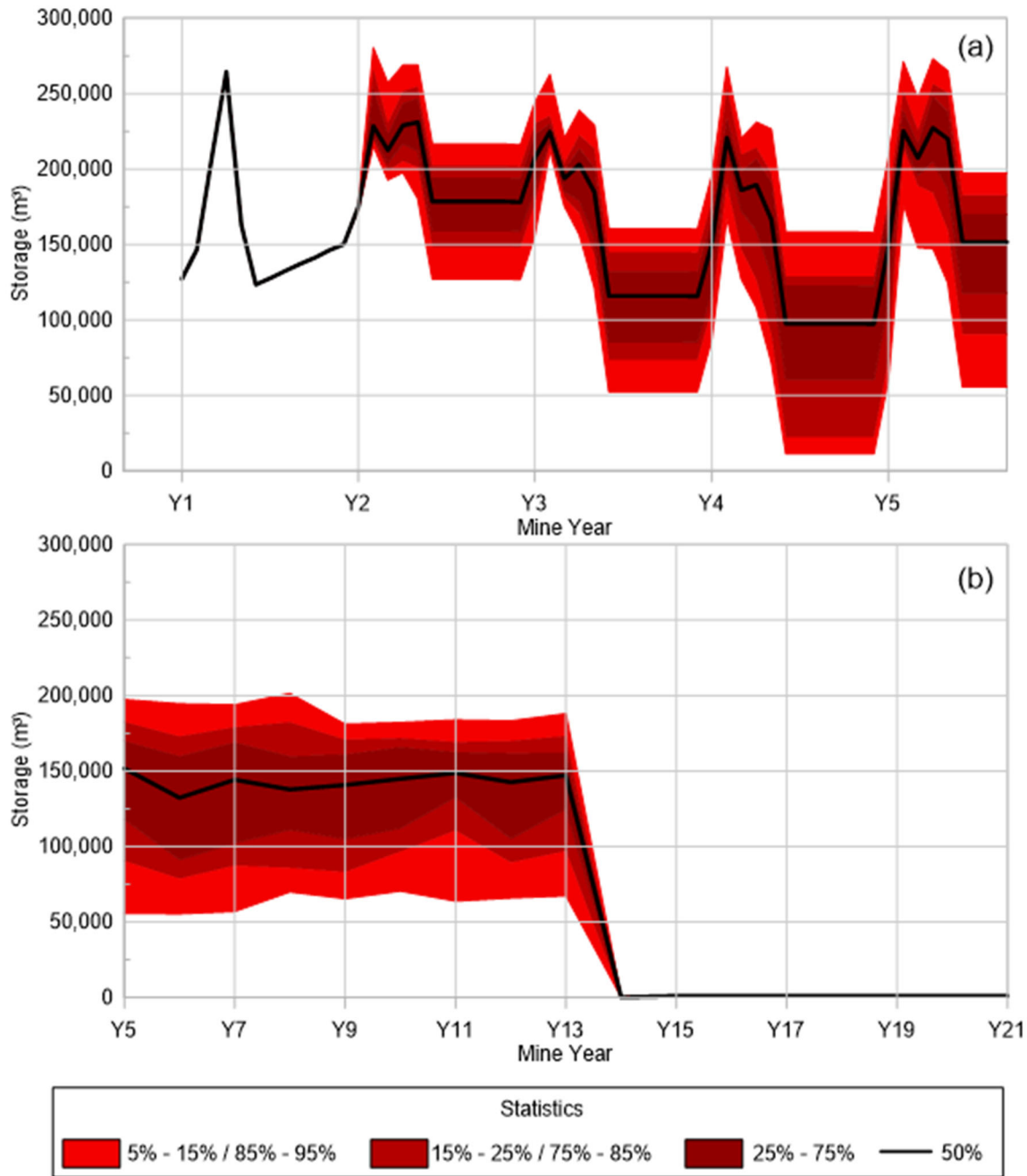


Figure 6-6 Primary Pond storage volume: (a) Monthly for Year 1 to Year 6; (b) Annual for Year 6 to Year 21.

6.7 Prediction Nodes

The change in annual flows at select prediction nodes were reviewed to assess the effects of the Project to the baseline hydrology. Results from the 5th, 50th, and 95th percentile were reviewed at prediction nodes with Project infrastructure directly upstream (i.e., PN04, PN05, PN08, and PN09; see Drawing 3-1 for locations/catchments). Results are presented to Year 41;

modeled annual flows remain unchanged (except for potential effect of climate change) between Year 41 and the end of the simulation period (Year 46).

A description of the change in hydrology conditions is presented in the following sections.

6.7.1 PN04

The upstream catchment of PN04 consists of Llama Open Pit, Umwelt Open Pit, Llama WRSA Pond, Umwelt WRSA, Primary Pond, SWP, and the Goose Process Plant Site (including the Ore Stockpile). Figure 6-7 shows the Project and baseline average annual flows at PN04. As described in Section 3.2.4, PN06 and PN10 flows spill over into PN04 until the Llama diversion berms are constructed. Due to the placement of diversion berms and the other Project infrastructure, flows during Operations are expected to be lower than baseline. At Closure, the maximum change over baseline occurs due to the outflows from pit lakes upstream beginning in Year 19 which continues into Post-Closure.

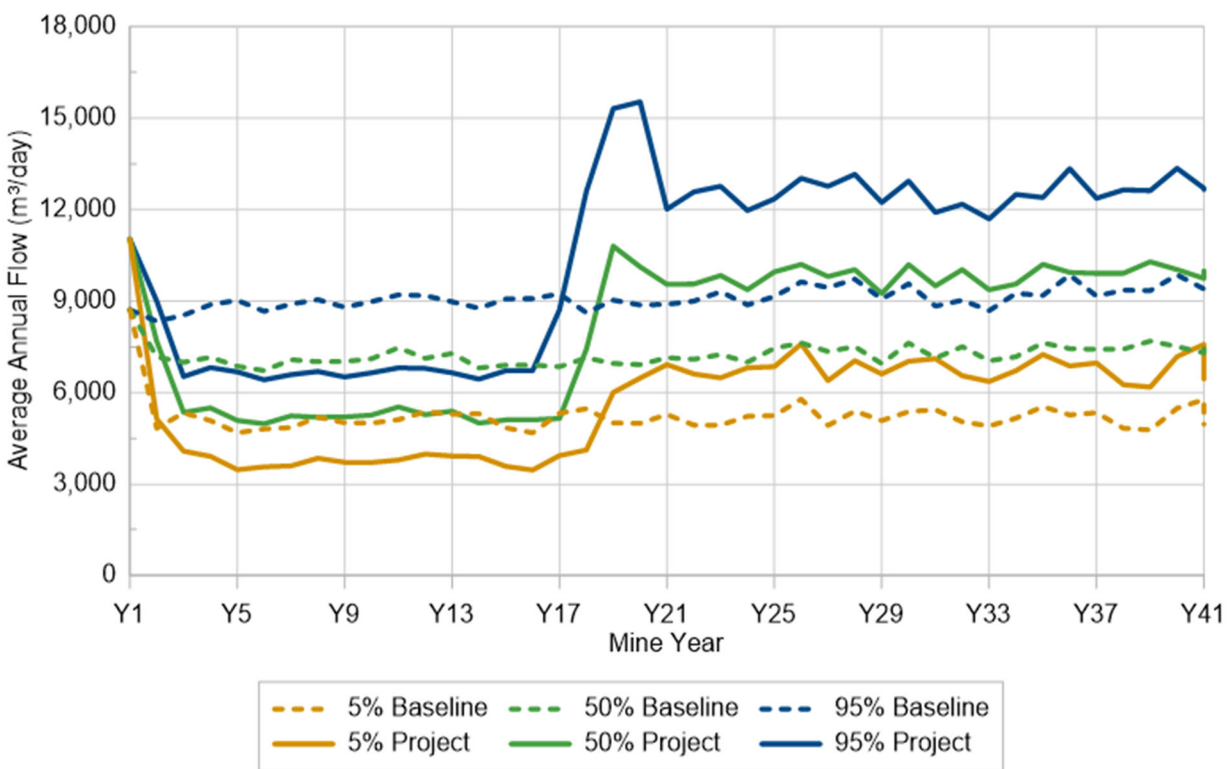


Figure 6-7 Project and baseline average annual flow at PN04.

6.7.2 PN05

PN05 represents discharge from Goose Main Open Pit, which includes the PN07 catchment once Goose Main Open Pit mining begins. Figure 6-8 shows the Project and baseline average annual flows at PN05. As described in Section 3.2.4, PN05 also receives spill overflows from

PN08 until the Goose Main diversion berm is constructed. As expected, flows are lower than baseline once Goose Main Open Pit mining activities begin (Year 5).

At Closure, the maximum change over baseline occurs due to the Goose Main diversion berm being breached and the upstream catchment is redirected to support filling of the mined-out open pit. Once full, Goose Main Reservoir overflows to PN05 and Project flows similar to that seen during Operations are re-established.

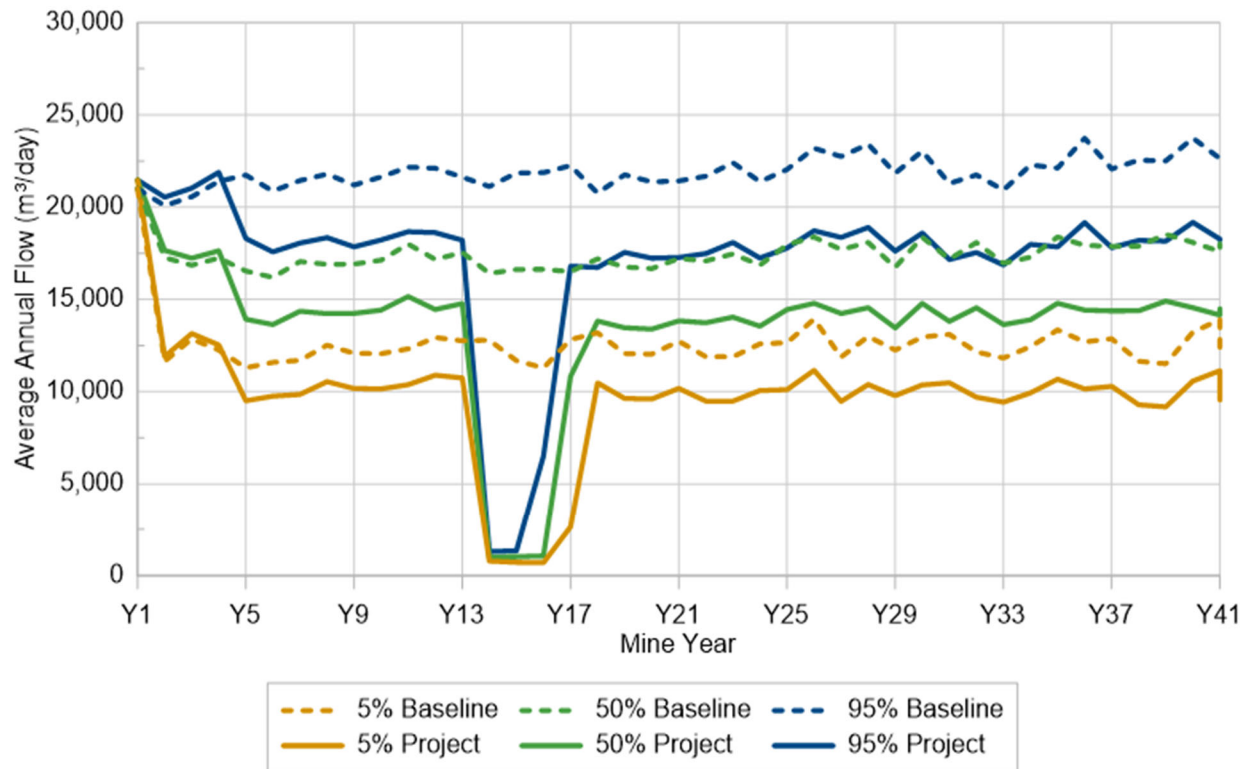


Figure 6-8 Project and baseline average annual flow at PN05.

6.7.3 PN08

At the outlet of Gander Pond is PN08. Figure 6-9 shows the Project and baseline average annual flows at PN08. Due to the placement of diversion berms for Goose Main Open Pit mining, flows are higher than baseline.

At Closure, the maximum change over baseline occurs due to Echo/Goose Main WRSA being diverted to PN08.

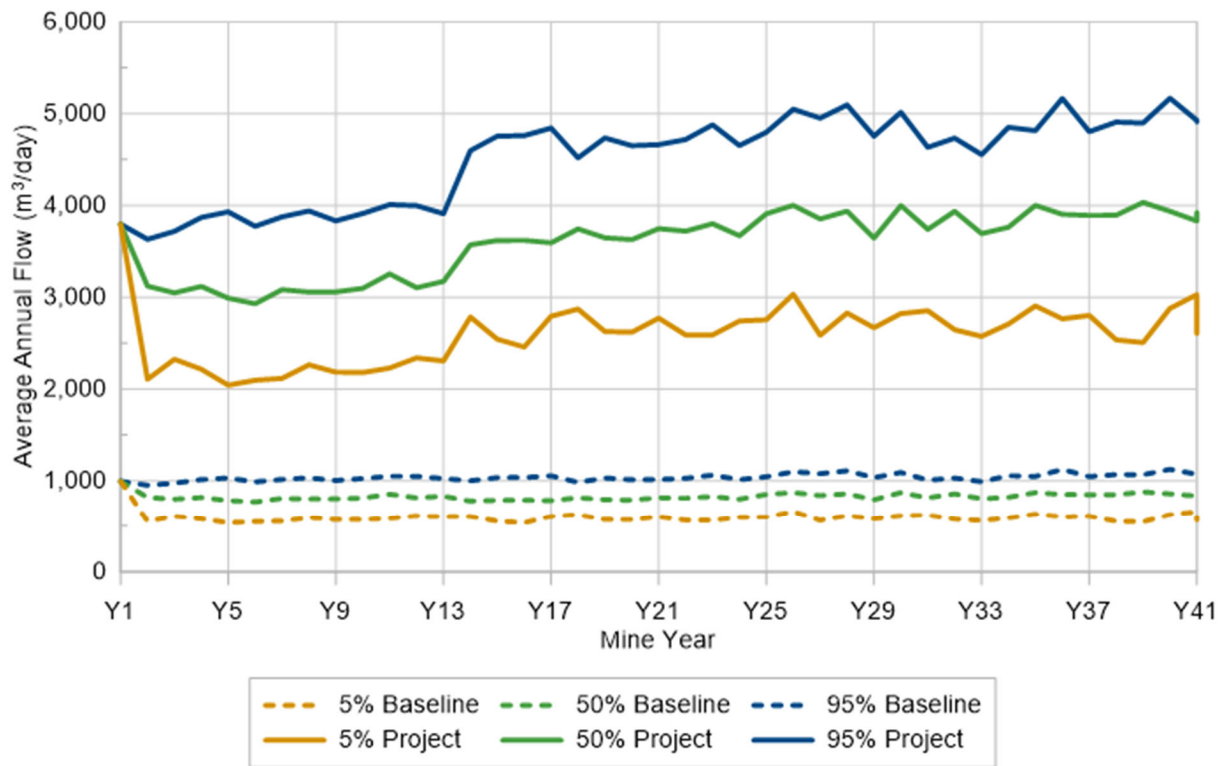


Figure 6-9 Project and baseline average annual flow at PN08.

6.7.4 PN09

The upstream catchment of PN09 consists of Echo Open Pit and the Echo/Goose Main WRSA Pond during Operations. Figure 6-10 shows the Project and baseline average annual flows at PN09. Flows are lower than baseline due to Project infrastructure capturing runoff for use in Operations.

After Closure, a similar trend is observed due to the runoff from Echo/Goose Main WRSA being diverted to PN08. The maximum change over baseline occurs while Echo TF is active and diversion berms are changing during the transition from Echo TF/WRSA to Echo/Goose Main WRSA.

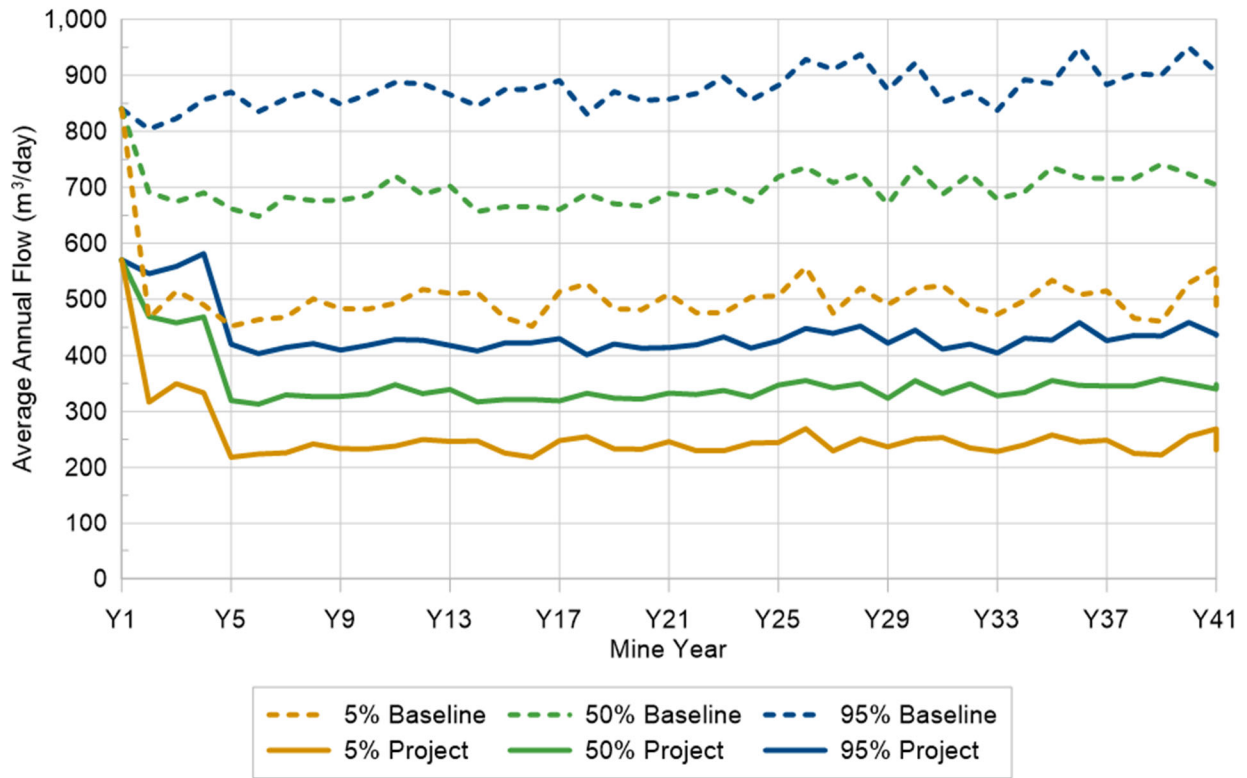


Figure 6-10 Project and baseline average annual flow at PN09.

7.0 LOAD BALANCE RESULTS

7.1 Overview

Results of the load balance component of the Model were evaluated at several prediction nodes (i.e., PN04, PN05, PN06, PN08, and PN09; Drawing 3-1) located downstream of the Goose Mine (i.e., at discharge points to Goose Lake). These nodes capture flow and water quality changes from infrastructure associated with the Goose Mine and were used to evaluate water treatment requirements to meet MDMER discharge limits (Sections 7.2 to 7.4). Model results are presented as the 5th, 50th, and 95th percentile of predicted monthly average concentrations.

Model results are presented for all predictions nodes in:

- Timeseries plots (Appendix F) of the predicted monthly average constituent concentrations (i.e., under average [i.e., 50th percentile] climate conditions; Section 5.1.3). These plots are presented for the constituents with MDMER.
- Tables of the predicted maximum of the monthly average⁷ constituent concentrations for the average climate condition (i.e., 50th percentile) per mine phase for the constituents with MDMER discharge limits (Sections 7.2 to 7.4), and for all modelled constituents (Appendix G).
- Tables of predicted maximum monthly average constituent concentrations for the lower and upper bound concentrations (i.e., 5th and 95th percentiles) per mine phase (Appendix H; Tables H-1 and H-2). These results represent the range of predicted concentrations that could potentially occur under different hydrological conditions (i.e., dry and wet years).

Water quality at prediction nodes PN06 and PN09 is not affected by the Goose Mine activities (Section 6.7); thus, the following sections (Sections 7.2 to 7.4) discuss results at the prediction nodes that have their water quality affected by the Goose Mine activities (i.e., PN04, PN05, and PN08). Results for all discharge points to Goose Lake are presented in appendices F, G and H.

The estimated constituent concentrations at the prediction nodes are generally consistent with the predictions in WSP Golder (August 30, 2022). Some concentrations of metals, nutrients and total and suspend solids have changed at PN04 and PN05 due to changes to groundwater flow, pit volumes and tailings deposition, but concentrations remain typically within the same order of magnitude and always below MDMER limits, where applicable. Similarly, some changes in concentrations are predicted at PN08 and PN09 (in Closure when PN08 is diverted to PN09) due to changes in the waste rock facility and tailings deposition techniques.

7.2 PN04

PN04 is located at the neck of Goose Lake, downstream of Llama and Umwelt Reservoirs (see Drawing 3-1), and receives the flow from these facilities, routed through the re-established

⁷ The average constituent concentration was calculated per each month of the mine life. The maximum of these monthly averages per each mine phase were taken.

Umwelt Lake when flooding occurs. Table 7-1 summarizes key events that influence predicted concentrations at PN04.

Table 7-1 Overview of activities affecting PN04 concentration history under average climate conditions.

Activity	Mine Year(s)	Effect
Dewatering of Llama and Umwelt Lakes routed through PN04 to Goose Lake	1	Water quality in the lake met discharge criteria.
Dewatering of Llama and Umwelt Lakes routed through PN04 to Goose Lake, treated for TSS	2	Primarily no major changes in concentrations. Increase in chloride, nitrogen species and total suspended solids, which are higher in Llama and Umwelt Lake compared to Goose Lake.
Treatment of water in Umwelt Treatment Pond, including discharge from Umwelt TF and Llama TF.	18-19	Contribution of treatment flows yield no change in concentrations as overflows are treated, discharged and diluted with natural runoff.
Umwelt TF and Llama TF discharge to Umwelt Treatment Pond and initiate discharge to PN04	20 Onwards	Contribution of untreated flows from Umwelt TF and Llama TF yield higher concentrations of metals (i.e. arsenic, copper, lead, boron, chromium, iron, molybdenum, selenium, silver, uranium), major ions and nitrogen species that are generally elevated in the TFs and previously required treatment. Concentrations decrease with time to a new plateau as the water quality improves in the pits. Time spent in the TFs allows more cyanide to degrade, lowering concentrations during post-closure.

Maximum monthly average concentrations are not predicted to exceed MDMER discharge limits at PN04 during any phase of the Goose Mine (Table 7-2).

Table 7-2 Predicted maximum monthly average constituent concentrations for each phase of the project at PN04 under average climate conditions (i.e., 50th percentile).

Constituent	Units	MDMER Limit ^(a)	Operation	Closure	Post-Closure
Total Suspended Solids	mg/L	15	2.8	2.8	2.3
Un-ionized ammonia	mg-N/L	0.50	0.012	0.26	0.24
Cyanide	mg/L	0.50	0.0022	0.0021	0.0015
Arsenic	mg/L	0.10	0.0036	0.055	0.043
Copper	mg/L	0.10	0.0015	0.0033	0.0030
Lead	mg/L	0.080	0.000055	0.0017	0.0011
Nickel	mg/L	0.25	0.0076	0.0080	0.0081
Zinc	mg/L	0.40	0.0039	0.0041	0.0040

Note:

- (a) Refer to Table 5-2 for MDMER discharge limits

7.3 PN05

PN05 is located at the south-eastern shore of Goose Lake (see Drawing 3-1) and receives flows from Goose Main Reservoir after it reaches its capacity. Table 7-3 summarizes key events that influence predicted concentrations at PN05.

Table 7-3 Overview of activities affecting PN05 concentration history under average climate conditions.

Activity	Mine Year(s)	Effect
Goose Main diversion berm is breached	14-16	Undisturbed flows greatly reduced as they are directed to Goose Reservoir for filling; less dilution of road runoff flows; change in constituent concentration (increase or decrease) dictated by whether constituent is a higher concentration in pad source term versus baseline source term
Goose Main Reservoir overflow arrives to PN05	17 Onwards	Increase in metal concentrations (arsenic, lead, zinc, boron, cadmium, magnesium, iron, manganese, molybdenum, selenium, thallium and uranium), major ions and nitrogen species followed by a decreasing trend. Time spent in Goose Main Reservoir allows more cyanide to degrade, lowering concentrations during post-closure

Maximum monthly average concentrations are not predicted to exceed MDMER discharge limits at PN05 during any phase of the Goose Mine (Table 7-4).

Table 7-4 Predicted maximum monthly average constituent concentrations for each phase of the project at PN05 under average climate conditions (i.e., 50th percentile).

Constituent	Units	MDMER Limit ^(a)	Operation	Closure	Post-Closure
Total Suspended Solids	mg/L	15	3.0	2.9	2.7
Un-ionized ammonia	mg-N/L	0.50	0.00040	0.00038	0.000076
Cyanide	mg/L	0.50	0.0023	0.0022	0.00044
Arsenic	mg/L	0.10	0.00031	0.0021	0.0010
Copper	mg/L	0.10	0.0014	0.0015	0.0013
Lead	mg/L	0.080	0.000050	0.00012	0.000070
Nickel	mg/L	0.25	0.0035	0.0054	0.0034
Zinc	mg/L	0.40	0.0030	0.0071	0.0042

Note:

(a) Refer to Table 5-2 for MDMER discharge limits

7.4 PN08

PN08 is located along the eastern part of the neck of Goose Lake (see Drawing 3-1) and receives the runoff from Echo/Goose Main WRSA at Closure. Table 7-5 summarizes key events that influence predicted concentrations at PN08.

Table 7-5 Overview of activities affecting PN08 concentration history under average climate conditions.

Activity	Mine Year(s)	Effect
Flows diverted from PN09 to PN08, Echo/Goose Main WRSA runoff flows to Goose Lake at PN08.	14 Onwards	Increase in metal concentrations (arsenic, copper, cadmium, lead, nickel, aluminium, iron, magnesium, manganese, molybdenum, selenium, thallium, zinc, uranium) and major ions and nitrogen species to a new plateau concentration. Decrease in total dissolved solids and suspended solids, total organic carbon, cyanide and fluoride.

Maximum monthly average concentrations are not predicted to exceed MDMER discharge limits at PN08 during any phase of the Goose Mine (Table 7-6).

Table 7-6 Predicted maximum monthly average constituent concentrations for each phase of the project at PN08 under average climate conditions (i.e., 50th percentile).

Constituent (mg/L)	Units	MDMER Limit(a)	Operation	Closure	Post-Closure
Total Suspended Solids	mg/L	15	3.0	2.8	2.8
Un-ionized ammonia	mg-N/L	0.50	0.00039	0.00066	0.00037
Cyanide	mg/L	0.50	0.0023	0.0021	0.0021
Arsenic	mg/L	0.10	0.00043	0.014	0.014
Copper	mg/L	0.10	0.0014	0.0020	0.0020
Lead	mg/L	0.080	0.000050	0.00031	0.00016
Nickel	mg/L	0.25	0.0036	0.0070	0.0070
Zinc	mg/L	0.40	0.0031	0.0039	0.0039

Note:

- (a) Refer to Table 5-2 for MDMER discharge limits

8.0 MODEL ASSUMPTIONS AND UNCERTAINTIES

The Model results are based on the Goose Mine timeline, water management plans, and available input data. As with any complex model, there is a degree of uncertainty associated with the modelling methods and inputs. The following sections outline assumptions made in the water balance and load balance components of the Model and their implications.

8.1 Water Balance Model

The following key assumptions were made in the water balance component of the Model:

- The fixed monthly distribution of climate data used as an input to the Model does not reflect the true behaviour of a hydrological year as months typically vary from year to year (e.g., above average freshet followed by a drier than average summer). This may result in a potential underestimation of the required storage capacities during unusually wet weeks/months and potential underestimation of water supply requirements during unusually dry weeks/months. Inclusion of year to year monthly variability into the water and load balance model will be considered for future updates of the Model.
 - The effects of annual wet and dry conditions were accounted for in the water balance model through the stochastic simulations and in the sizing of on-site storage facilities capacities and water supply requirements.
- The number of realizations for the stochastic simulation was selected to provide a general representation of effects of wet and dry conditions at the site.
- Runoff coefficient estimates for the mine-affected surfaces are based on professional judgement and available documentation (SRK, June 2020).
 - The runoff coefficient for the undisturbed ground was calibrated to regional data and was used as reference for the selection of the runoff coefficients for other surfaces, reducing the uncertainty related to the runoff coefficients for mine surfaces (SRK, June 2020).
- Groundwater inflows are dependent on hydraulic conductivity, and assumptions on permafrost and enhanced permeability structures/faults. The numerical groundwater model was not updated to support this Model update. Rather, groundwater inflows from WSP Golder (August 30, 2022) were scaled based on the updated duration of mining and depth of various pits and underground mines. Details on assumptions associated with the groundwater model and recommendations for mitigating effects of these assumptions are included in Appendix C.

Throughout the construction phase B2Gold has installed a network of stations to monitor pumped flows/volumes, water levels, mining volumes/tonnages, process flows/volumes and snowpack. Also, the Goose Mine meteorological station continues to collect site climate data (e.g., precipitation [rainfall only], temperature).

To the extent practicable, the data collected in 2025 have been implemented in the Model such that the Model reflects the actual site conditions at end of 2025, which represents the beginning of the projection period. However, the data available at the time of preparation of this Model

update were not sufficient to support a Model calibration and/or an update of the key hydrologic inputs (e.g., runoff coefficients).

8.2 Load Balance Model

Key assumptions and uncertainties of the load balance component of the Model are:

- Concentrations of constituents along the surface and subsurface flow paths are assumed to remain constant (e.g., no settling, precipitation, or reactions), which may result in an overestimation of constituent concentrations at prediction nodes.
- Diffusion of constituents from tailings consolidation and removal of chemical loading in open pits and tailings facilities are not accounted for in the load balance. This may result in an over- or underestimation of constituent concentrations within open pits and tailings facilities.
- Transport processes affecting TSS are not accounted for in the load balance which may result in an over- or underestimation of total suspended solids concentrations at prediction nodes.
- Water treatment targets that are set in the model are pending final treatment design.
- The load balance model assumes fully mixed conditions. Flows may not fully mix in ponds and reservoirs, which may result in an over- or underestimation of constituent concentrations at prediction nodes.
- The load balance assumes 100% exclusion of constituents from ice during under-ice conditions (i.e., cryoconcentration), which may result in an overestimation of constituent concentrations during under-ice conditions.
- Un-ionized ammonia is calculated based on total ammonia using the methods outlined in the MDMER (Government of Canada 2002). Inputs into the formula conservatively use the 95th percentile of surface water temperature measurements of streams flowing into Snap Lake⁸ (15°C; De Beers 2017), and an assumed pH (8.5) based on PHREEQC modelling of source terms and mill processes.
- Ammonia generated in the Process Plant is calculated assuming that the total nitrogen concentration after the leach circuit is the total nitrogen in weak acid-dissociable cyanide concentrations reported on the test work (JDS, October 28, 2015).

Inherent uncertainties in modelling assumptions may result in differences between model predictions and future monitored conditions; however, the overall effect of the assumptions and limitations above are anticipated to result in predictions that are typically more conservative relative to future conditions (e.g., overestimation of concentrations in discharges).

As per the water balance portion of the Model, B2Gold has initiated collecting site specific data that may support updating some of the inputs used in the load balance and described in Section 4.2. However, at the time of preparation of this Model update, data are available only for a short period of time and only for the mine start-up period, which may not be representative for the remainder of the life of mine.

⁸ Snap Lake Project, De Beers Group, Northwest Territories, Aquatic Effects Monitoring Program

9.0 CONCLUSIONS

The water and load balance model was created to provide water quantity and quality estimates based on the Goose Mine timeline, water management plans, and available input data to support commitments under Type A Water Licence 2AM-BRP1831, Amendment No.1. The Model should be used as a planning tool to analyze water management options and treatment needs that would be potentially required during the life of the Goose Mine. The water management strategy focuses on managing the inventory of the mine water stored on site, and maximizing the separation of saline, contact, and non-contact water. Water quality predictions were evaluated at the discharge points to Goose Lake (i.e., prediction nodes) and compared to MDMER discharge limits.

The Model results indicate that there is sufficient capacity on site to store tailings, contact water, and saline water for the Goose Project life. The volume of water collected was also confirmed to be adequate to support the water demands for the Process Plant when supplemented by freshwater from Goose Lake and Big Lake while staying within their maximum consumption limits. Water treatment is expected to be required during the operations phase (not at mine start up) to manage saline water inventory before the final repository location (Goose Main Reservoir) becomes available. With the support of treatment during late Operations and Closure, concentrations in discharge from the mine site to Goose Lake are predicted to be below MDMER discharge limits.

During Closure, all open pits (or pit reservoirs) will fill under all hydrological conditions assessed (i.e., 5th, 50th, and 95th percentile water balance results). As part of operational activities, B2Gold will adjust water management strategies as required so that relevant discharges to Goose Lake from the Goose Mine meet MDMER and relevant Water Licence discharge limits.

The Model should be updated as necessary for design purposes and as more operational data become available, or as directed by the Board in accordance with Type A Water License 2AM-BRP1831 Amendment No. 1 Part E, Item 16 and Part B, Item 2.

10.0 CLOSURE

We trust the above satisfies your requirements. Should you have any questions or comments, please do not hesitate to contact us.

Yours sincerely,

BGC Engineering Inc.

per:



Paolo Chiaramello, P.Eng.
Principal Hydrotechnical Engineer

Reviewed by:

Hamish Weatherly, M.Sc.
Principal Hydrological Consultant

Tobias Roetting, Ph.D.
Principal Water Quality Consultant

PERMIT TO PRACTICE BGC ENGINEERING INC.	
Signature	<u><i>John</i></u>
Date	<u>JUNE 25, 2026</u>
PERMIT NUMBER: P285 NT/NU Association of Professional Engineers and Geoscientists	

PC/HW/TR/jtcs/mm

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APPENDIX A

PROJECT TIMELINE



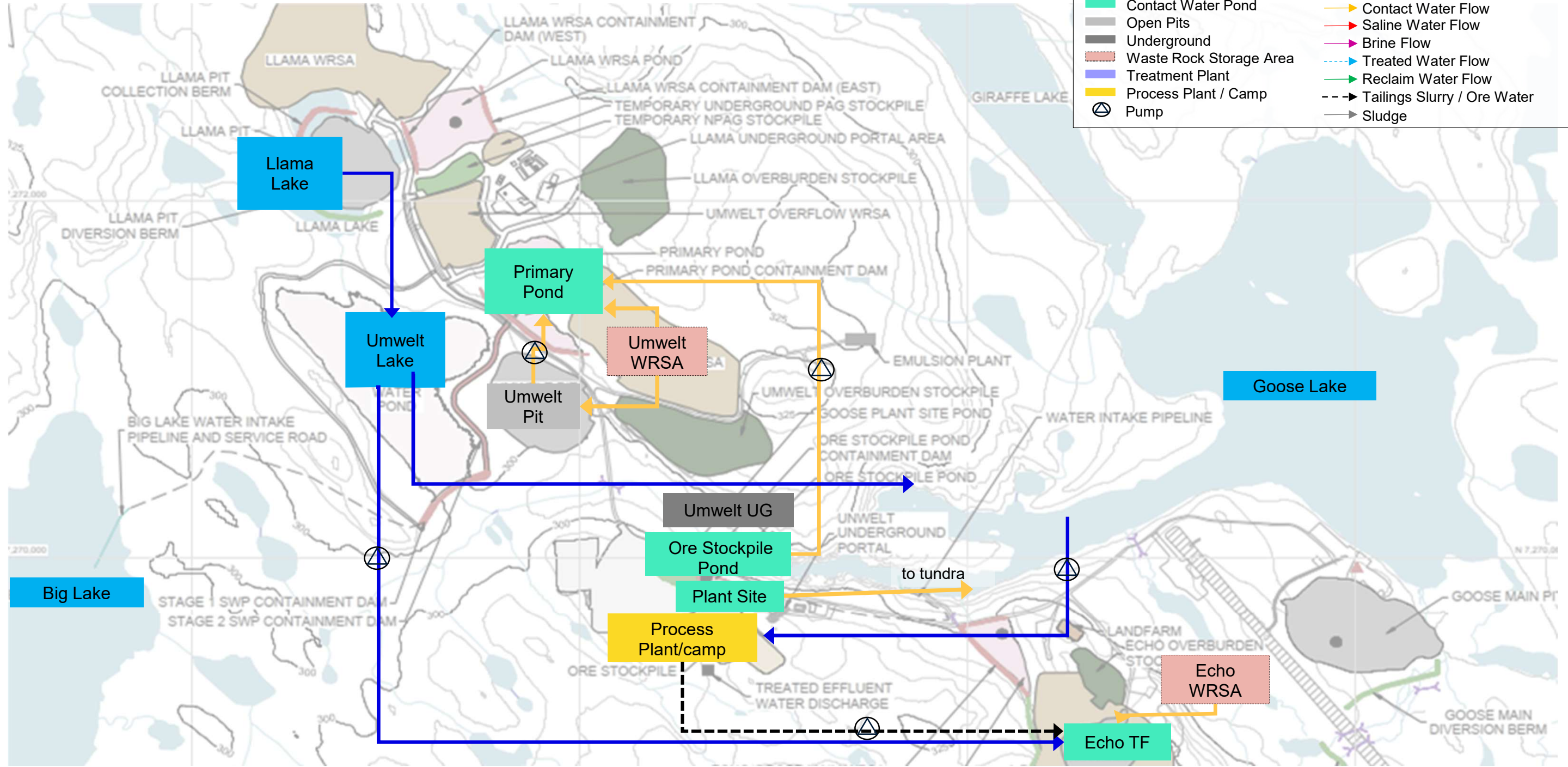
APPENDIX B

FLOW DIAGRAMS



Year 1 (Q3)

Operations

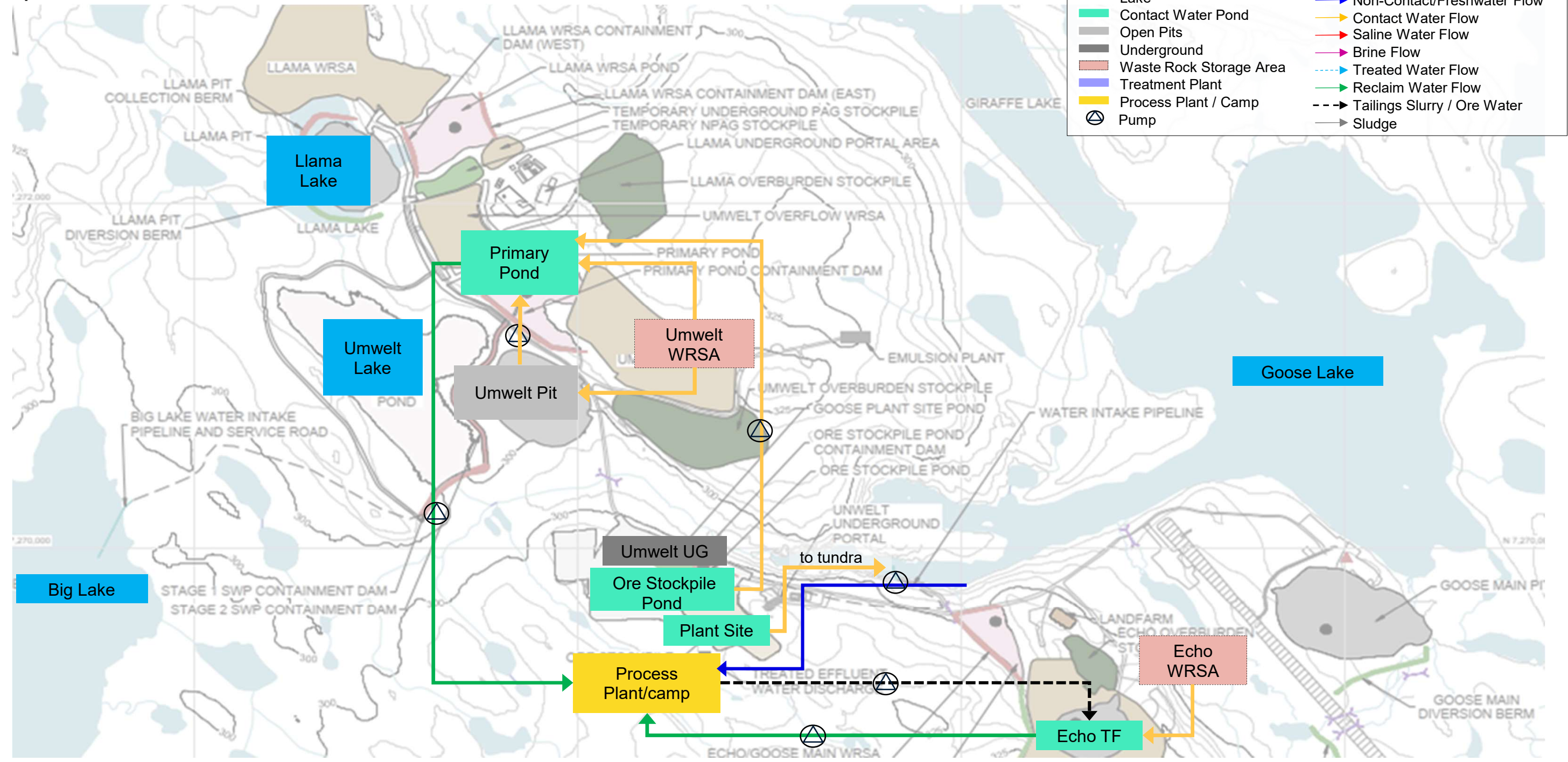


NOTES:
 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, TSS = total suspended solids, UG = underground, WRSA = waste rock storage area

PREPARED BY: IC	FIGURE TITLE: FLOW DIAGRAM OPERATION: YEAR 1 (Q3)		
CHECKED BY: HW	CLIENT: B2Gold Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: B-1

Year 1 (Q4) - Y2 (Q2)

Operations

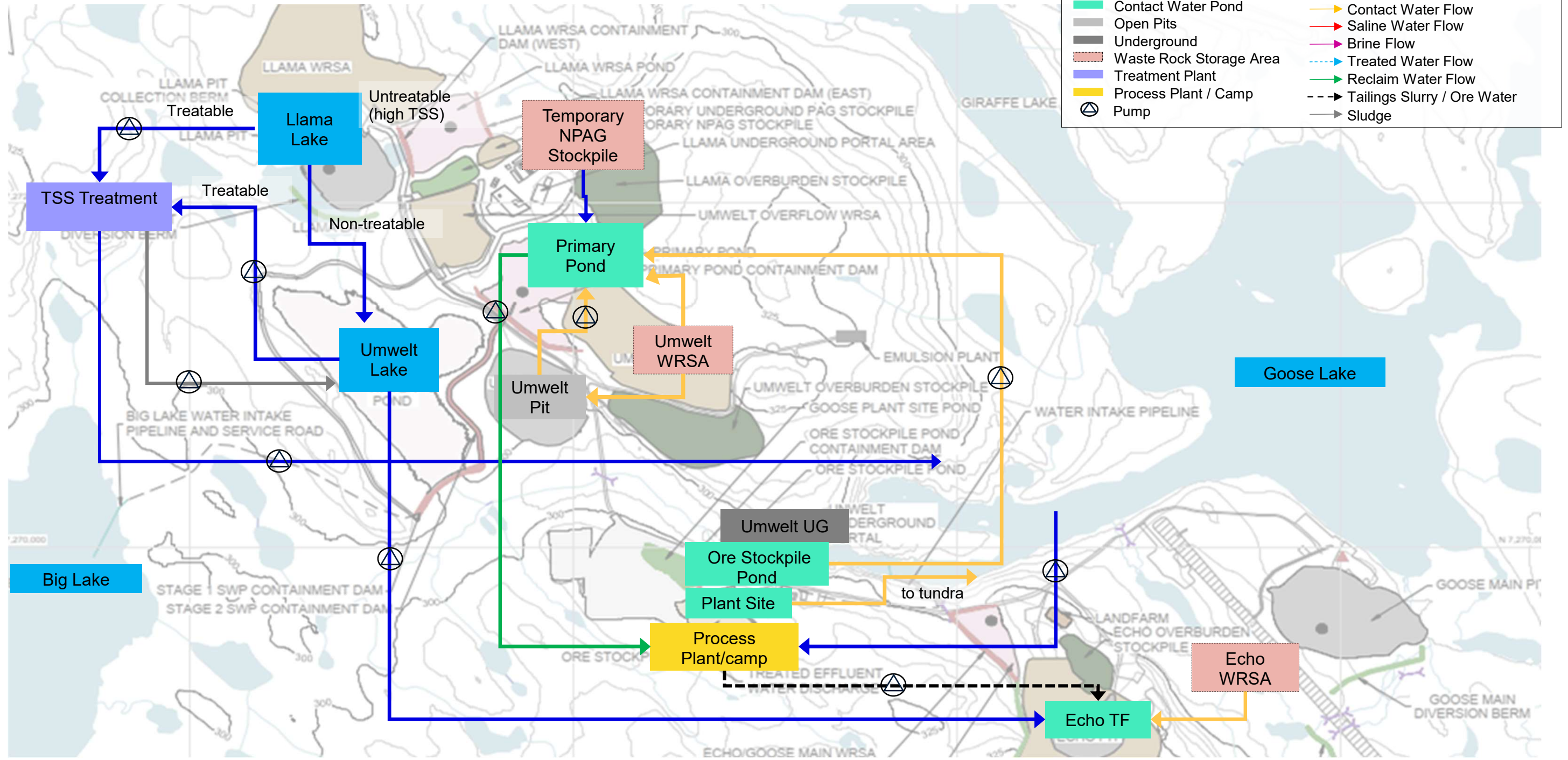


NOTES:
 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, UG = underground, WRSA = waste rock storage area

PREPARED BY: IC	FIGURE TITLE: FLOW DIAGRAM OPERATION: YEAR 1 (Q4) TO YEAR 2 (Q2)		
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APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: B-2

Year 2 (Q3)

Operations

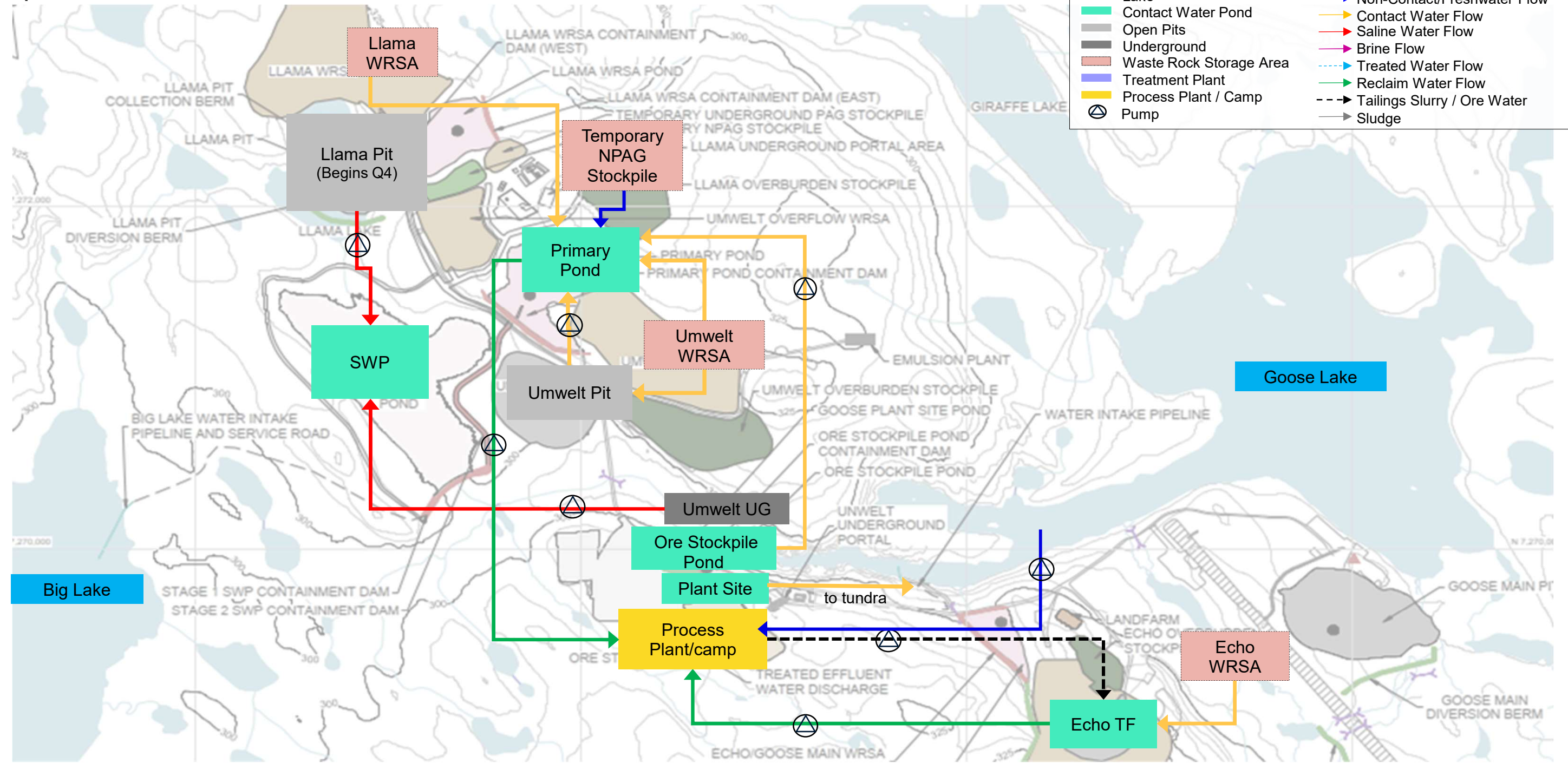


NOTES:
 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, TSS = total suspended solids, UG = underground, WRSA = waste rock storage area
 3. Drainage from Temporary NPAG Stockpile conservatively assumed to be conveyed to Primary Pond. Drainage will be discharged to the environment if water quality meets discharge limits

PREPARED BY: IC	FIGURE TITLE: FLOW DIAGRAM OPERATION: YEAR 2 (Q3)		
CHECKED BY: HW	CLIENT: B2Gold Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: B-3

Year 2 (Q4) -Year 4 (Q2)

Operations

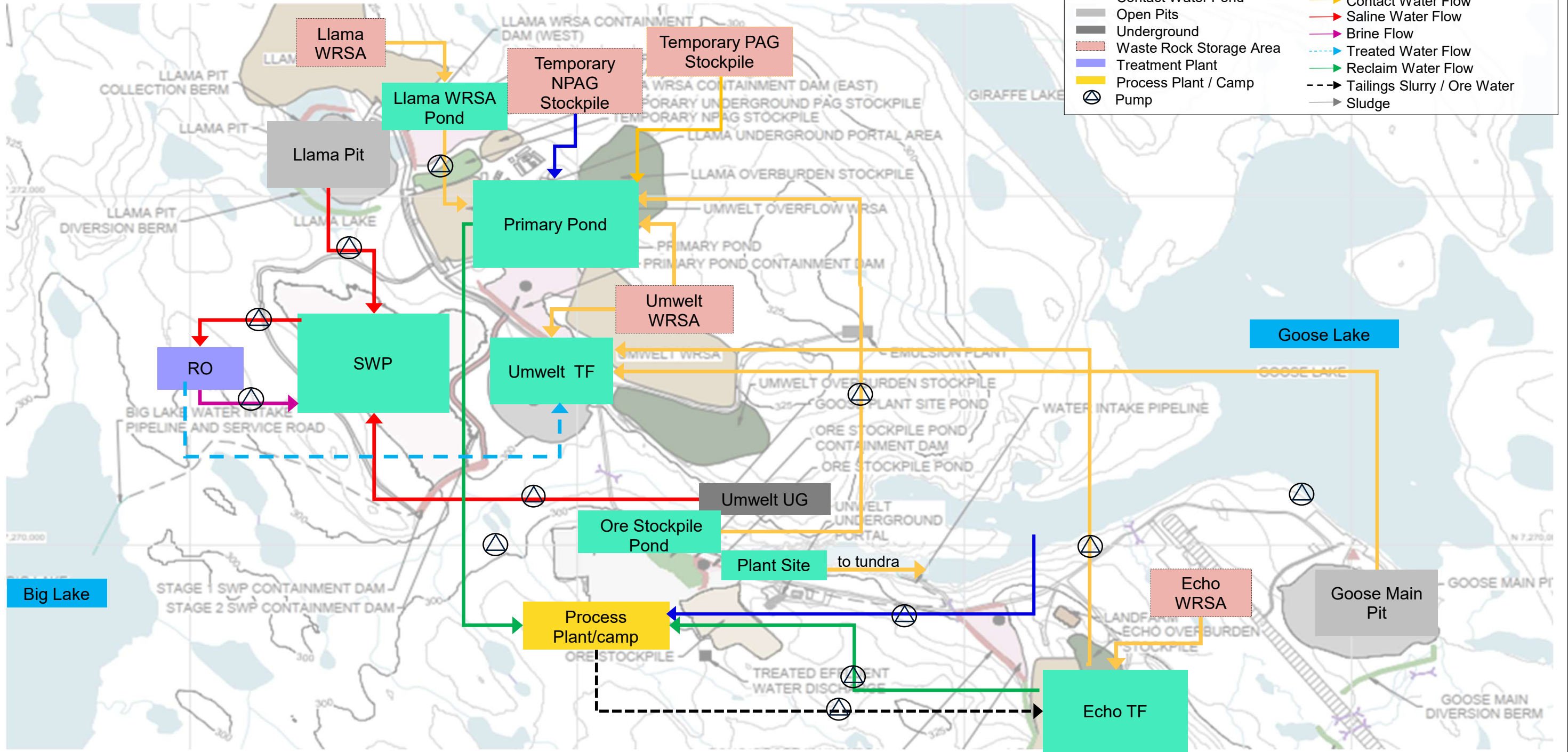


NOTES:
 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, UG = underground, WRSA = waste rock storage area

PREPARED BY: IC	FIGURE TITLE: FLOW DIAGRAM OPERATION: YEAR 2 (Q4) TO YEAR 4 (Q2)		
CHECKED BY: HW	CLIENT: B2Gold Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: B-4

Year 4 (Q3) - Year 5 (Q1)

Operations



LEGEND

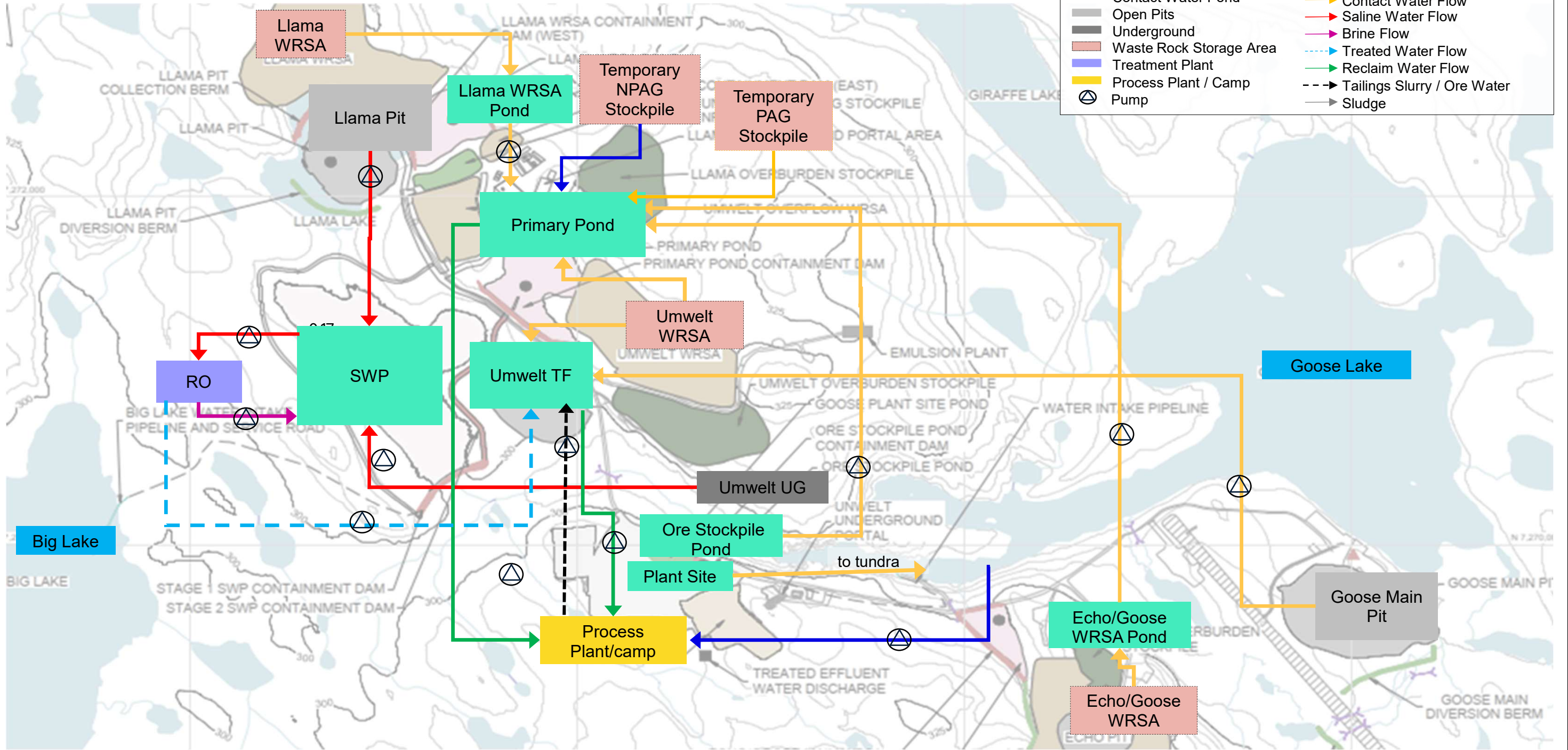
	Lake		Non-Contact/Freshwater Flow
	Contact Water Pond		Contact Water Flow
	Open Pits		Saline Water Flow
	Underground		Brine Flow
	Waste Rock Storage Area		Treated Water Flow
	Process Plant / Camp		Reclaim Water Flow
	Pump		Tailings Slurry / Ore Water
			Sludge

NOTES:
 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, UG = underground, WRSA = waste rock storage area

PREPARED BY:	FIGURE TITLE:		
IC	FLOW DIAGRAM OPERATION: YEAR 4 (Q4) TO YEAR 5 (Q1)		
CHECKED BY:	CLIENT:		
HW	B2Gold Back River Corporation		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
PC	N/A	1829001	B-5

Year 5 (Q2) - Year 6 (Q1)

Operations

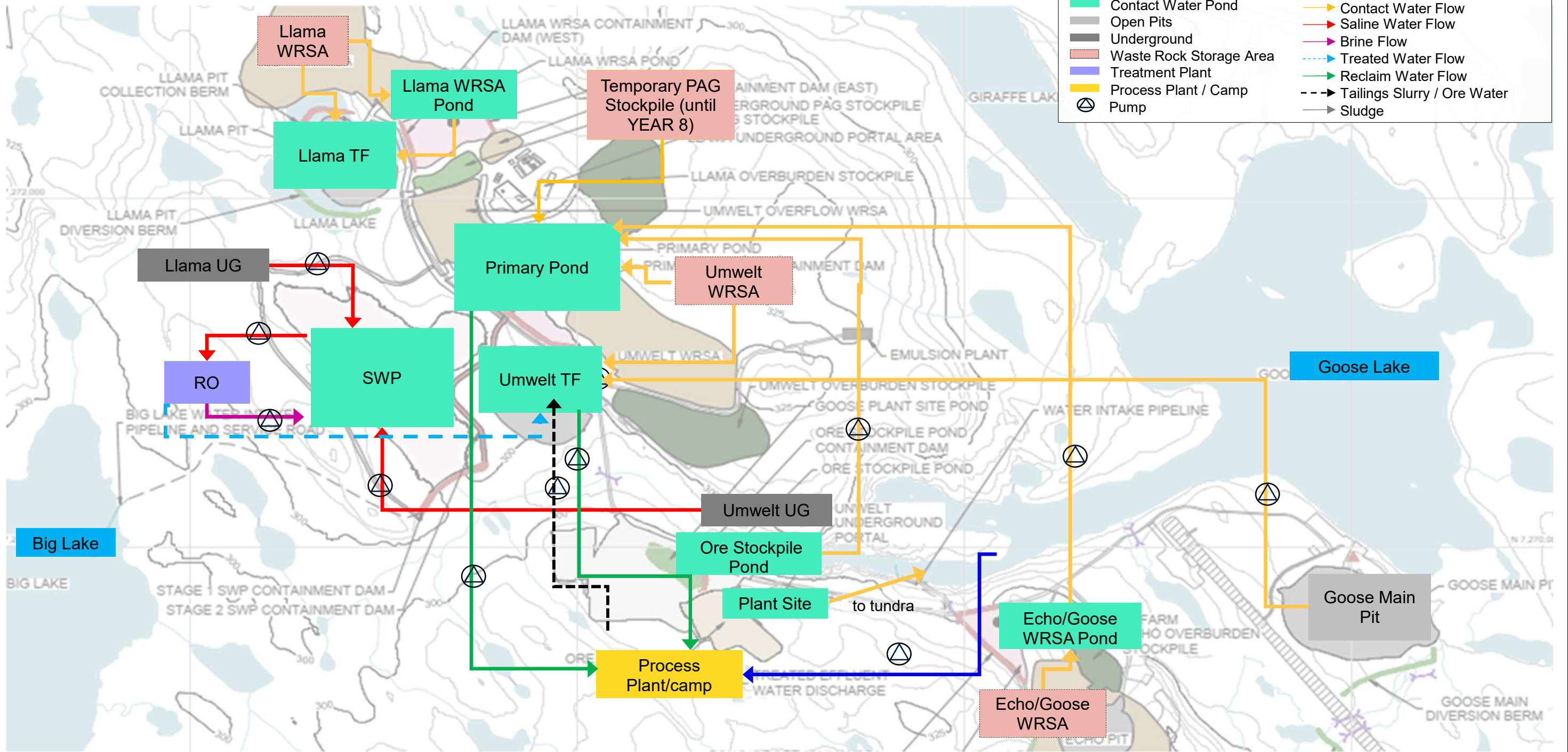


NOTES:
 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, UG = underground, WRSA = waste rock storage area

PREPARED BY: IC	FIGURE TITLE: FLOW DIAGRAM OPERATION: YEAR 5 (Q2) TO YEAR 6 (Q1)		
CHECKED BY: HW	CLIENT: B2Gold Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: B-6

Year 6 (Q2) - Year 9 (Q2)

Operations

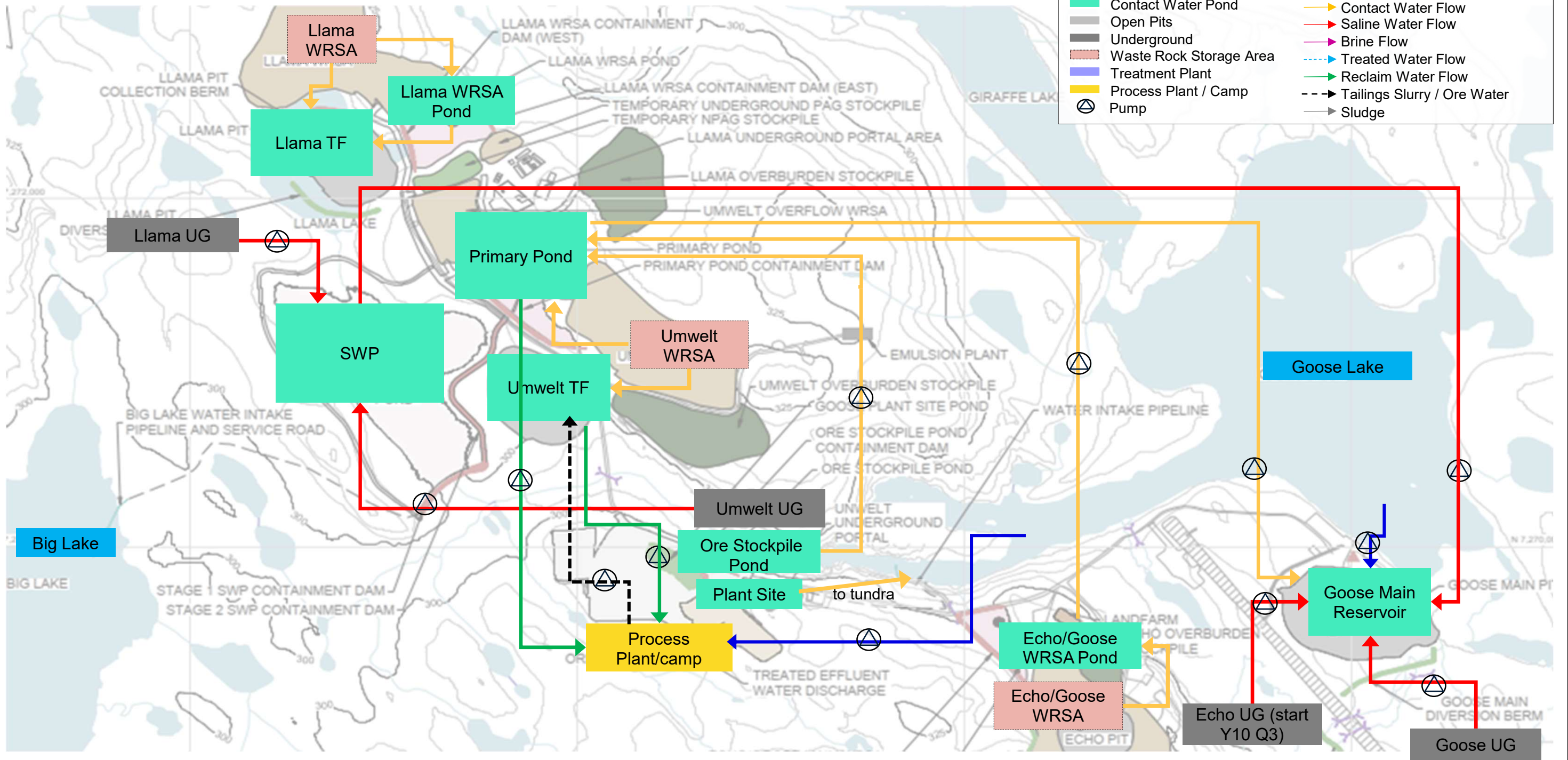


NOTES:
 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, UG = underground, WRSA = waste rock storage area

PREPARED BY: IC	FIGURE TITLE: FLOW DIAGRAM OPERATION: YEAR 6 (Q2) - YEAR 9 (Q2)		
CHECKED BY: HW	CLIENT: B2Gold Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: B-7

Year 9 (Q3) - Year 11 (Q3)

Operations

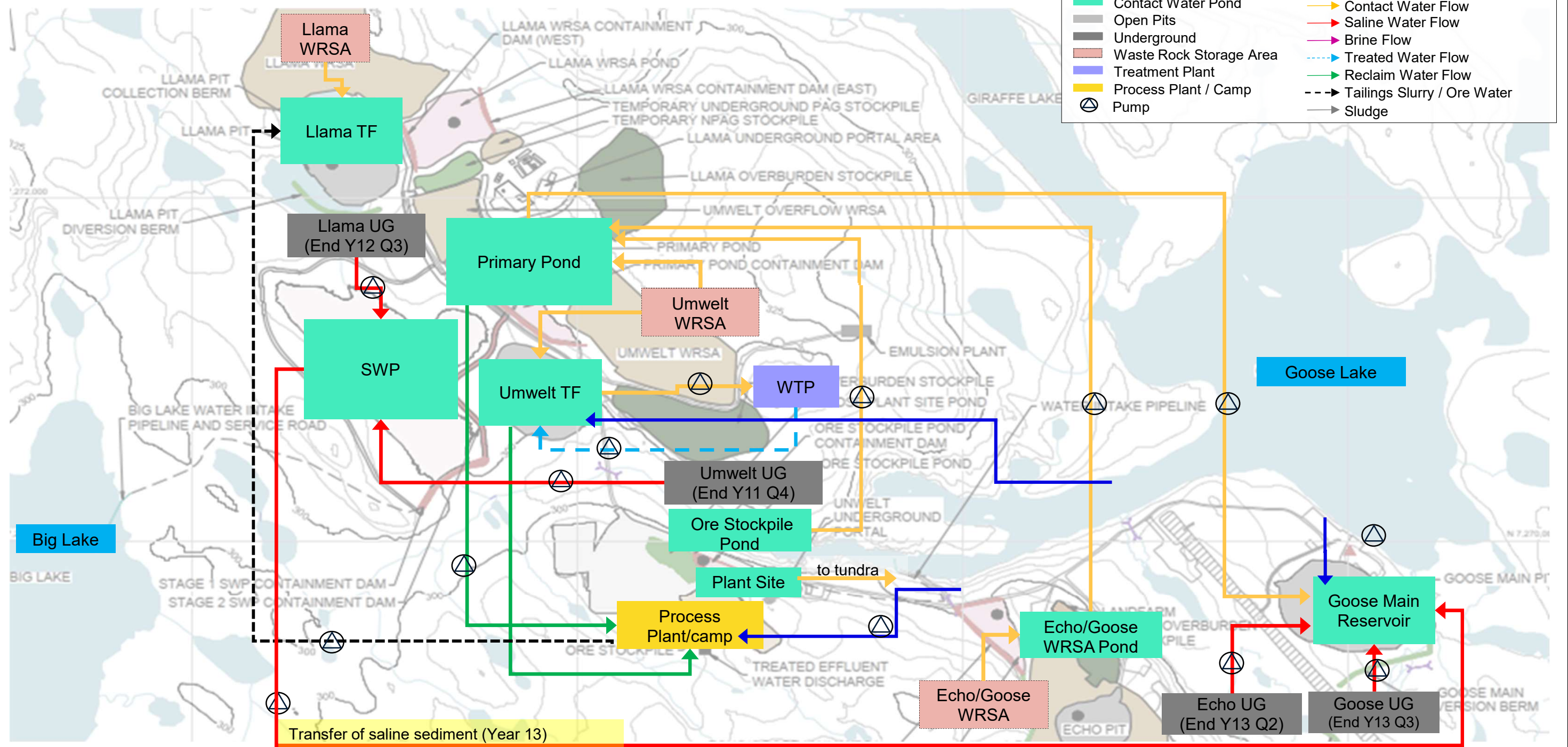


NOTES:
 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, UG = underground, WRSA = waste rock storage area

PREPARED BY:	FIGURE TITLE:		
IC	FLOW DIAGRAM OPERATION: YEAR 9 (Q3) - YEAR 11 (Q3)		
CHECKED BY:	CLIENT:		
HW	B2Gold Back River Corporation		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
PC	N/A	1829001	B-8

Year 11 (Q4) - Year 13 (Q3)

Operations

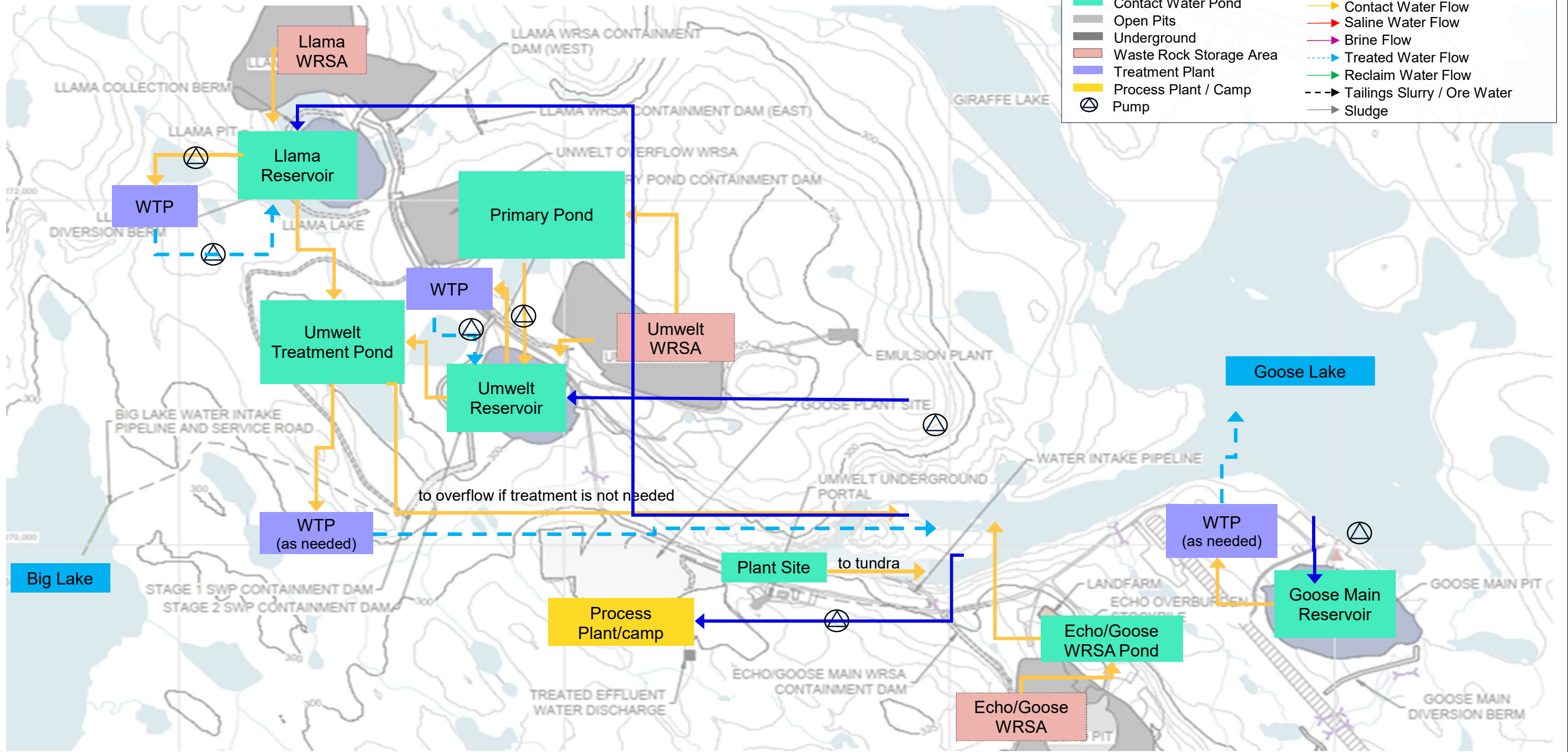


NOTES:
 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, UG = underground, WRSA = waste rock storage area

PREPARED BY: IC	FIGURE TITLE: FLOW DIAGRAM OPERATION: YEAR 11 (Q4) - YEAR 14 (Q3)		
CHECKED BY: HW	CLIENT: B2Gold Back River Corporation		
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Year 14 - 20

Closure



LEGEND

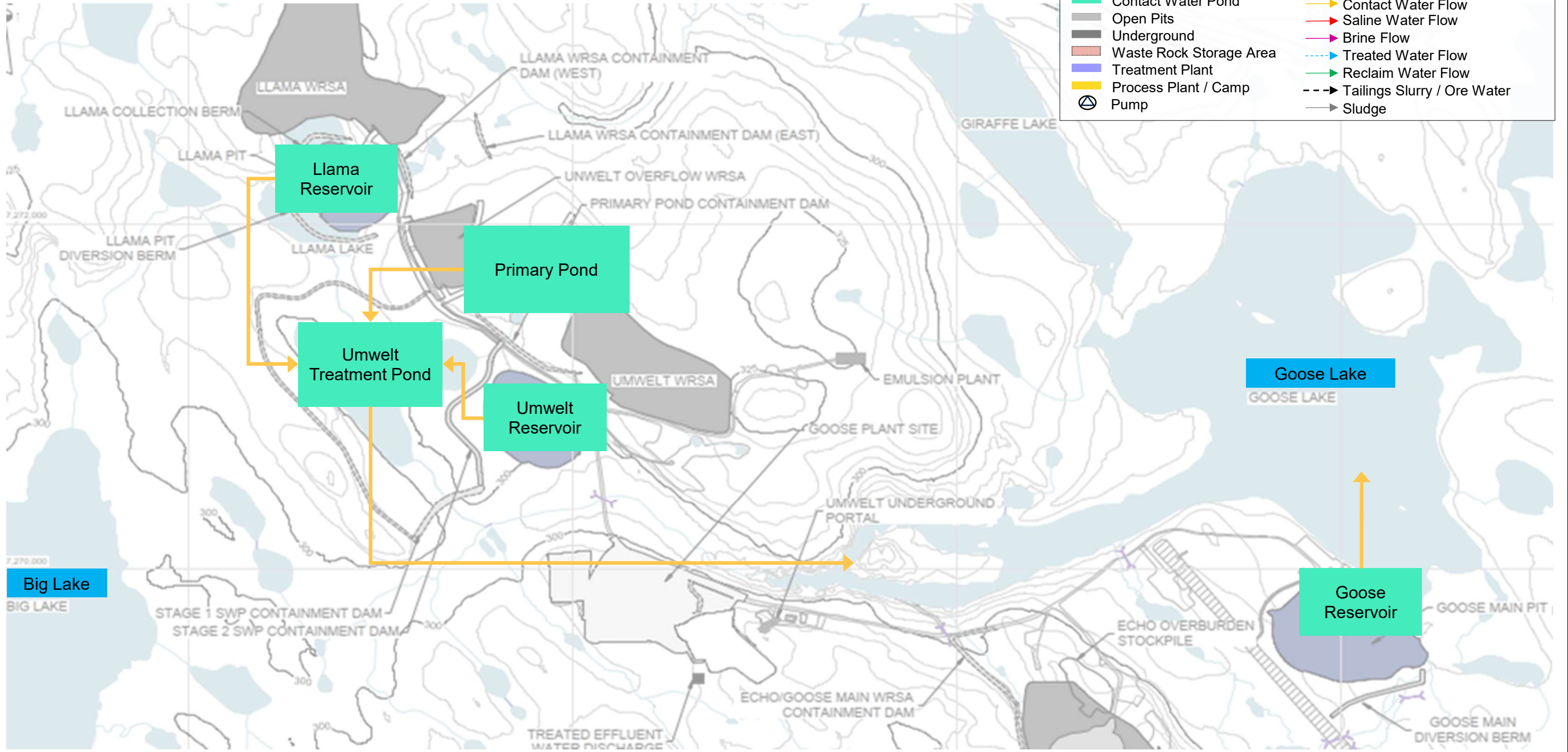
- █ Lake
- █ Contact Water Pond
- █ Open Pits
- █ Underground
- █ Waste Rock Storage Area
- █ Treatment Plant
- █ Process Plant / Camp
- ⊕ Pump
- Non-Contact/Freshwater Flow
- Contact Water Flow
- Saline Water Flow
- Brine Flow
- Treated Water Flow
- Reclaim Water Flow
- - - Tailings Slurry / Ore Water
- Sludge

- NOTES:
1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, UG = underground, WRSA = waste rock storage area
 3. Treatment of Goose Main Reservoir (if needed) to start in approximately Year 17 when Goose Main Reservoir reaches capacity. Treatment continues as required based on Goose Main Reservoir water quality.
 4. Umwelt Treatment Pond passive outflows treated as needed based on its water quality.

PREPARED BY:	IC			FIGURE TITLE:	FLOW DIAGRAM CLOSURE: YEAR 14 - 20		
CHECKED BY:	HW			CLIENT:	B2Gold Back River Corporation		
APPROVED BY:	PC	SCALE:	N/A	PROJECT NO:	1829001	FIGURE NO:	B-10

Year 21 and beyond

Post-Closure



NOTES:
 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
 2. TF = tailings facility, UG = underground, WRSA = waste rock storage area

PREPARED BY: IC	FIGURE TITLE: FLOW DIAGRAM POST CLOSURE (YEAR 21 AND BEYOND)		
CHECKED BY: HW	CLIENT: B2Gold Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: B-11

APPENDIX C

UPDATED PREDICTIONS OF GROUNDWATER INFLOWS





Back River Water and Load Balance Update and Water Treatment Evaluation

Groundwater Inflow Estimate Update

Presented by:

Isabelle Cheff, M.A.Sc., P.Eng. (ON)
Water Resources Engineer

Date:

March 26, 2026

Groundwater Inflow Estimate Update

General Assumptions

- Groundwater inflow rates and associated total dissolved solids (TDS) for the Current (2026) Mine Plan were updated using predictions that WSP Golder previously made for the Sabina Mine Plan
 - WSP Golder (August 30, 2022). *Back River Project – Water and Load Balance Report*. Prepared for Sabina Gold and Silver Corp.
- The WSP Golder groundwater model was not used for this update; rather previous inflow predictions were scaled by comparing the timing and depth of the mine openings in both mine plans
- Assumptions incorporated into WSP Golder's predictions (e.g., K and TDS vs depth profiles) were assumed to be valid for the Current (2026) Mine Plan
 - Inflow scaling was completed for Scenario 1 and Scenario 2 as defined in WSP Golder 2022 report.
- Mining depths for the Sabina Mine Plan used in WSP Golder's analyses and the updated Current (2026) Mine Plan were provided by B2Gold
- Inflow predictions do not account for backfilling of the mine openings after mining is completed (e.g., natural flooding of underground mines, water/tailings backfilling of Llama Open Pit).

Groundwater Inflow Estimate Update

Inflow Scaling Assumptions

- Open pits:
 - Similar depths of mining for all open pits. Assume inflow predictions from WSP Golder are unchanged for Umwelt, Goose, and Echo pits. For Llama pit, base Year 1 inflow and TDS on WSP Golder Scenario 2b.
 - Note: Approach may under-estimate inflows to Llama pit prior to development of the Llama underground. WSP Golder noted that Llama pit is under drained by the Llama underground. Under the Sabina Mine Plan, the mining elevation of the Llama underground is always lower than the Llama pit.
- Underground:
 - General approach was to scale groundwater inflows and TDS based on mining elevation.
 - Note: Approach neglects differences in the mining rate between the Sabina Mine Plan and Current Plan which may lead to both under- and over-estimation of groundwater inflows and TDS.
 - Umwelt underground: Minimum mining elevation is 10 m lower in Current Plan (2026) relative to Sabina Mine Plan
 - Echo underground: Minimum Mining elevation are 55 m higher in Current Plan relative to Sabina Mine Plan
 - Same constant inflows were assumed as WSP Golder predictions.
 - Goose underground: Mining elevation extends 50 m lower in Current (2026) Mine Plan relative to Sabina Mine Plan
 - Below -100 m elevation, base TDS on Sabina Mine Plan Umwelt underground
 - Llama underground: Mining elevation extends 280 m lower in Current (2026) Mine Plan relative to Sabina Mine Plan
 - Below -80 m elevation, base groundwater inflows and TDS on Sabina Mine Plan Umwelt underground
 - Different timing of mine progression in the Current (2026) Mine Plan relative to the Sabine Mine Plan affects evolution of inflow TDS

Closing

This presentation required a number of complex issues to be reduced to general concepts in a series of concise bullet points, photographs, and/or diagrams. The content of this presentation is not intended for design decisions or construction. This presentation is for general informational purposes only. BGC Engineering Inc.'s report(s) may contain more specific details concerning the issues identified in this presentation. Please consult BGC for further clarification if you have any questions or concerns.

Prepared by:

Isabelle Cheff, M.A.Sc. & Paolo Chiaramello, P.Eng

Client:

B2Gold Back River Corp.

Reviewed by:

Craig Thompson, Ph.D., P.Geo. (BC)

Date:

March 26, 2026

APPENDIX D

SOURCE TERM CONCENTRATIONS



Table D-1 Model Input Source Term Concentrations

Constituent	Unit	Baseline	Groundwater	Process Water	Sewage ^a	Pad	Ore Stockpile - Operations ^{b,c}	Ore Stockpile - Closure ^{b,c}	WR-Umwelt Operations Max ^{b,c}	WR-Umwelt Closure Max ^{b,c}	WR-Llama Operations Max ^{b,c}	WR-Llama Closure Max ^{b,c}	WR-Echo/Goose Operations Max ^{b,c}	WR-Echo/Goose Closure Max ^{b,c}	PW Umwelt Max ^c	PW Llama Max ^c	PW Echo Max ^c	PW Goose Max ^c	HW Umwelt Max ^c	HW Llama Max ^c	HW Goose Max ^c
Alkalinity	mg/L	2.0	13	35	0.5	25	0.096	0.096	0.092	62	2.0	87	0.091	63	55	65	52	62	23	17	14
Aluminum	mg/L	0.011	0.082	0.5	0	1.7	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.13	0.39	0.38	0.39	0.23	0.39	0.39	0.39
Ammonia	mg-N/L	0.005	0.2	5.1	78.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Antimony	mg/L	0.00005	0.0044	0.0018	0	0.001	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	0.00082	0.00062	0.00023
Arsenic	mg/L	0.0002	0.0071	2.4	0	0.044	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.21	0.15	0.13	0.15	0.10	0.15	0.11	0.043
Barium	mg/L	0.0051	6.1	0.011	0	0.0089	0.0094	0.0094	0.0027	0.022	0.020	0.021	0.0024	0.011	0.021	0.021	0.021	0.016	0.051	0.069	0.038
Beryllium	mg/L	0.0002	0.0011	0.00015	0	0	0.0010	0.0010	0.0012	0.0012	0.0022	0.00025	0.0024	0.000032	0.00020	0.00020	0.00020	0.00020	0.00053	0.00063	0.00032
Bismuth	mg/L	0.0005	0.044	0.00022	0	0.000004	0.00058	0.00058	0.15	0.00050	0.36	0.00050	0.068	0.00050	0.0026	0.0015	0.00070	0.00072	0.00050	0.00050	0.00050
Boron	mg/L	0.005	3.9	0.026	0	0.0003	1.6	1.6	3.6	3.6	7.1	0.73	6.7	2.1	0.20	0.20	0.20	0.16	0.18	0.20	0.12
Cadmium	mg/L	0.00001	0.00089	0.00002	0	0.000001	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010	0.00032
Calcium	mg/L	2.1	16000	42	0	16	73	73	73	73	73	65	73	51	33	45	30	46	23	44	33
Chloride	mg/L	1.0	Depth dependent ^c	5.5	96.7	0.25	94	94	198	198	362	112	397	15	16	13	19	4.5	2.6	3.2	2.1
Chromium	mg/L	0.00015	0.0062	0.0058	0	0.003	0.0037	0.0037	0.015	0.015	0.030	0.0018	0.019	0.0049	0.00064	0.00055	0.00051	0.00038	0.00069	0.00070	0.00033
Cobalt	mg/L	0.00012	0.0089	0.013	0	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.0042	0.018	0.018	0.0044
Copper	mg/L	0.0014	0.0081	0.1	0	0.0036	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.0041	0.0029	0.0044	0.0015	0.011	0.011	0.0024
Cyanate	mg/L	0	0	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fluoride	mg/L	0.02	0	0	0.067	0.02	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.22	0.22	0.22	0.17	0.26	0.24	0.12
Free Cyanide	mg/L	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	mg/L	11	45000	110	0	0	4135	4135	3803	614	9551	421	5914	906	131	167	122	160	92	169	122
Iron	mg/L	0.014	3.8	3.1	0	2.1	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.31	0.42	0.42	0.42	0.42	0.42	0.42	0.42
Lead	mg/L	0.00005	0.0044	0.019	0	0.00012	0.0027	0.0027	0.018	0.018	0.030	0.0028	0.030	0.0043	0.0010	0.00072	0.0010	0.00029	0.0035	0.0022	0.00024
Lithium	mg/L	0.005	7.1	0.003	0	0	0.12	0.12	2.0	2.0	3.8	0.041	1.6	0.14	0.066	0.045	0.037	0.022	0.021	0.017	0.0076
Magnesium	mg/L	1.3	1000	1.6	0	4.4	11	11	11	11	11	11	11	11	11	11	11	11	8.6	11	10
Manganese	mg/L	0.0019	2.9	0.011	0	0.15	0.47	0.47	0.47	0.47	0.47	0.25	0.47	0.47	0.21	0.19	0.23	0.12	0.32	0.47	0.45
Mercury	mg/L	0.00001	0.00001	0.000005	0	0.00001	0.000050	0.000050	0.000050	0.000050	0.000010	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000038	0.000041	0.000024
Molybdenum	mg/L	0.00005	0.042	0.0083	0	0.00081	0.0051	0.0051	0.0051	0.0052	0.0052	0.0052	0.0051	0.0051	0.0030	0.0025	0.0027	0.0016	0.0012	0.00093	0.00039
Nickel	mg/L	0.0033	0.011	0.0035	0	0.059	0.058	0.058	0.058	0.058	0.058	0.058	0.058	0.057	0.058	0.058	0.058	0.039	0.058	0.055	0.012
Nitrate	mg-N/L	0.0065	0.5	0.12	81.5	0	4.8	4.8	8.5	1.7	11	1.3	13	2.3	0.30	0.25	0.35	0.12	0.13	0.12	0.077
Nitrite	mg-N/L	0.001	0.1	0.008	16.8	0	1.2	1.2	23	0.42	53	0.31	13	0.58	0.44	0.27	0.18	0.13	0.031	0.029	0.019
Orthophosphate	mg-P/L	0.001	0.062	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phosphate	mg-P/L	0	0.22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phosphorus	mg/L	0.0019	3.3	0.1	5.7	0.01	0.57	0.57	0.63	0.17	1.1	0.13	1.0	0.23	0.021	0.021	0.021	0.016	0.017	0.019	0.012
Potassium	mg/L	0.34	240	11	0	0.35	118	118	237	237	442	35	440	108	15	13	16	8.6	9.2	13	8.3
Selenium	mg/L	0.0001	0.0089	0.0012	0	0.00033	0.0020	0.0020	0.0020	0.0020	0.0020	0.0017	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.00079	0.00088	0.00054
Silicon	mg/L	0.28	0.56	2.9	0	5.5	39	39	38	40	38	28	38	40	7.3	7.2	7.7	5.3	12	15	9.0
Silver	mg/L	0.00001	0.00089	0.00017	0	0.000015	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000040	0.000021	0.000024	0.000014
Sodium	mg/L	0.66	6800	69	0	0.25	253	253	950	950	2102	22	1385	32	4.4	5.3	4.3	4.7	1.5	1.5	0.83
Strontium	mg/L	0.0094	330	0.13	0	0.00028	0.80	0.80	9.2	9.2	7.7	0.17	8.6	0.62	0.56	0.36	0.21	0.19	0.062	0.10	0.073
Sulphate	mg/L	4.1	50.0	150	110	36	846	846	2244	2244	4681	113	3119	218	109	134	105	121	187	356	236

Constituent	Unit	Baseline	Groundwater	Process Water	Sewage ^a	Pad	Ore Stockpile - Operations ^{b,c}	Ore Stockpile - Closure ^{b,c}	WR-Umwelt Operations Max ^{b,c}	WR-Umwelt Closure Max ^{b,c}	WR-Llama Operations Max ^{b,c}	WR-Llama Closure Max ^{b,c}	WR-Echo/Goose Operations Max ^{b,c}	WR-Echo/Goose Closure Max ^{b,c}	PW Umwelt Max ^c	PW Llama Max ^c	PW Echo Max ^c	PW Goose Max ^c	HW Umwelt Max ^c	HW Llama Max ^c	HW Goose Max ^c
TDS	mg/L	23	Depth dependent ^d	414	919	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tellurium	mg/L	0.002	0	0.0003	0	0	0.0023	0.0023	0.0024	0.0020	0.0043	0.0020	0.0038	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Thallium	mg/L	0.00005	0.0044	0.000015	0	0.000004	0.00023	0.00023	0.00044	0.00044	0.00081	0.000085	0.00092	0.00033	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050
Thiocyanate	mg/L	0	0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thorium	mg/L	0	0	0.00017	0	0	0.00064	0.00064	0.0014	0.00019	0.0029	0.00014	0.0014	0.00026	0.000036	0.000029	0.000027	0.000019	0.000035	0.000036	0.000017
Tin	mg/L	0.0001	0.0089	0.00026	0	0	0.0077	0.0077	0.018	0.018	0.037	0.0035	0.031	0.011	0.00094	0.00098	0.00091	0.00082	0.00080	0.00084	0.00051
Titanium	mg/L	0.01	0.11	0.0095	0	0.052	0.067	0.067	0.074	0.019	0.13	0.015	0.12	0.027	0.010	0.010	0.010	0.010	0.010	0.010	0.010
TOC	mg/L	4.0	0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Cyanide	mg/L	0.0023	0	0.77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TSS	mg/L	3.0	0	16	23.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Uranium	mg/L	0.00001	0.00089	0.0003	0	0.000025	0.050	0.050	0.045	0.045	0.078	0.015	0.11	0.057	0.0035	0.0024	0.0039	0.00088	0.0033	0.0023	0.00061
Vanadium	mg/L	0.000053	0.033	0.0013	0	0.00088	0.044	0.044	0.27	0.27	0.54	0.014	0.27	0.054	0.0089	0.0064	0.0047	0.0041	0.0023	0.0019	0.0021
WAD Cyanide	mg/L	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Zinc	mg/L	0.003	0.3	0.0088	0	0.015	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.015	0.016	0.015	0.016	0.0040	0.016	0.016	0.0078
Zirconium	mg/L	0.0004	0	0.0003	0	0	0.011	0.011	0.015	0.0031	0.031	0.0023	0.021	0.0043	0.00046	0.00043	0.00042	0.00040	0.00040	0.00040	0.00040

Note:

- (a) Sewage treatment plant effluent concentrations are the 95th percentile from water quality testing conducted between July 2024 and February 2026 (received from B2Gold, Chris LeGoffe, personal communication. March 04, 2026). Limited suite of parameters were tested, parameters not tested assumed to be 0 mg/L.
- (b) Calculated as the maximum of the PHREEQC modelling and the maximum concentrations calculated from each mining phase as described in Section 4.2.3.1
- (c) Ore stockpile, WR, and PW source terms are calculated based on “live” amounts of material in the piles (i.e., exposed), therefore they have changing values over the model period. Maximum values for phases where they are active are included.
- (d) For TDS concentrations see Appendix C. Chloride concentrations = 60% of TDS Concentrations

WR = waste rock; PW = pit wall; HW = high wall; TDS = total dissolved solids; TOC = total organic carbon; TSS = total suspended solids; WAD = weak acid dissociable; mg/L = milligrams per litre; mg-N/L = milligrams of nitrogen per litre; mg-P/L = milligrams of phosphorus per litre

APPENDIX E

INITIAL LAKE WATER QUALITY



Table E-1 Initial lake water quality applied in the load balance Model.

Constituent	Unit	Umwelt Lake	Llama Lake	Goose Lake
Alkalinity	mg/L	33	9.9	8.3
Aluminum	mg/L	0.0075	0.0054	0.021
Ammonia	mg-N/L	0.067	0.013	0.041
Antimony	mg/L	0.0005	0.00005	0.000028
Arsenic	mg/L	0.00057	0.0003	0.00044
Barium	mg/L	0.042	0.013	0.0099
Beryllium	mg/L	0.0002	0.0002	0.0000051
Bismuth	mg/L	0.0005	0.0005	0.0000031
Boron	mg/L	0.008	0.0073	0.005
Cadmium	mg/L	0.00001	0.00001	0.0000063
Calcium	mg/L	18	6.2	5.1
Chloride	mg/L	23	9.4	3.9
Chromium	mg/L	0.00025	0.00015	0.00015
Cobalt	mg/L	0.00012	0.00012	0.000096
Copper	mg/L	0.0031	0.0017	0.0028
Cyanate	mg/L	0	0	0
Fluoride	mg/L	0.037	0.024	0.031
Free Cyanide	mg/L	0	0	0
Hardness	mg/L	82	27	27
Iron	mg/L	0.014	0.014	0.013
Lead	mg/L	0.00005	0.00005	0.000013
Lithium	mg/L	0.005	0.005	0.0012
Magnesium	mg/L	9.2	2.9	3.3
Manganese	mg/L	0.015	0.0021	0.0042
Mercury	mg/L	0.00001	0.00001	0.0000022
Molybdenum	mg/L	0.000062	0.000062	0.000015
Nickel	mg/L	0.0073	0.0026	0.0082
Nitrate	mg-N/L	0.053	0.059	0.046
Nitrite	mg-N/L	0.001	0.001	0.001
Orthophosphate	mg-P/L	0.0005	0	0
Phosphate	mg-P/L	0.01	0.0028	0
Phosphorus	mg/L	0.0039	0.0039	0.0039
Potassium	mg/L	2.2	0.97	0.58

Constituent	Unit	Umwelt Lake	Llama Lake	Goose Lake
Selenium	mg/L	0.0001	0.0001	0.000036
Silicon	mg/L	1.5	0.61	0.99
Silver	mg/L	0.00001	0.00001	0
Sodium	mg/L	3.8	1.3	1.2
Strontium	mg/L	0.082	0.047	0
Sulphate	mg/L	13	7.2	14
TDS	mg/L	94	36	43
Tellurium	mg/L	0	0	0
Thallium	mg/L	0.00005	0.00005	0
Thiocyanate	mg/L	0	0	0
Thorium	mg/L	0	0	0
Tin	mg/L	0.0001	0.0001	0
Titanium	mg/L	0.01	0.01	0
TOC	mg/L	11	4.1	6.8
Total Cyanide	mg/L	0	0	0
TSS	mg/L	2.4	1.5	3.0
Uranium	mg/L	0.00001	0.00001	0
Vanadium	mg/L	0.000053	0.000053	0
WAD Cyanide	mg/L	0	0	0
Zinc	mg/L	0.003	0.003	0
Zirconium	mg/L	0	0	0

Note:

Metals are dissolved concentrations

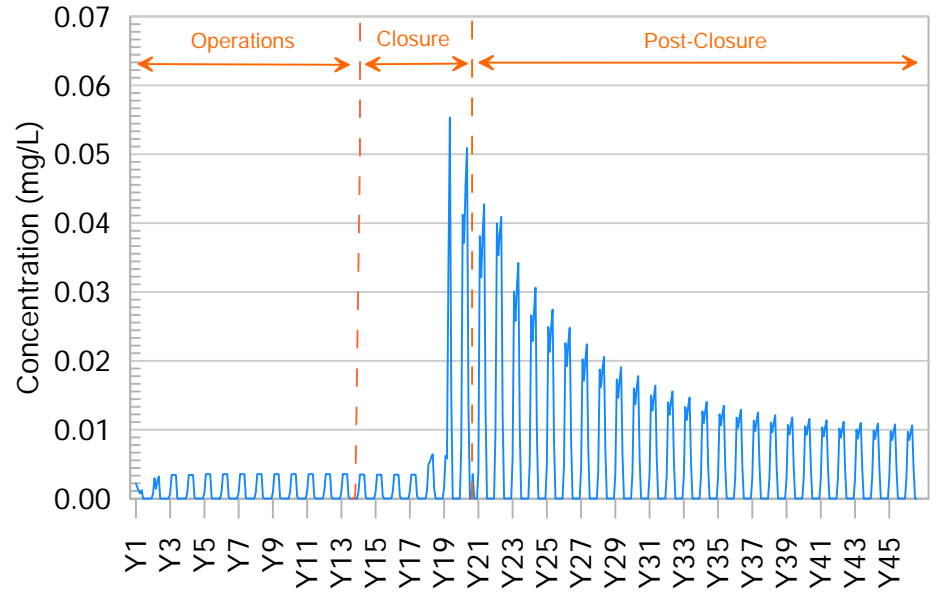
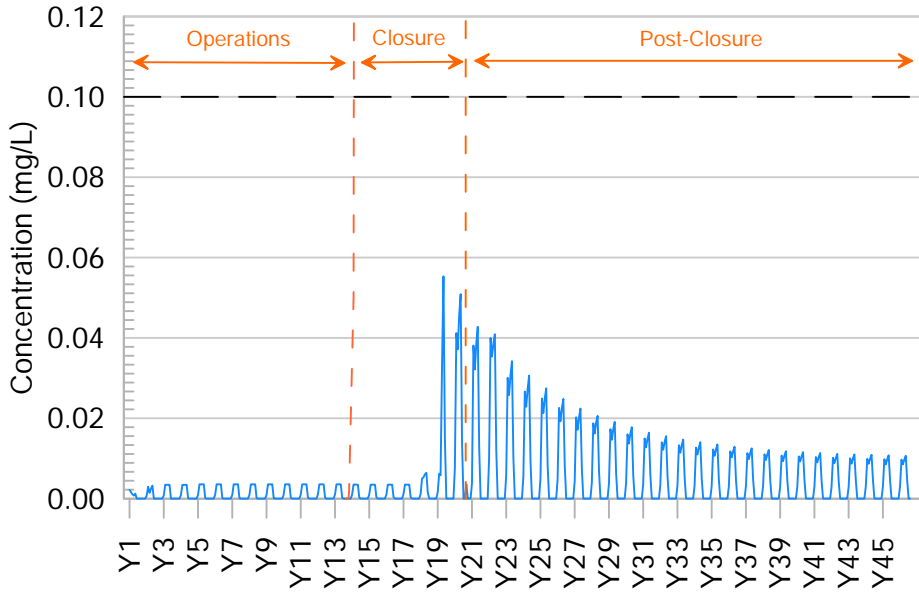
TDS = total dissolved solids; TOC = total organic carbon; TSS = total suspended solids; WAD = weak acid dissociable; mg/L = milligrams per litre; mg-N/L = milligrams of nitrogen per litre; mg-P/L = milligrams of phosphorus per litre

APPENDIX F

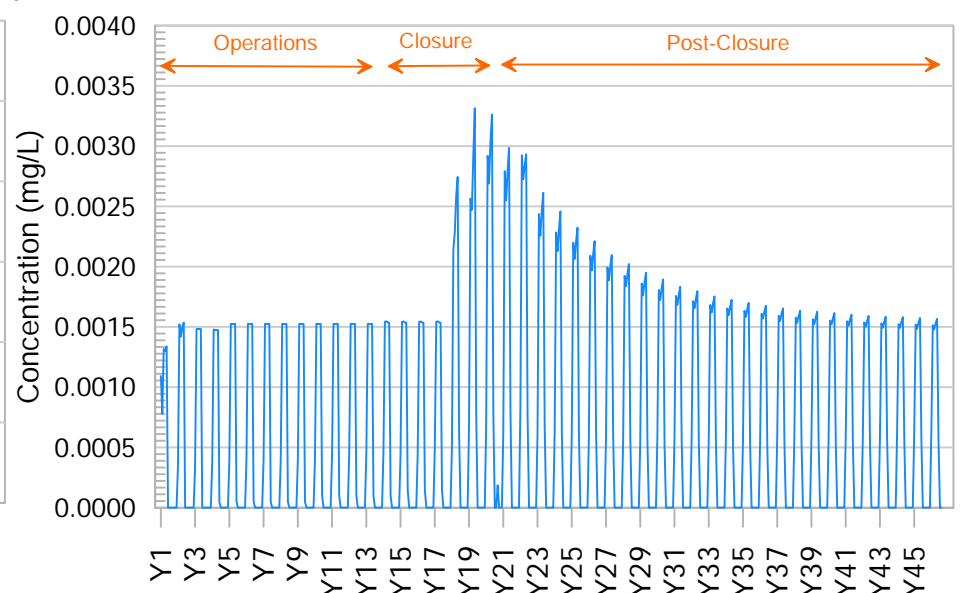
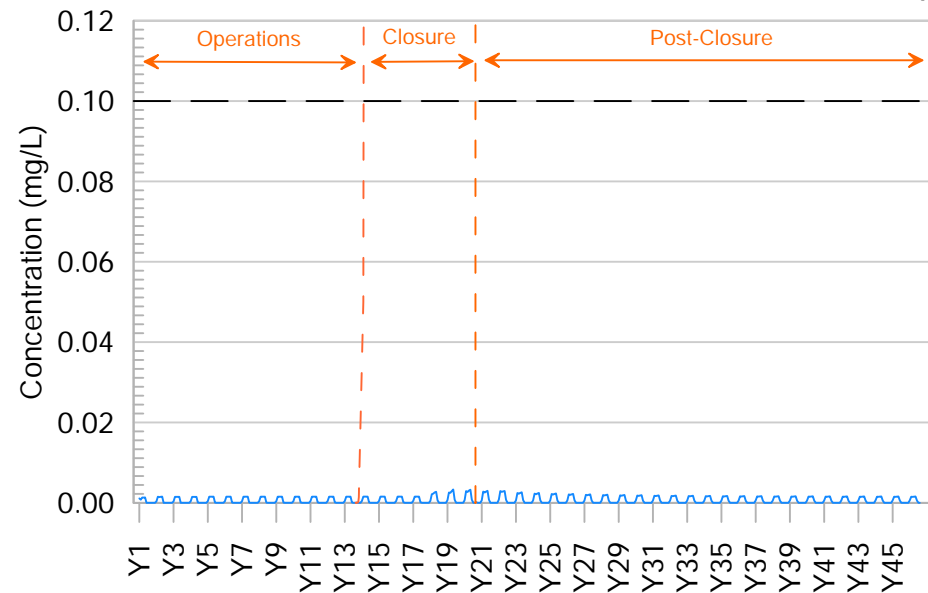
TIMESERIES OF PREDICTED MONTHLY AVERAGE CONSTITUENT CONCENTRATIONS AT THE PREDICTION NODES UNDER AVERAGE HYDROLOGICAL CONDITIONS



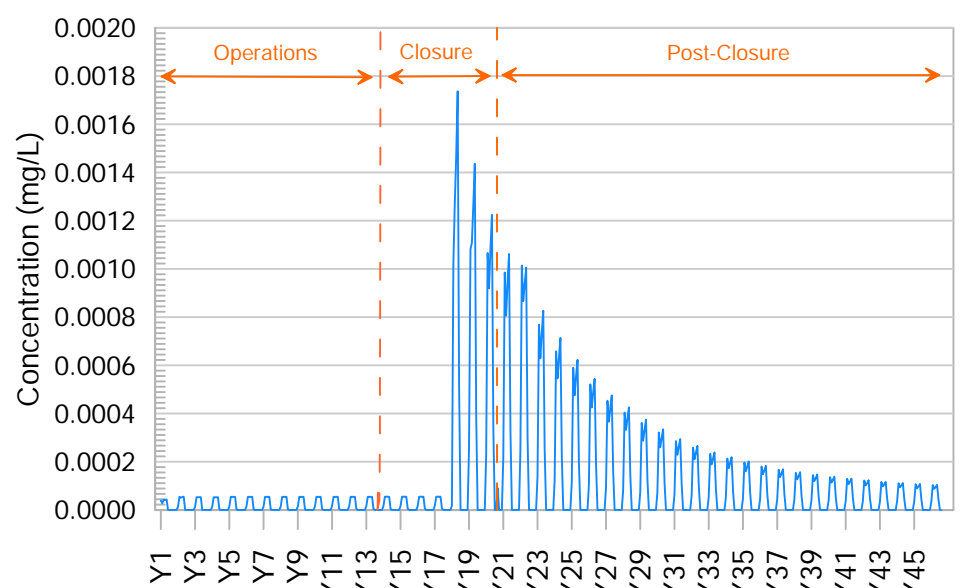
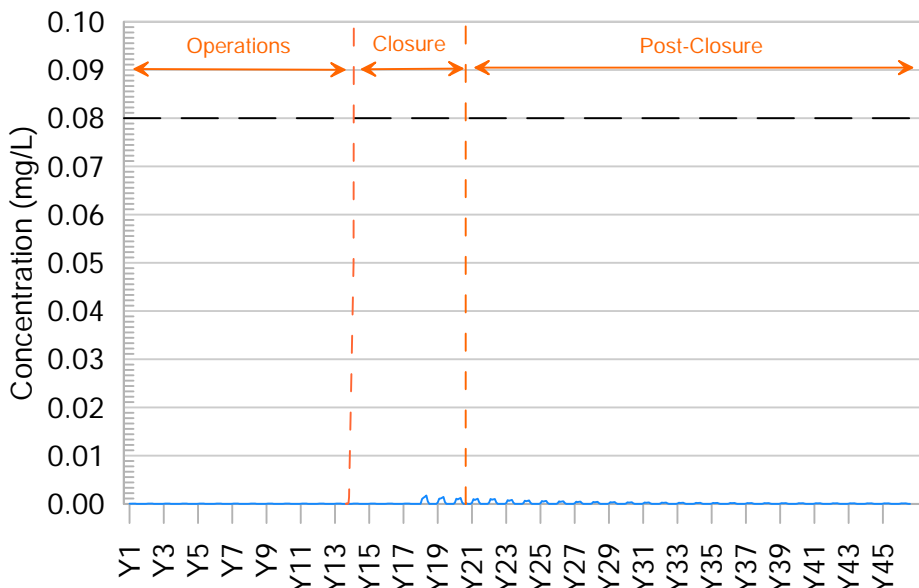
Arsenic - PN04



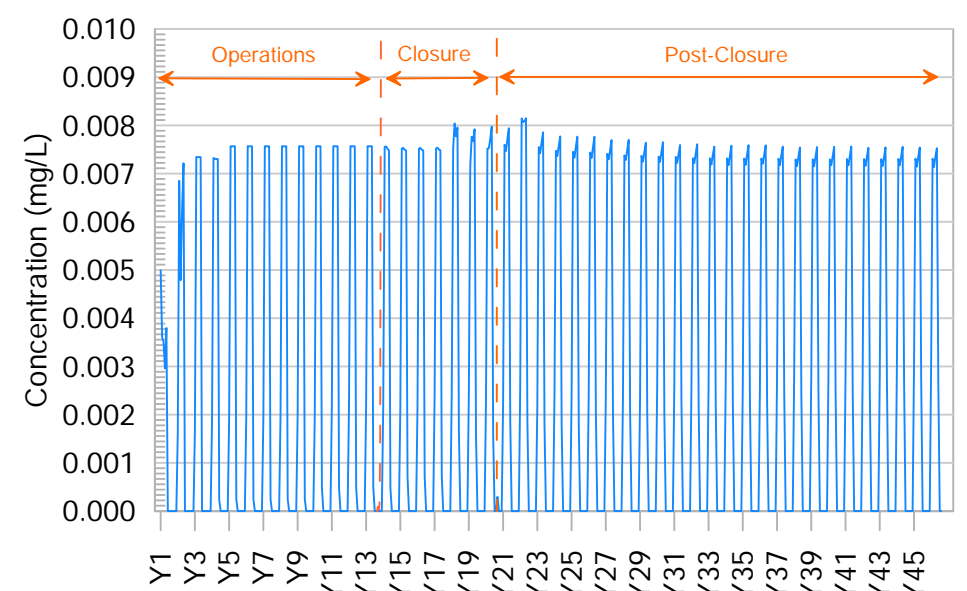
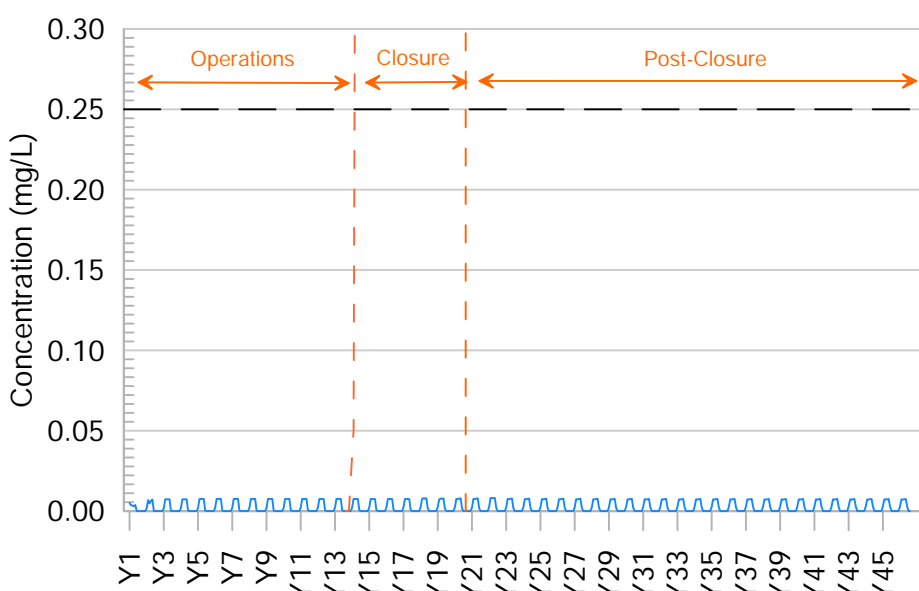
Copper - PN04



Lead - PN04



Nickel - PN04



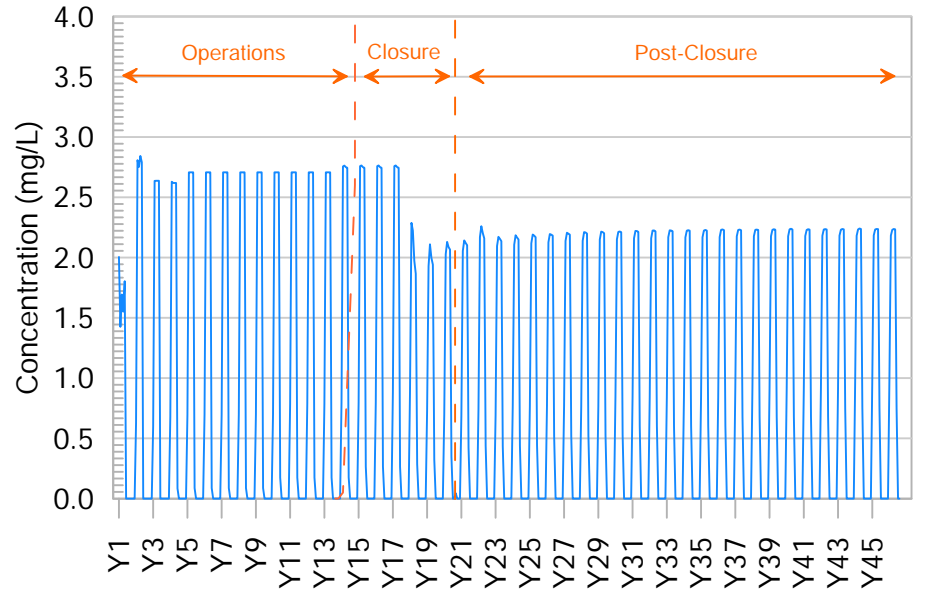
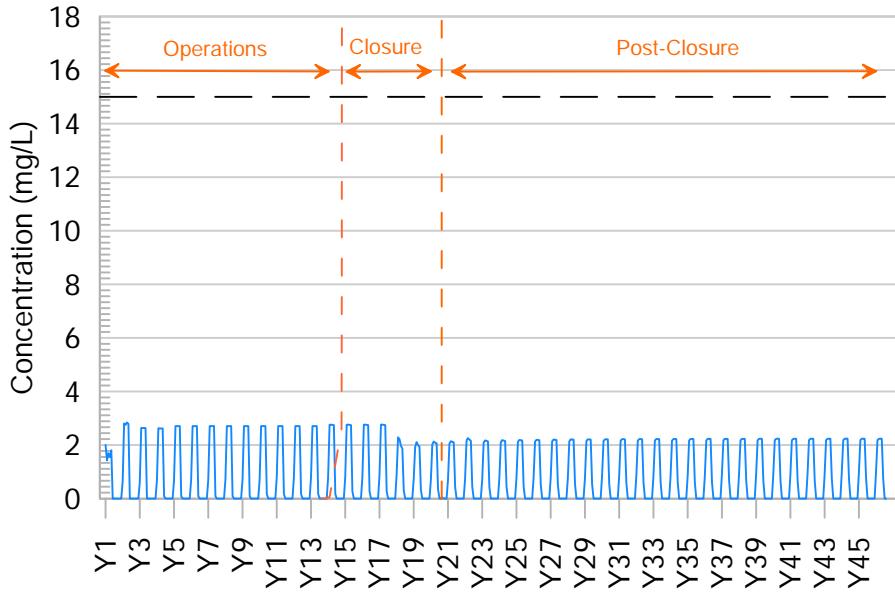
— Monthly Mean — MDMER

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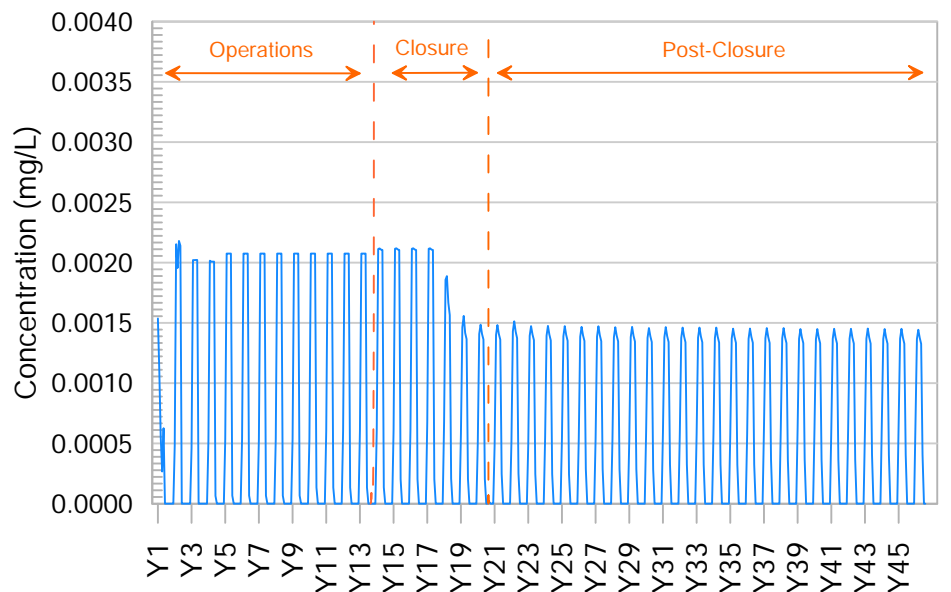
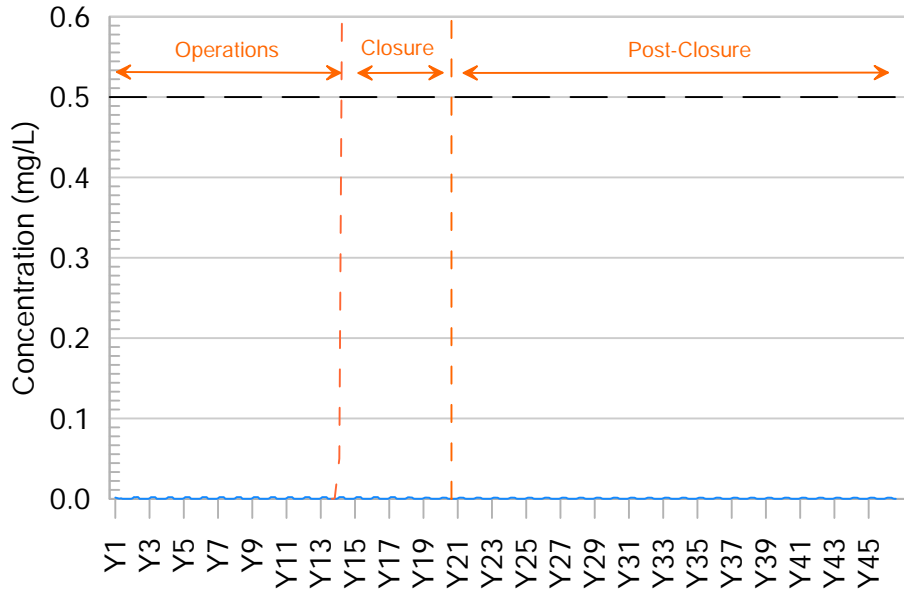
1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN04 (PART 1)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-1

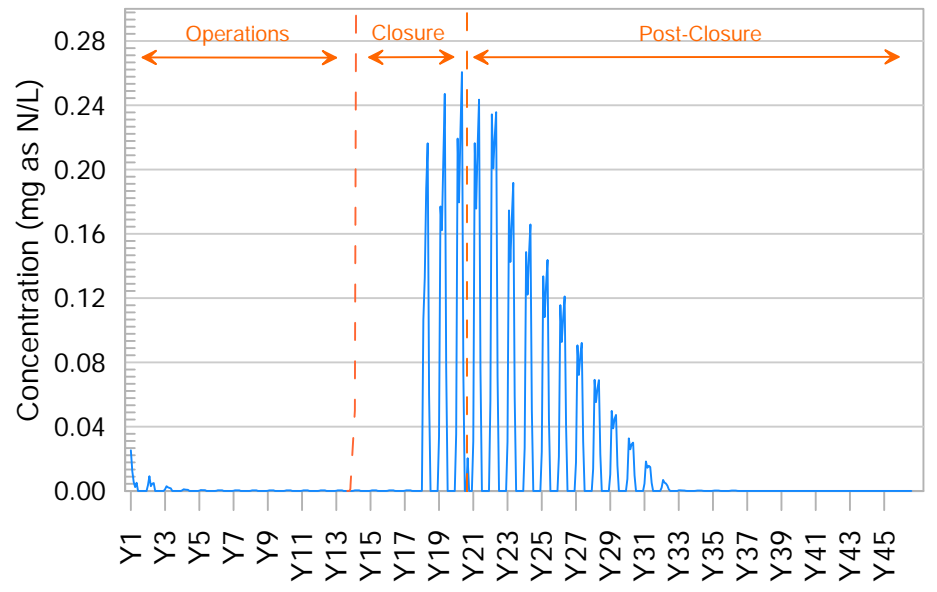
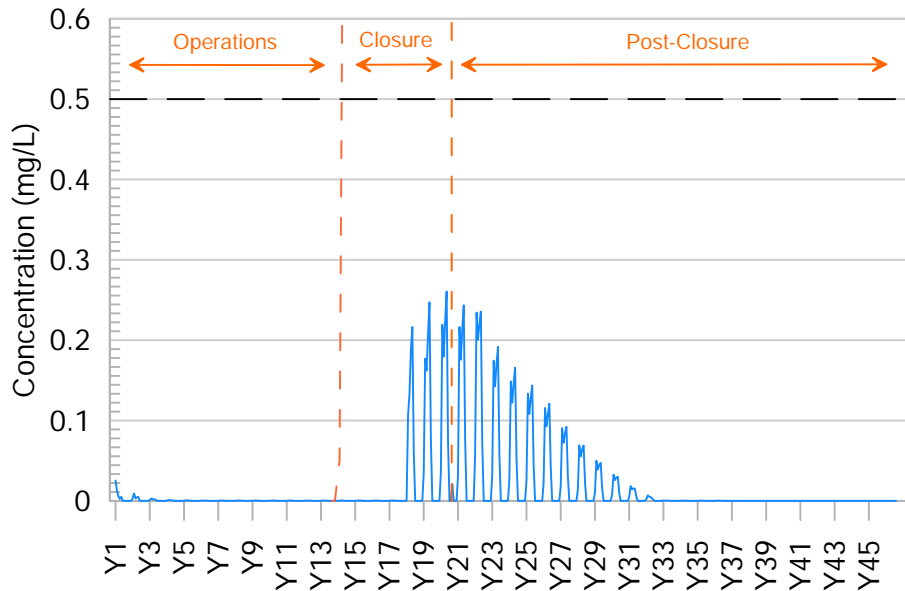
TSS - PN04



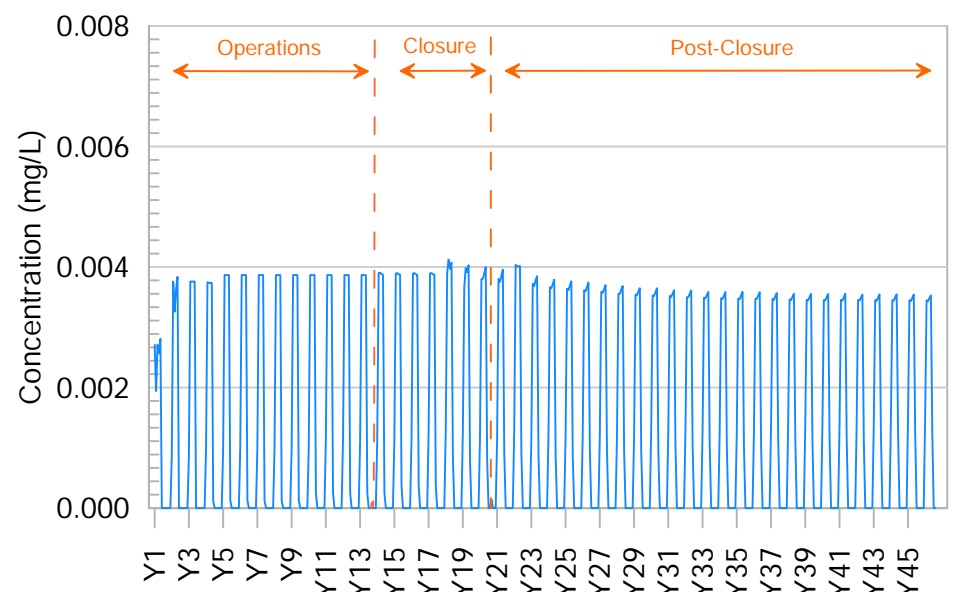
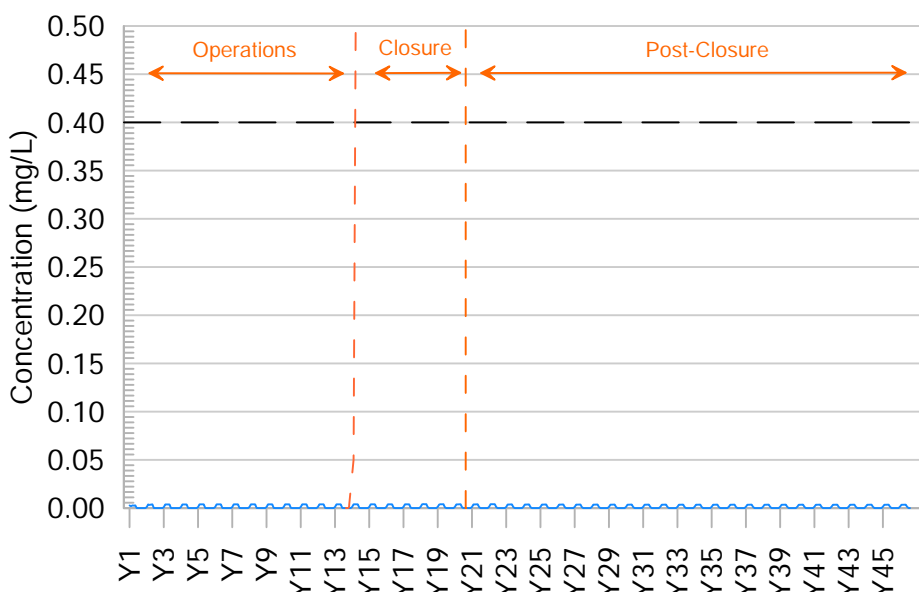
Total CN - PN04



Un-ionized Ammonia - PN04



Zinc - PN04

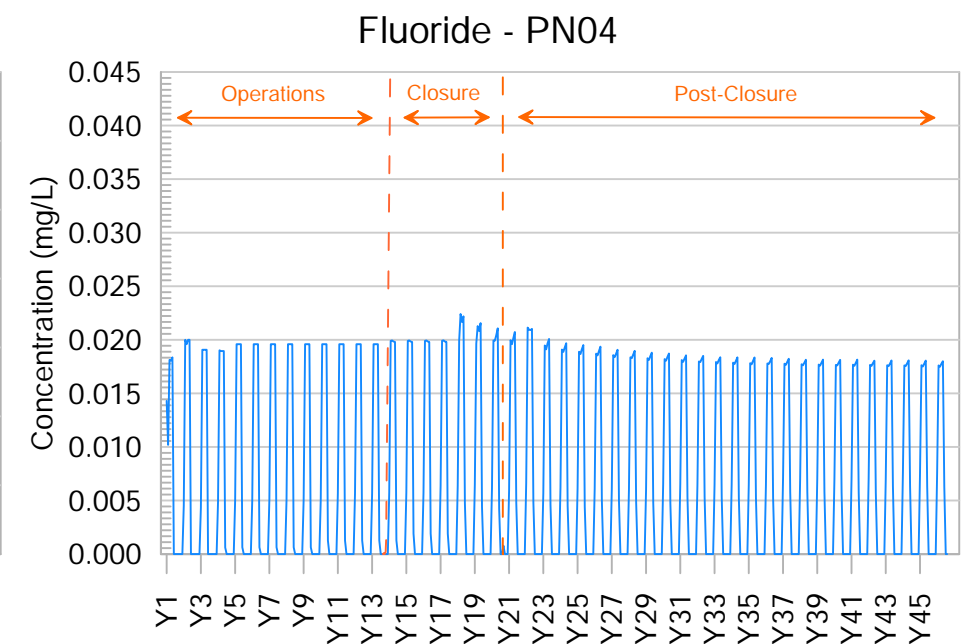
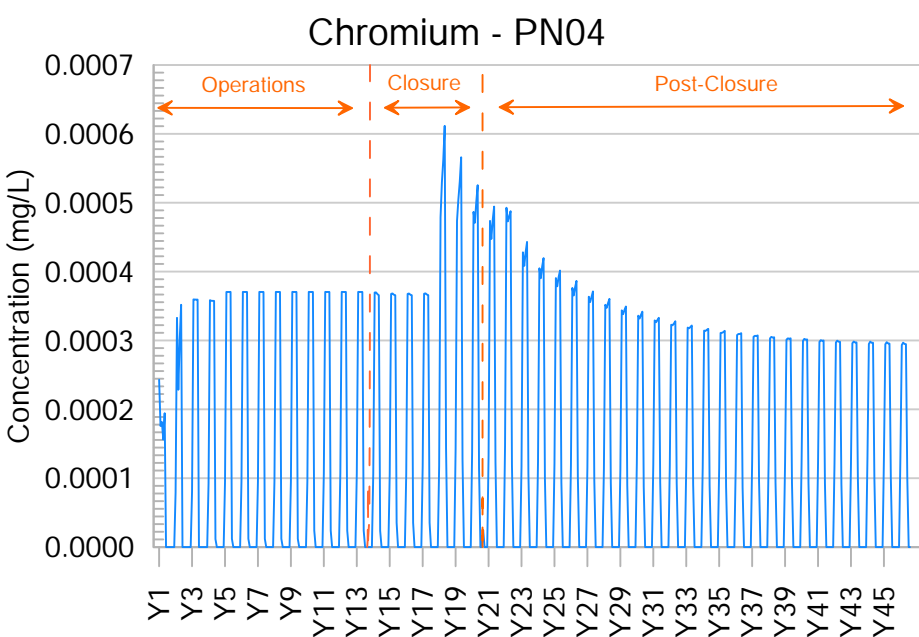
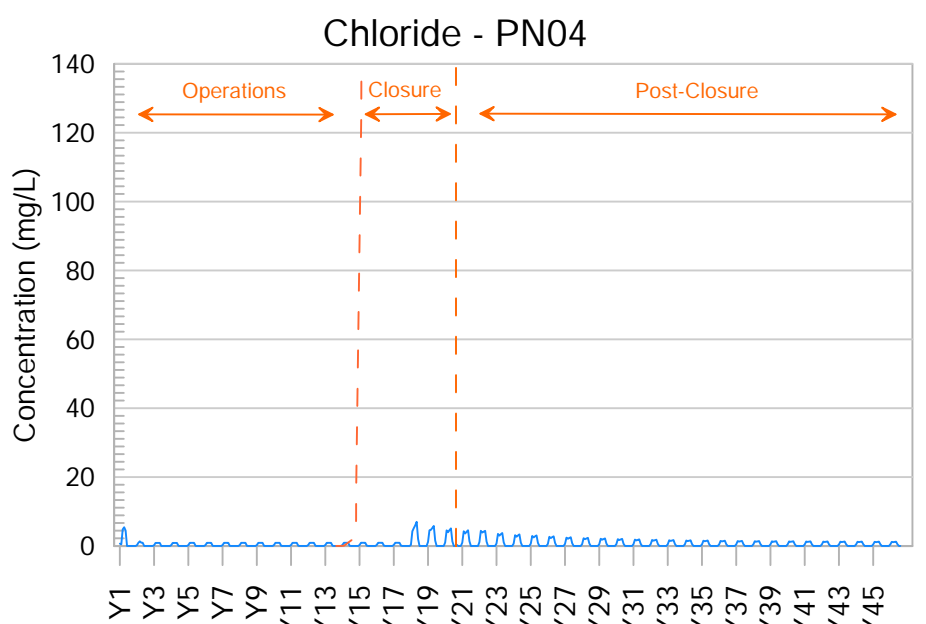
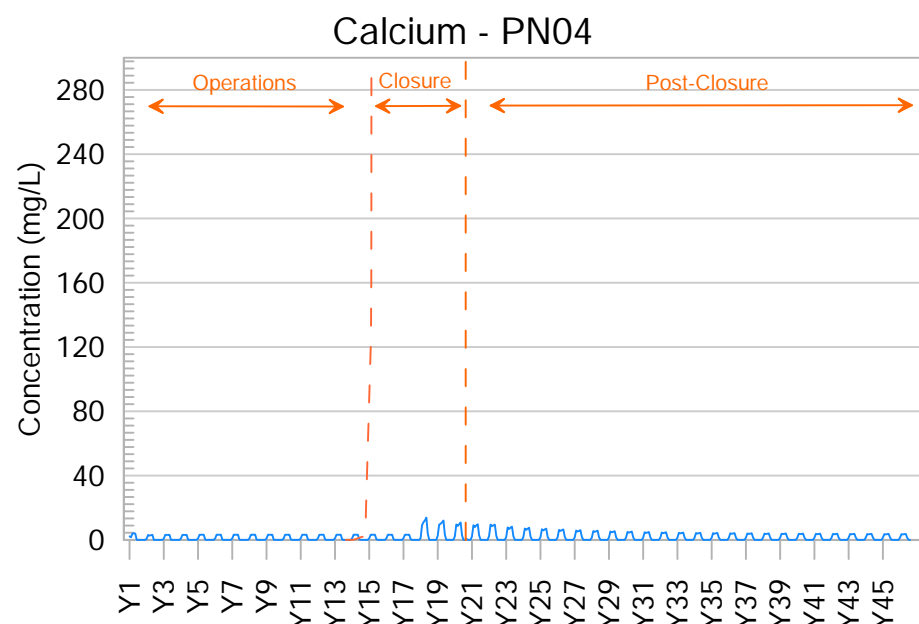
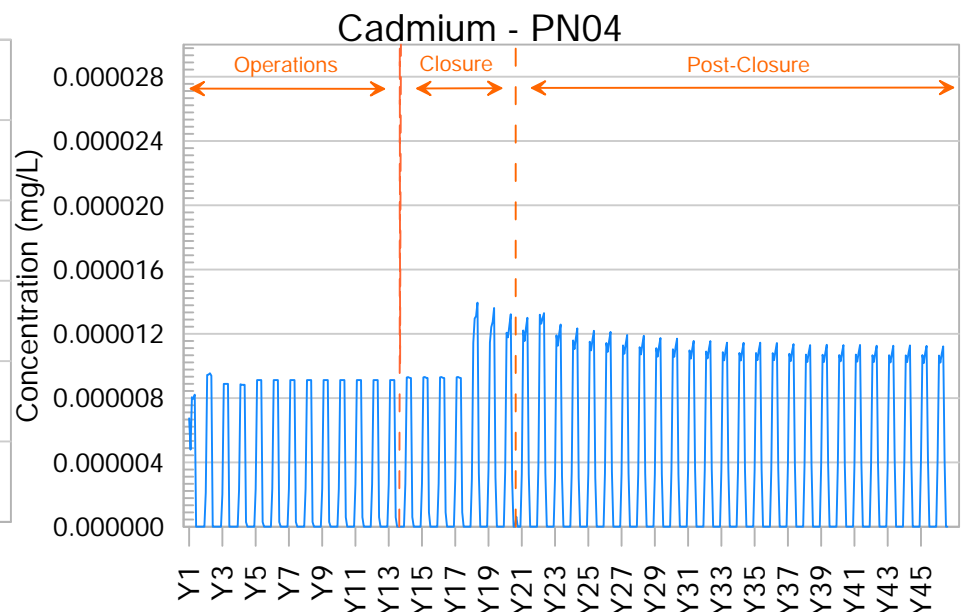
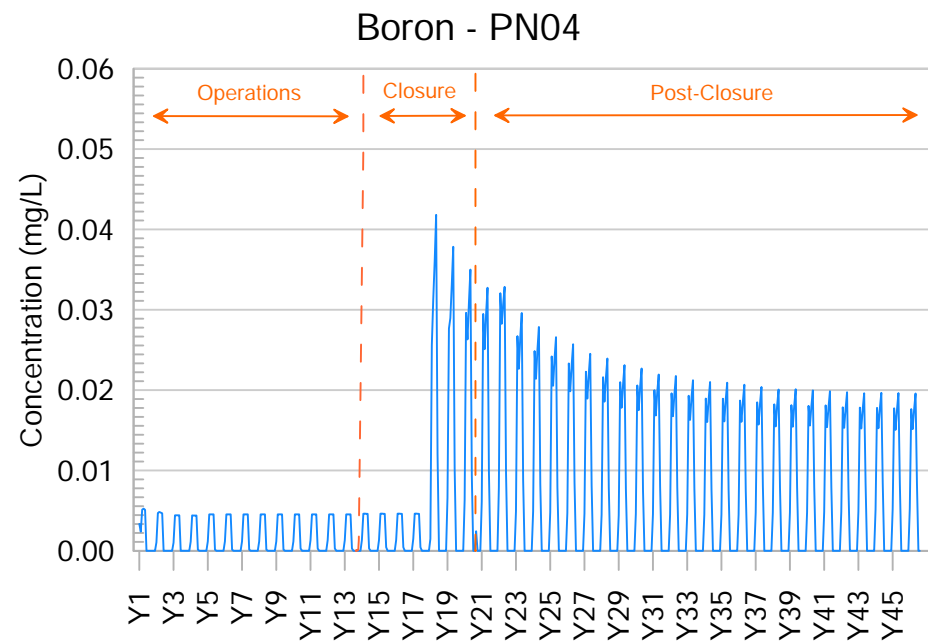
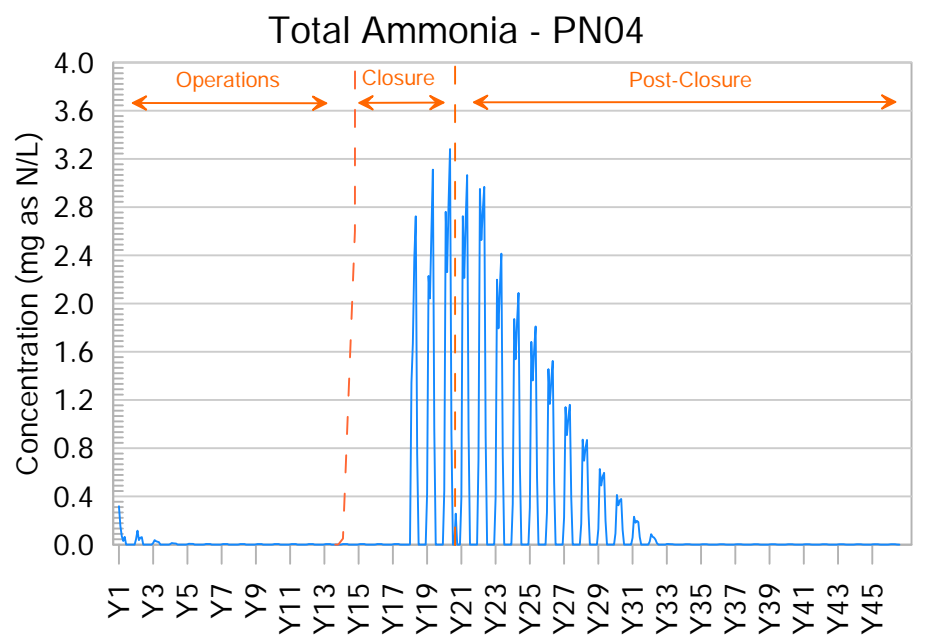
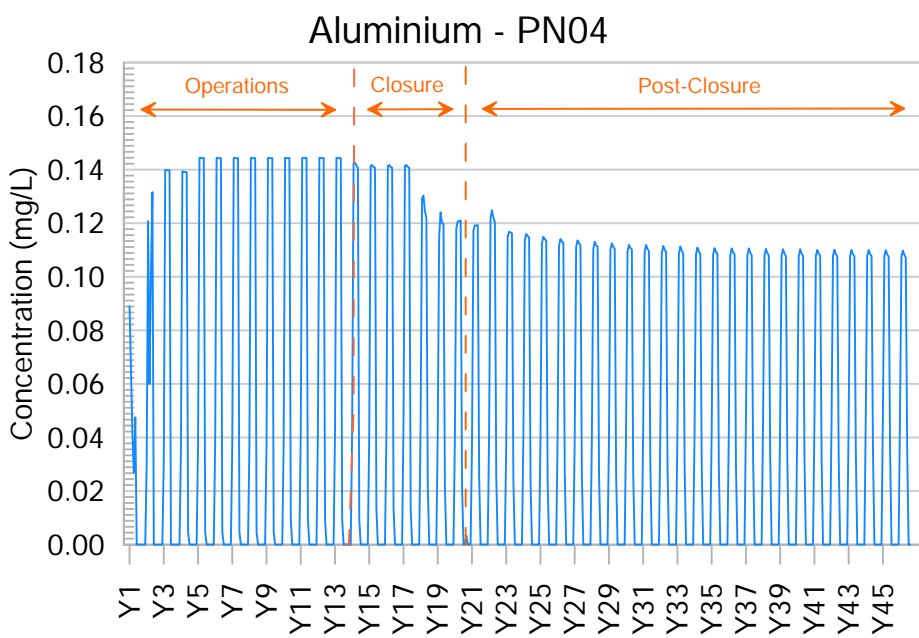


— Monthly Mean - - - MDMER

NOTES:

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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN04 (PART 2)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-2

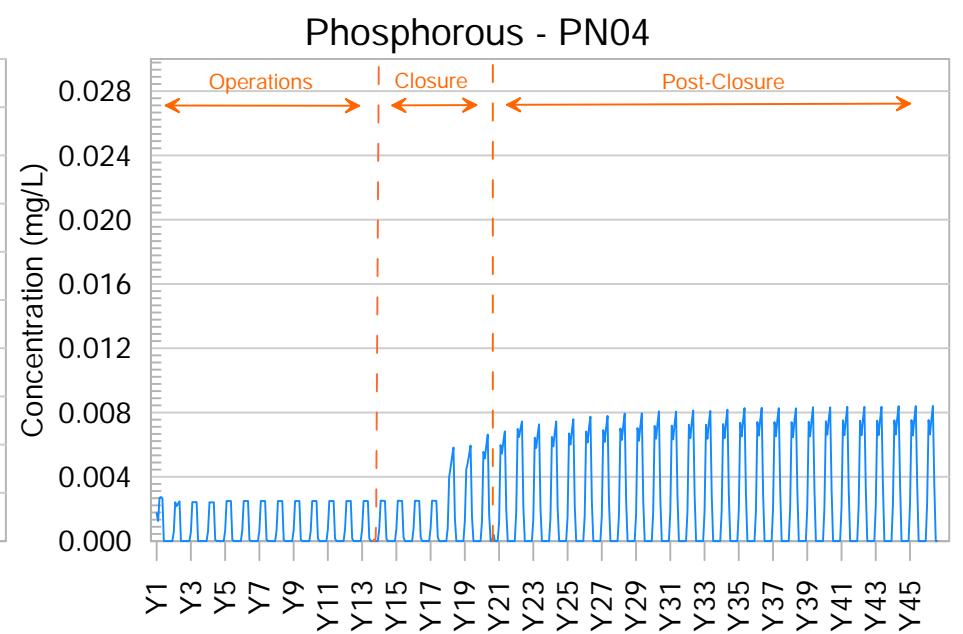
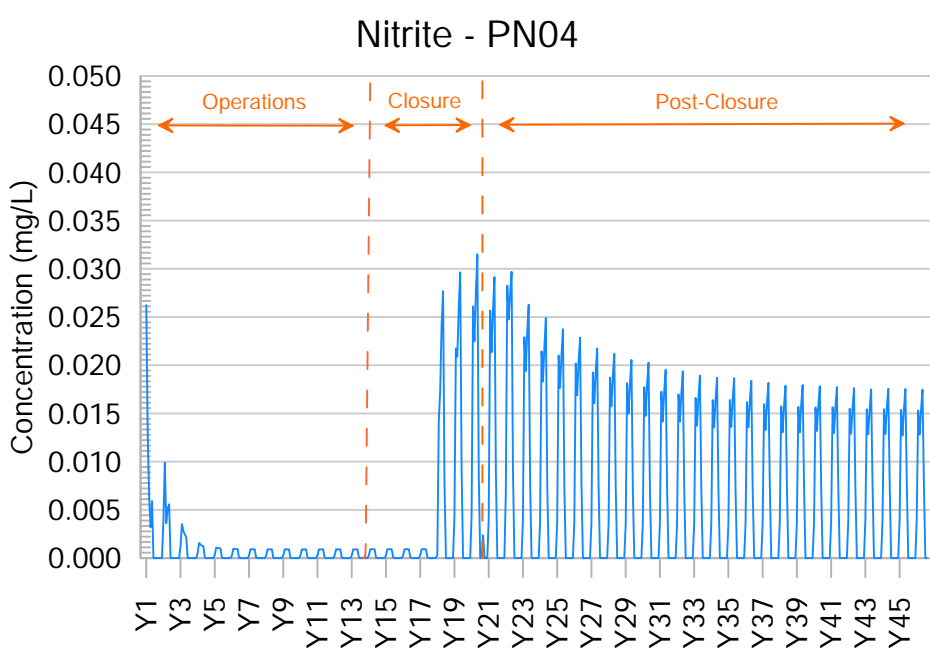
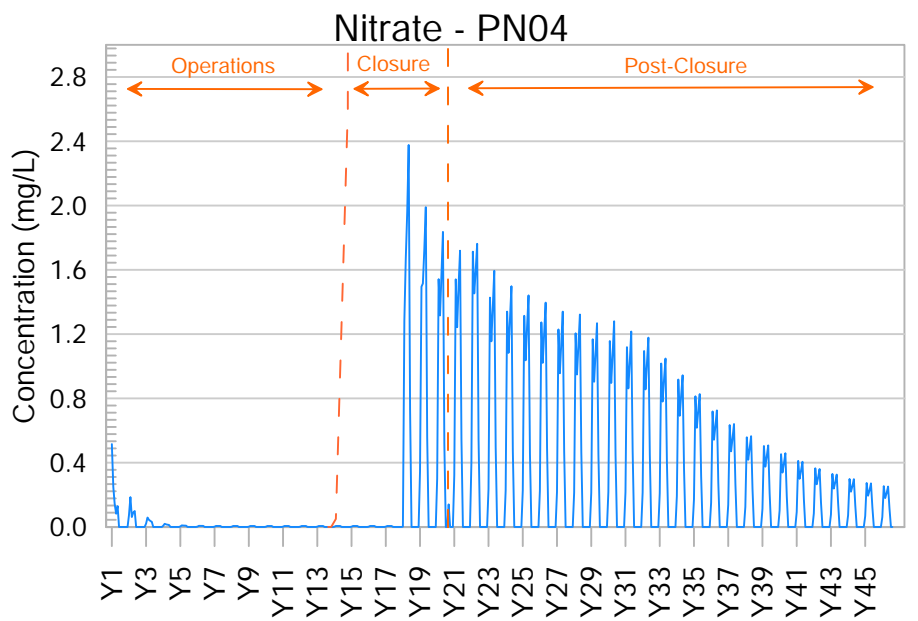
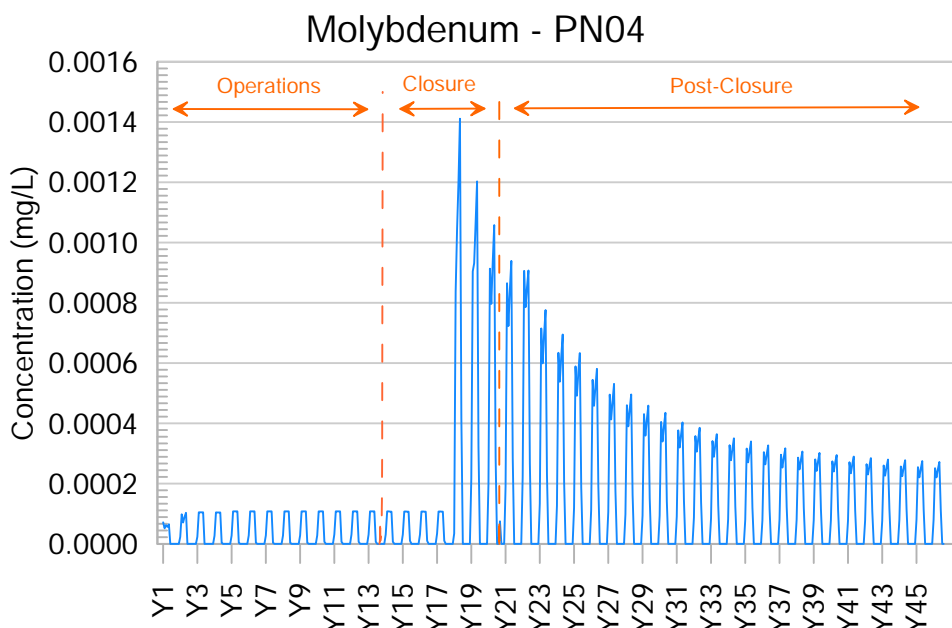
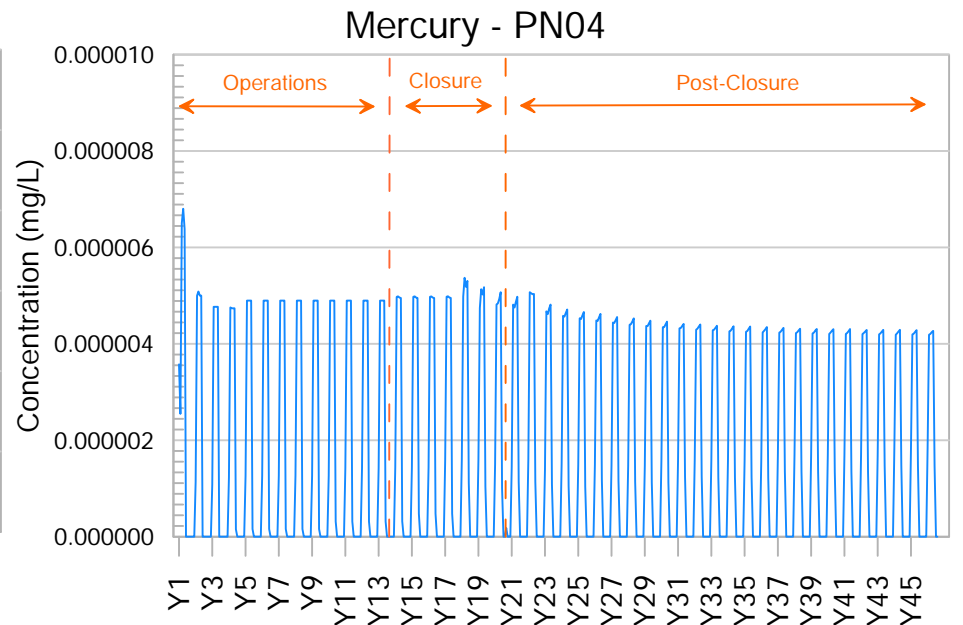
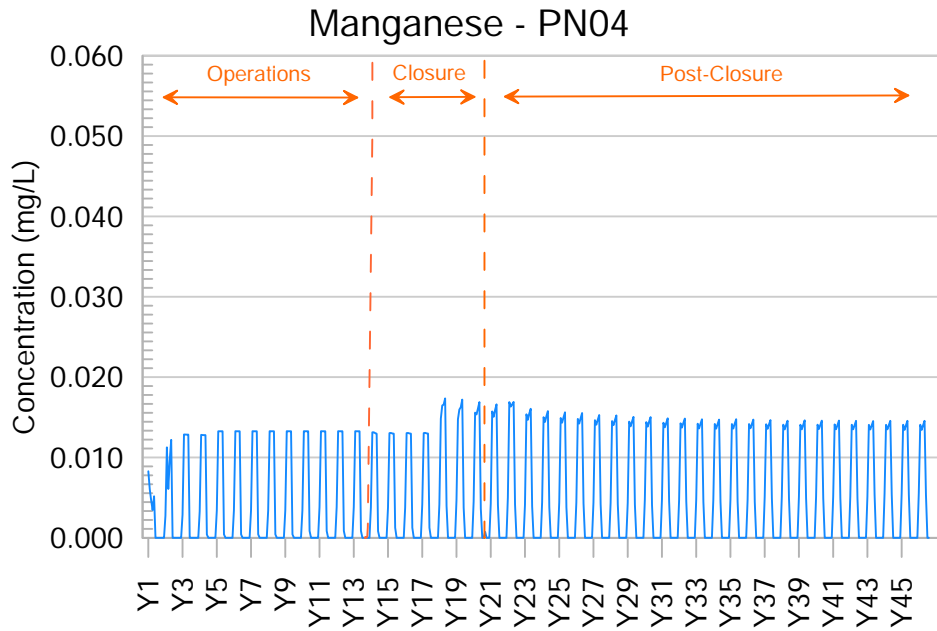
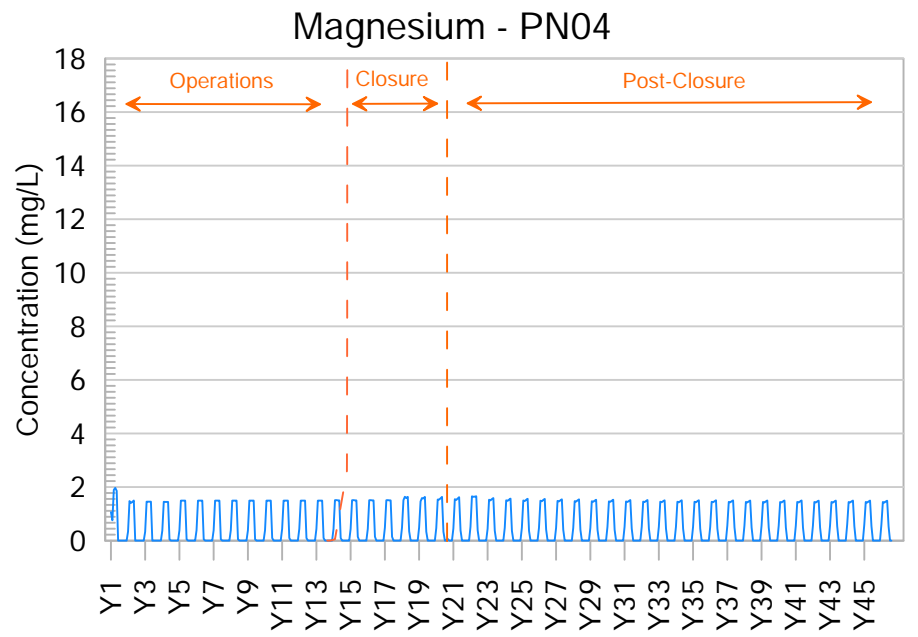
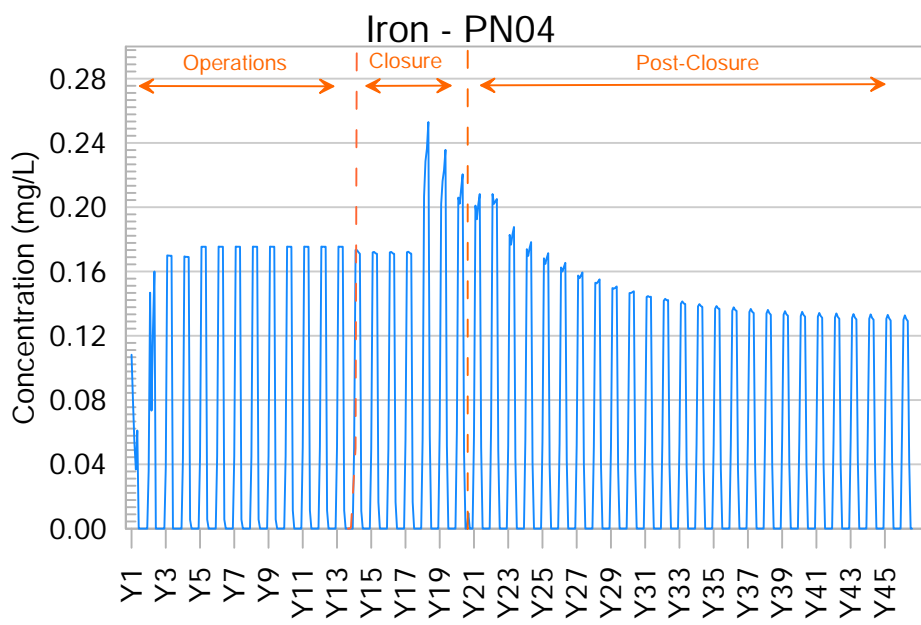


— Monthly Mean

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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN04 (PART 3)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-3

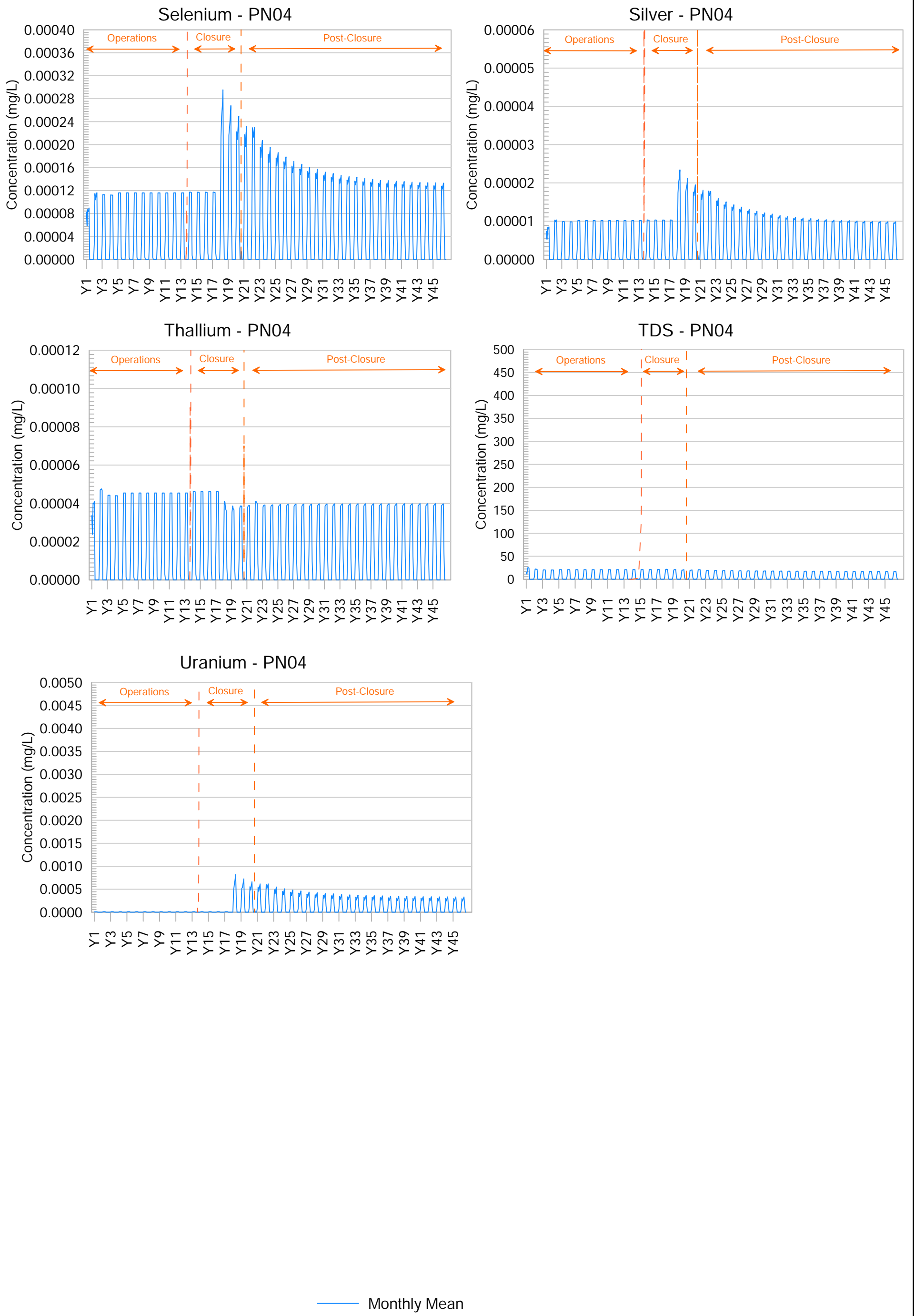


— Monthly Mean

NOTES:

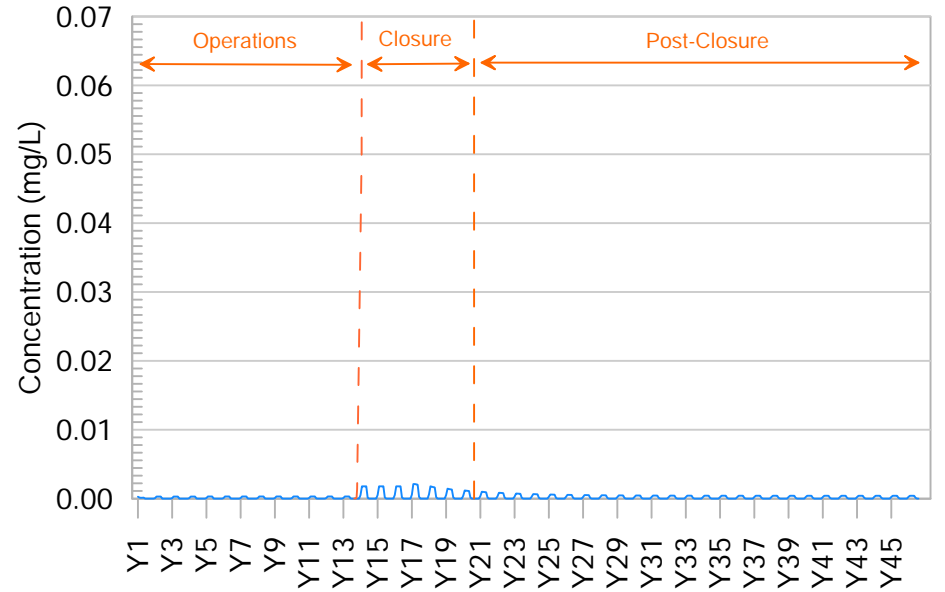
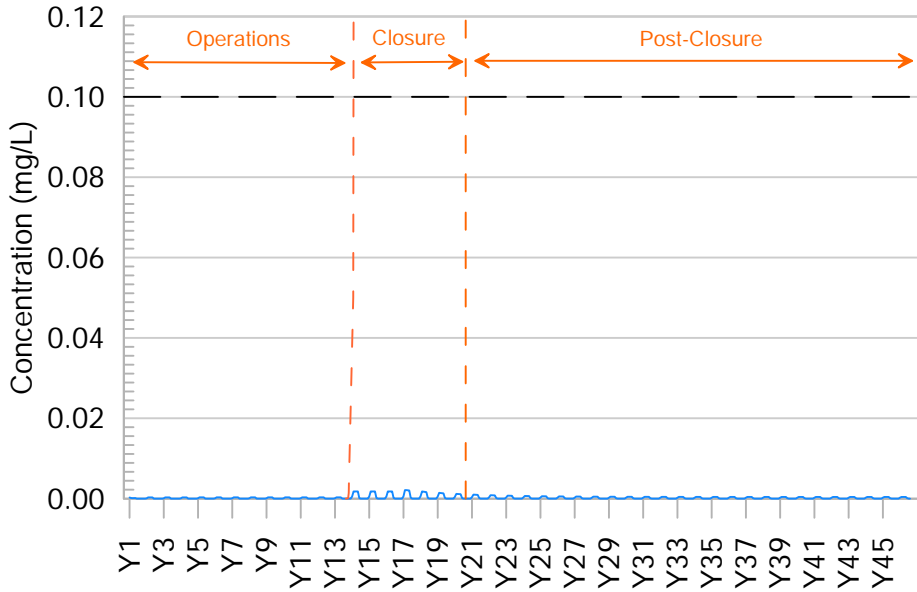
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN04 (PART 4)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-4

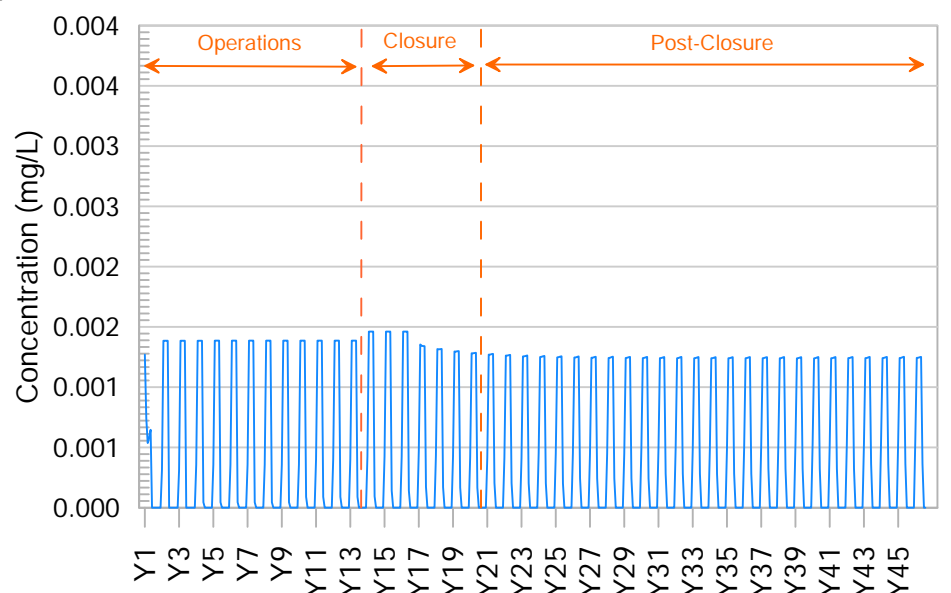
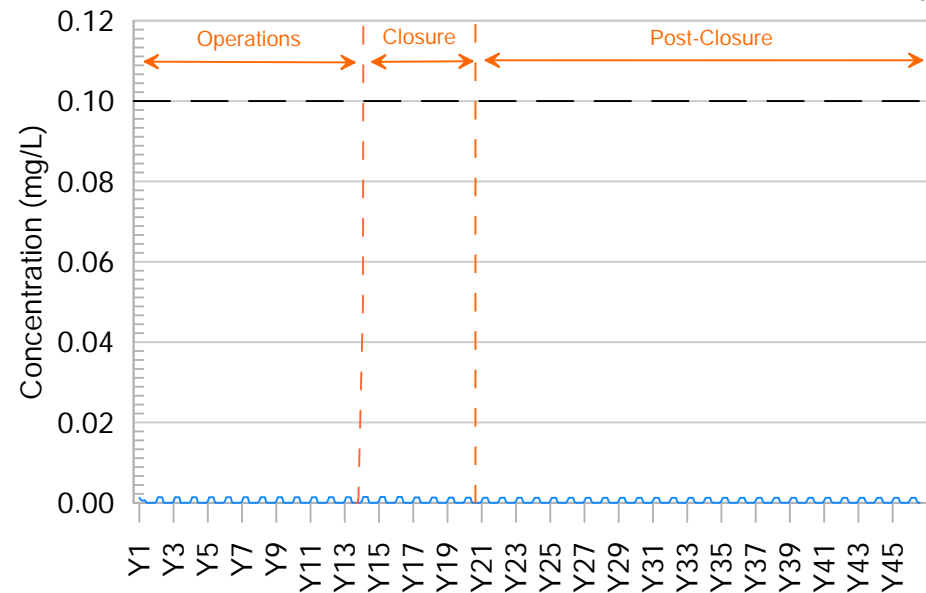


<p>NOTES:</p> <ol style="list-style-type: none"> 1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026. 2. The seasonal zero values are added to the plot to represent winter frozen conditions. 3. Unless BGC agrees otherwise in writing, this figure shall not be modified or used for the purpose other than the purpose for which BGC generated it. BGC shall have no liability for any damages of loss arising in any way from any use or modification of this document not authorized by BGC. Any use of the reliance upon this document or its content by third parties shall be at such third parties' sole risk. 	<p>PREPARED BY:</p> <p>ZMM</p>	<p>FIGURE TITLE:</p> <p>PREDICTED CONCENTRATIONS AT PN04 (PART 5)</p>		
	<p>CHECKED BY:</p> <p>IMC</p>	<p>CLIENT:</p> <p>B2GOLD Back River Corporation</p>		
	<p>APPROVED BY:</p> <p>PC</p>	<p>SCALE:</p> <p>N/A</p>	<p>PROJECT NO:</p> <p>1829001</p>	<p>FIGURE NO:</p> <p>F-5</p>

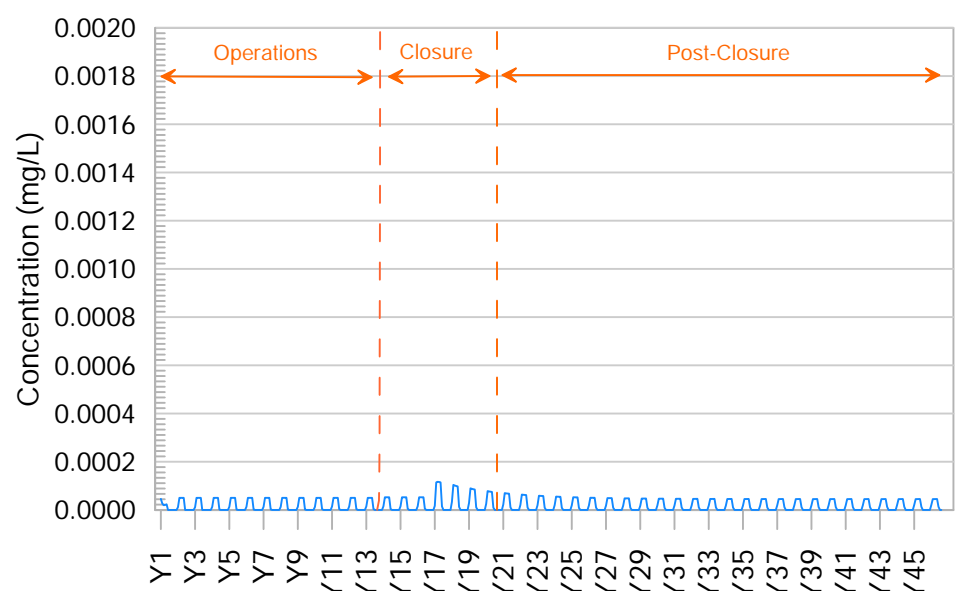
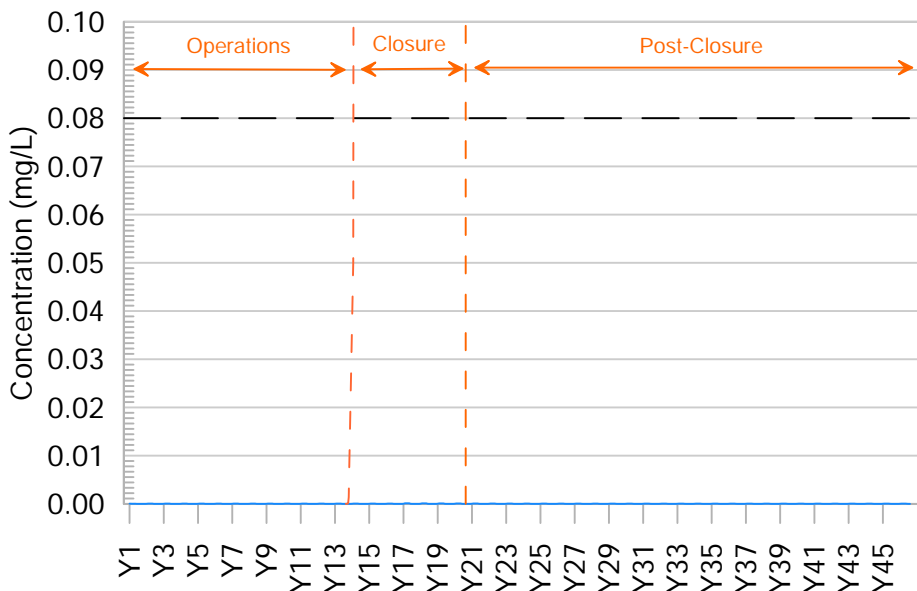
Arsenic - PN05



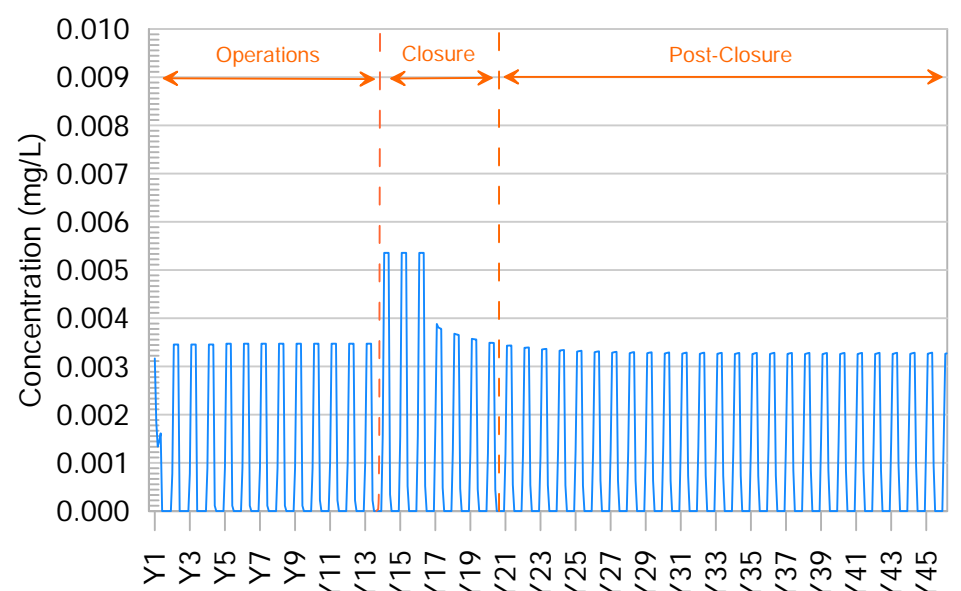
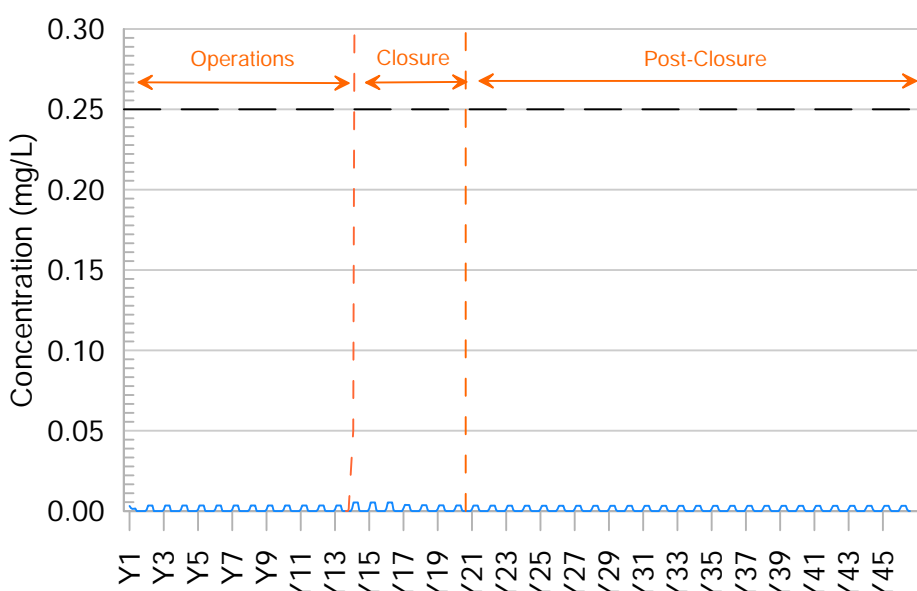
Copper - PN05



Lead - PN05



Nickel - PN05



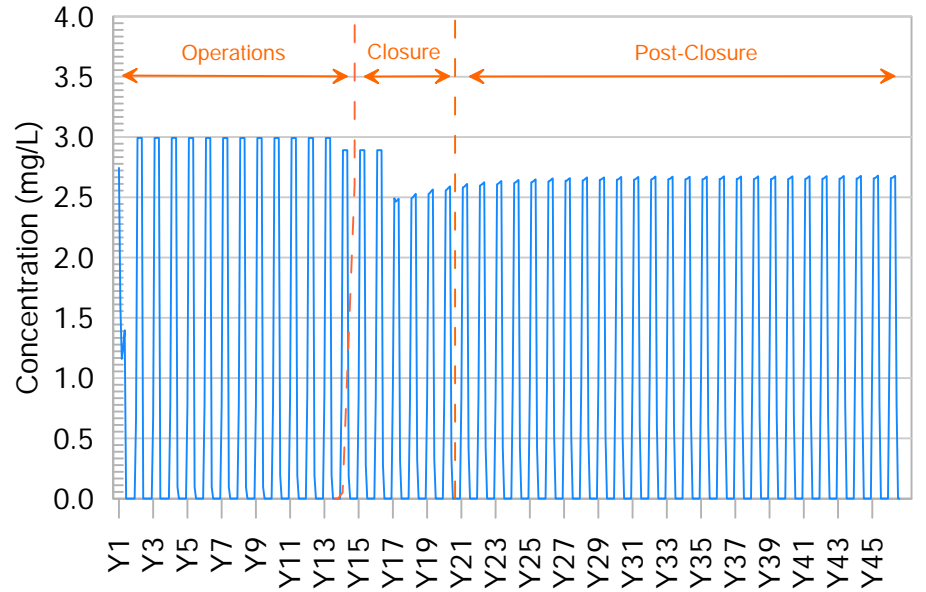
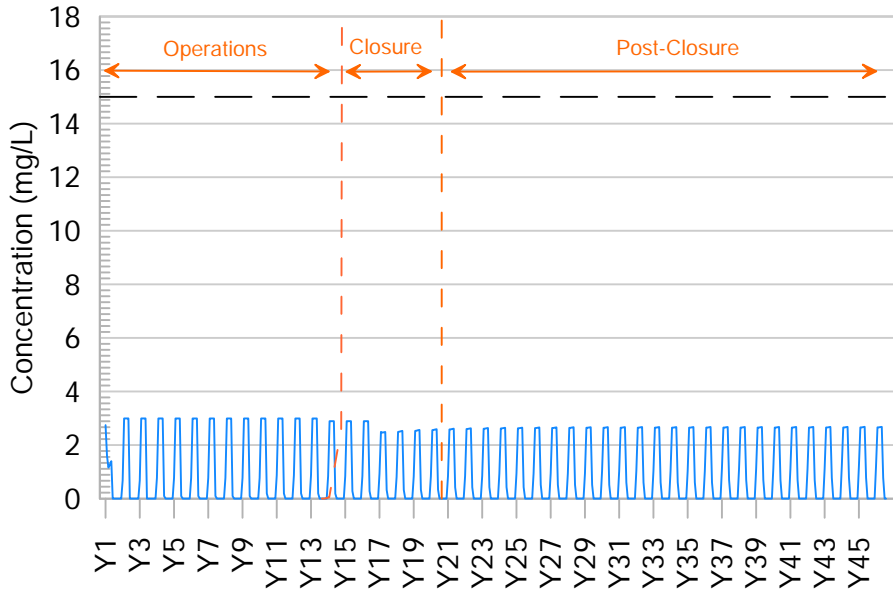
— Monthly Mean — MDMER

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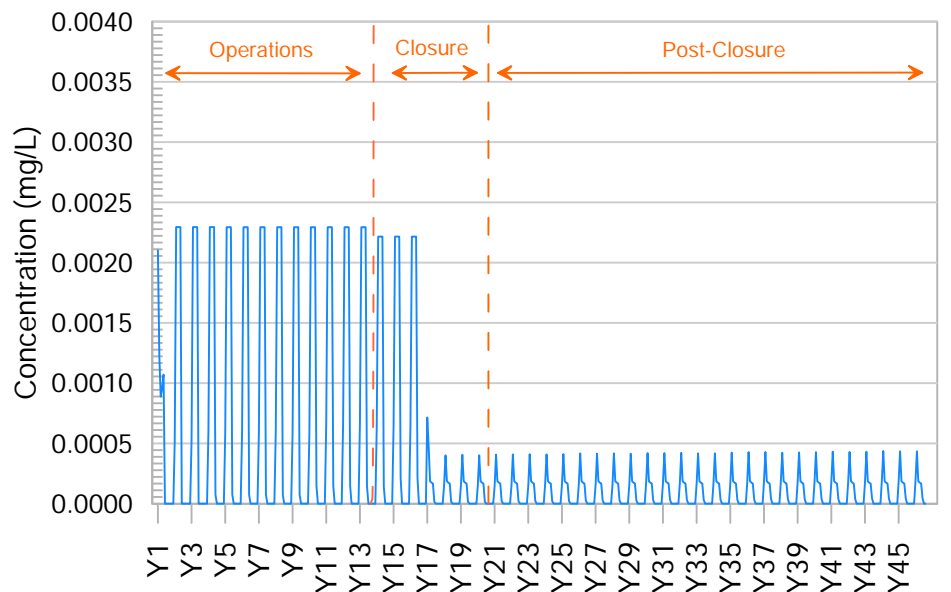
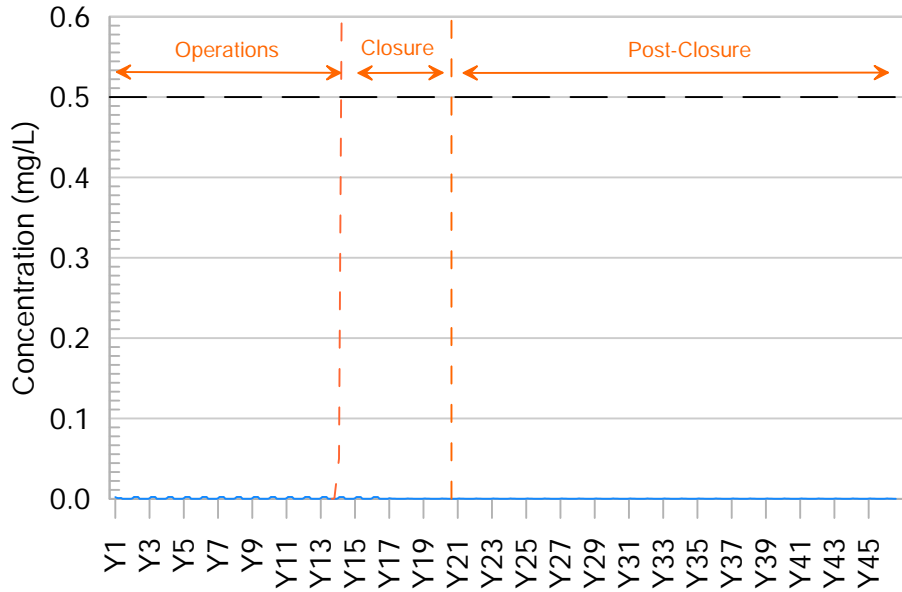
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN05 (PART 1)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-6

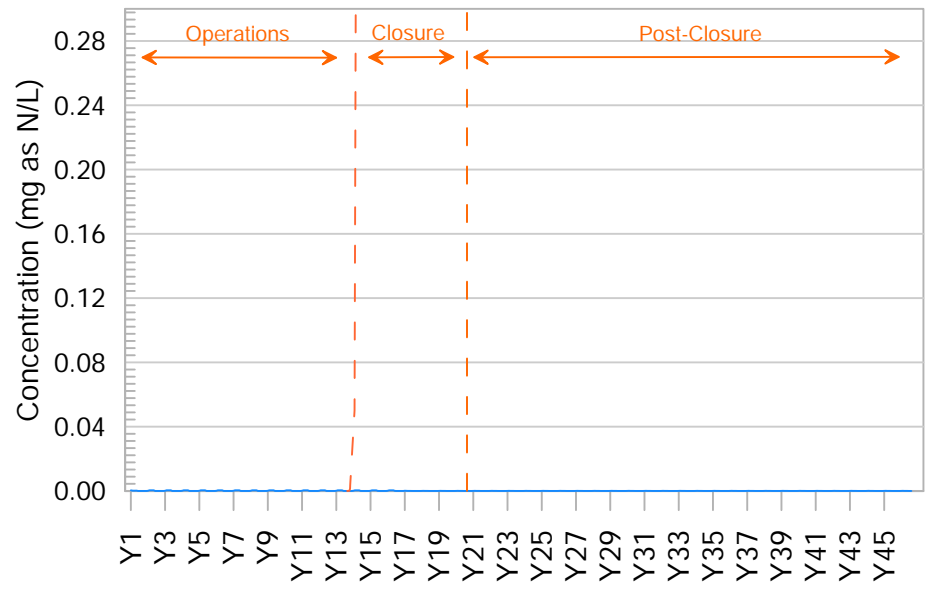
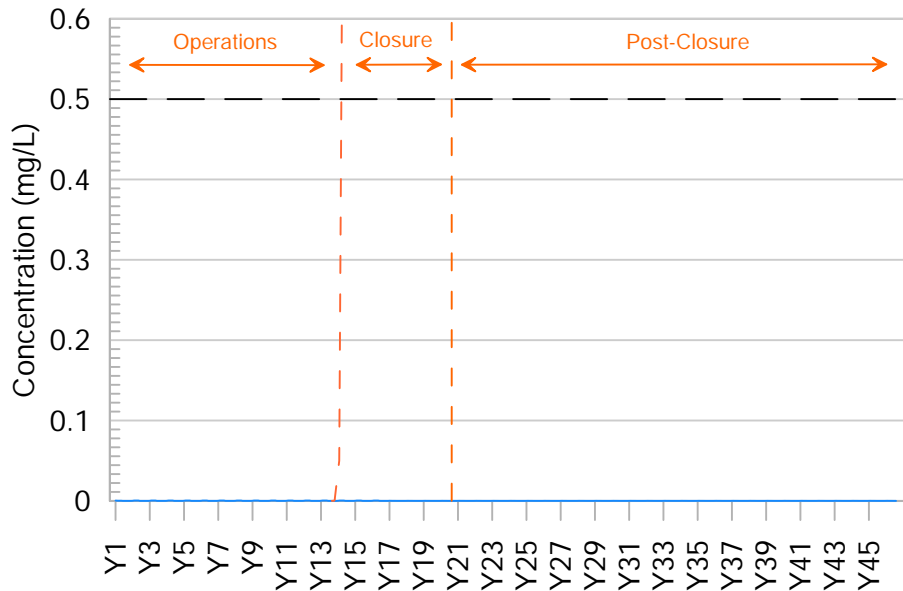
TSS - PN05



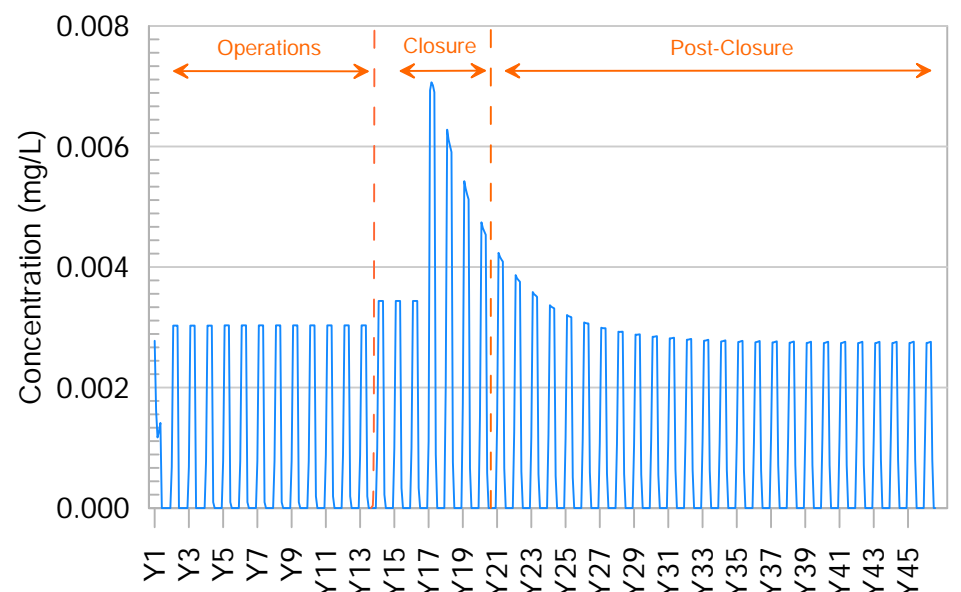
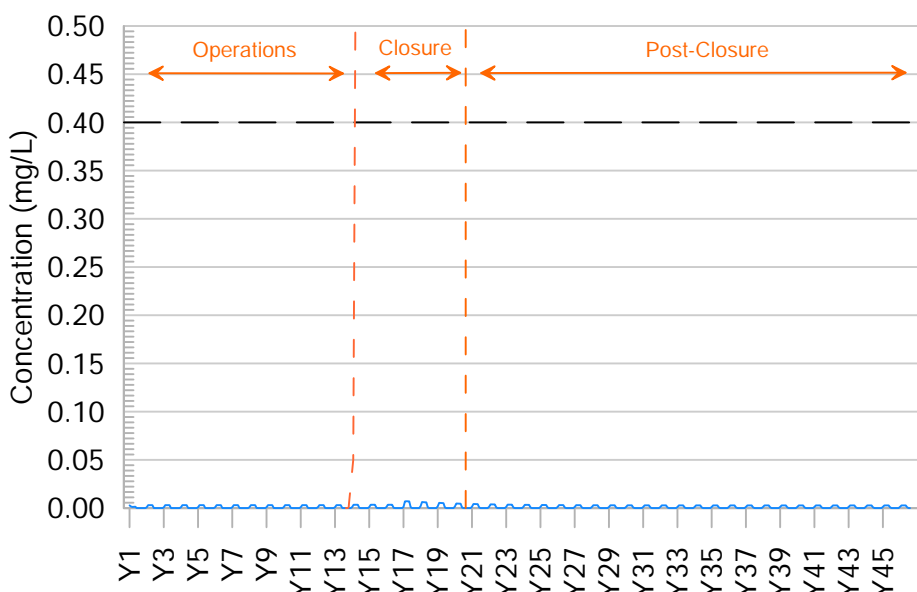
Total CN - PN05



Un-ionized Ammonia - PN05



Zinc - PN05

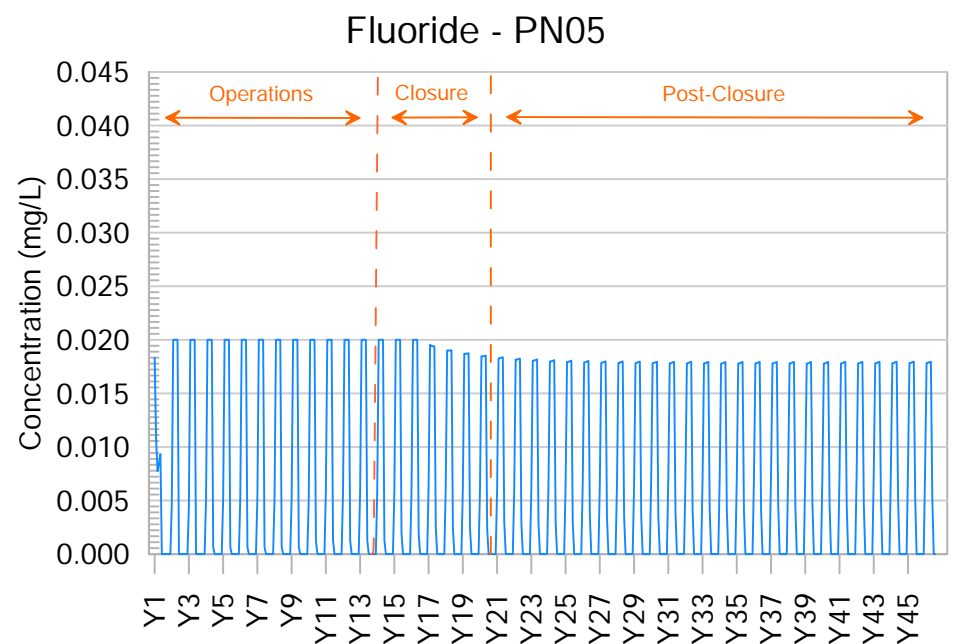
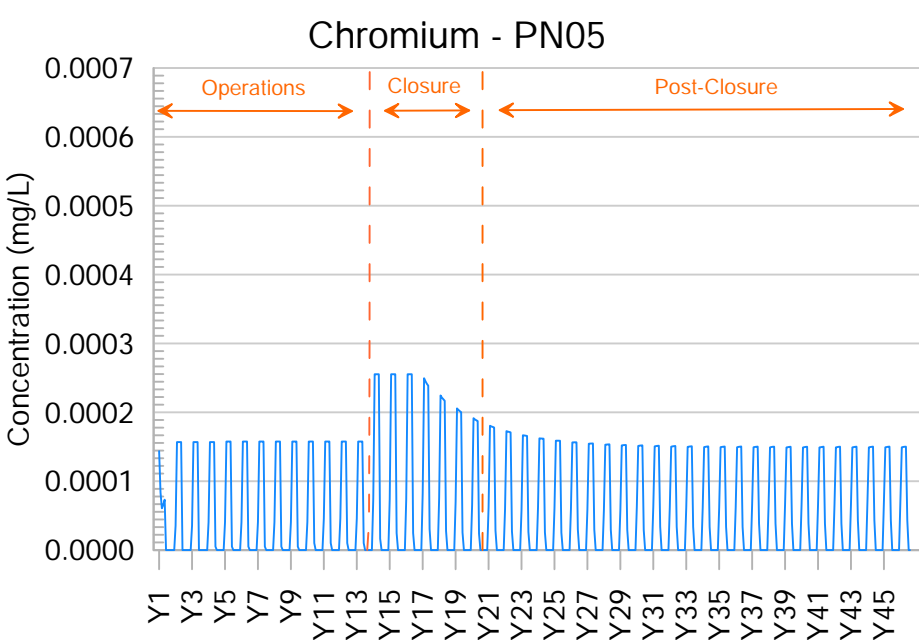
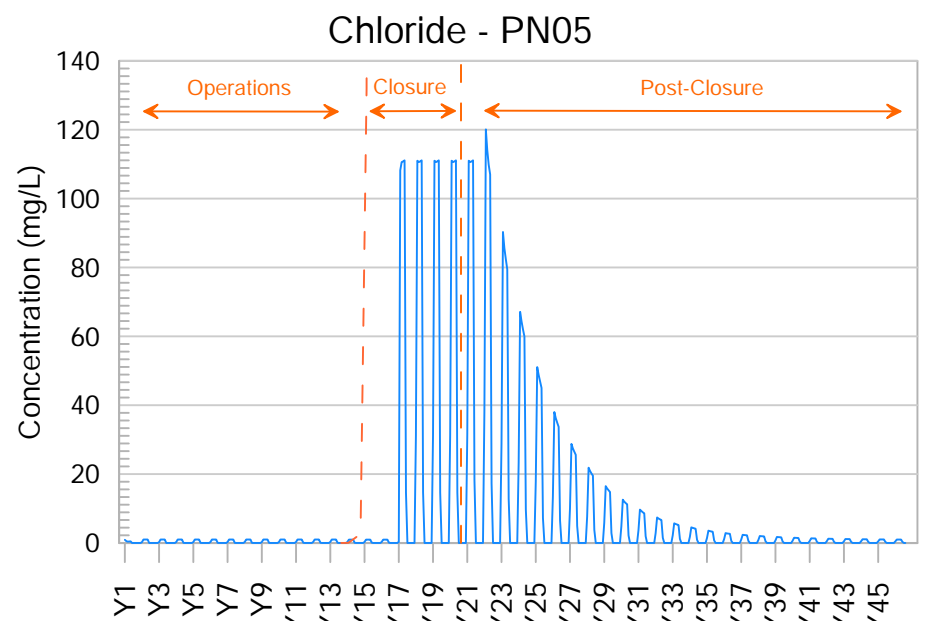
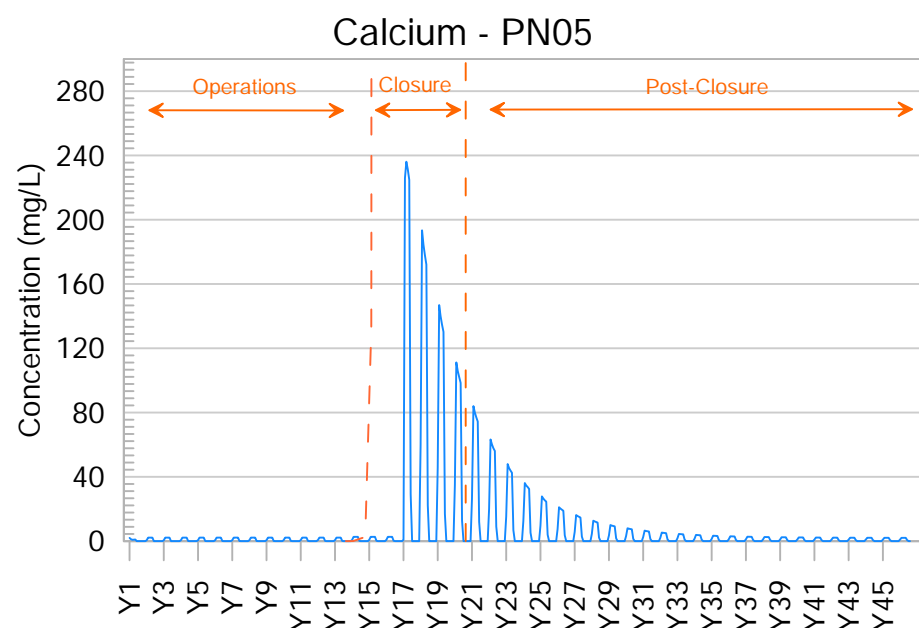
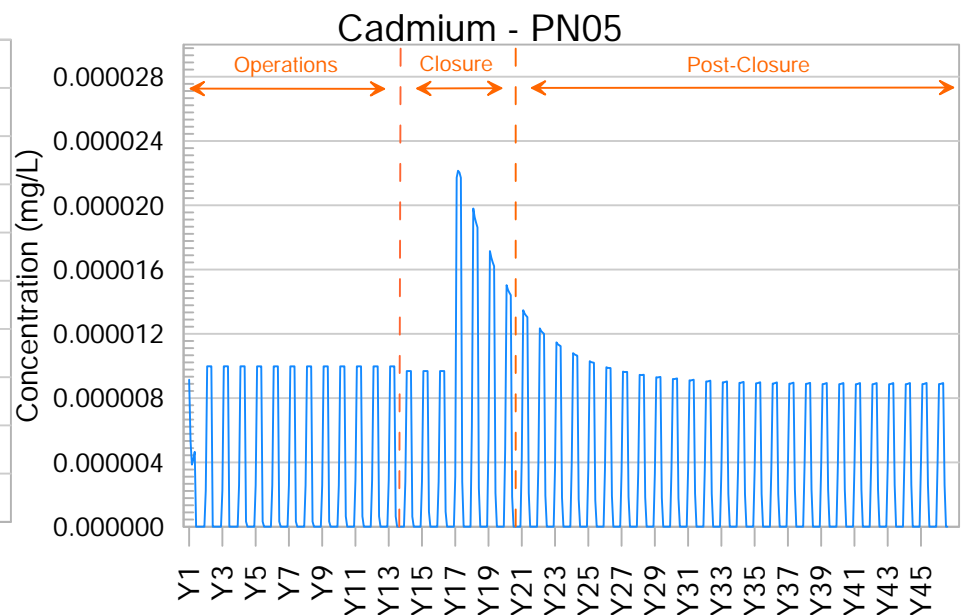
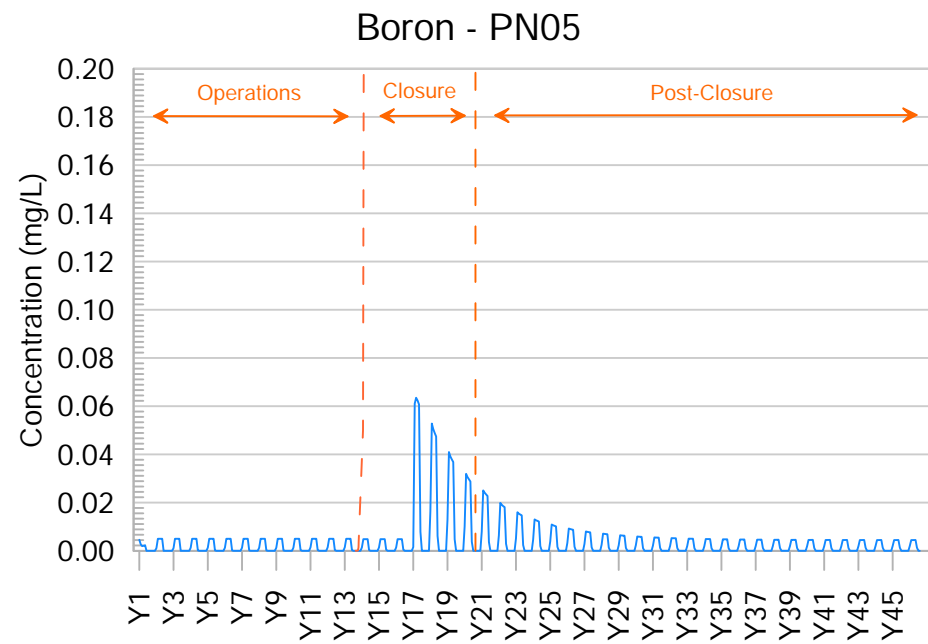
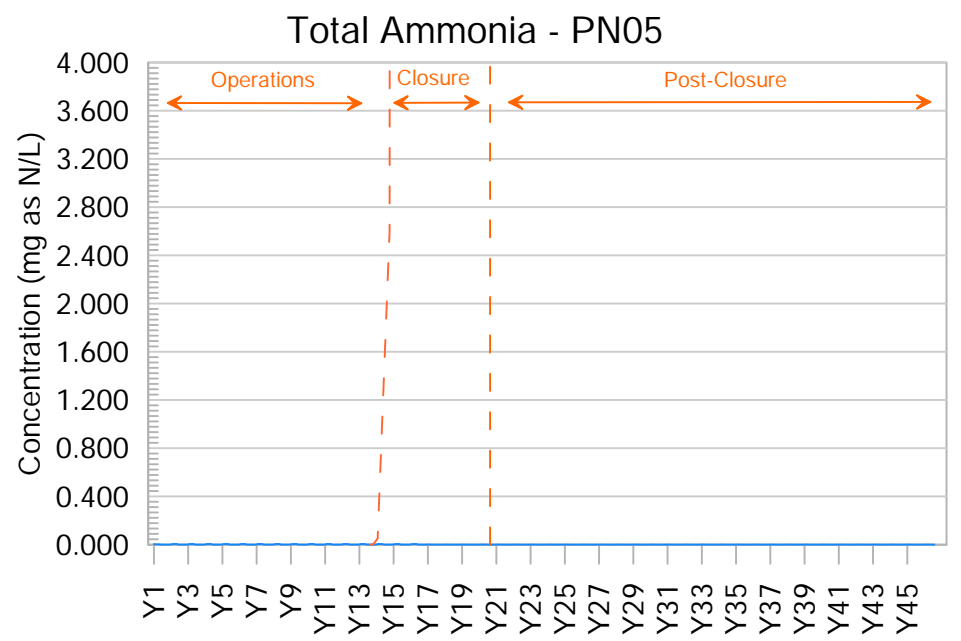
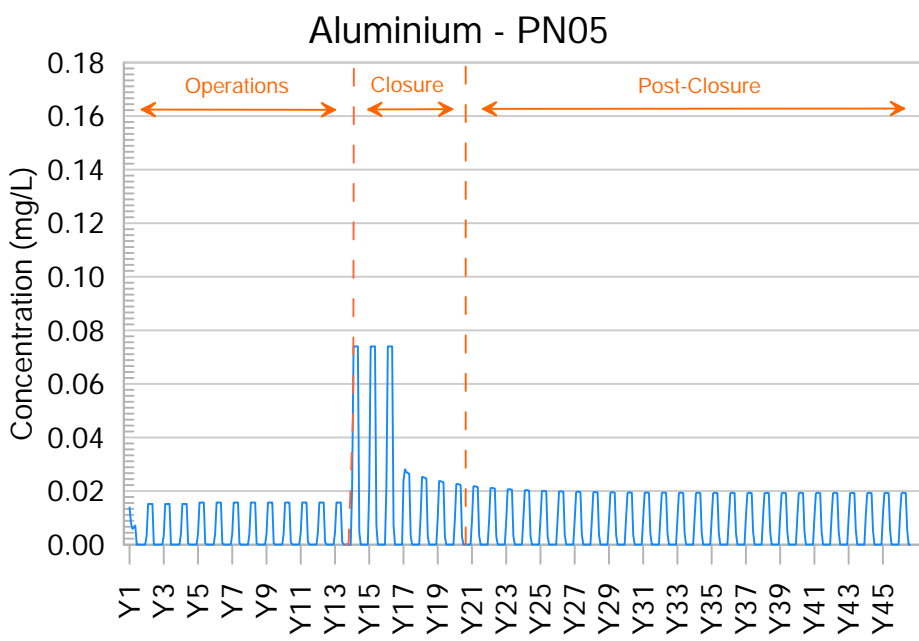


— Monthly Mean — MDMER

NOTES:

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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN05 (PART 2)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-7

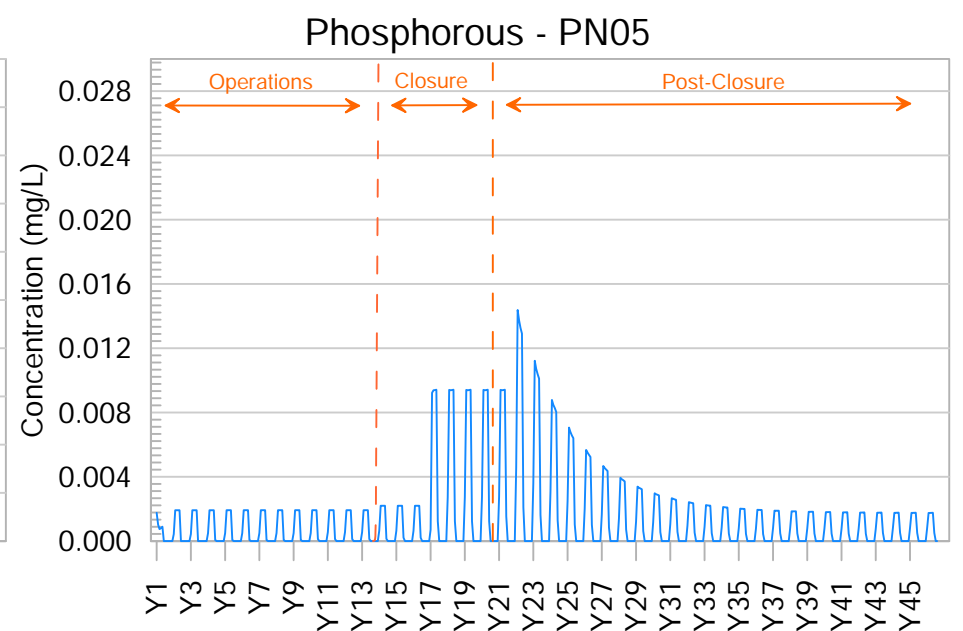
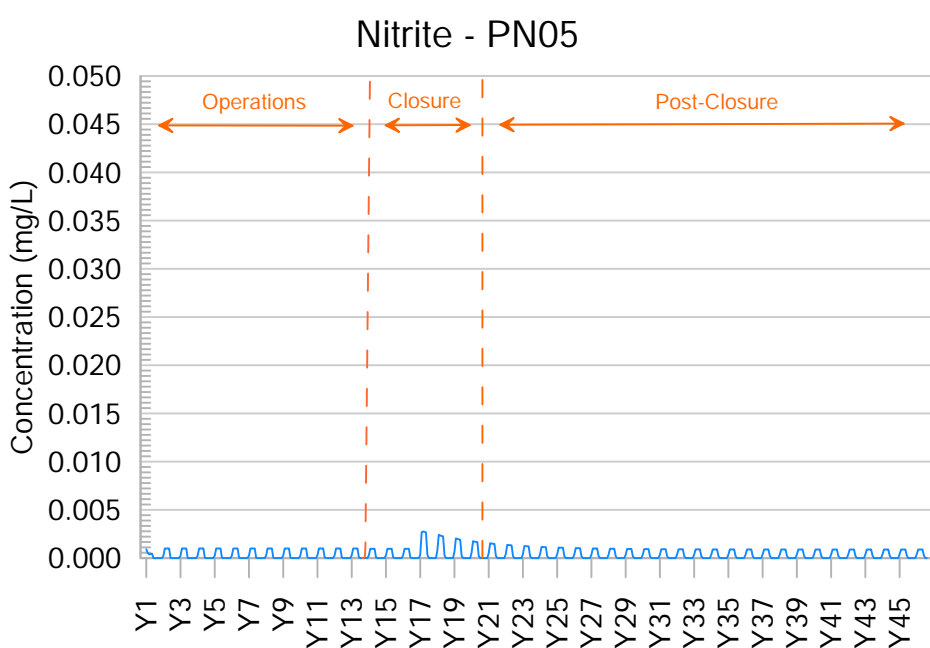
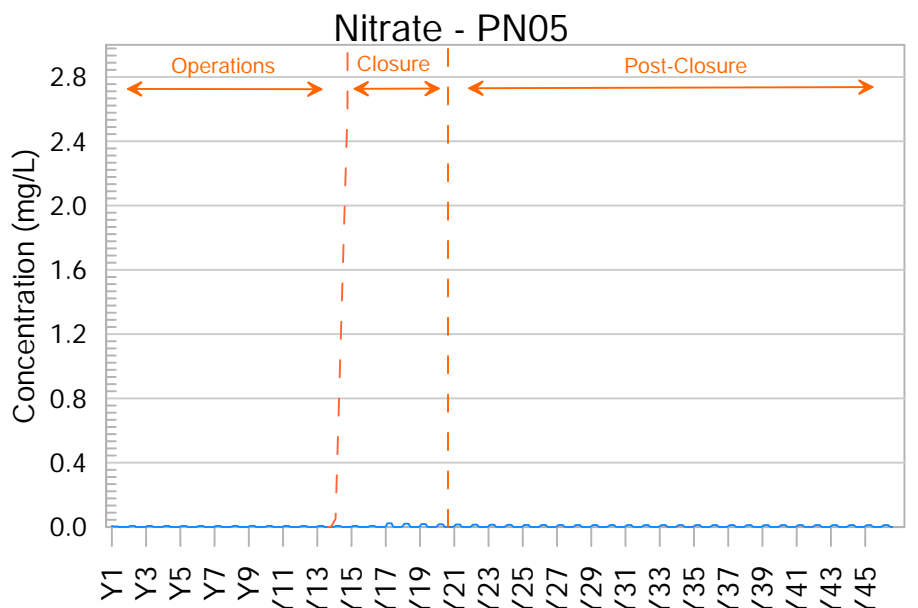
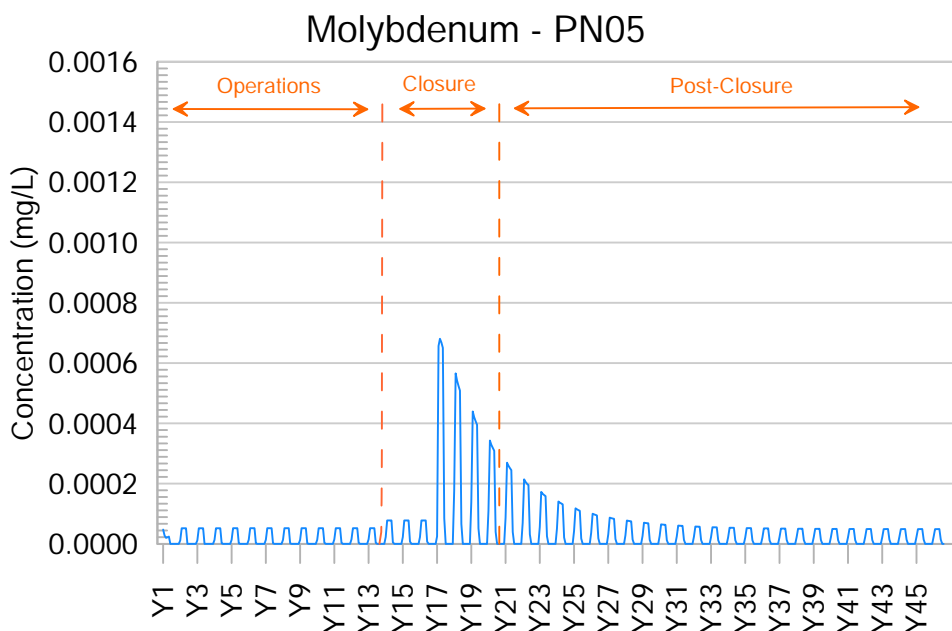
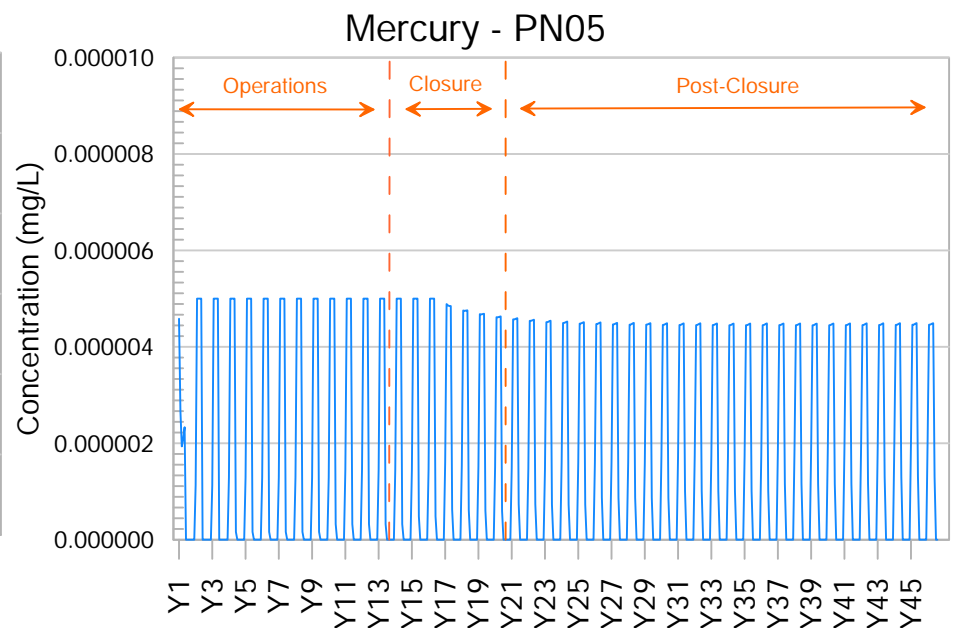
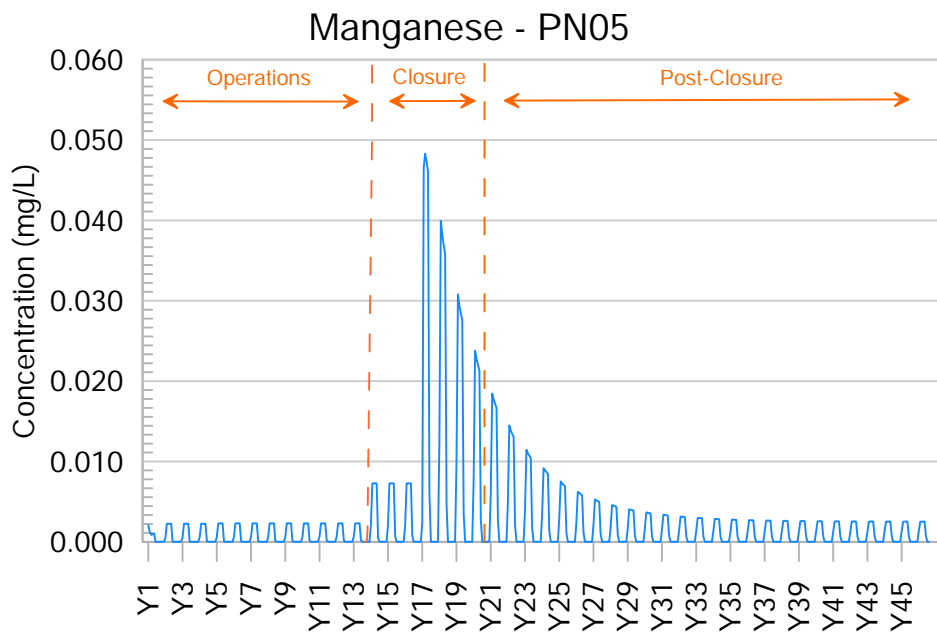
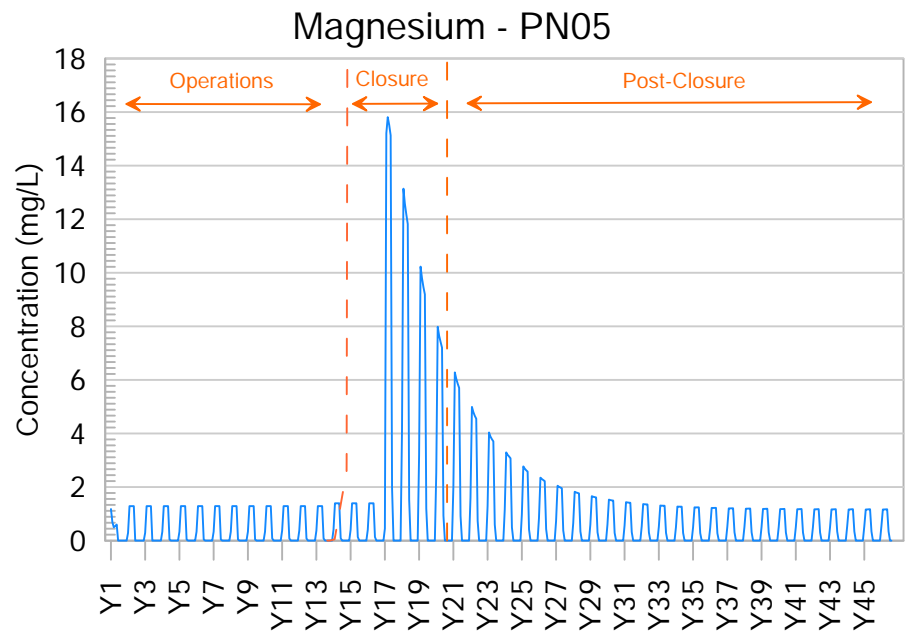
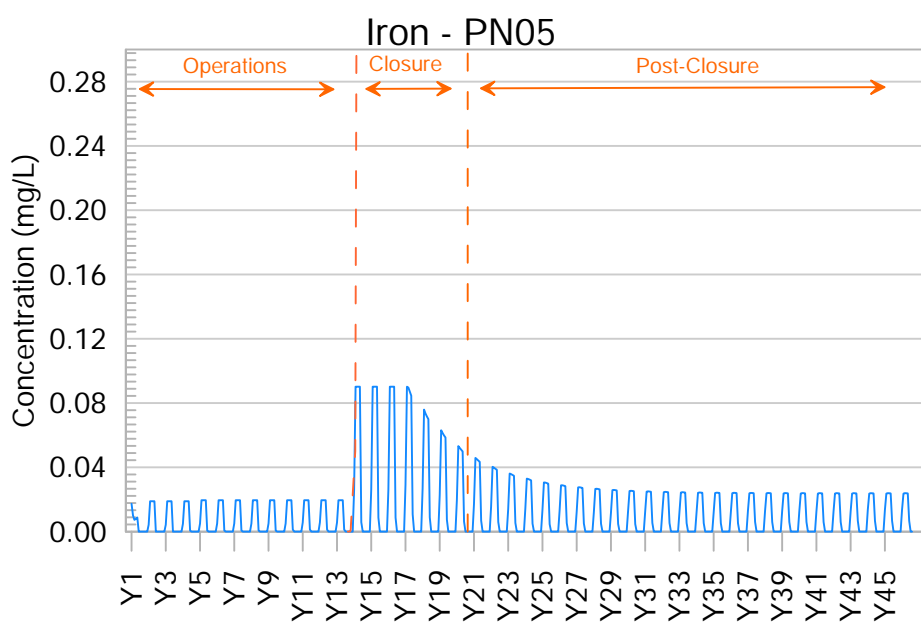


— Monthly Mean

NOTES:

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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN05 (PART 3)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-8

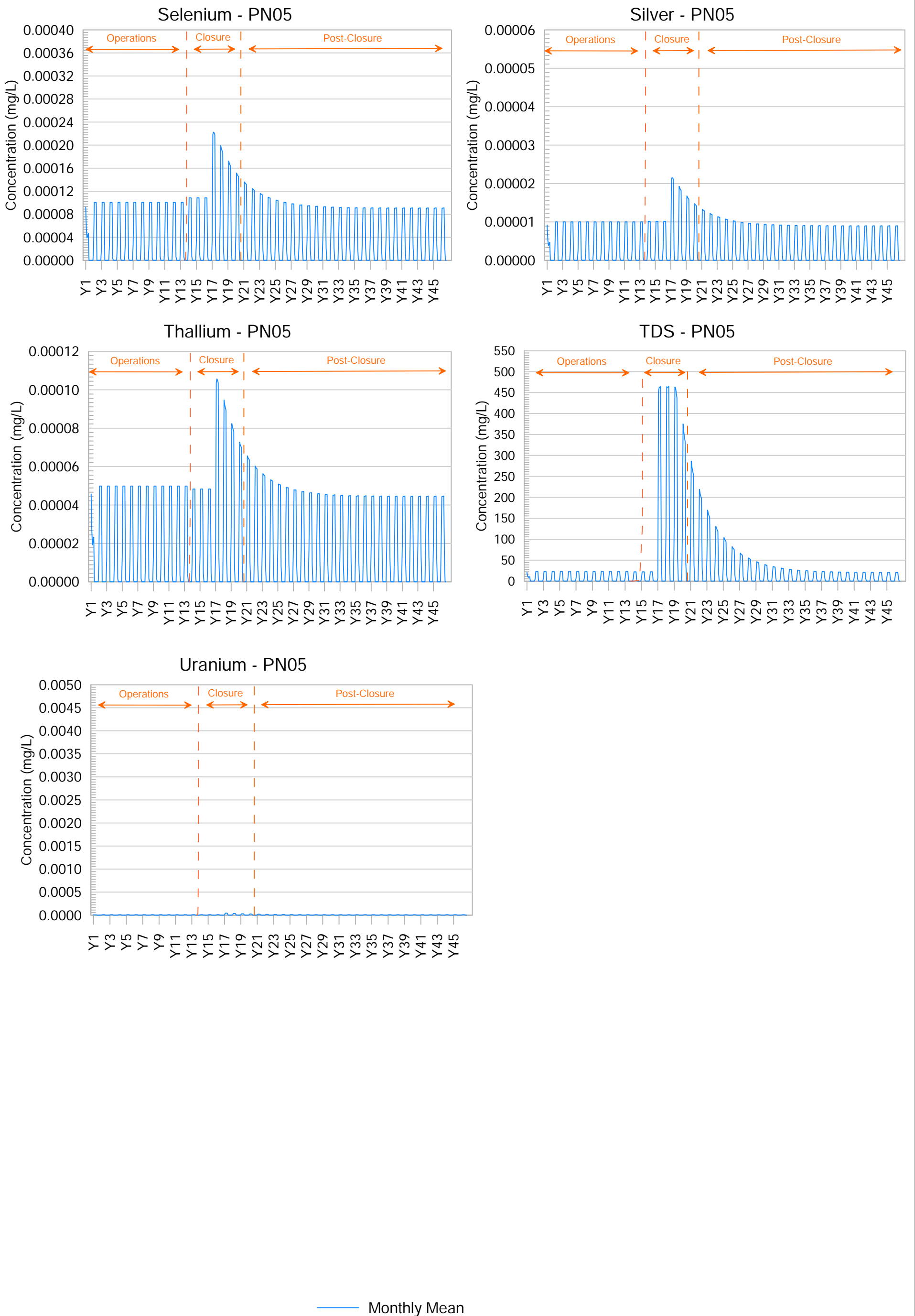


— Monthly Mean

NOTES:

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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN05 (PART 4)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-9

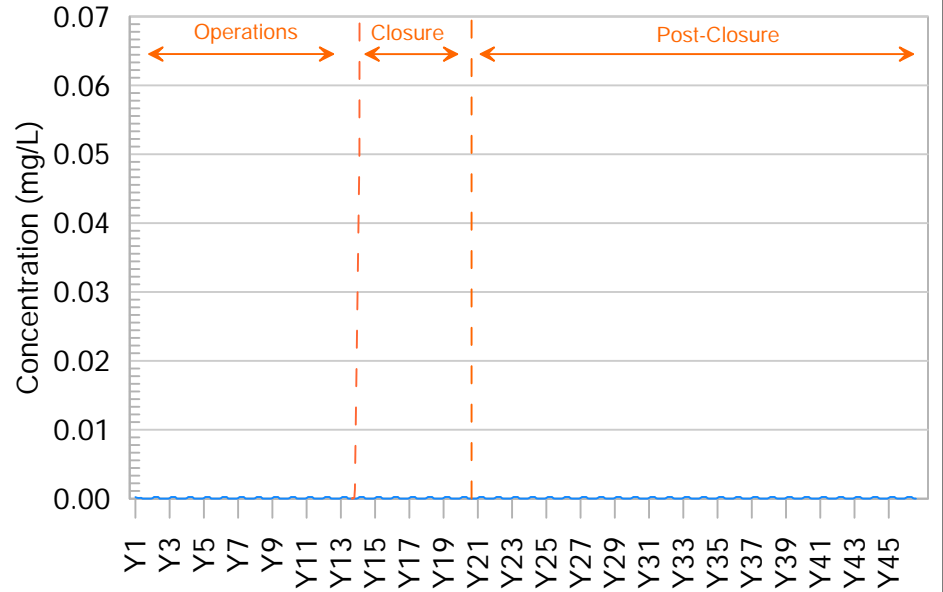
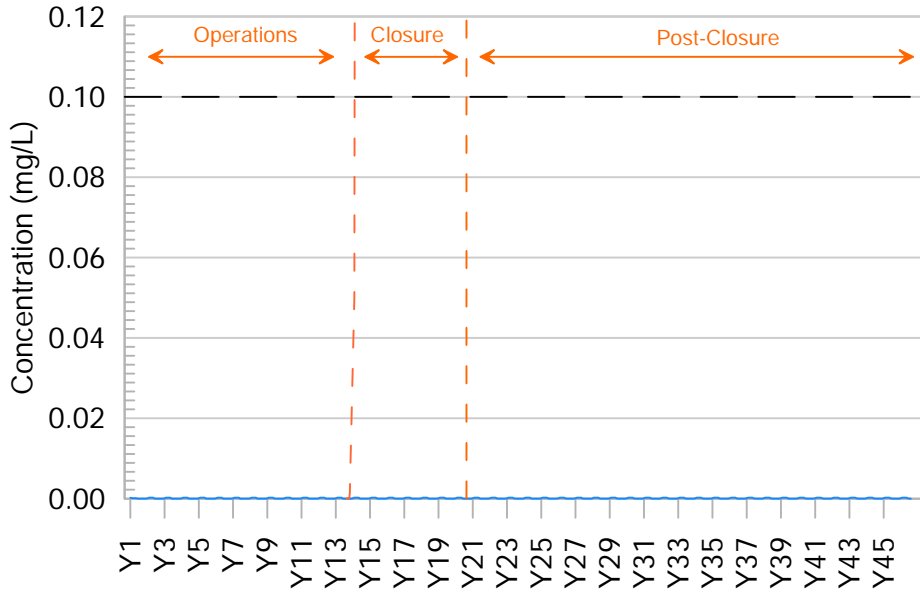


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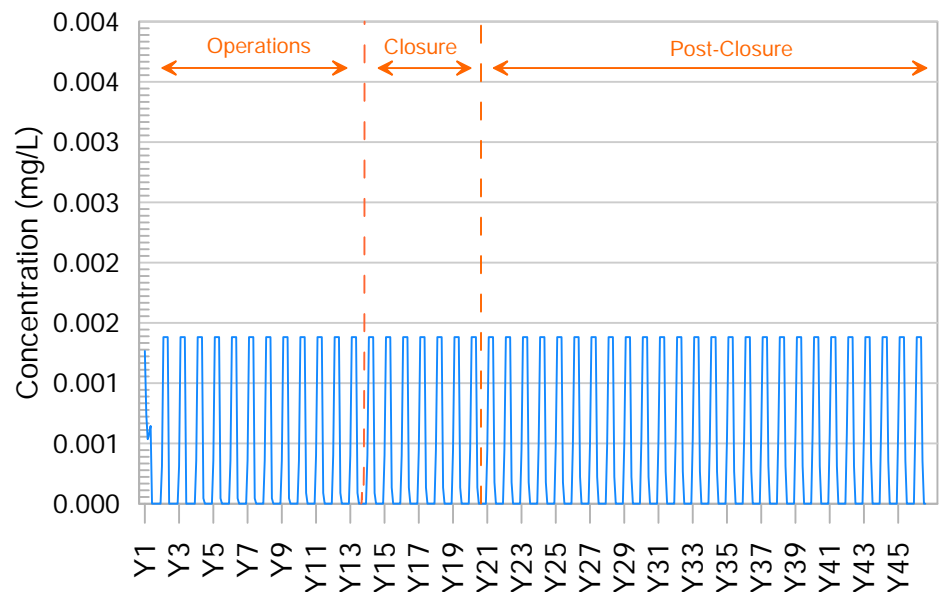
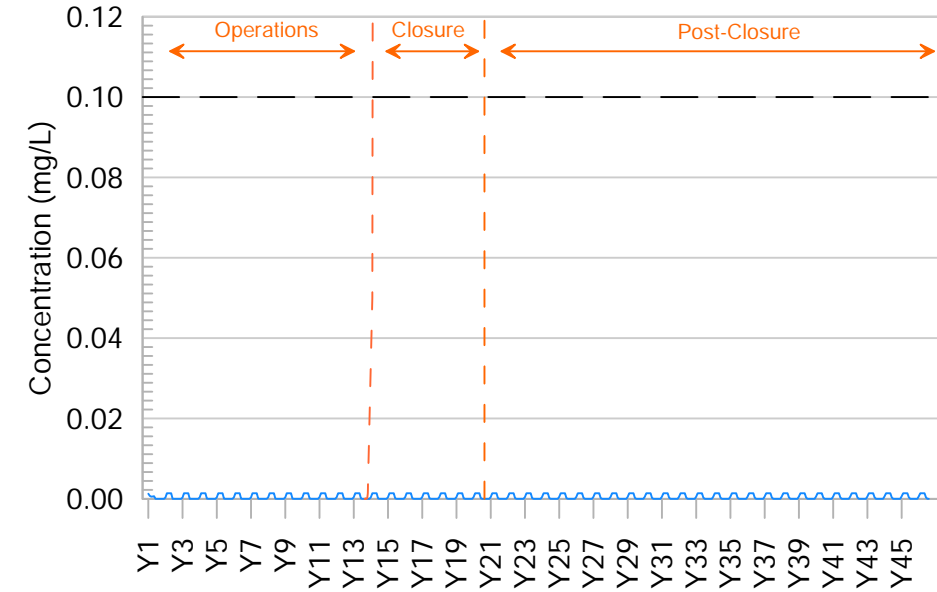
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN05 (PART 5)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-10

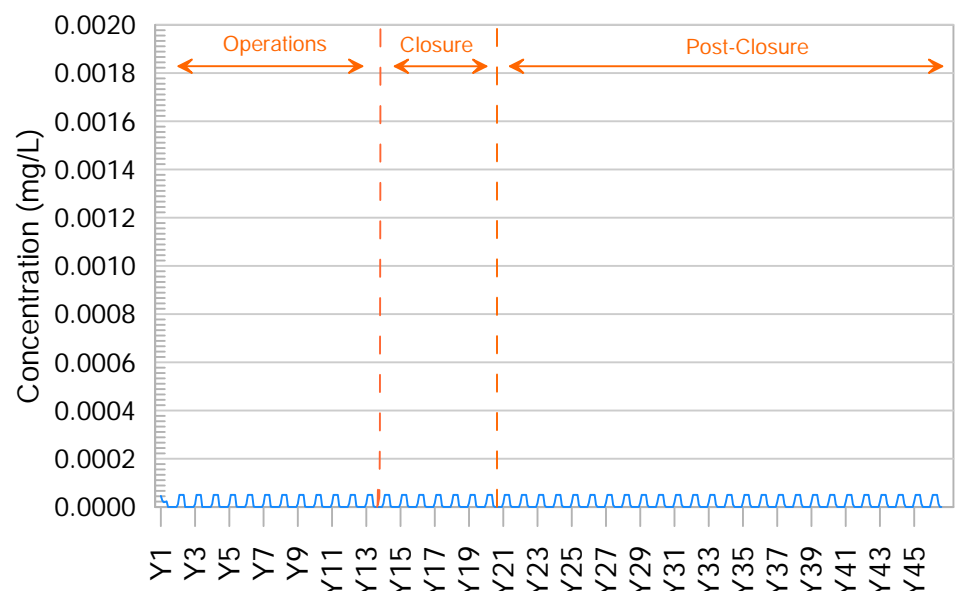
Arsenic - PN06



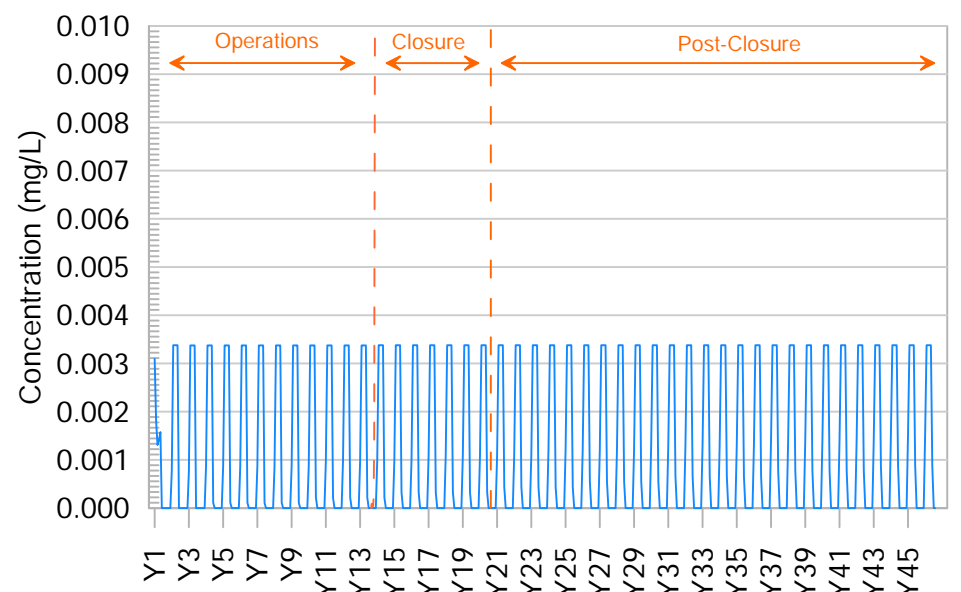
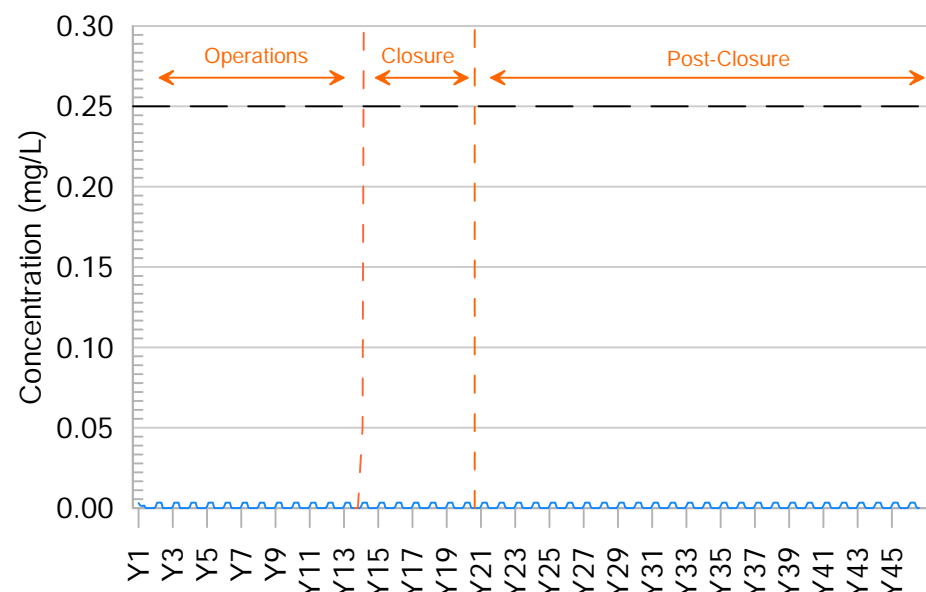
Copper - PN06



Lead - PN06



Nickel - PN06



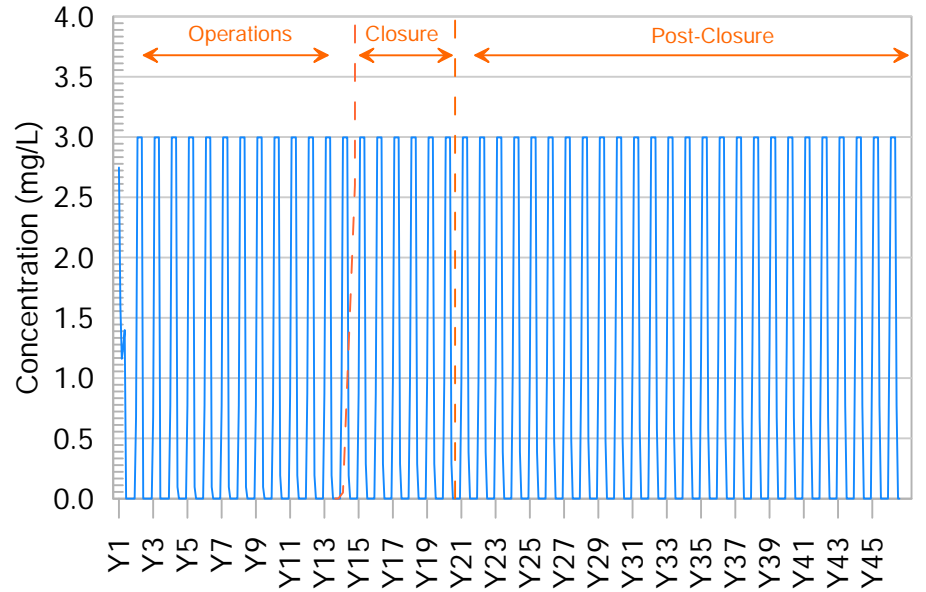
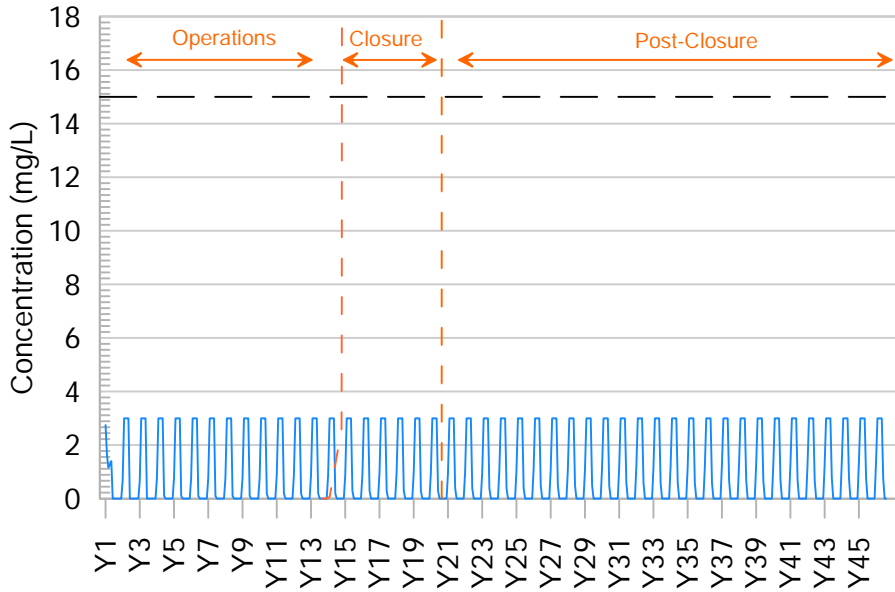
— Monthly Mean — MDMER

NOTES:

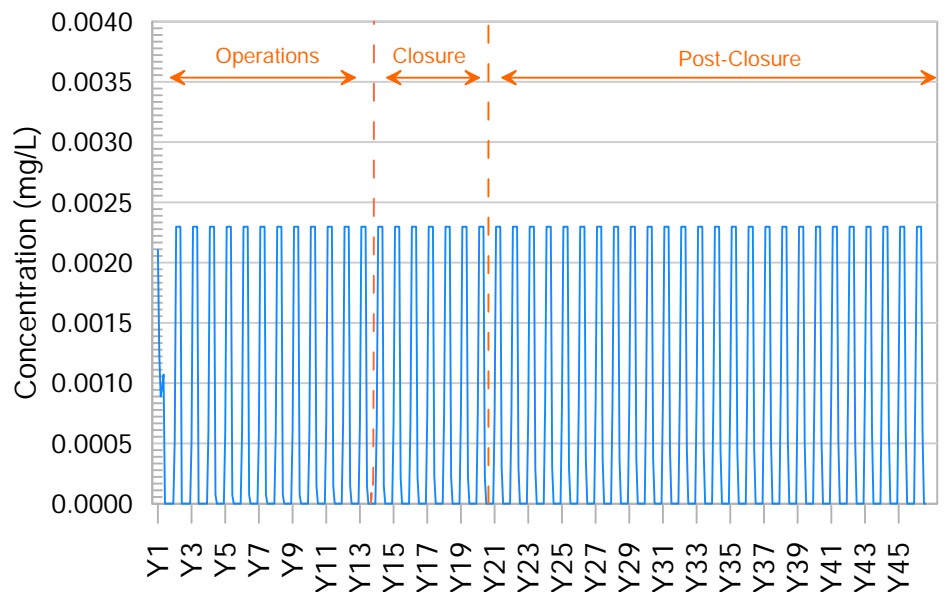
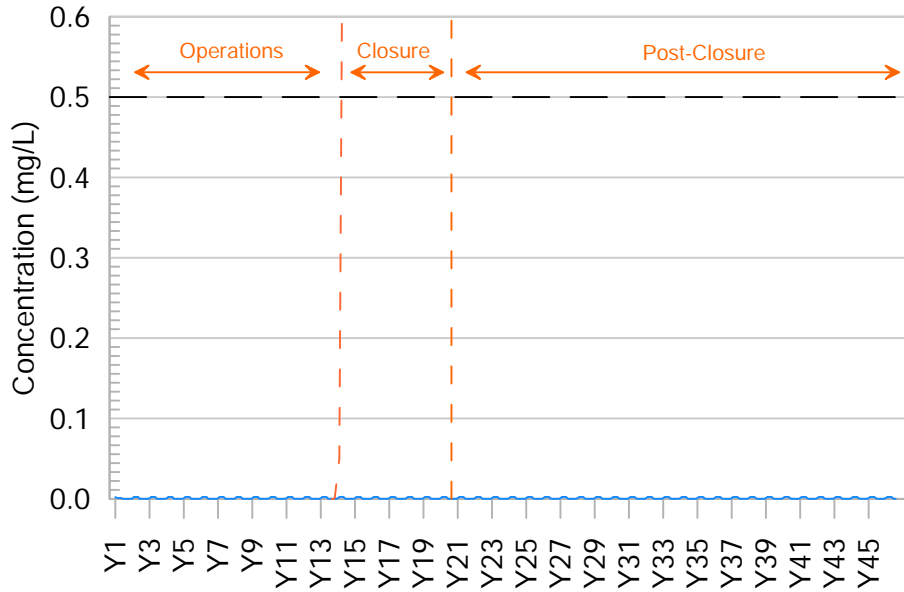
1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN06 (PART 1)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-11

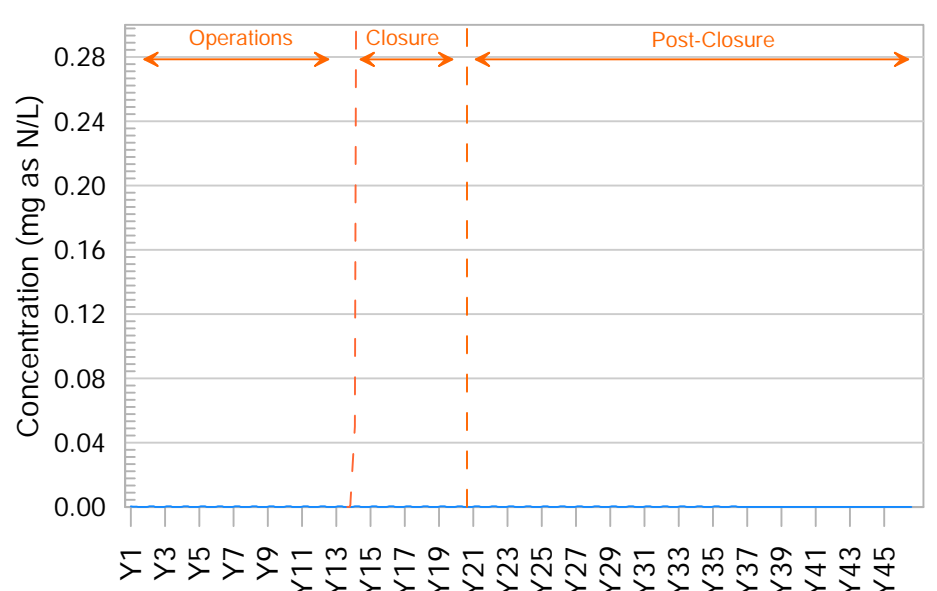
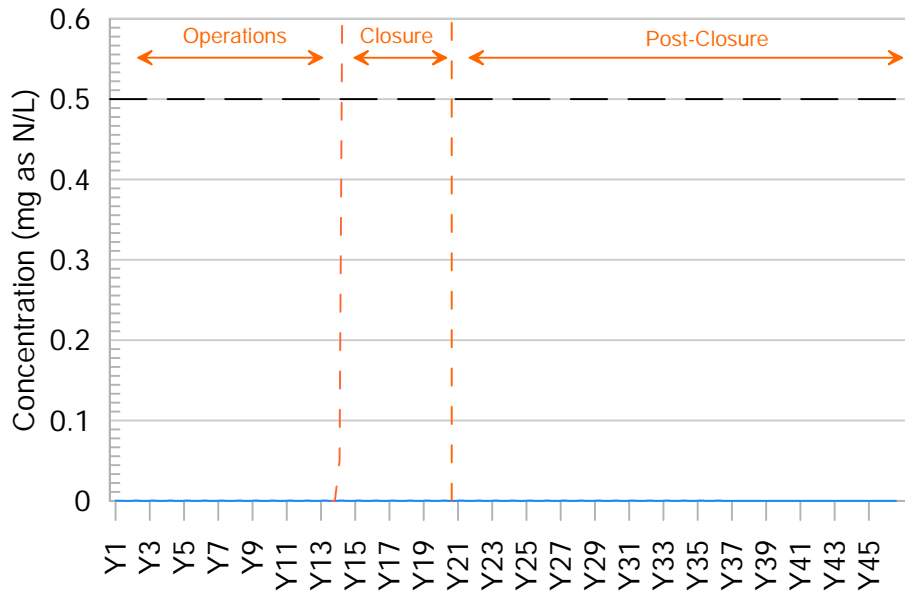
TSS - PN06



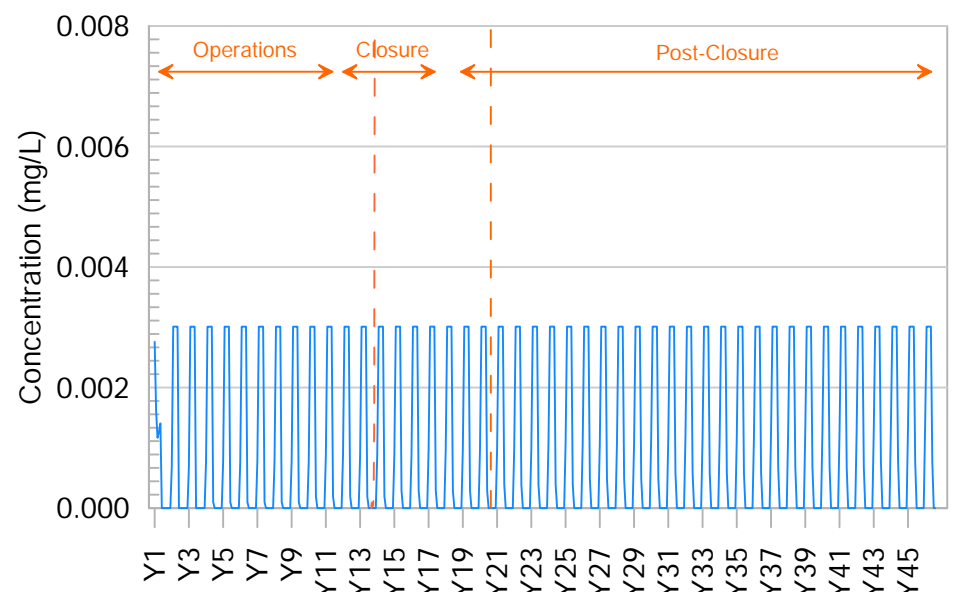
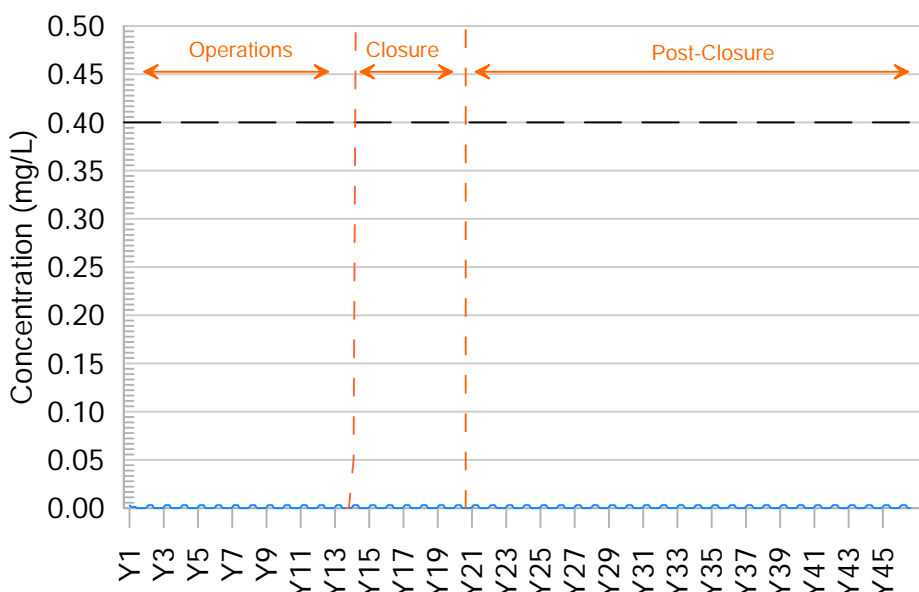
Total CN - PN06



Un-ionized Ammonia - PN06



Zinc - PN06

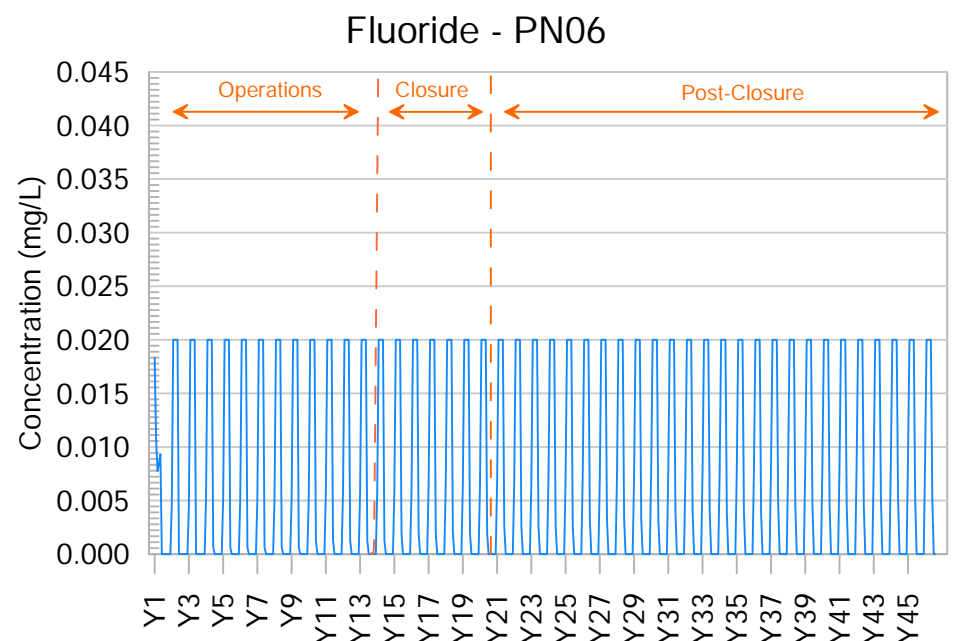
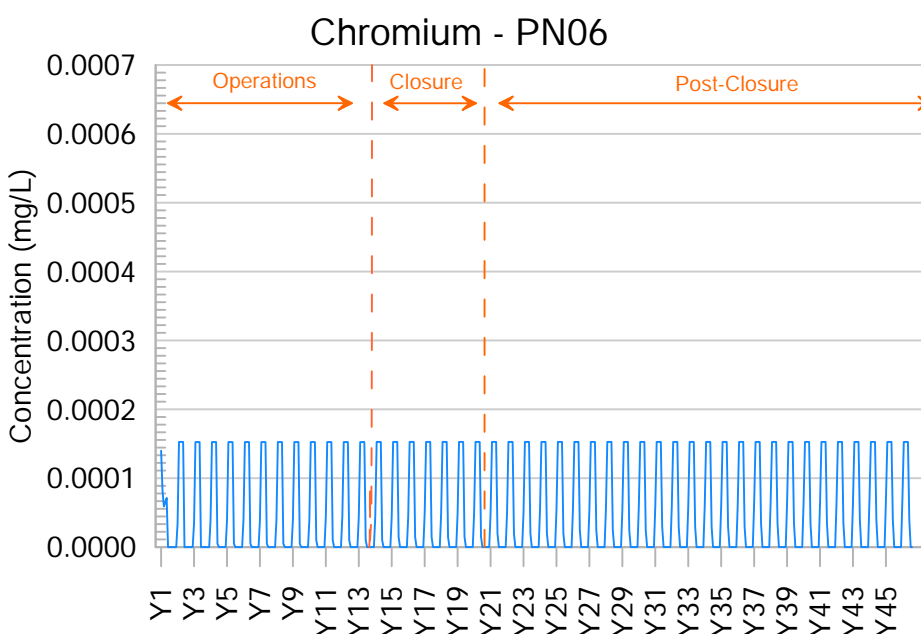
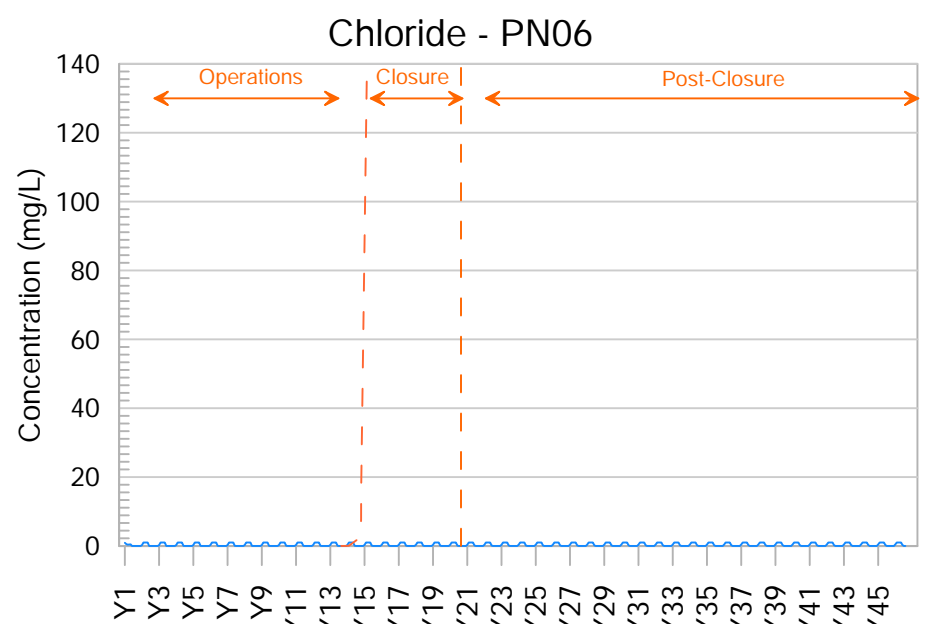
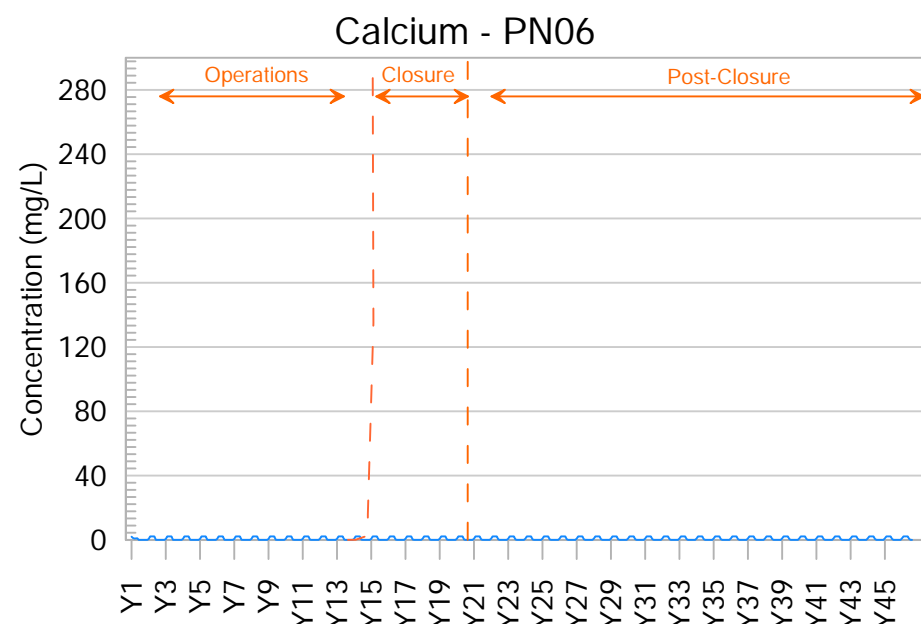
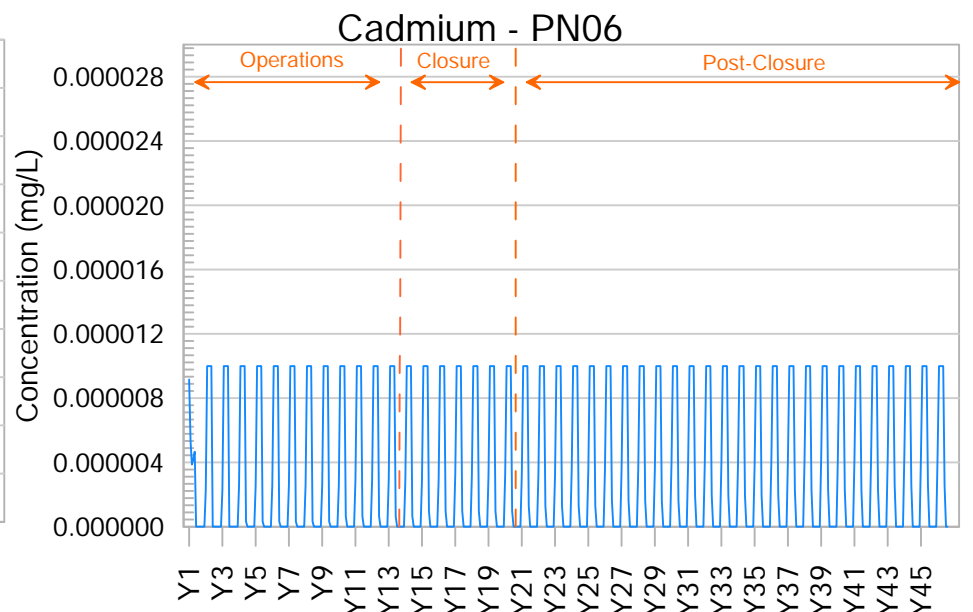
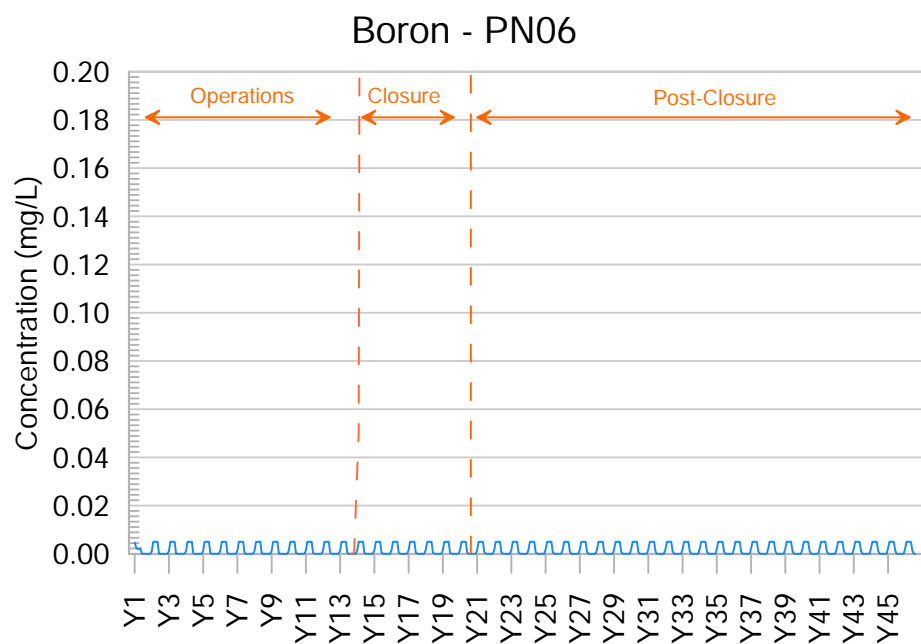
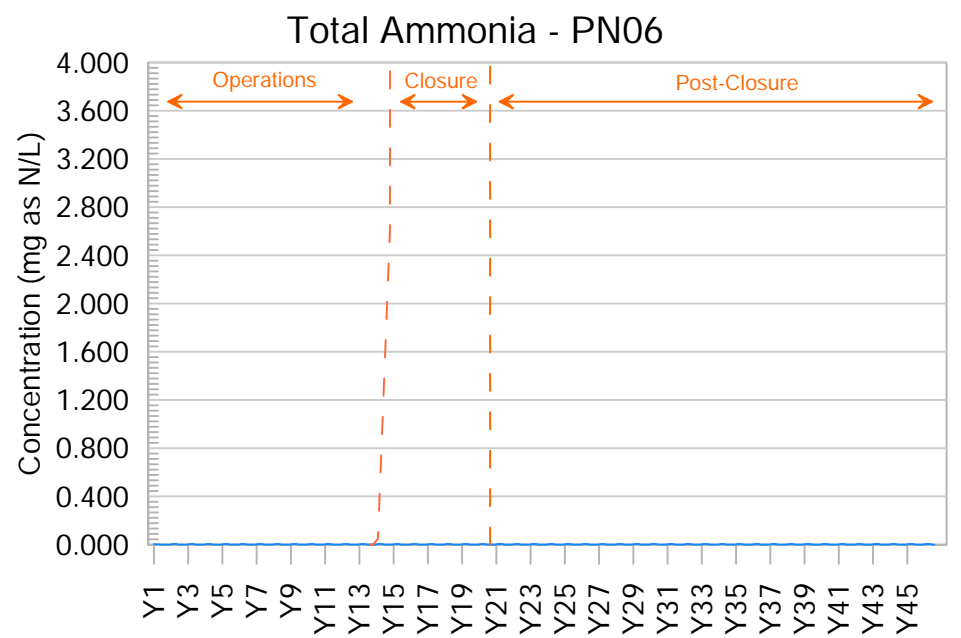
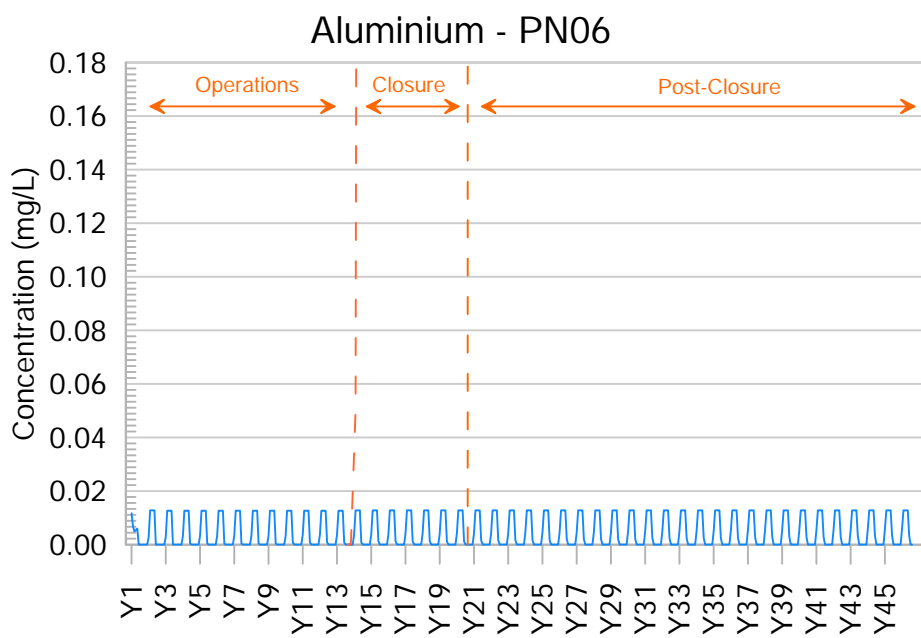


— Monthly Mean — MDMER

NOTES:

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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN06 (PART 2)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-12

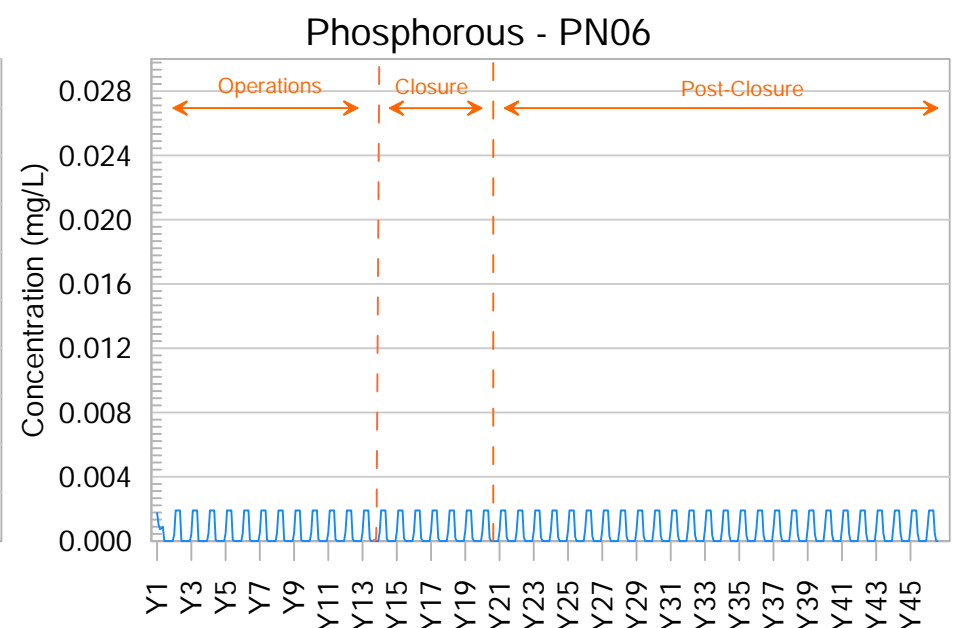
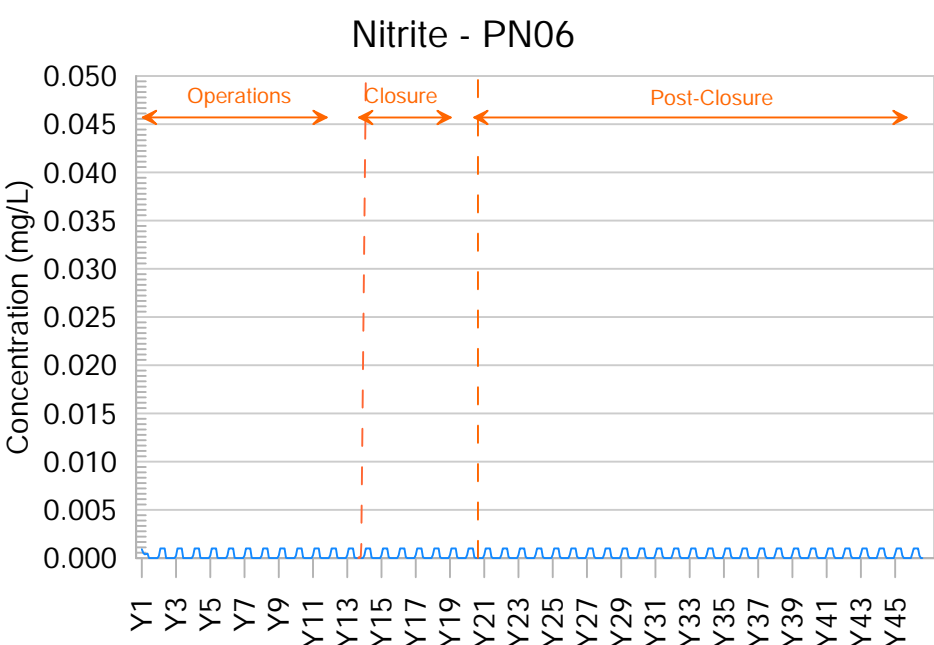
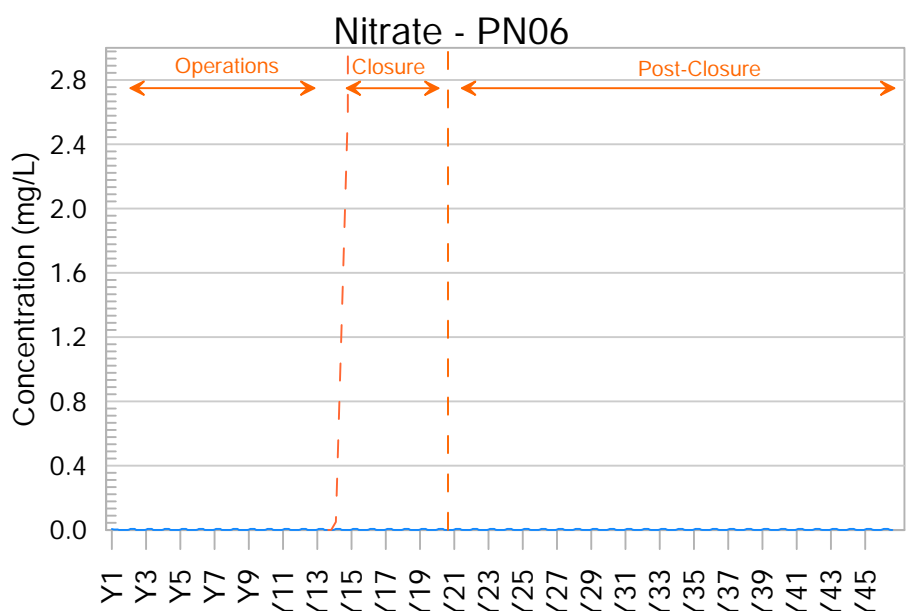
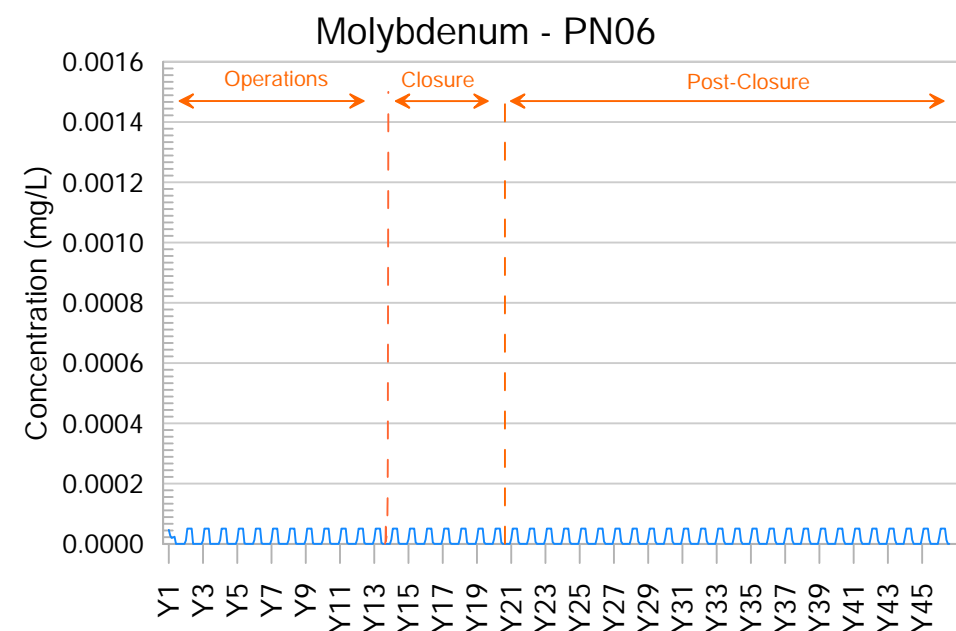
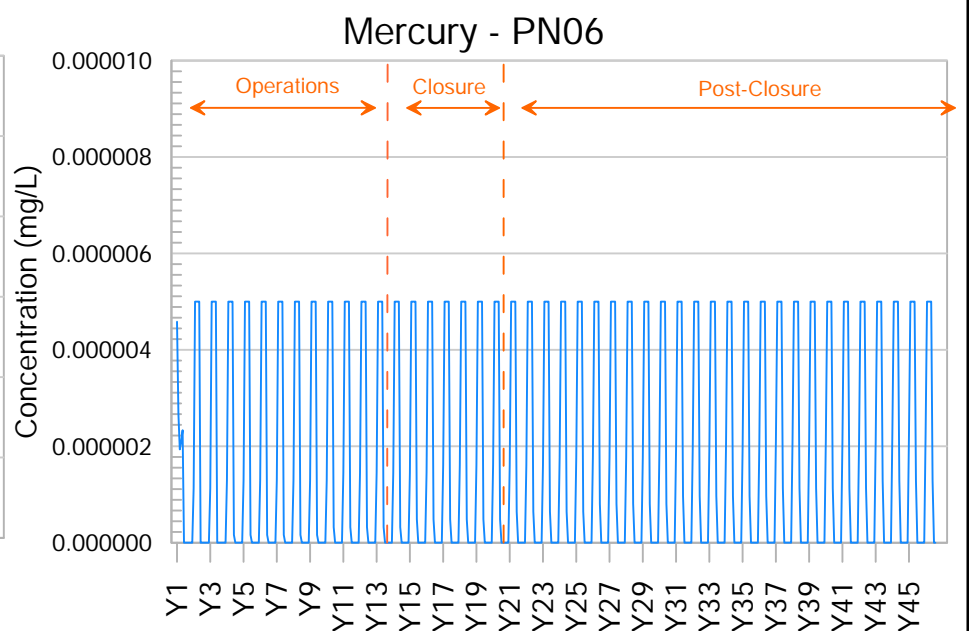
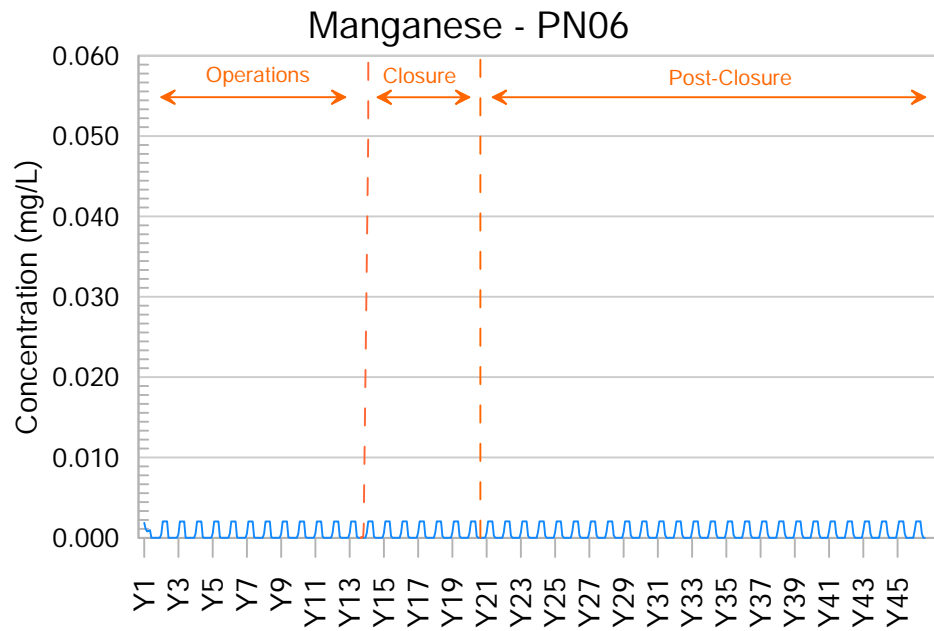
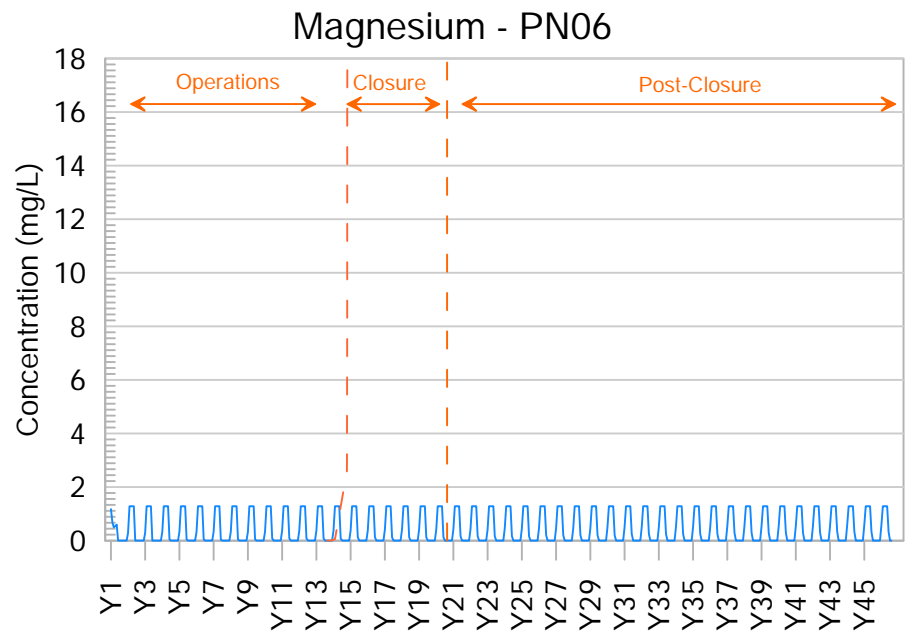
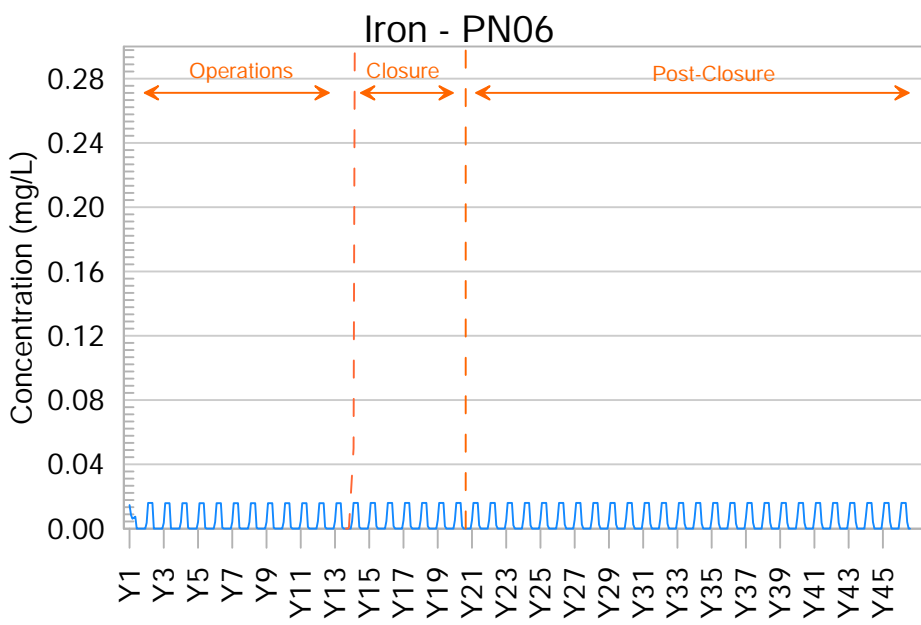


— Monthly Mean

NOTES:

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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN06 (PART 3)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-13

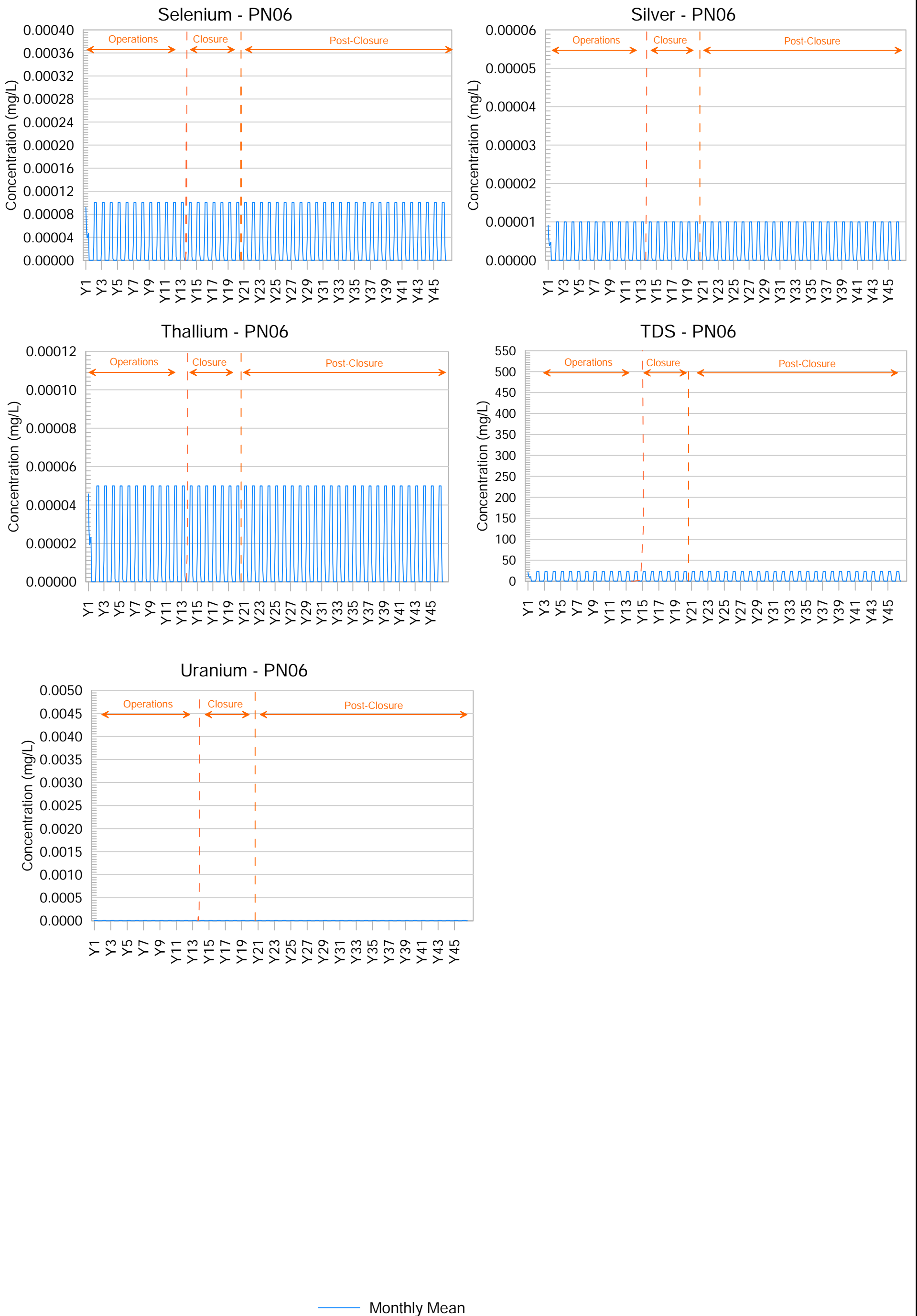


— Monthly Mean

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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN06 (PART 4)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-14

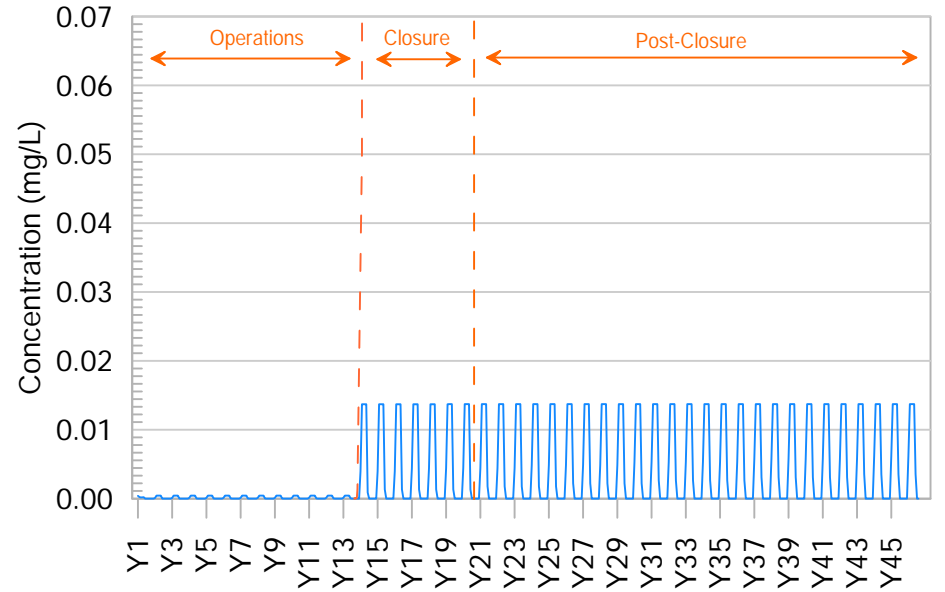
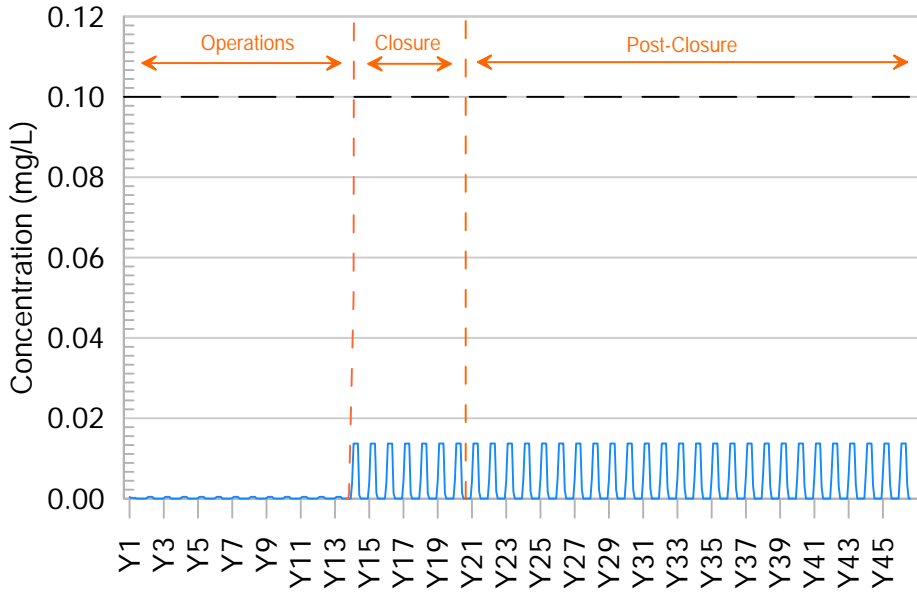


NOTES:

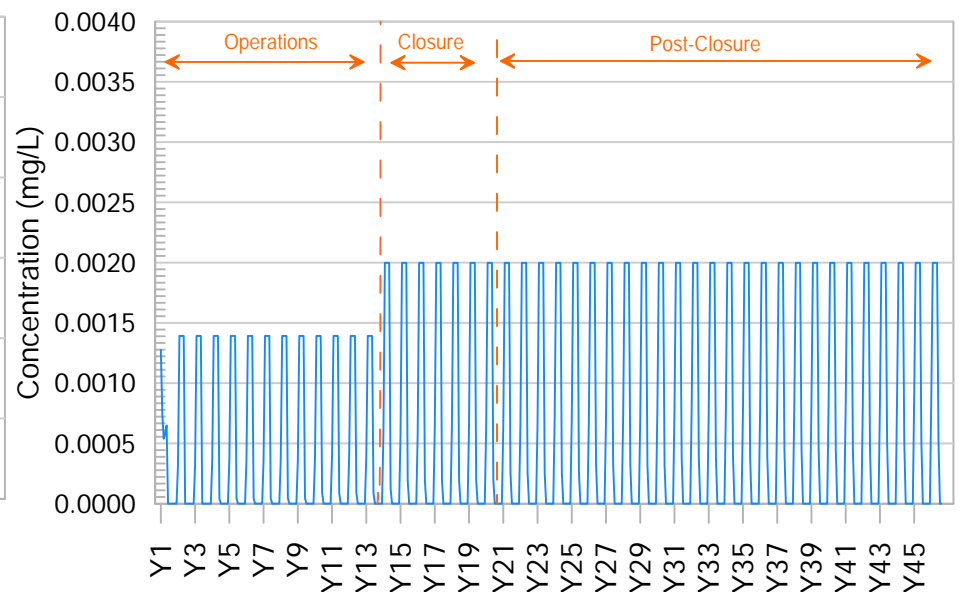
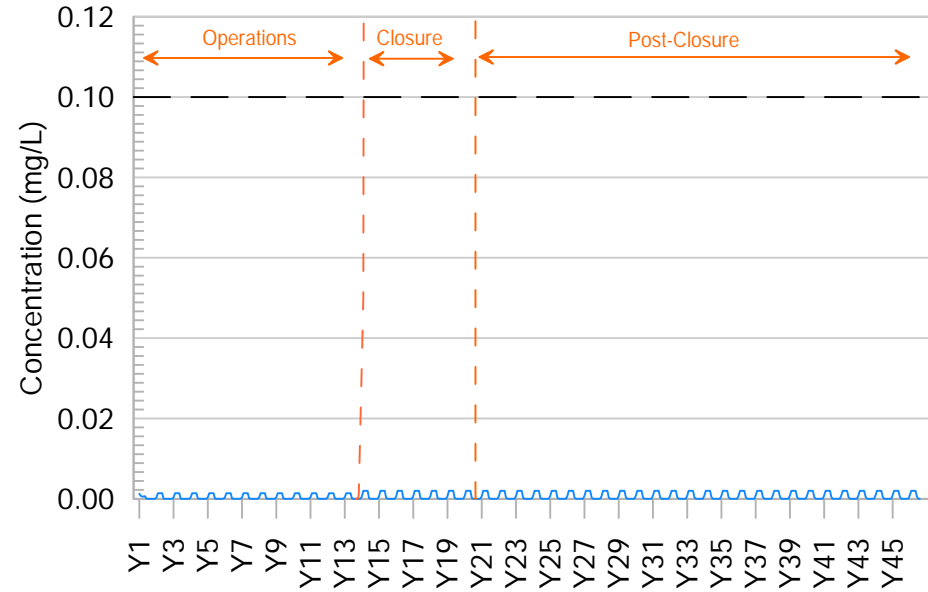
1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN06 (PART 5)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-15

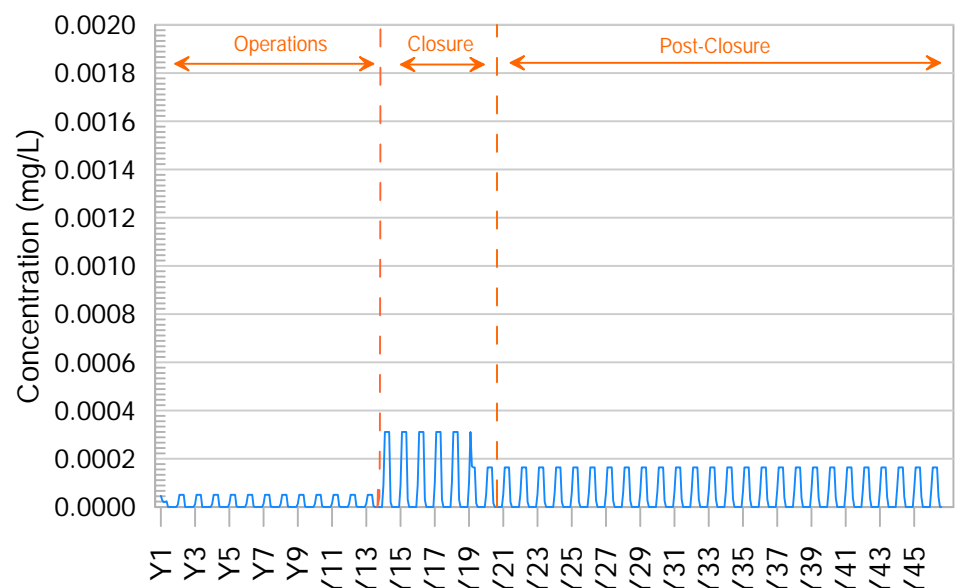
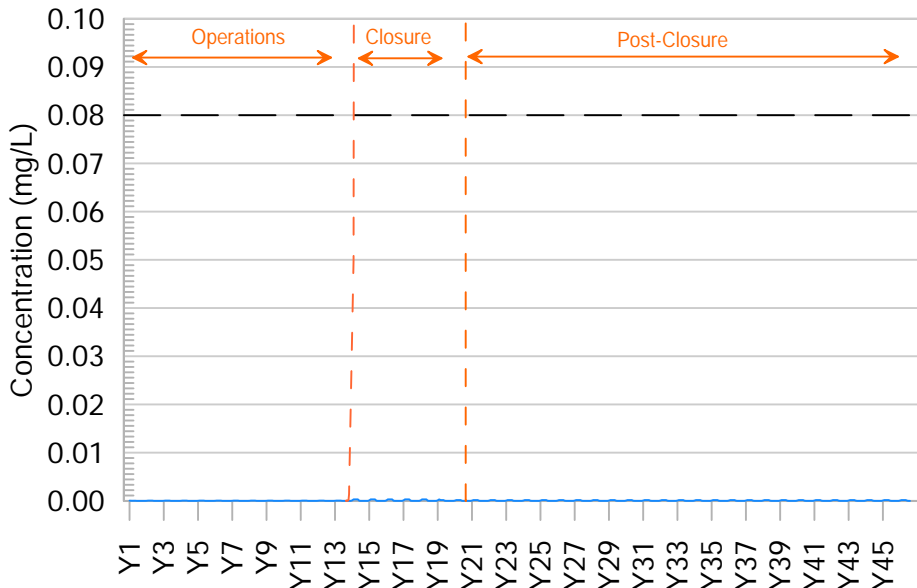
Arsenic - PN08



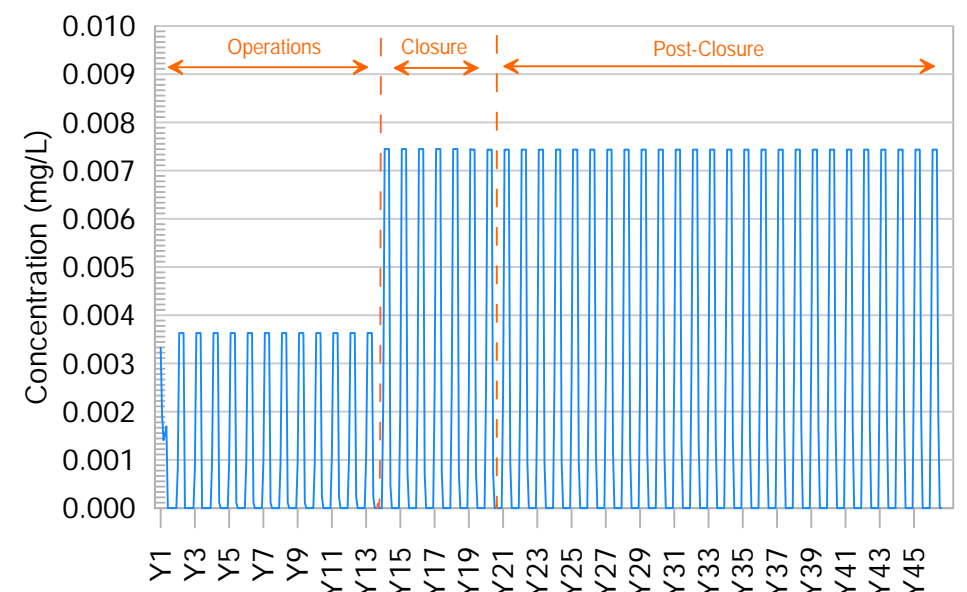
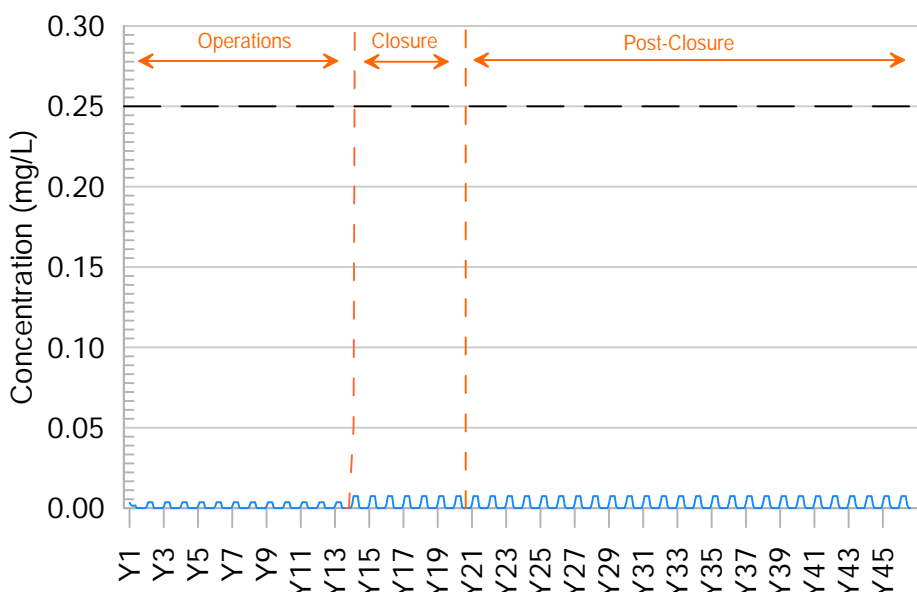
Copper - PN08



Lead - PN08



Nickel - PN08



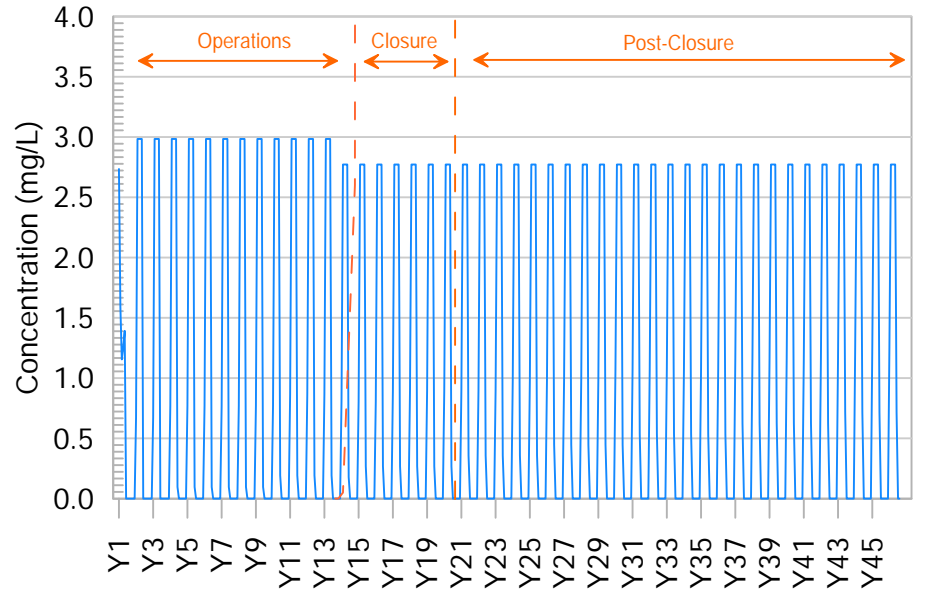
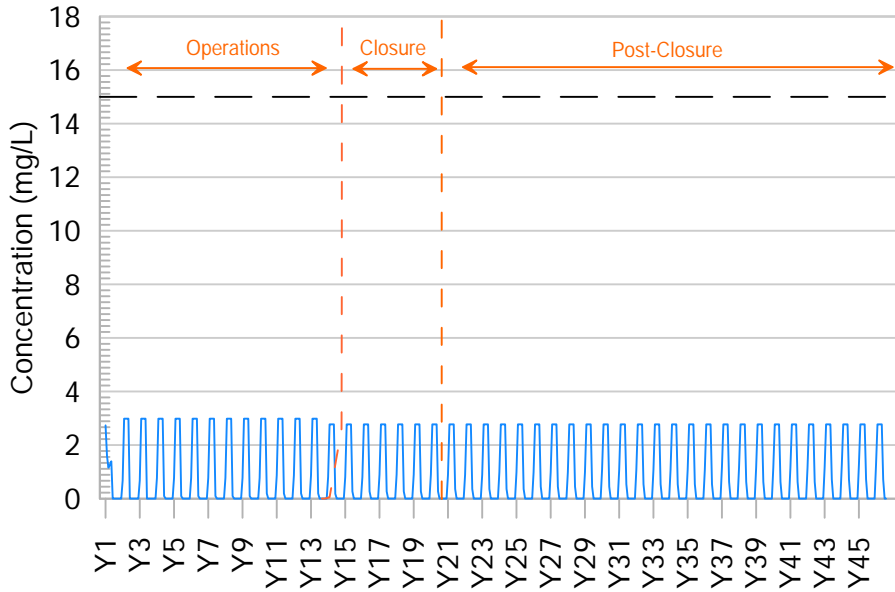
— Monthly Mean — MDMER

NOTES:

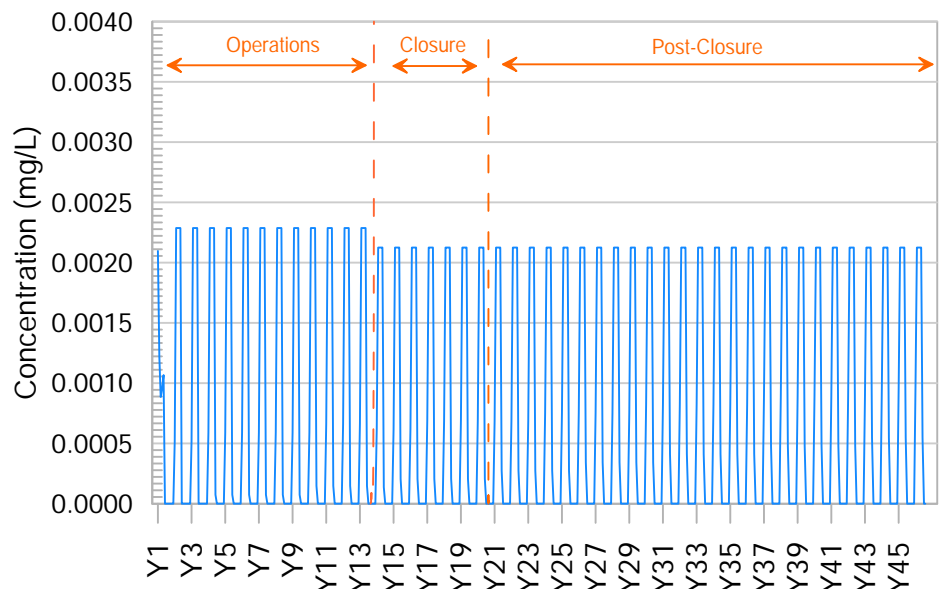
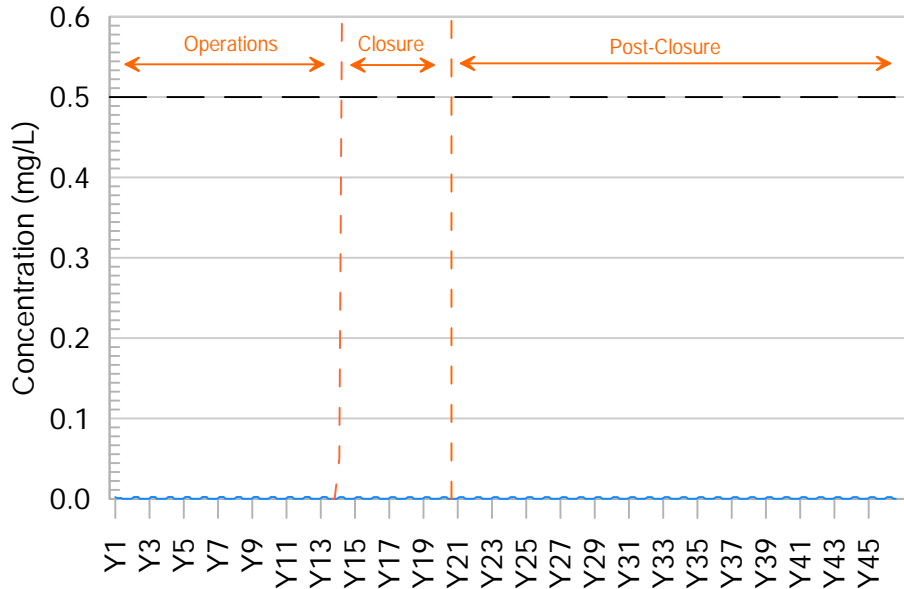
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN08 (PART 1)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-16

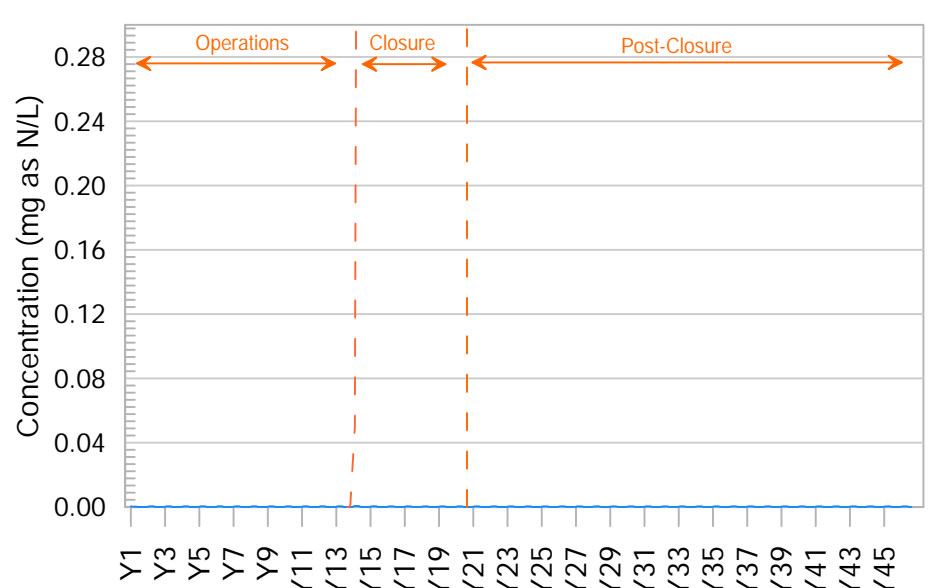
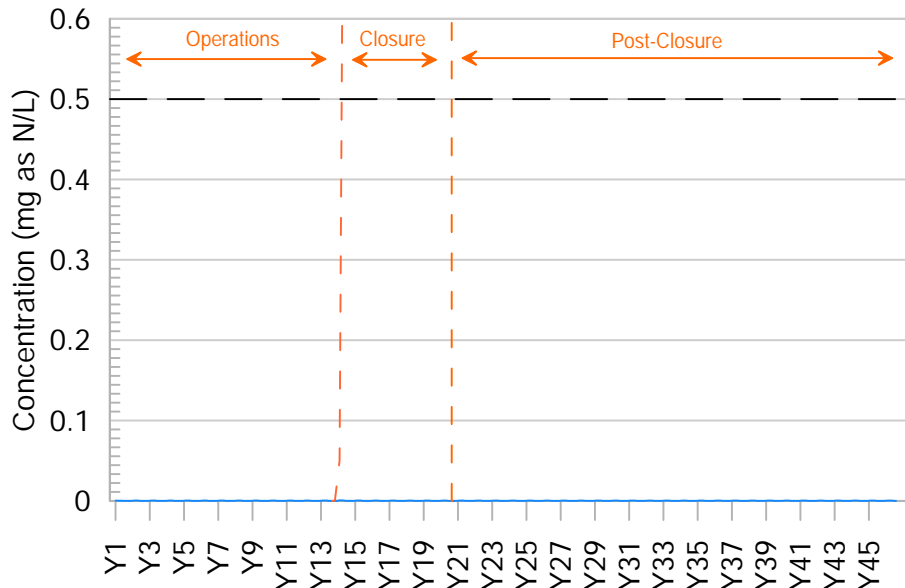
TSS - PN08



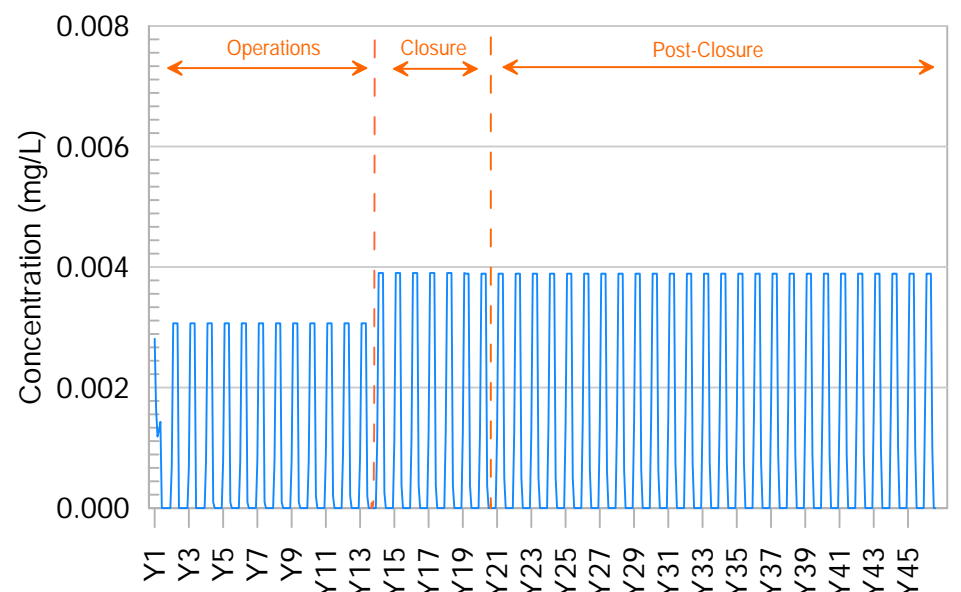
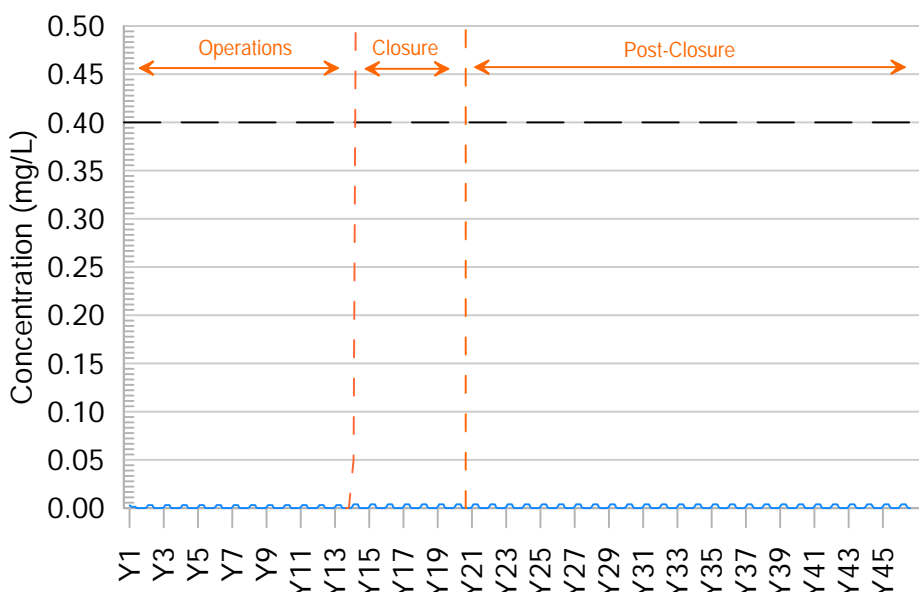
Total CN - PN08



Un-ionized Ammonia - PN08



Zinc - PN08

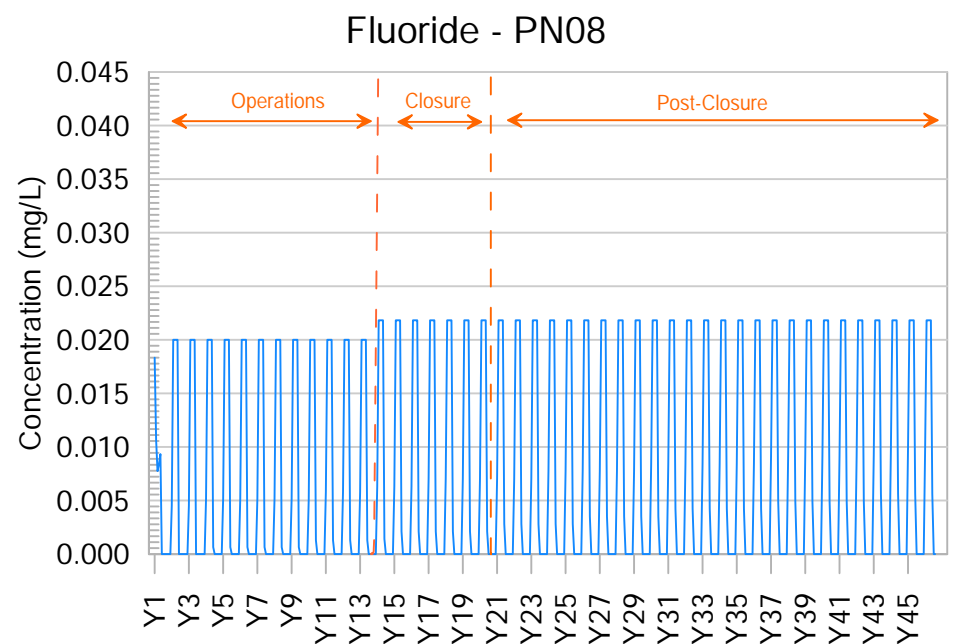
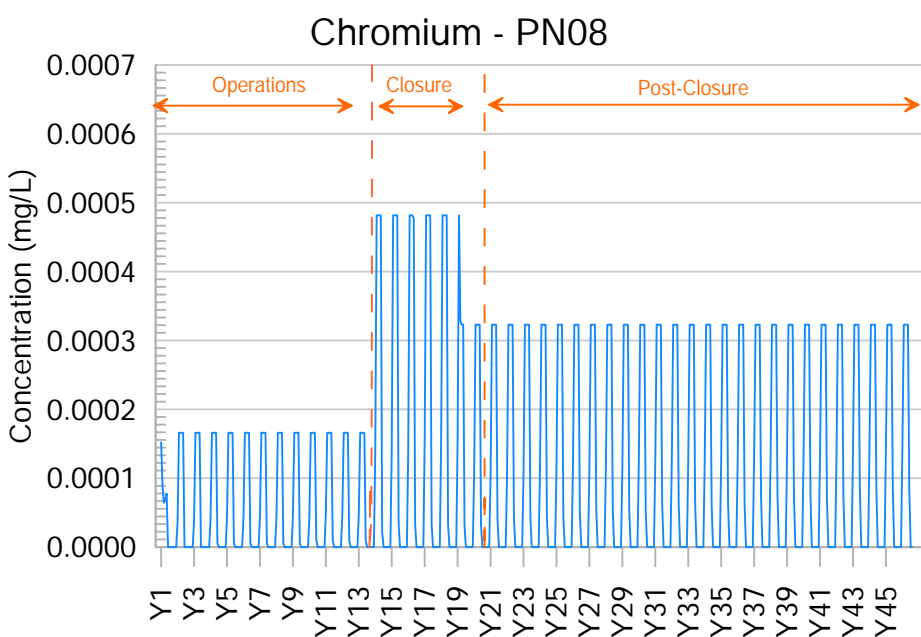
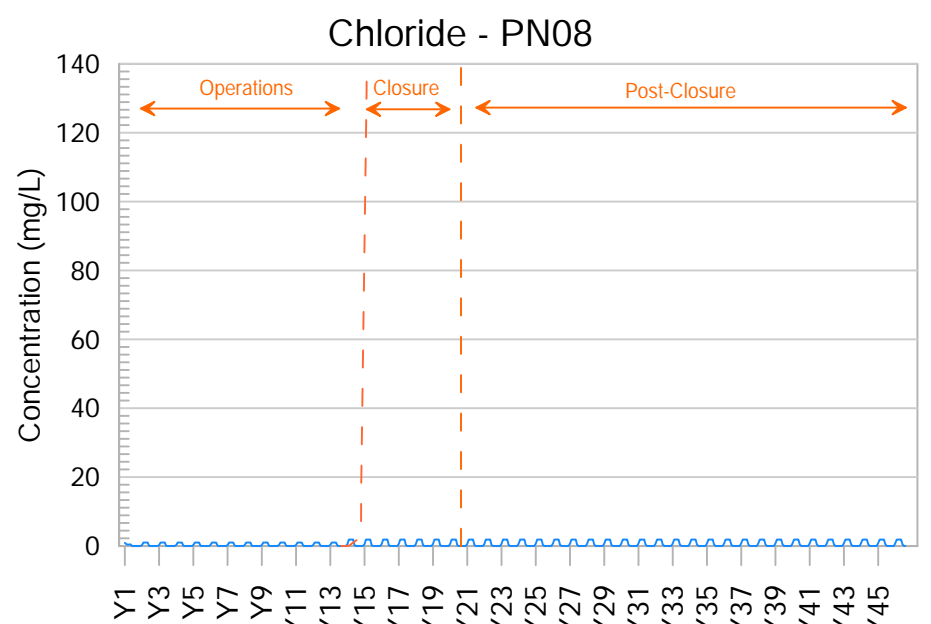
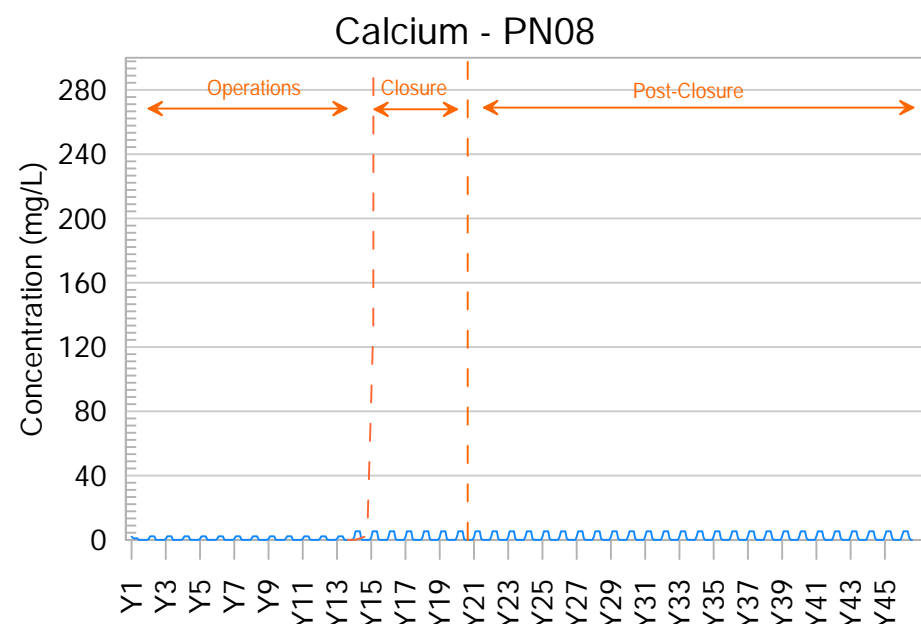
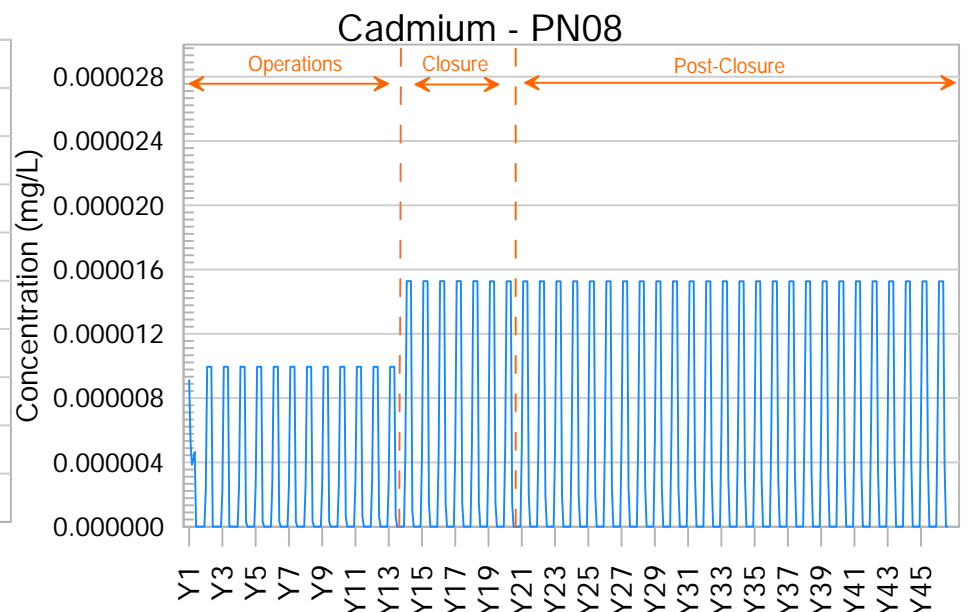
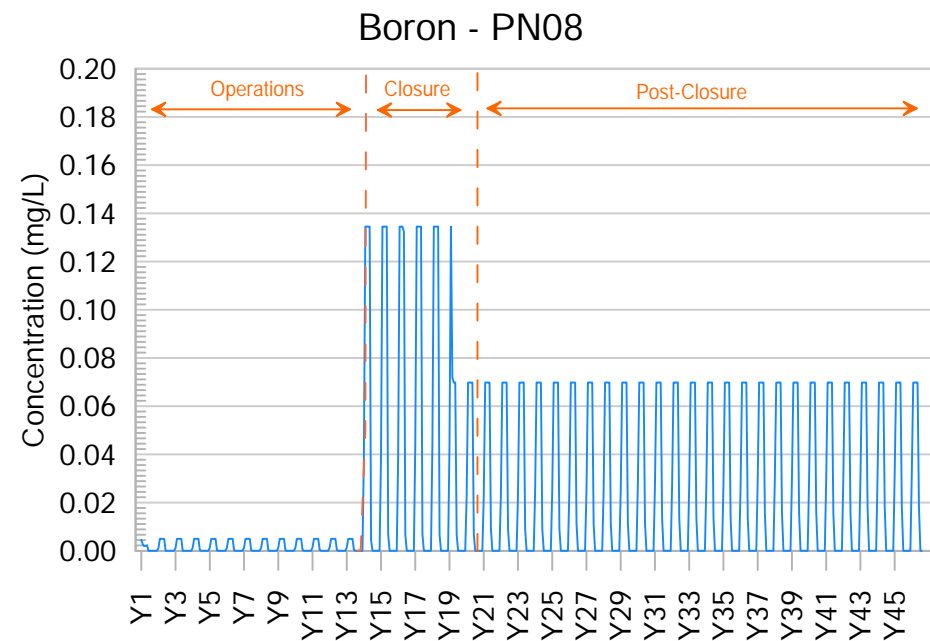
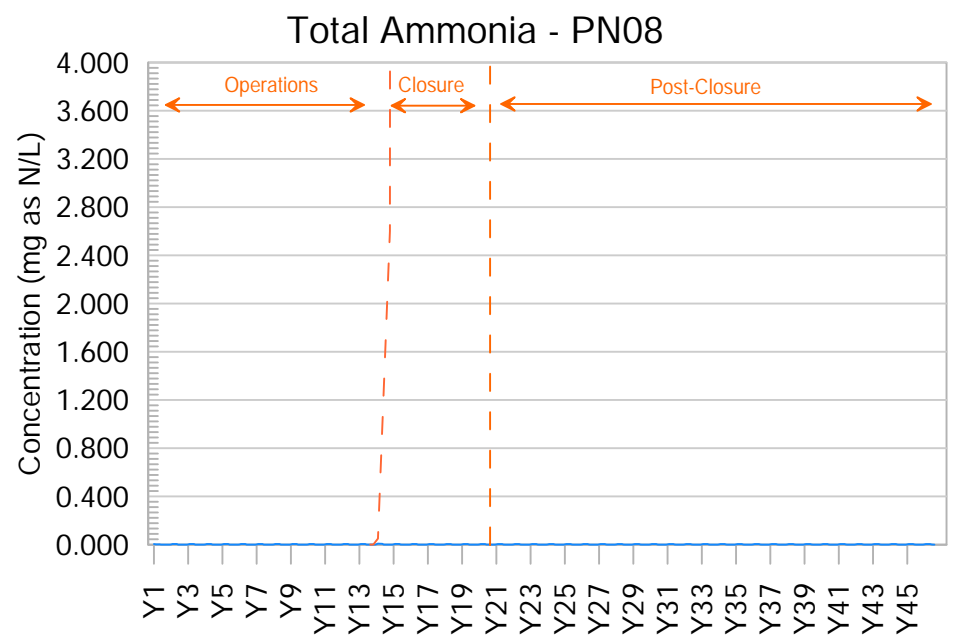
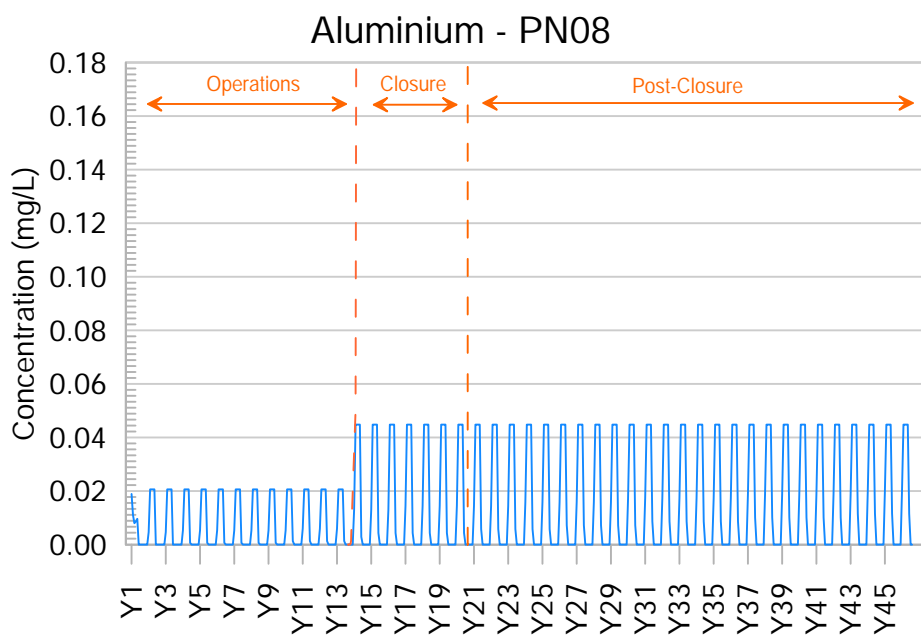


— Monthly Mean — MDMER

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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN08 (PART 2)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-17

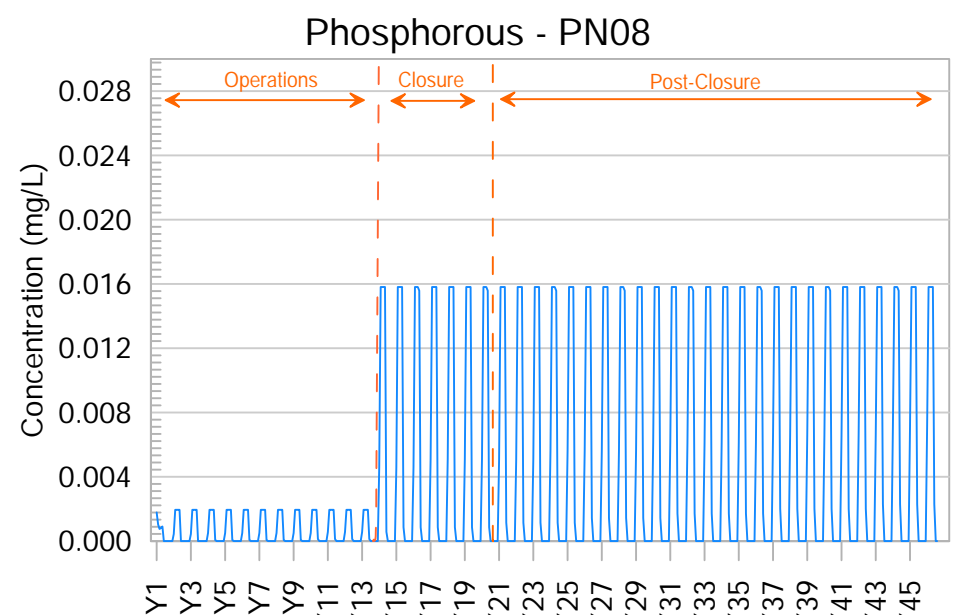
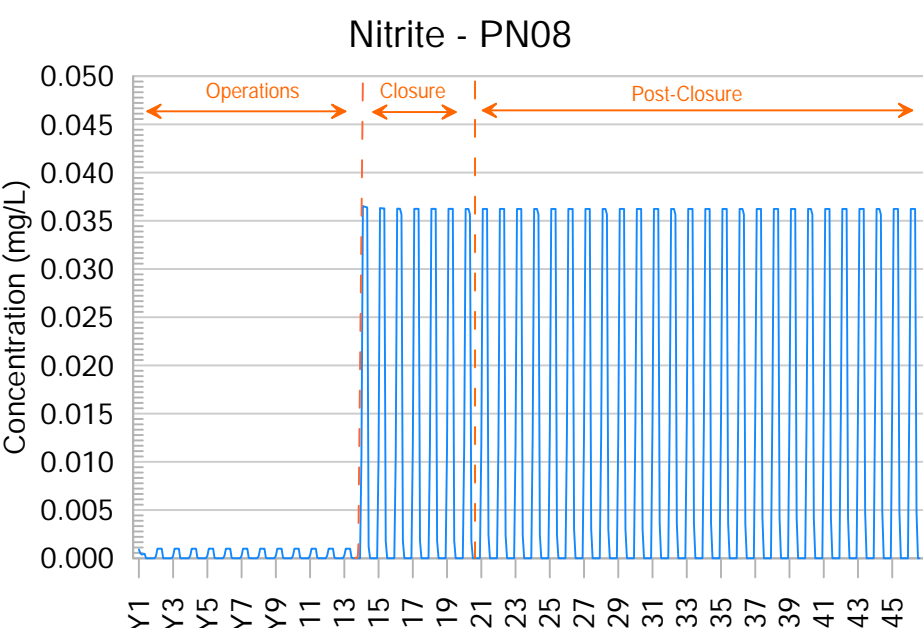
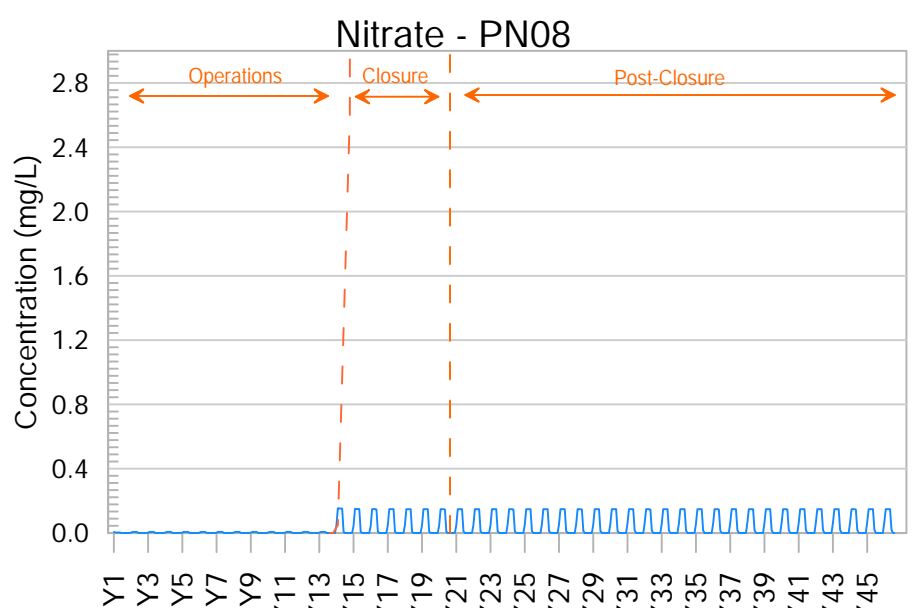
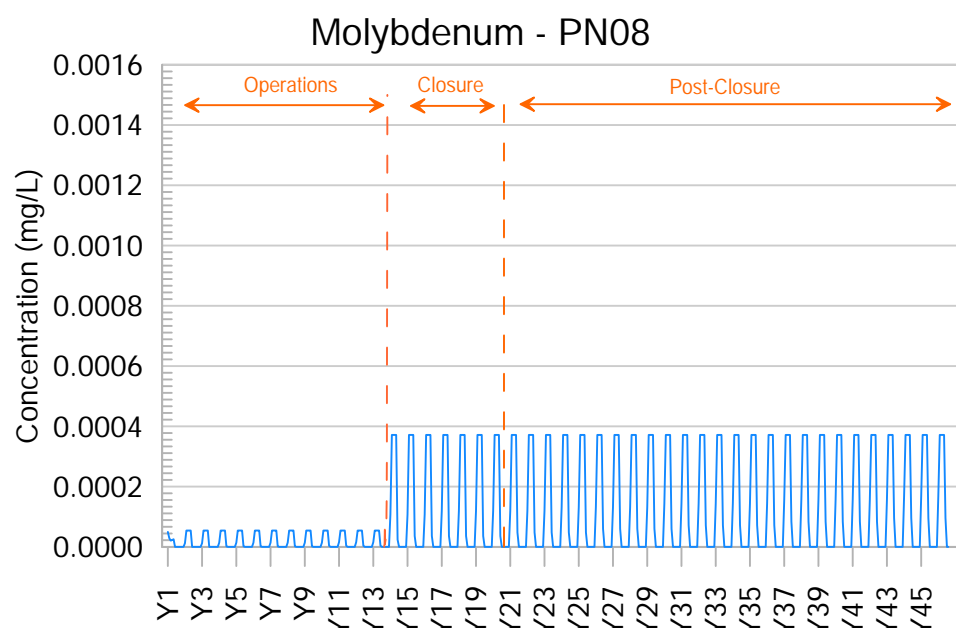
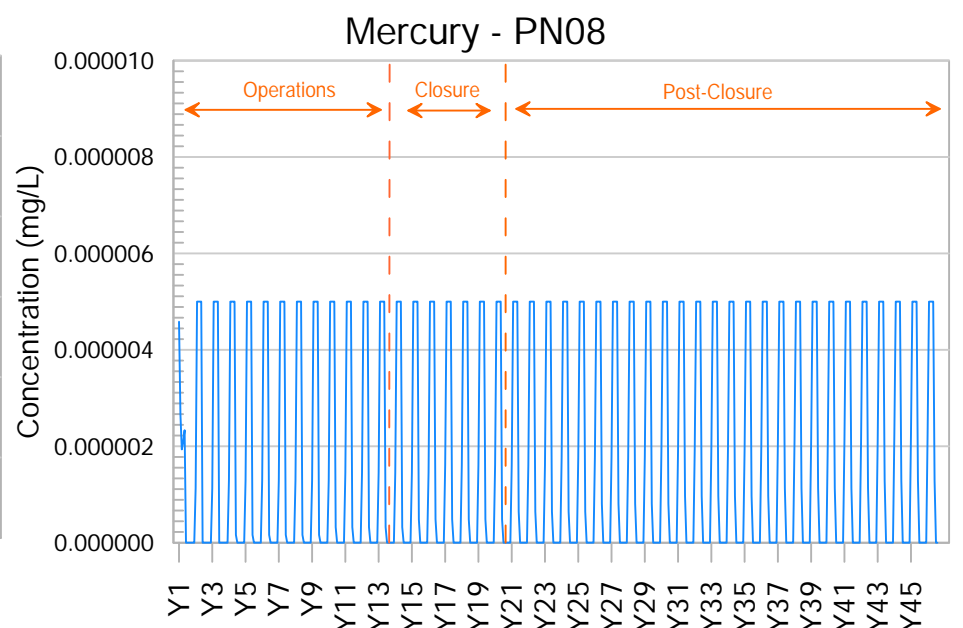
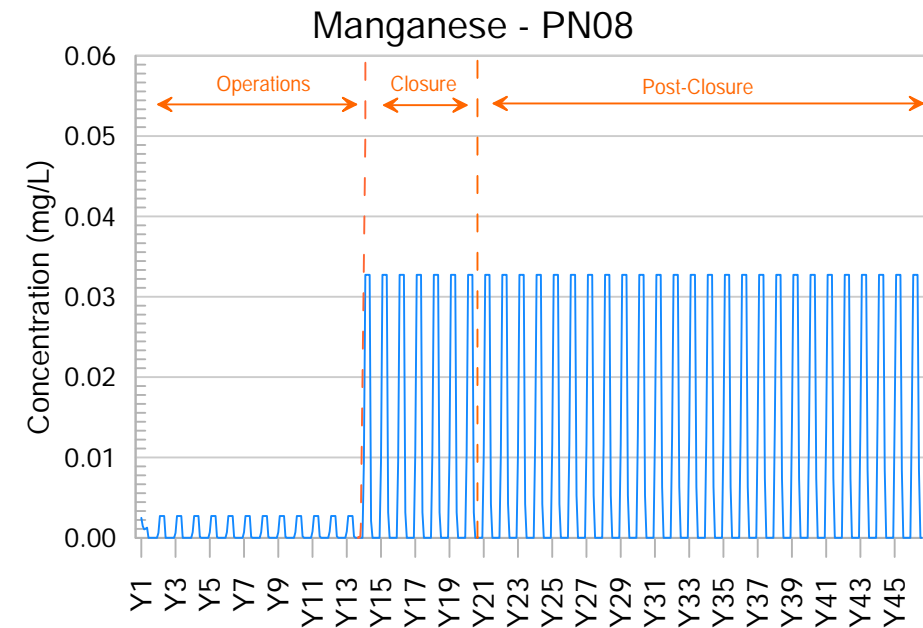
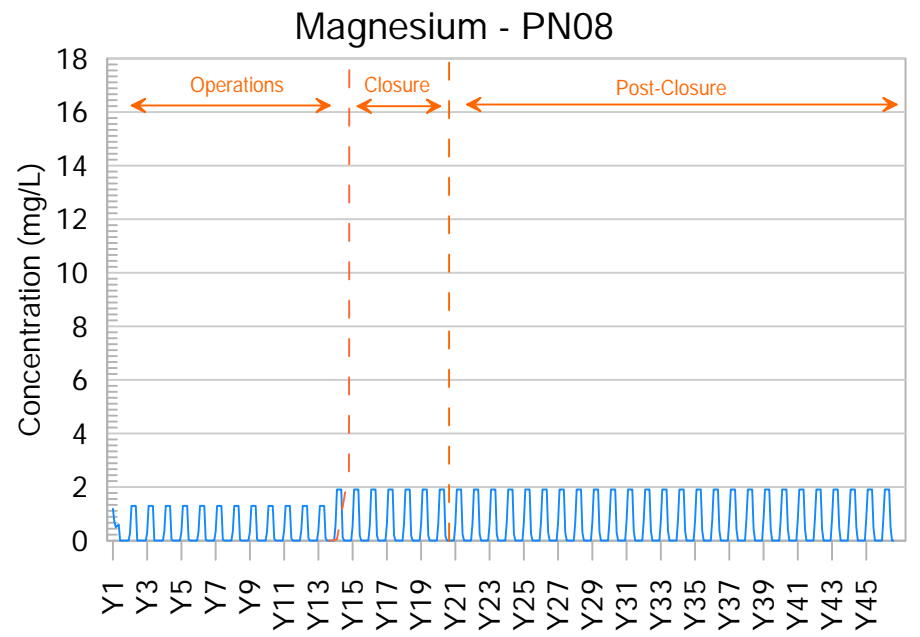
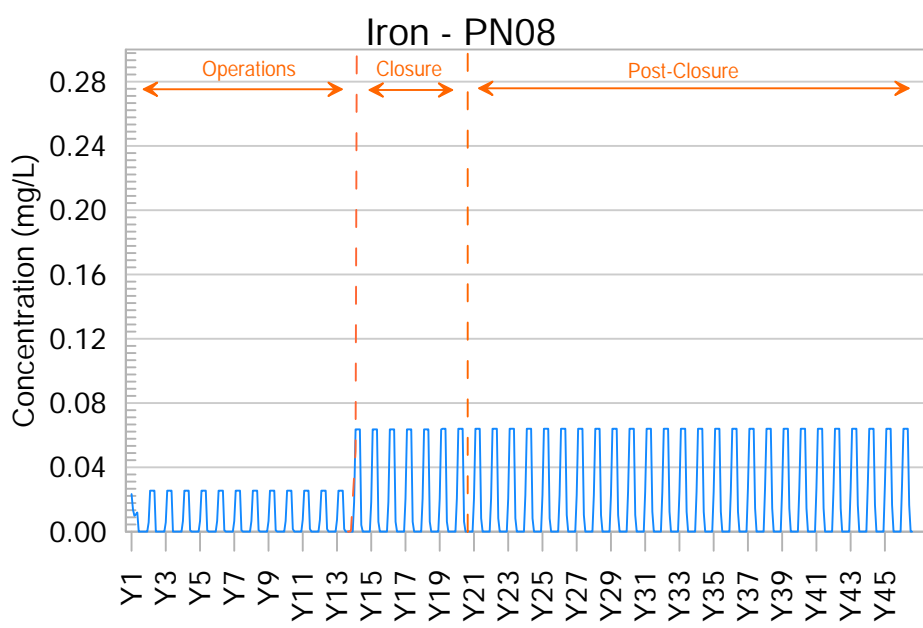


— Monthly Mean

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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN08 (PART 3)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-18



— Monthly Mean

NOTES:

1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
2. The seasonal zero values are added to the plot to represent winter frozen conditions.
3. Unless BGC agrees otherwise in writing, this figure shall not be modified or used for the purpose other than the purpose for which BGC generated it. BGC shall have no liability for any damages of loss arising in any way from any use or modification of this document not authorized by BGC. Any use of the reliance upon this document or its content by third parties shall be at such third parties' sole risk.

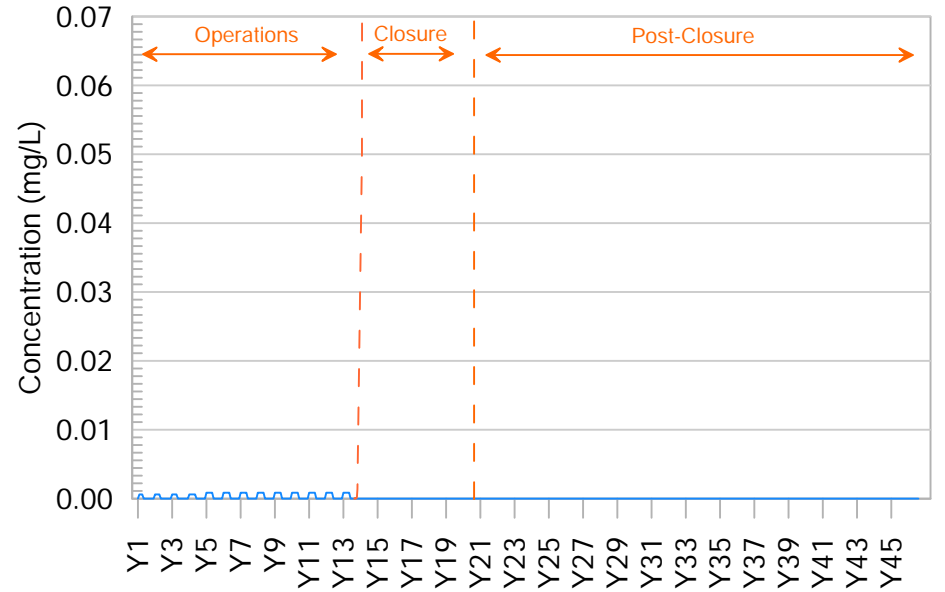
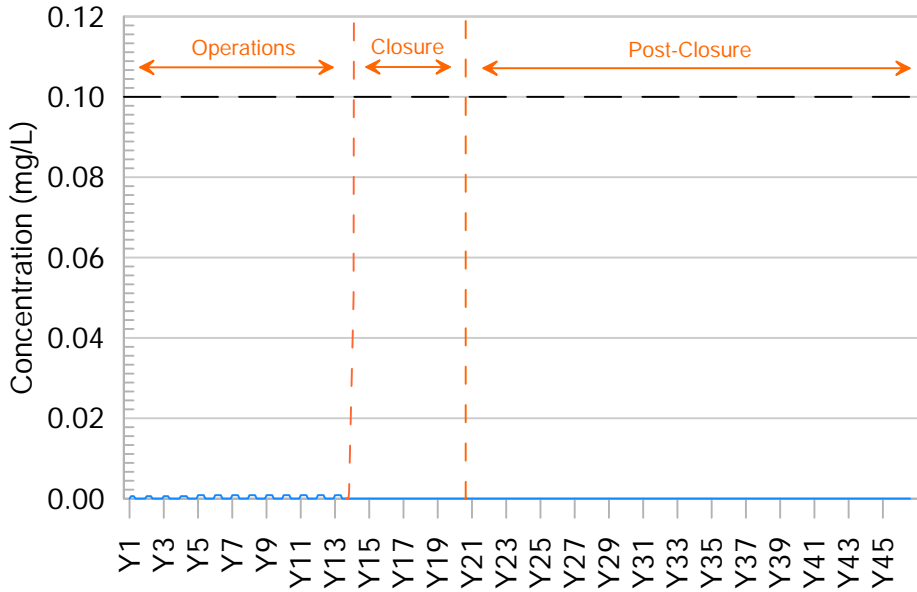
PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN08 (PART 4)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-19



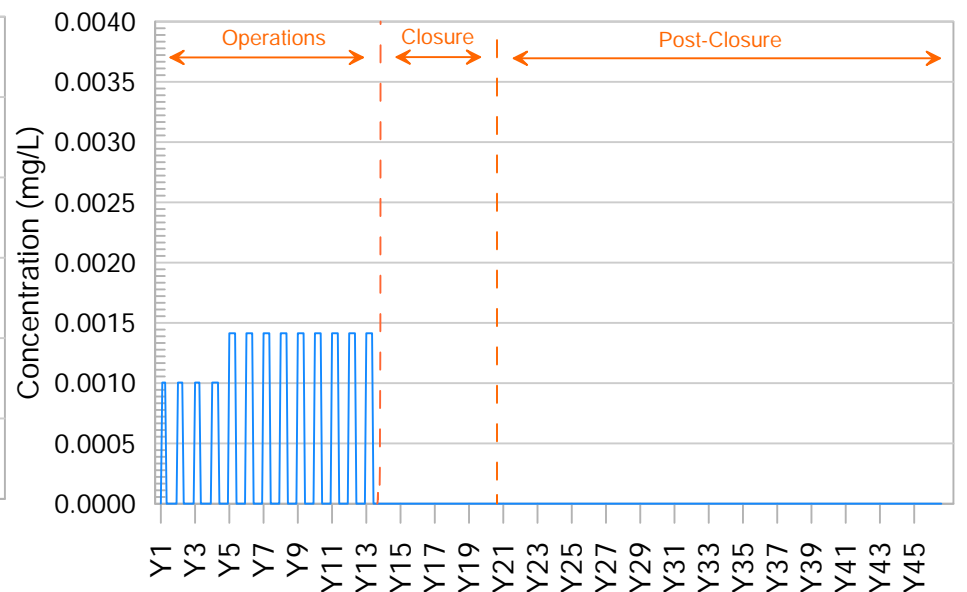
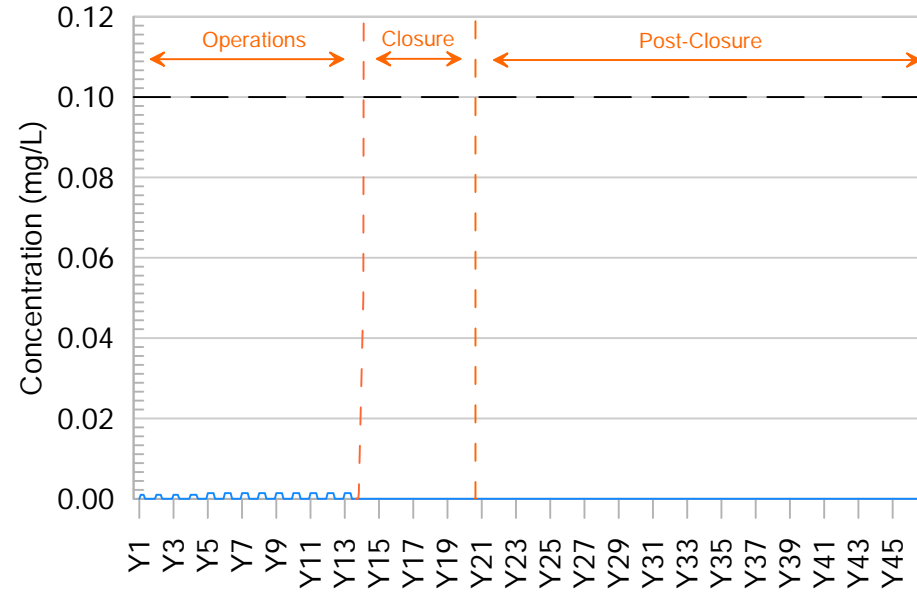
NOTES:
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN08 (PART 5)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-20

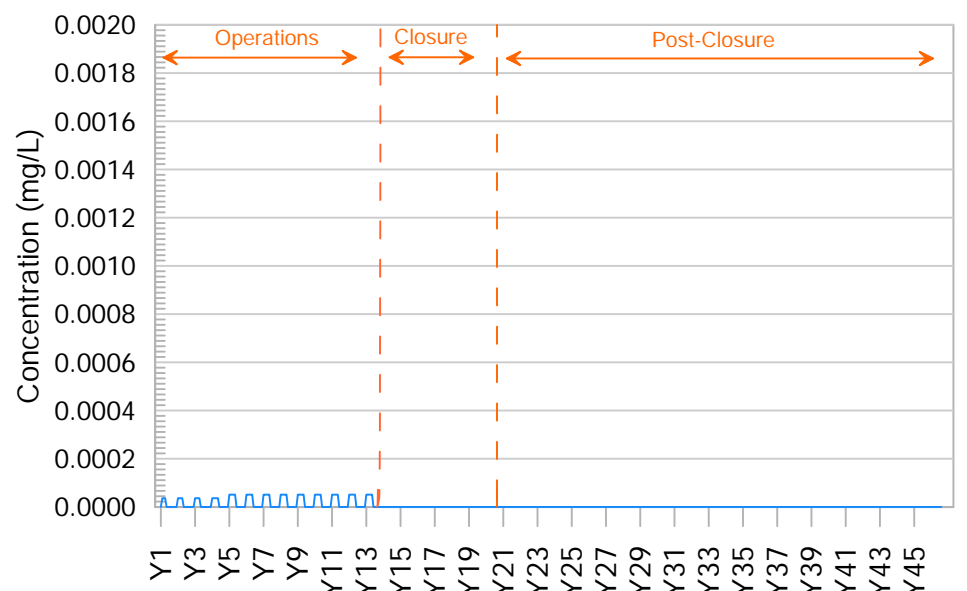
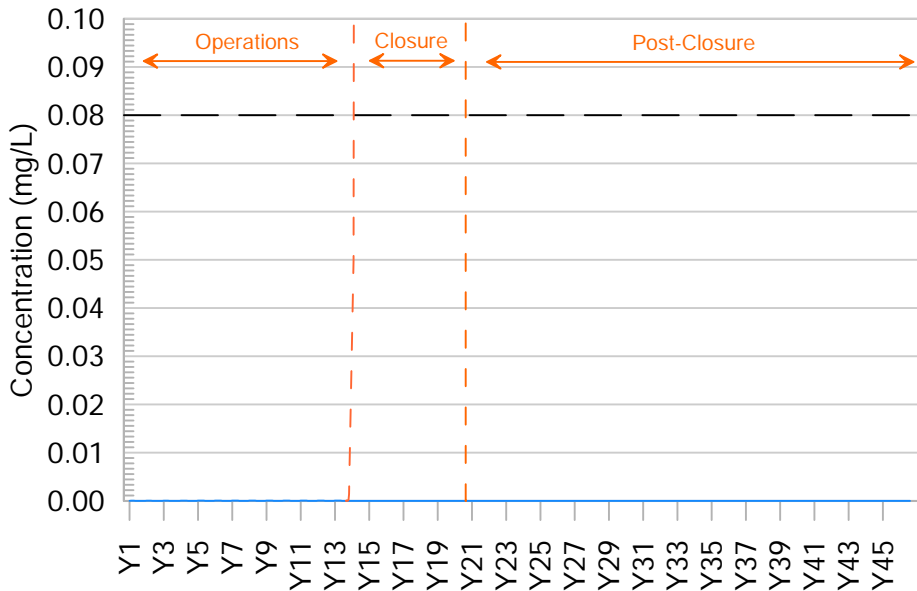
Arsenic - PN09



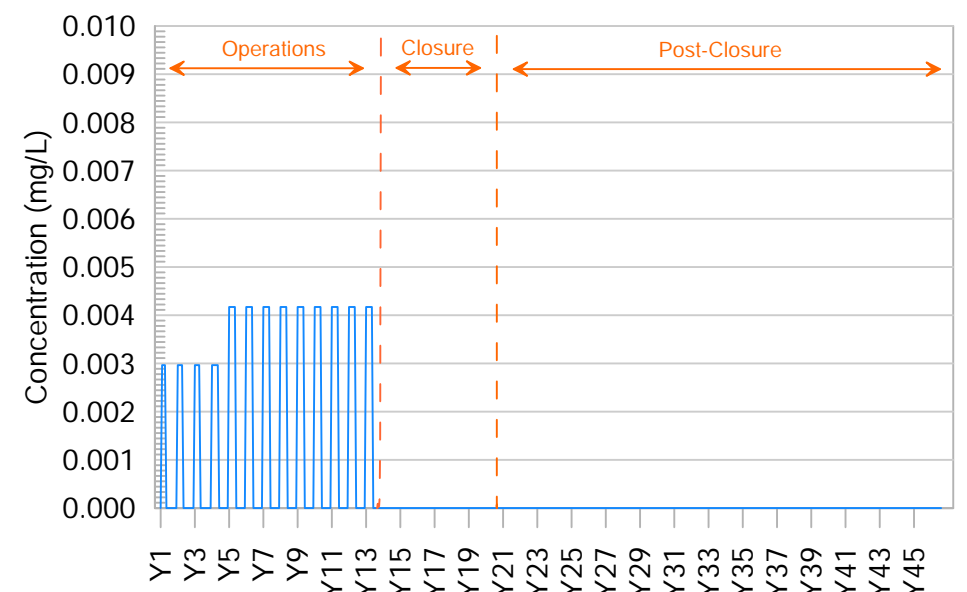
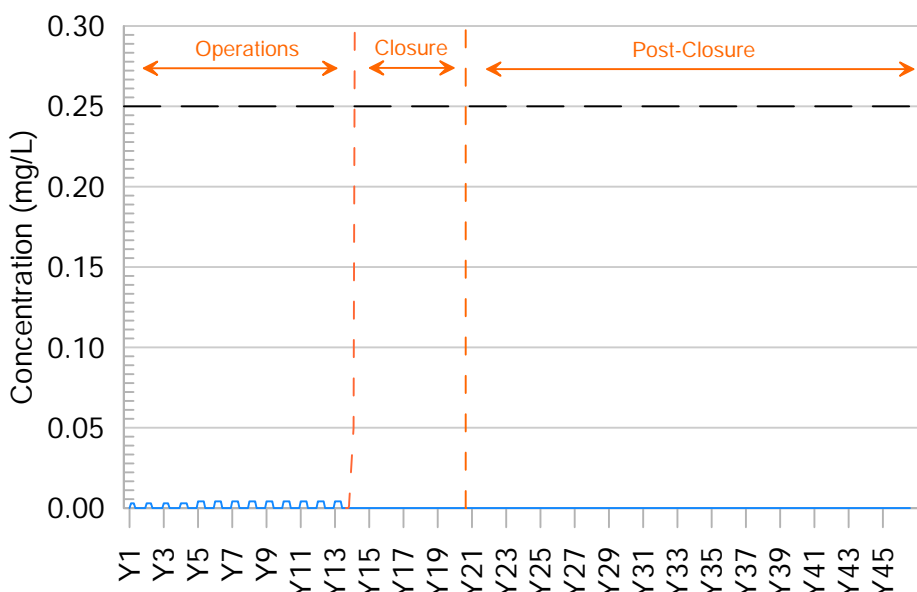
Copper - PN09



Lead - PN09



Nickel - PN09



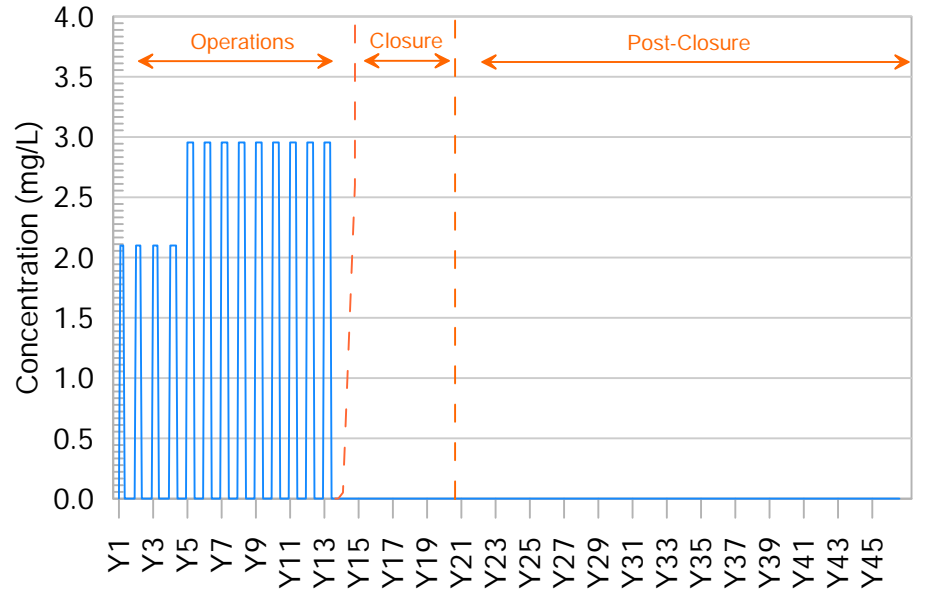
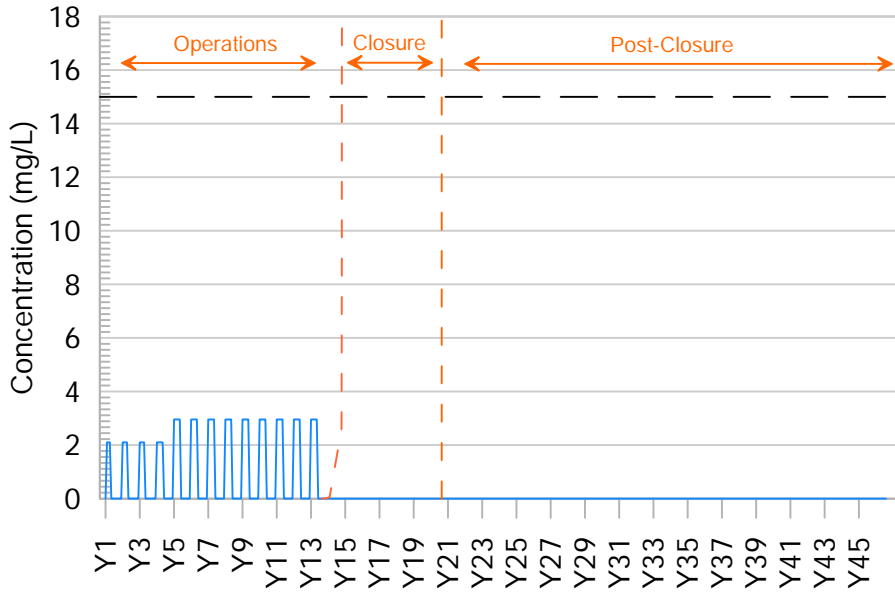
— Monthly Mean - - - MDMER

NOTES:

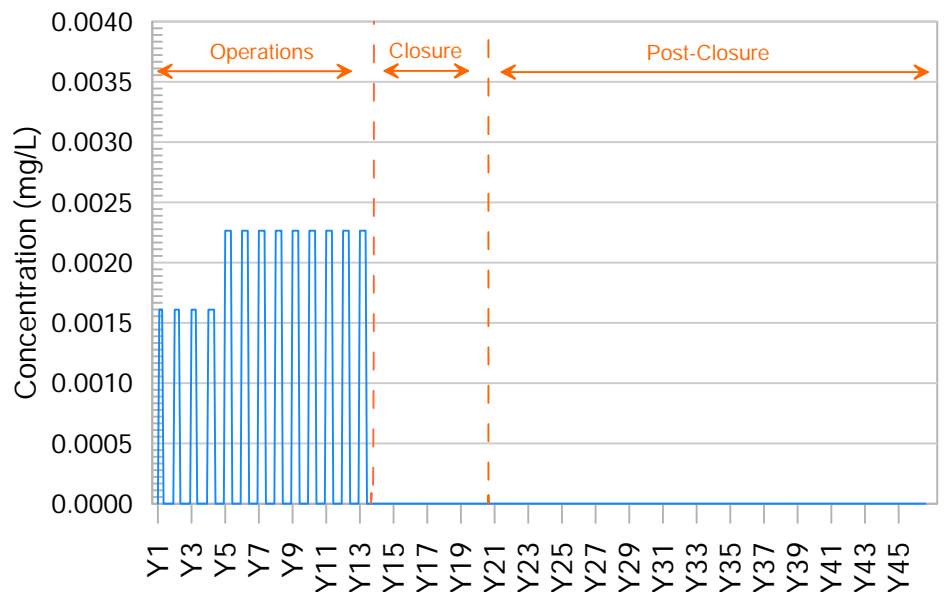
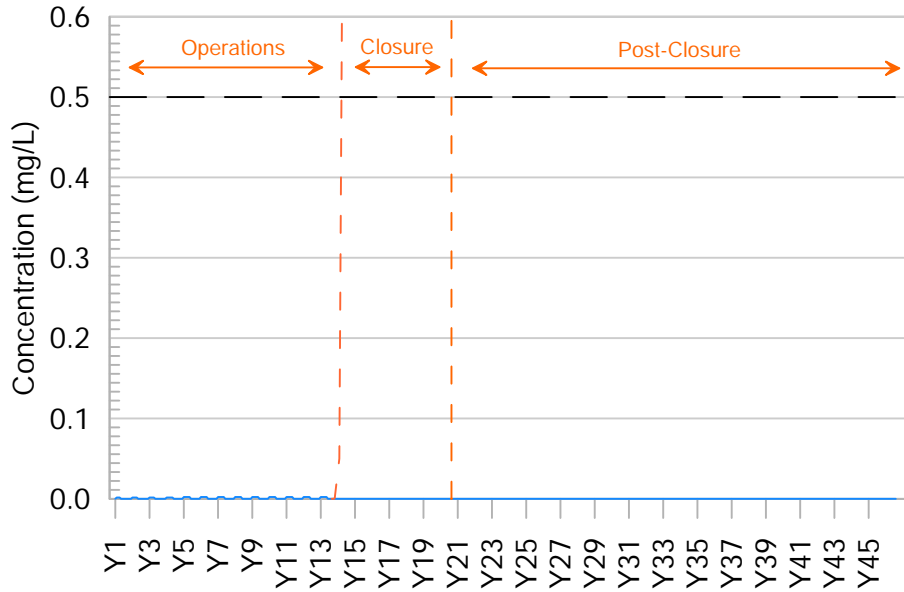
1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN09 (PART 1)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-21

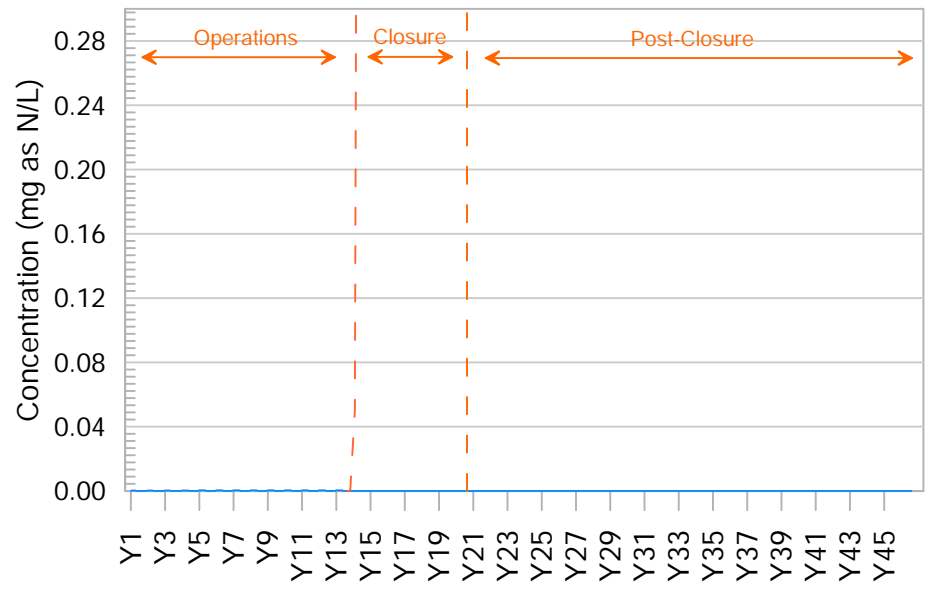
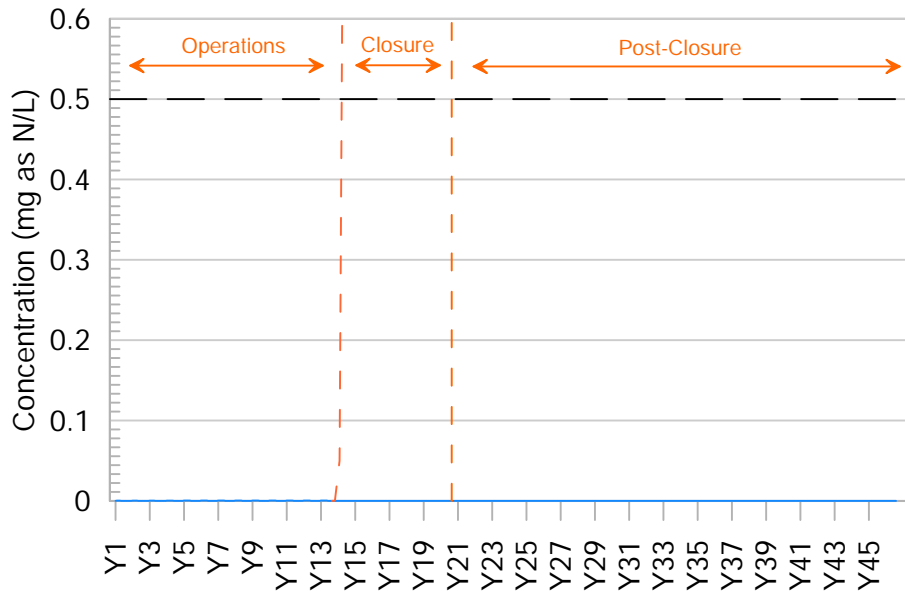
TSS - PN09



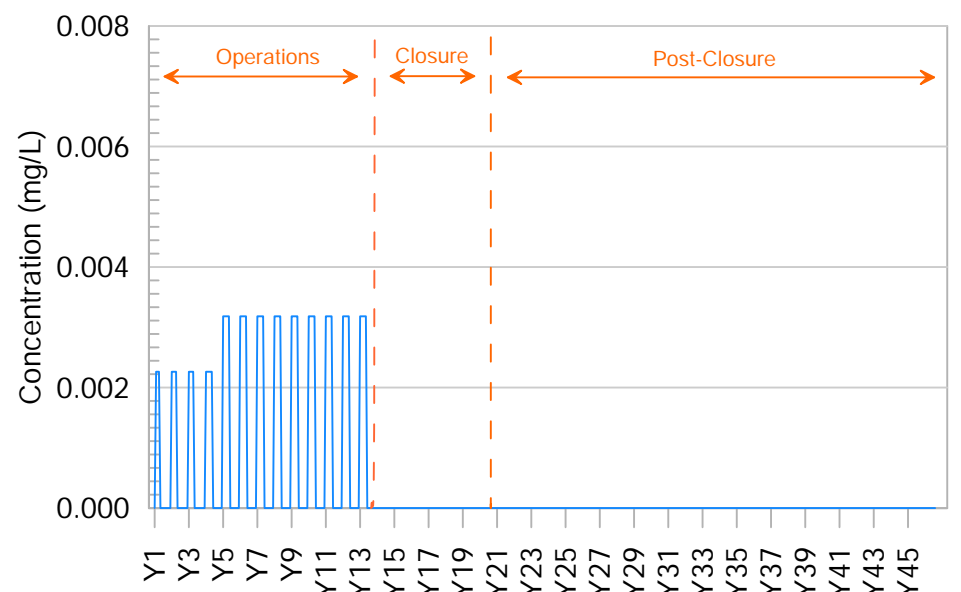
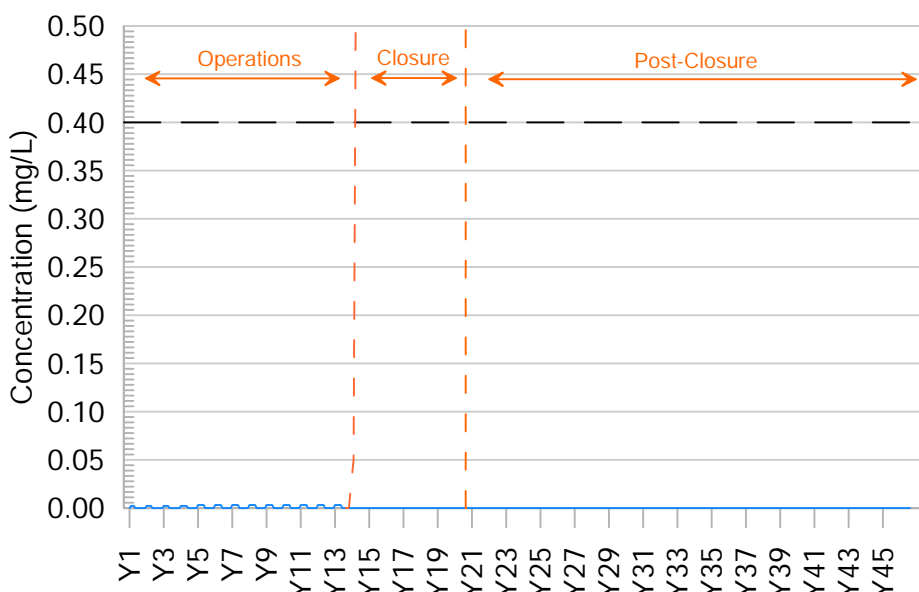
Total CN - PN09



Un-ionized Ammonia - PN09



Zinc - PN09

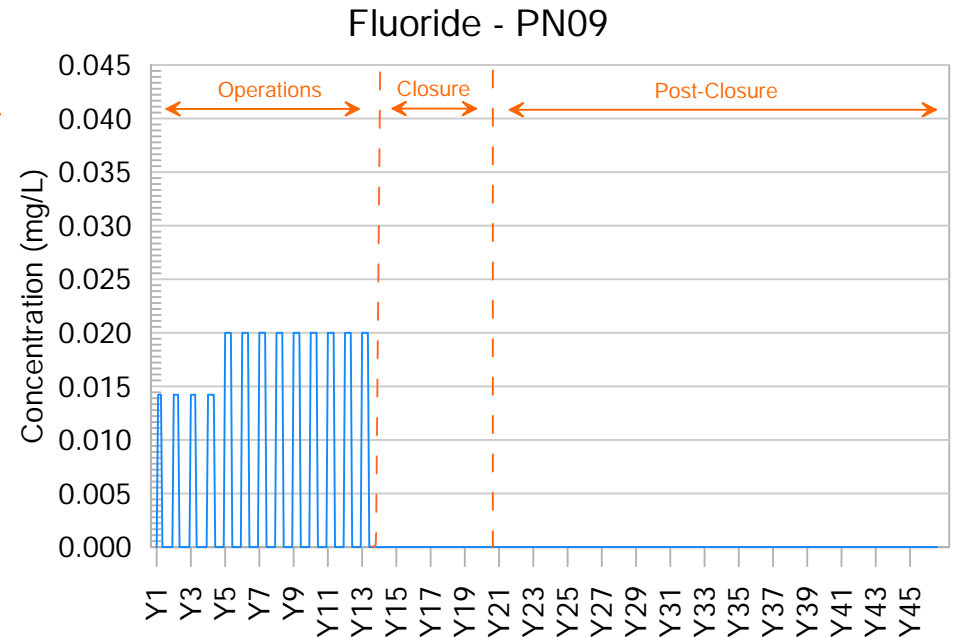
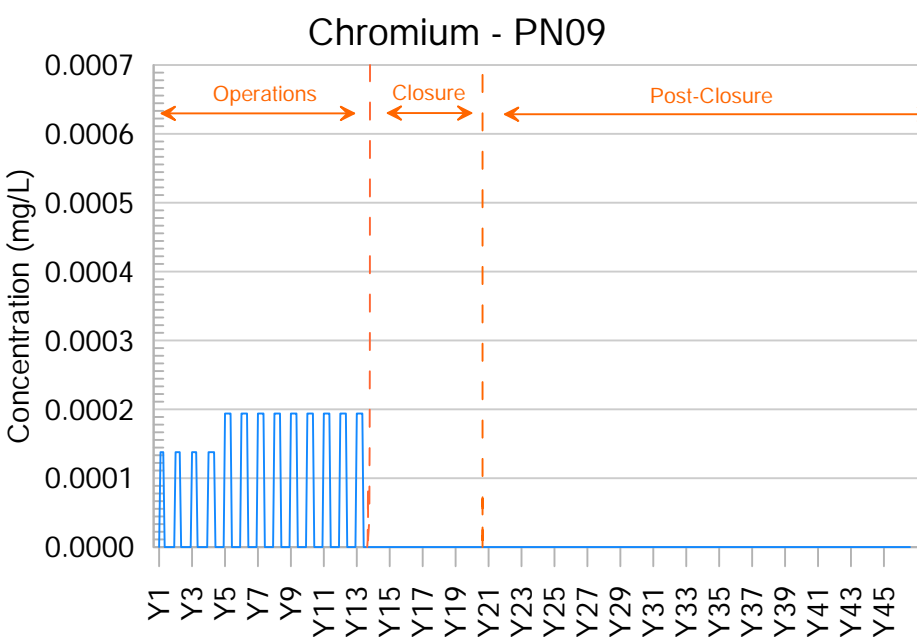
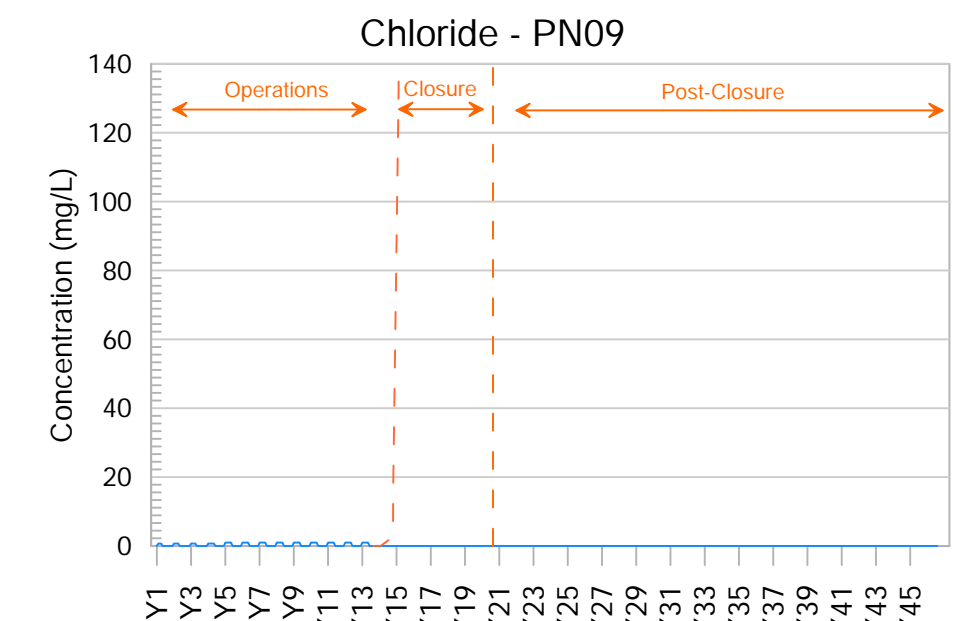
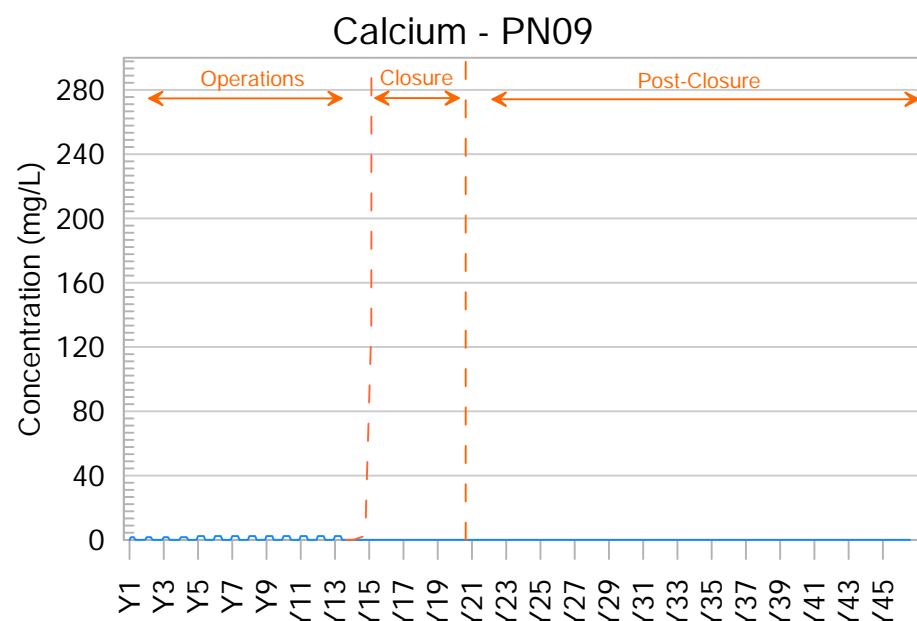
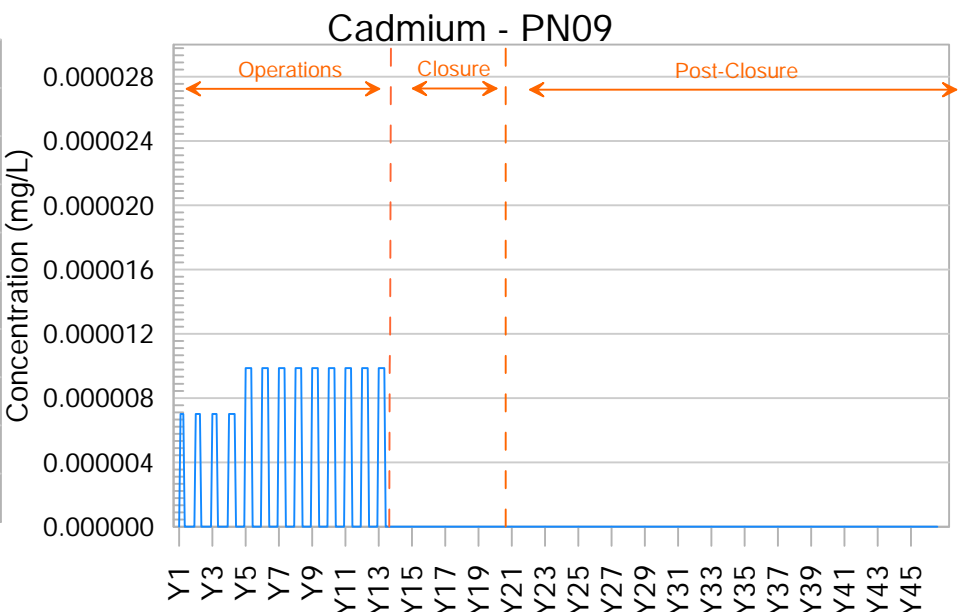
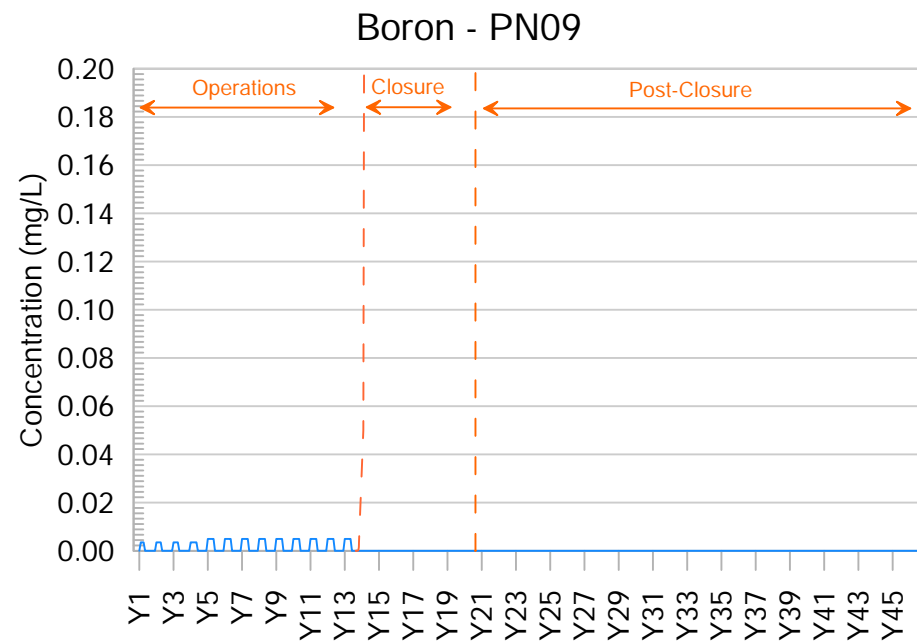
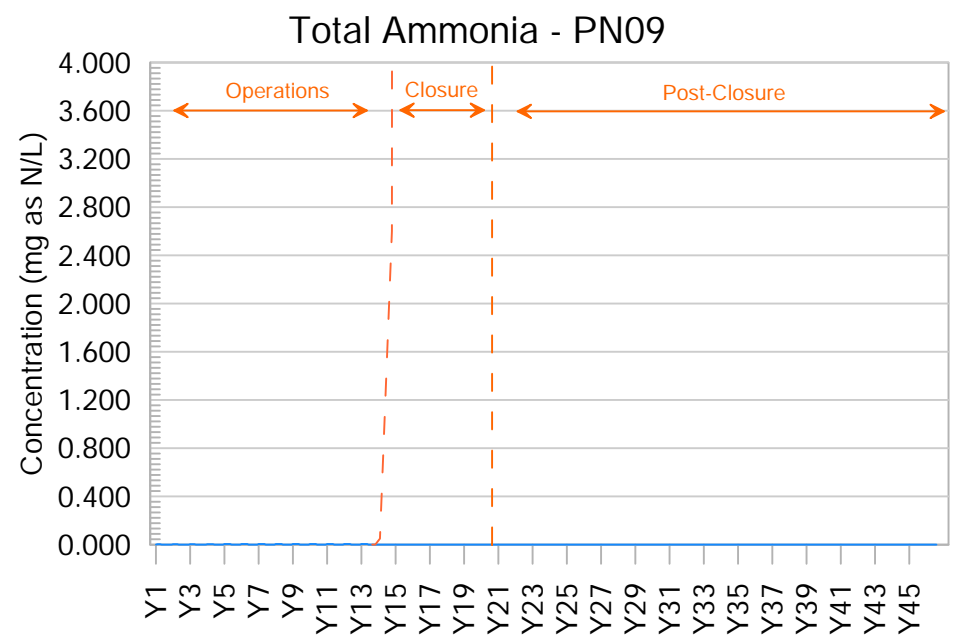
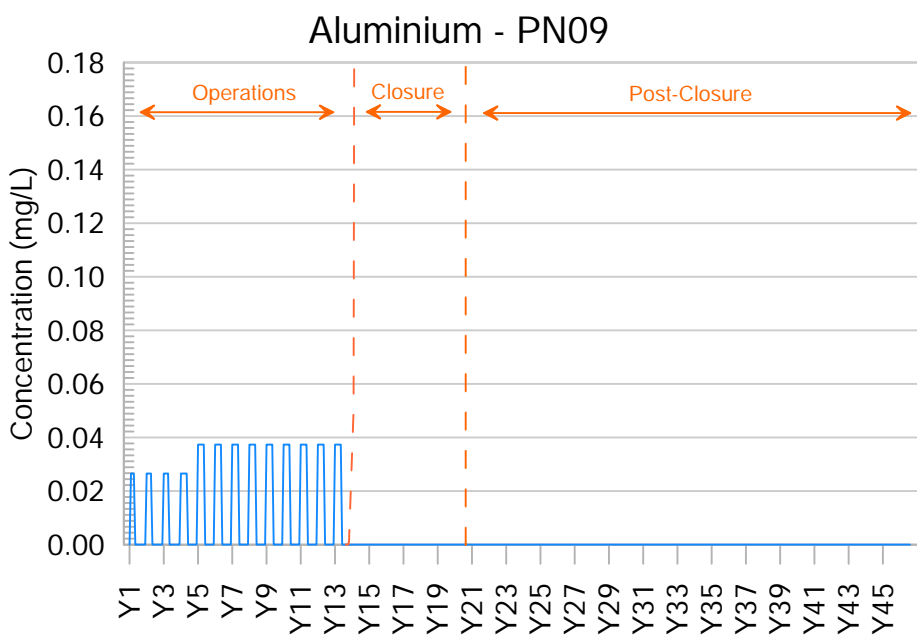


— Monthly Mean — MDMER

NOTES:

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2. The seasonal zero values are added to the plot to represent winter frozen conditions.
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN09 (PART 2)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-22

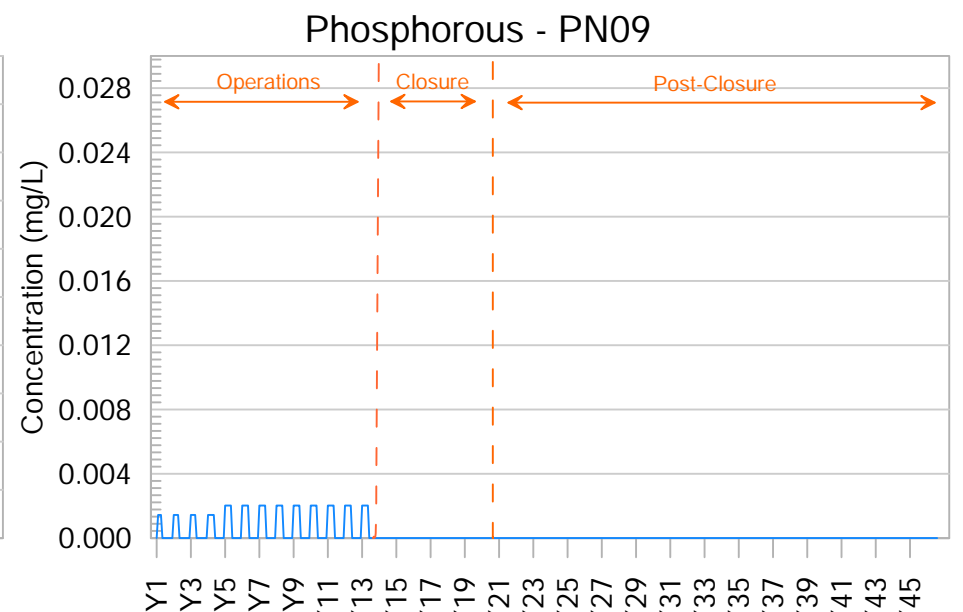
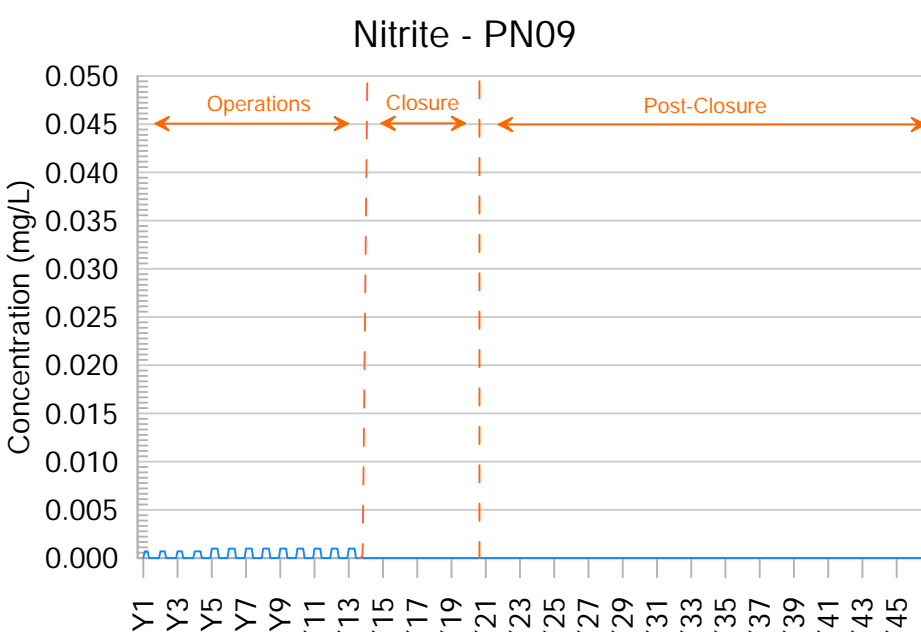
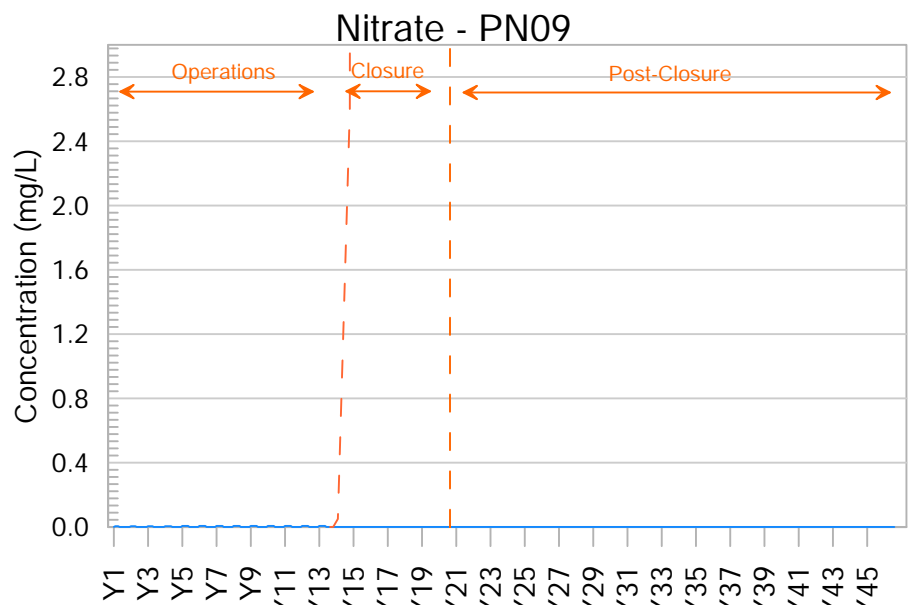
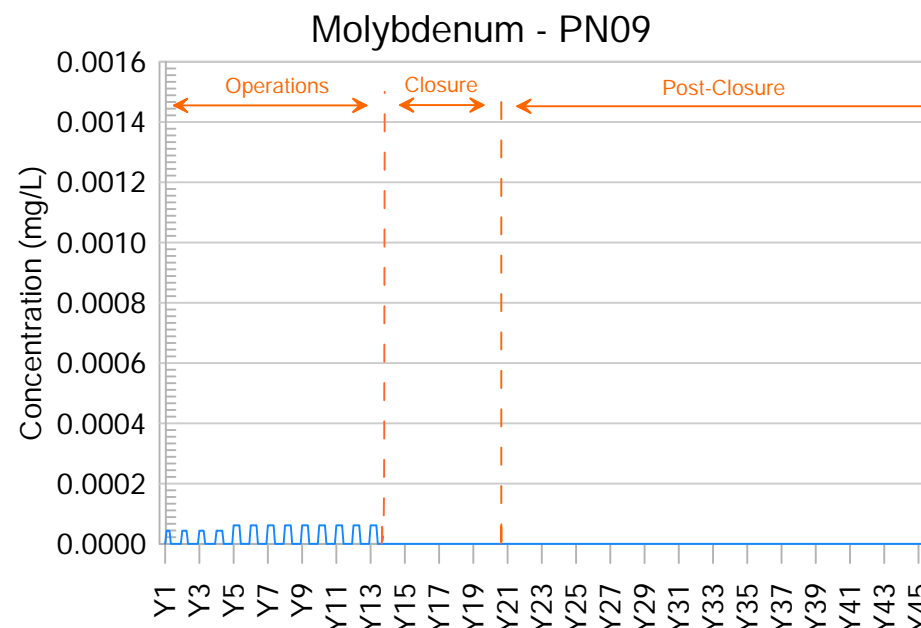
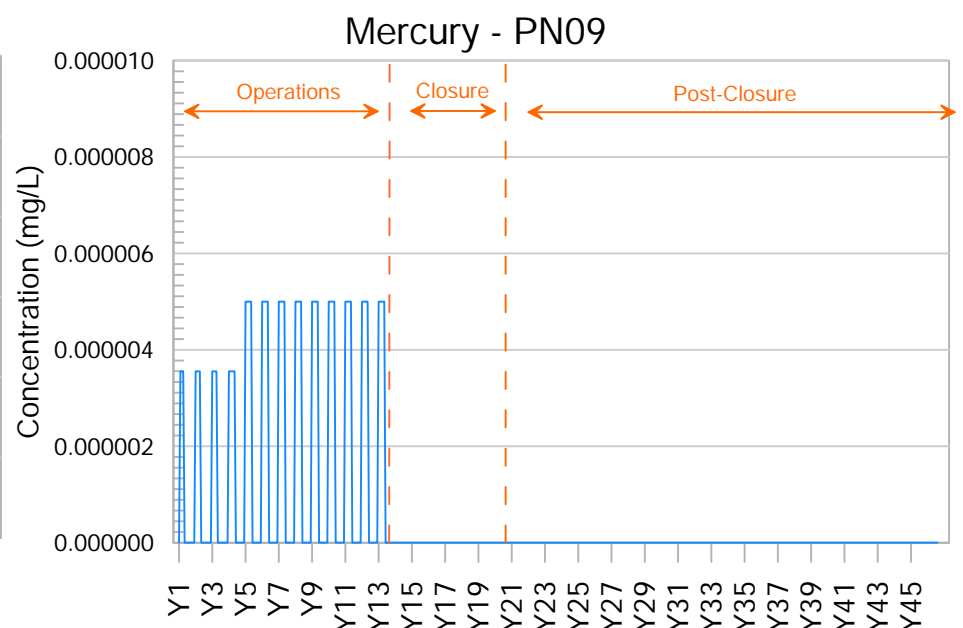
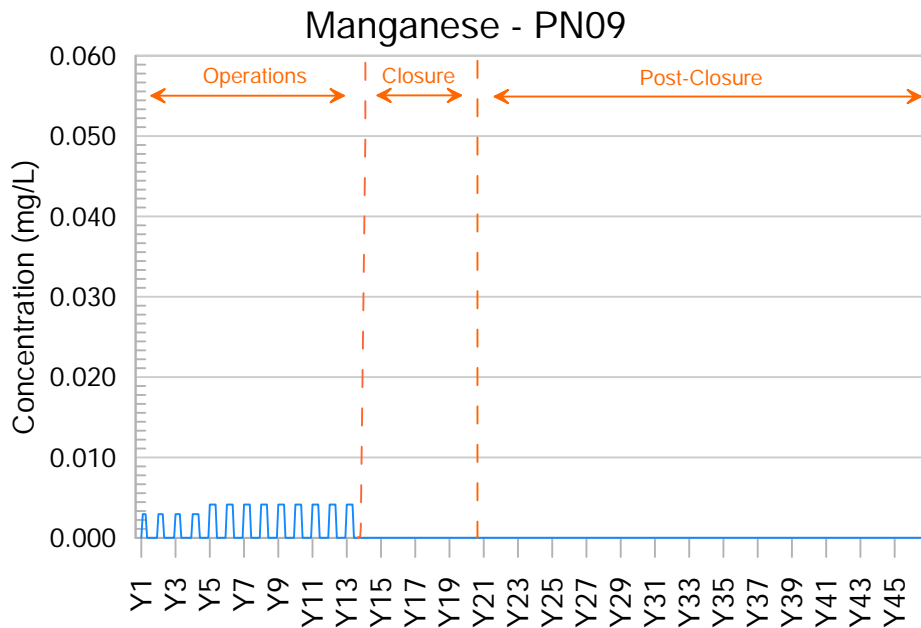
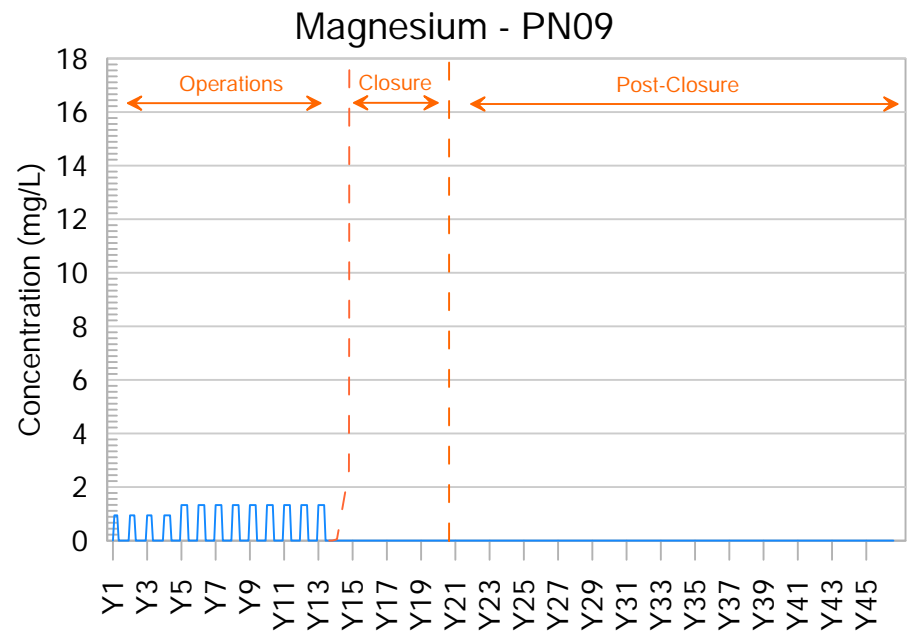
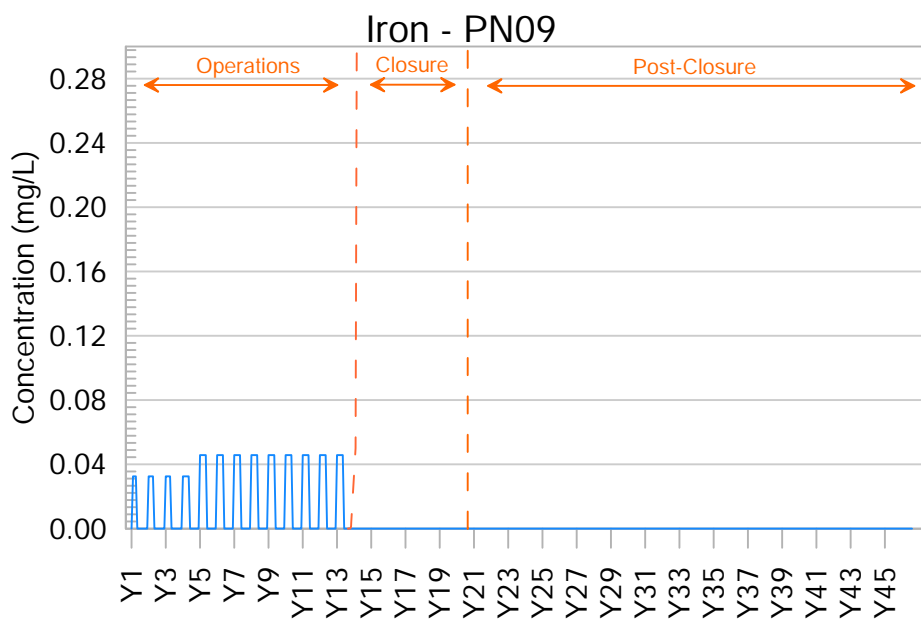


— Monthly Mean

NOTES:

1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
2. The seasonal zero values are added to the plot to represent winter frozen conditions.
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN09 (PART 3)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-23

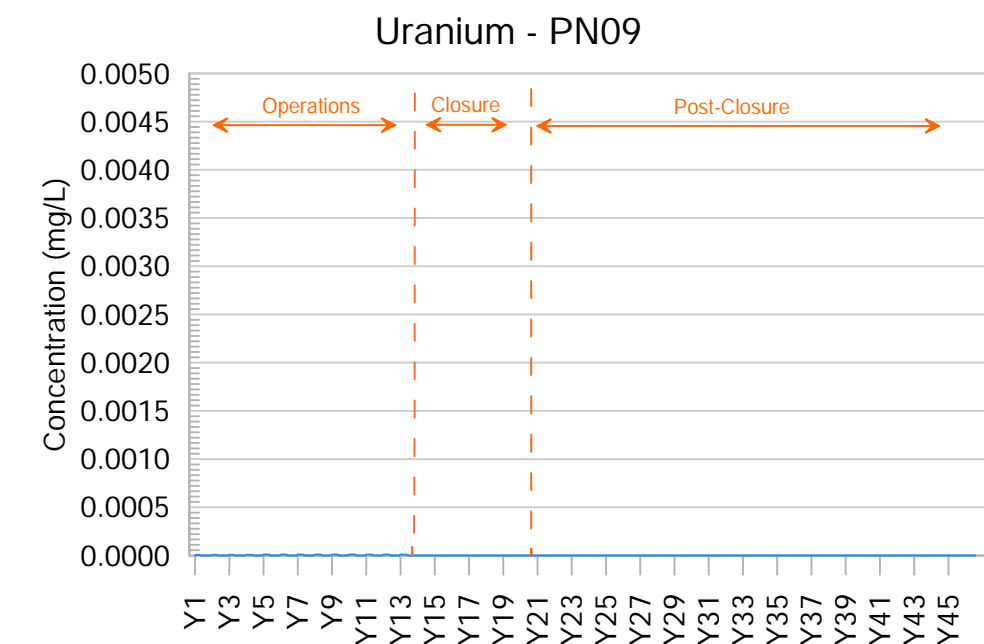
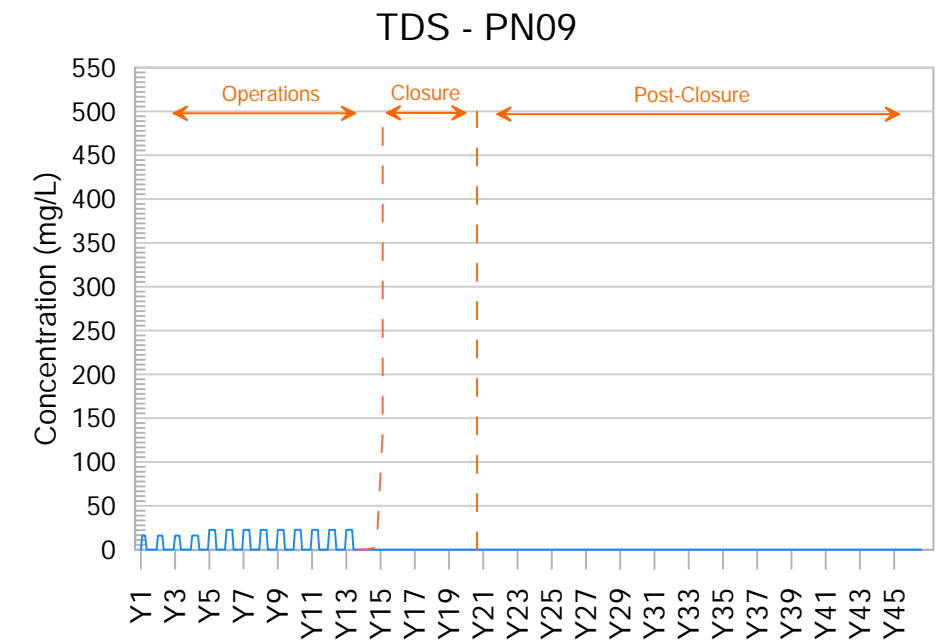
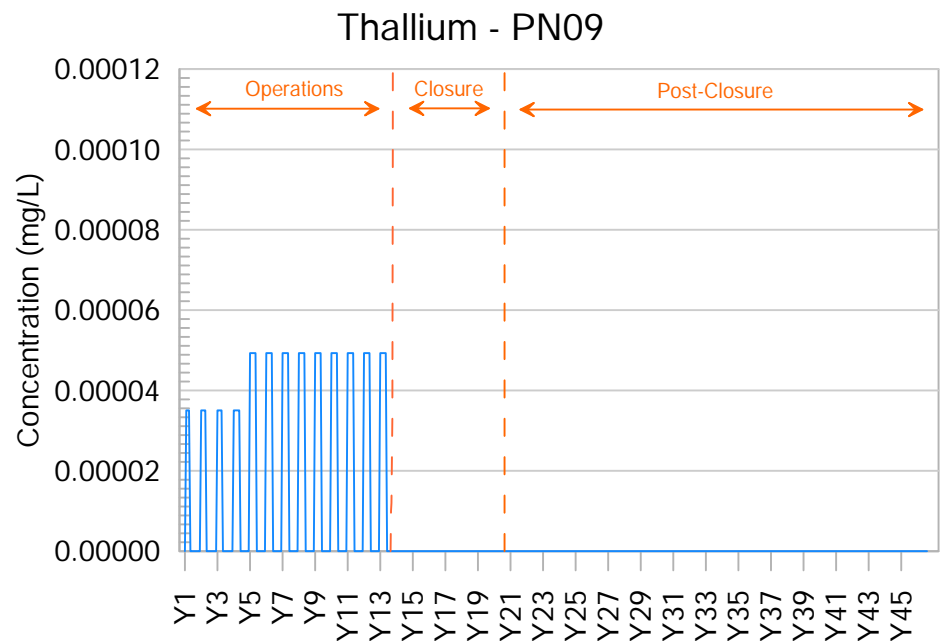
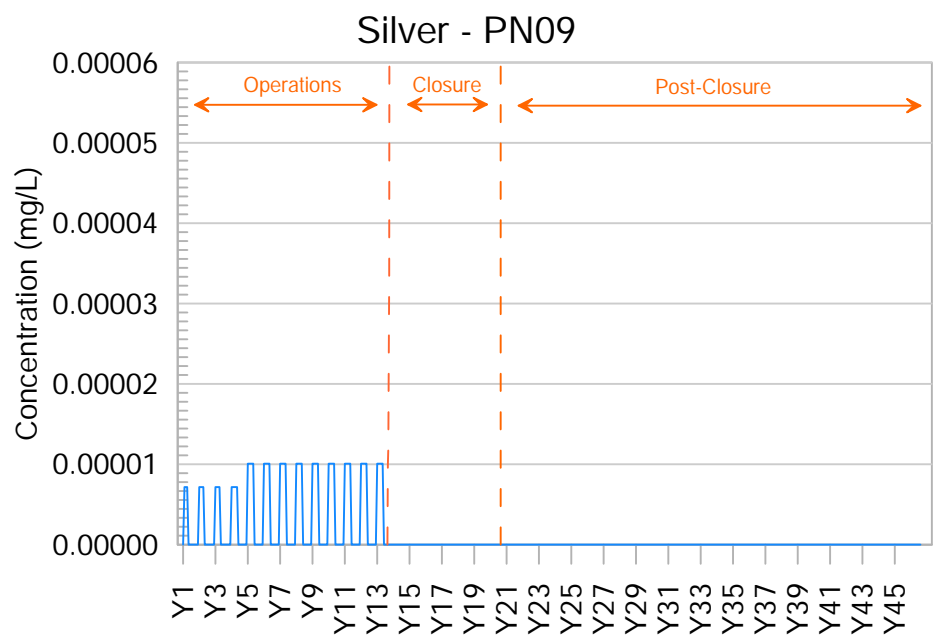
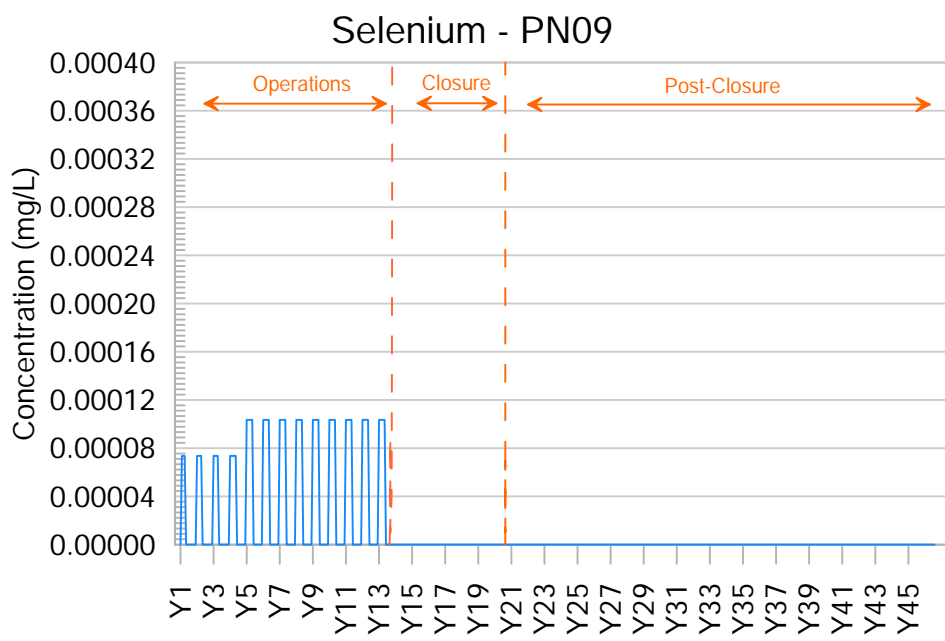


— Monthly Mean

NOTES:

1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
2. The seasonal zero values are added to the plot to represent winter frozen conditions.
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PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN09 (PART 4)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-24



— Monthly Mean

NOTES:

1. This Figure should be read in conjunction with BGC's report titled "2026 Goose Project 2026 Water and Load Balance Report", and dated March 2026.
2. The seasonal zero values are added to the plot to represent winter frozen conditions.
3. Unless BGC agrees otherwise in writing, this figure shall not be modified or used for the purpose other than the purpose for which BGC generated it. BGC shall have no liability for any damages of loss arising in any way from any use or modification of this document not authorized by BGC. Any use of the reliance upon this document or its content by third parties shall be at such third parties' sole risk.

PREPARED BY: ZMM	FIGURE TITLE: PREDICTED CONCENTRATIONS AT PN09 (PART 5)		
CHECKED BY: IMC	CLIENT: B2GOLD Back River Corporation		
APPROVED BY: PC	SCALE: N/A	PROJECT NO: 1829001	FIGURE NO: F-25

APPENDIX G

PREDICTED MAXIMUM MONTHLY AVERAGE CONCENTRATIONS PER MINE PHASE AT EACH PREDICATION NODE FOR AVERAGE HYDROLOGICAL CONDITIONS



Table G-1 Predicted maximum monthly average concentrations per mine phase at each prediction node for average hydrological conditions (50th percentile).

Constituents	Units	MDMER Limit ^(a)	PN04			PN05			PN06			PN08			PN09 ^(b)
			Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations
Alkalinity	mg/L		6.2	7.1	6.5	2.1	2.8	2.2	2.0	2.0	2.0	2.1	6.1	6.0	2.3
Aluminum	mg/L		0.14	0.14	0.12	0.016	0.074	0.022	0.013	0.013	0.013	0.021	0.045	0.045	0.037
Un-ionized ammonia	mg-N/L	0.5	0.012	0.26	0.24	0.0004	0.00038	0.000076	0.00040	0.00040	0.00040	0.00039	0.00066	0.00037	0.00039
Antimony	mg/L		0.00012	0.00049	0.00037	0.000053	0.00012	0.000074	0.000051	0.000051	0.000051	0.000055	0.00021	0.00021	0.000064
Arsenic	mg/L	0.1	0.0036	0.055	0.043	0.00031	0.0021	0.0010	0.00024	0.00024	0.00024	0.00043	0.014	0.014	0.00085
Barium	mg/L		0.0085	0.0072	0.0066	0.0051	0.094	0.036	0.0051	0.0051	0.0051	0.0051	0.0055	0.0055	0.0052
Beryllium	mg/L		0.00019	0.00018	0.00017	0.00020	0.00019	0.00018	0.00020	0.00020	0.00020	0.00020	0.00019	0.00019	0.00020
Bismuth	mg/L		0.00047	0.00046	0.00043	0.00050	0.0011	0.00066	0.00050	0.00050	0.0005	0.00050	0.00049	0.00049	0.00049
Boron	mg/L		0.0052	0.042	0.033	0.0050	0.064	0.025	0.0050	0.0050	0.005	0.0050	0.13	0.070	0.0049
Cadmium	mg/L		0.0000095	0.000014	0.000013	0.00001	0.000022	0.000013	0.00001	0.00001	0.00001	0.00001	0.000015	0.000015	0.0000099
Calcium	mg/L		4.1	14	9.7	2.2	240	84	2.2	2.2	2.2	2.2	5.3	5.3	2.4
Chloride	mg/L		5.4	7.0	4.6	1.0	110	120	1.0	1.0	1.0	0.99	1.9	1.9	0.98
Chromium	mg/L		0.00037	0.00061	0.00049	0.00016	0.00026	0.00018	0.00015	0.00015	0.00015	0.00017	0.00048	0.00032	0.00019
Cobalt	mg/L		0.0015	0.003	0.0025	0.00017	0.00077	0.00032	0.00014	0.00014	0.00014	0.00022	0.0015	0.0015	0.00039
Copper	mg/L	0.1	0.0015	0.0033	0.0030	0.0014	0.0015	0.0013	0.0014	0.0014	0.0014	0.0014	0.0020	0.0020	0.0014
Cyanate	mg/L		0.0000033	2.6	1.2	0	0.000011	0.000012	0	0	0	0	0	0	0
Fluoride	mg/L		0.020	0.022	0.021	0.020	0.020	0.018	0.020	0.020	0.020	0.020	0.022	0.022	0.020
Free Cyanide	mg/L		0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	mg/L		18	30	32	11	670	240	11	11	11	11	66	66	11
Iron	mg/L		0.18	0.25	0.21	0.020	0.09	0.046	0.016	0.016	0.016	0.025	0.064	0.064	0.046
Lead	mg/L	0.08	0.000055	0.0017	0.0011	0.00005	0.00012	0.000070	0.000050	0.000050	0.000050	0.000050	0.00031	0.00016	0.000051
Lithium	mg/L		0.0047	0.0074	0.0064	0.0050	0.11	0.041	0.0050	0.0050	0.0050	0.0050	0.013	0.0088	0.0049
Magnesium	mg/L		2.0	1.6	1.7	1.3	16	6.3	1.3	1.3	1.3	1.3	1.9	1.9	1.3
Manganese	mg/L		0.013	0.017	0.017	0.0023	0.048	0.018	0.0020	0.0020	0.0020	0.0027	0.033	0.033	0.0041
Mercury	mg/L		0.0000068	0.0000054	0.0000051	0.0000050	0.0000050	0.0000046	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Molybdenum	mg/L		0.00011	0.0014	0.00094	0.000052	0.00068	0.00027	0.000051	0.000051	0.000051	0.000054	0.00037	0.00037	0.000062
Nickel	mg/L	0.25	0.0076	0.0080	0.0081	0.0035	0.0054	0.0034	0.0034	0.0034	0.0034	0.0036	0.0074	0.0074	0.0042
Nitrate	mg-N/L		0.25	2.4	1.8	0.0065	0.023	0.015	0.0065	0.0065	0.0065	0.0065	0.15	0.15	0.0064
Nitrite	mg-N/L		0.013	0.032	0.030	0.0010	0.0028	0.0015	0.0010	0.0010	0.0010	0.00099	0.037	0.036	0.00098
Orthophosphate	mg-P/L		0.00095	0.00092	0.00076	0.0010	0.0017	0.0012	0.0010	0.0010	0.0010	0.00099	0.00092	0.00092	0.00098

Constituents	Units	MDMER Limit ^(a)	PN04			PN05			PN06			PN08			PN09 ^(b)
			Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations
Phosphate	mg-P/L		0.0015	0.000020	0.000012	0	0.0032	0.0011	0	0	0	0	0	0	0
Phosphorus	mg/L		0.0027	0.0066	0.0084	0.0019	0.0094	0.014	0.0019	0.0019	0.0019	0.0019	0.016	0.016	0.002
Potassium	mg/L		0.62	3.6	2.6	0.34	3.9	1.6	0.34	0.34	0.34	0.34	6.9	3.6	0.34
Selenium	mg/L		0.00012	0.00030	0.00023	0.00010	0.00022	0.00014	0.00010	0.00010	0.00010	0.00010	0.00022	0.00022	0.0001
Silicon	mg/L		0.67	1.9	1.6	0.29	0.47	0.31	0.28	0.28	0.28	0.31	2.8	2.5	0.36
Silver	mg/L		0.000010	0.000023	0.000018	0.00001	0.000022	0.000013	0.000010	0.000010	0.000010	0.000010	0.000012	0.000012	0.00001
Sodium	mg/L		0.90	180	100	0.66	100	35	0.66	0.66	0.66	0.66	2	2	0.65
Strontium	mg/L		0.028	0.053	0.036	0.0094	4.8	1.7	0.0094	0.0094	0.0094	0.0094	0.046	0.028	0.0093
Sulphate	mg/L		6.5	280	170	4.2	7	4.9	4.1	4.1	4.1	4.3	18	18	4.6
TDS	mg/L		25	22	21	23	460	290	23	23	23	23	21	21	23
Tellurium	mg/L		0.0019	0.0018	0.0016	0.0020	0.0019	0.0018	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Thallium	mg/L		0.000048	0.000046	0.000041	0.000050	0.00011	0.000066	0.000050	0.000050	0.000050	0.000050	0.000066	0.000056	0.000049
Thiocyanate	mg/L		0	1.1	0.17	0	0	0	0	0	0	0	0	0	0
Thorium	mg/L		0	0.000029	0.000020	0	0.00000031	0.00000011	0	0	0	0	0.000016	0.000016	0
Tin	mg/L		0.000095	0.00018	0.00017	0.0001	0.00022	0.00014	0.0001	0.0001	0.0001	0.000099	0.00073	0.00041	0.000098
Titanium	mg/L		0.013	0.013	0.011	0.010	0.012	0.0095	0.010	0.010	0.010	0.010	0.012	0.012	0.011
TOC	mg/L		3.8	3.7	3.0	4.0	3.9	3.6	4.0	4.0	4.0	4.0	3.7	3.7	3.9
Total Cyanide	mg/L	0.5	0.0022	0.0021	0.0015	0.0023	0.0022	0.00044	0.0023	0.0023	0.0023	0.0023	0.0021	0.0021	0.0023
TSS	mg/L	15	2.8	2.8	2.3	3.0	2.9	2.7	3.0	3.0	3.0	3.0	2.8	2.8	3.0
Uranium	mg/L		0.000011	0.00082	0.00062	0.000010	0.000044	0.000021	0.000010	0.000010	0.000010	0.000010	0.0035	0.0017	0.000010
Vanadium	mg/L		0.00012	0.00050	0.00048	0.000055	0.00056	0.00023	0.000054	0.000054	0.000054	0.000058	0.0033	0.0017	0.000066
WAD Cyanide	mg/L		0	0.000052	0.000031	0	<0.01	<0.01	0	0	0	0	0	0	0
Zinc	mg/L	0.4	0.0039	0.0041	0.0040	0.0030	0.0071	0.0042	0.0030	0.0030	0.0030	0.0031	0.0039	0.0039	0.0032
Zirconium	mg/L		0.00038	0.00037	0.00042	0.00040	0.00039	0.00036	0.00040	0.00040	0.00040	0.00040	0.00063	0.00063	0.00039

Note:

(a) Refer to Table 5-2 for MDMER discharge limits

(b) PN09 is not active after Operations (i.e., at the start of closure)

TDS = total dissolved solids; TOC = total organic carbon; TSS = total suspended solids; WAD = weak acid dissociable; mg/L = milligrams per litre; mg-N/L = milligrams of nitrogen per litre; mg-P/L = milligrams of phosphorus per litre

APPENDIX H

PREDICTED MAXIMUM MONTHLY AVERAGE CONCENTRATIONS PER MINE PHASE AT EACH PREDICATION NODE FOR LOWER AND UPPER BOUND CONCENTRATIONS (5TH AND 95TH PERCENTILES)



Table H-1 Predicted Maximum Monthly Average Concentrations per Mine Phase at Each Prediction Node for Lower Bound Concentration (5th Percentile)

Constituents	Units	MDMER Limit ^(a)	PN04			PN05			PN06			PN08			PN09 ^(b)
			Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations
Alkalinity	mg/L		6.5	5.6	6.1	2.8	2.8	2.1	2.0	2.0	2.0	10.5	6.1	6.0	2.3
Aluminum	mg/L		0.14	0.14	0.11	0.074	0.074	0.021	0.013	0.013	0.013	0.051	0.045	0.045	0.037
Un-ionized ammonia	mg-N/L	0.5	0.025	0.21	0.2	0.0004	0.00038	0.000067	0.00040	0.00040	0.00040	0.00048	0.00040	0.00037	0.00039
Antimony	mg/L		0.00023	0.00035	0.00034	0.000085	0.00011	0.000064	0.000051	0.000051	0.000051	0.00040	0.00021	0.00021	0.000064
Arsenic	mg/L	0.1	0.017	0.03	0.032	0.0018	0.0018	0.00075	0.00024	0.00024	0.00024	0.030	0.014	0.014	0.00085
Barium	mg/L		0.0085	0.006	0.006	0.0053	0.075	0.023	0.0051	0.0051	0.0051	0.0058	0.0055	0.0055	0.0052
Beryllium	mg/L		0.00019	0.00018	0.00016	0.0002	0.00019	0.00018	0.00020	0.00020	0.00020	0.00020	0.00019	0.00019	0.00020
Bismuth	mg/L		0.00047	0.00046	0.00040	0.00050	0.00093	0.00057	0.00050	0.00050	0.0005	0.00050	0.00049	0.00049	0.00049
Boron	mg/L		0.034	0.03	0.031	0.005	0.051	0.016	0.0050	0.0050	0.0050	0.15	0.13	0.070	0.0049
Cadmium	mg/L		0.000012	0.000012	0.000012	0.000010	0.000019	0.000012	0.000010	0.000010	0.000010	0.000022	0.000015	0.000015	0.000010
Calcium	mg/L		4.1	9.7	8.8	2.7	190	49	2.2	2.2	2.2	9.0	5.3	5.3	2.4
Chloride	mg/L		5.4	4.5	4.0	1.0	110	91	1.0	1.0	1.0	2.9	1.9	1.9	0.98
Chromium	mg/L		0.00037	0.0005	0.00045	0.00026	0.00026	0.00017	0.00015	0.00015	0.00015	0.00048	0.00048	0.00032	0.00019
Cobalt	mg/L		0.0017	0.0024	0.0024	0.00077	0.00077	0.00027	0.00014	0.00014	0.00014	0.0027	0.0015	0.0015	0.00039
Copper	mg/L	0.1	0.0015	0.0027	0.0027	0.0015	0.0015	0.0013	0.0014	0.0014	0.0014	0.0027	0.0020	0.0020	0.0014
Cyanate	mg/L		0.0000066	1.5	0.79	0.0000093	0.0000086	0.0000094	0	0	0	0	0	0	0
Fluoride	mg/L		0.02	0.02	0.019	0.02	0.02	0.018	0.020	0.020	0.020	0.024	0.022	0.022	0.020
Free Cyanide	mg/L		0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	mg/L		53	25	31	11	530	140	11	11	11	130	66	66	11
Iron	mg/L		0.18	0.21	0.19	0.09	0.09	0.037	0.016	0.016	0.016	0.083	0.064	0.064	0.046
Lead	mg/L	0.08	0.00013	0.0011	0.0009	0.000053	0.00010	0.000060	0.000050	0.000050	0.000050	0.00031	0.00031	0.00016	0.000051
Lithium	mg/L		0.0047	0.0059	0.0060	0.0050	0.086	0.025	0.0050	0.0050	0.0050	0.013	0.013	0.0088	0.0049
Magnesium	mg/L		2.0	1.5	1.5	1.4	13	4.1	1.3	1.3	1.3	2.6	1.9	1.9	1.3
Manganese	mg/L		0.015	0.015	0.016	0.0073	0.039	0.012	0.0020	0.0020	0.0020	0.068	0.033	0.033	0.0041
Mercury	mg/L		0.0000068	0.000005	0.0000045	0.0000050	0.0000050	0.0000045	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Molybdenum	mg/L		0.00041	0.00093	0.00083	0.000078	0.00055	0.00018	0.000051	0.000051	0.000051	0.00075	0.00037	0.00037	0.000062
Nickel	mg/L	0.25	0.0076	0.0075	0.0075	0.0054	0.0054	0.0034	0.0034	0.0034	0.0034	0.011	0.0074	0.0074	0.0042
Nitrate	mg-N/L		0.52	1.5	1.6	0.012	0.021	0.014	0.0065	0.0065	0.0065	0.32	0.15	0.15	0.0064
Nitrite	mg-N/L		0.033	0.027	0.027	0.001	0.0024	0.0013	0.0010	0.0010	0.0010	0.08	0.036	0.036	0.00098
Orthophosphate	mg-P/L		0.00094	0.00092	0.00074	0.001	0.0015	0.0011	0.0010	0.0010	0.0010	0.00099	0.00092	0.00092	0.00098

Constituents	Units	MDMER Limit ^(a)	PN04			PN05			PN06			PN08			PN09 ^(b)
			Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations
Phosphate	mg-P/L		0.0015	0.000012	0.0000096	0.00000038	0.0025	0.00064	0	0	0	0	0	0	0
Phosphorus	mg/L		0.014	0.0055	0.0078	0.0022	0.0094	0.011	0.0019	0.0019	0.0019	0.033	0.016	0.016	0.0020
Potassium	mg/L		1.7	2.4	2.3	0.34	3.2	1.0	0.34	0.34	0.34	7.7	6.9	3.6	0.34
Selenium	mg/L		0.00014	0.00022	0.00022	0.00011	0.00020	0.00012	0.00010	0.00010	0.00010	0.00036	0.00022	0.00022	0.00010
Silicon	mg/L		1.4	1.5	1.5	0.47	0.47	0.3	0.28	0.28	0.28	5.2	2.8	2.5	0.36
Silver	mg/L		0.00001	0.000017	0.000017	0.00001	0.000019	0.000012	0.000010	0.000010	0.000010	0.000014	0.000012	0.000012	0.000010
Sodium	mg/L		6.3	110	87	0.66	79	21	0.66	0.66	0.66	3.7	2	2	0.65
Strontium	mg/L		0.028	0.035	0.032	0.0094	3.8	0.98	0.0094	0.0094	0.0094	0.050	0.046	0.028	0.0093
Sulphate	mg/L		15	170	140	5.2	6.3	4.5	4.1	4.1	4.1	34	18	18	4.6
TDS	mg/L		25	21	19	23	460	170	23	23	23	23	21	21	23
Tellurium	mg/L		0.0019	0.0018	0.0015	0.002	0.0019	0.0018	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.002
Thallium	mg/L		0.000047	0.000046	0.000039	0.00005	0.000093	0.000057	0.000050	0.000050	0.000050	0.000066	0.000066	0.000056	0.000049
Thiocyanate	mg/L		0.0000079	0.46	0.00083	0	0	0	0	0	0	0	0	0	0
Thorium	mg/L		0.000015	0.000019	0.000018	<0.0000001	0.0000002 4	<0.0000001	0	0	0	0.000036	0.000016	0.000016	0
Tin	mg/L		0.0002	0.00015	0.00016	0.0001	0.0002	0.00012	0.00010	0.00010	0.00010	0.00080	0.00073	0.00041	0.000098
Titanium	mg/L		0.013	0.013	0.011	0.012	0.012	0.0094	0.010	0.010	0.010	0.013	0.012	0.012	0.011
TOC	mg/L		3.8	3.7	3.0	4.0	3.9	3.5	4.0	4.0	4.0	4.0	3.7	3.7	3.9
Total Cyanide	mg/L	0.5	0.0022	0.0021	0.0014	0.0023	0.0022	0.00039	0.0023	0.0023	0.0023	0.0023	0.0021	0.0021	0.0023
TSS	mg/L	15	2.8	2.8	2.2	3.0	2.9	2.7	3.0	3.0	3.0	3.0	2.8	2.8	3.0
Uranium	mg/L		0.00064	0.00055	0.00057	0.000011	0.000037	0.000016	0.000010	0.000010	0.000010	0.0039	0.0035	0.0017	0.00001
Vanadium	mg/L		0.00069	0.00039	0.00046	0.000083	0.00045	0.00015	0.000054	0.000054	0.000054	0.0037	0.0033	0.0017	0.000066
WAD Cyanide	mg/L		0.0000015	0.000032	0.000026	<0.000001	<0.000001	<0.000001	0	0	0	0	0	0	0
Zinc	mg/L	0.4	0.0039	0.0039	0.0037	0.0034	0.0062	0.0036	0.0030	0.0030	0.0030	0.0047	0.0039	0.0039	0.0032
Zirconium	mg/L		0.00044	0.00037	0.0004	0.0004	0.00039	0.00035	0.00040	0.00040	0.00040	0.00092	0.00063	0.00063	0.00039

Note:

- (a) Refer to Table 5-2 for MDMER discharge limits
- (b) PN09 is not active after Operations (i.e., at the start of closure)

TDS = total dissolved solids; TOC = total organic carbon; TSS = total suspended solids; WAD = weak acid dissociable; mg/L = milligrams per litre; mg-N/L = milligrams of nitrogen per litre; mg-P/L = milligrams of phosphorus per litre

Table H-2 Predicted Maximum Monthly Average Concentrations per Mine Phase at Each Prediction Node for Upper Bound Concentration (95th Percentile)

Constituents	Units	MDMER Limit ^(a)	PN04			PN05			PN06			PN08			PN09 ^(b)
			Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations
Alkalinity	mg/L		6.2	8.3	6.8	2.8	2.9	2.2	2.0	2.0	2.0	10.5	6.1	6.0	2.3
Aluminum	mg/L		0.14	0.14	0.13	0.074	0.074	0.022	0.013	0.013	0.013	0.051	0.045	0.045	0.037
Un-ionized ammonia	mg-N/L	0.5	0.025	0.33	0.28	0.00040	0.00038	0.000084	0.00040	0.00040	0.00040	0.0013	0.00065	0.00037	0.00039
Antimony	mg/L		0.00012	0.00058	0.00039	0.000085	0.00013	0.000073	0.000051	0.000051	0.000051	0.0004	0.00021	0.00021	0.000064
Arsenic	mg/L	0.1	0.0036	0.080	0.050	0.0018	0.0024	0.00097	0.00024	0.00024	0.00024	0.03	0.014	0.014	0.00085
Barium	mg/L		0.0085	0.0079	0.0068	0.0053	0.11	0.035	0.0051	0.0051	0.0051	0.0058	0.0055	0.0055	0.0052
Beryllium	mg/L		0.00019	0.00018	0.00017	0.00020	0.00019	0.00018	0.00020	0.00020	0.00020	0.00020	0.00019	0.00019	0.00020
Bismuth	mg/L		0.00049	0.00046	0.00044	0.00050	0.0012	0.00065	0.00050	0.00050	0.00050	0.0005	0.00049	0.00049	0.00049
Boron	mg/L		0.0052	0.050	0.036	0.0050	0.075	0.024	0.0050	0.0050	0.0050	0.15	0.13	0.070	0.0049
Cadmium	mg/L		0.0000098	0.000016	0.000014	0.000010	0.000025	0.000013	0.000010	0.000010	0.000010	0.000022	0.000015	0.000015	0.000010
Calcium	mg/L		4.1	16	11	2.7	280	82	2.2	2.2	2.2	9	5.3	5.3	2.4
Chloride	mg/L		5.4	8.3	5.1	1.0	110	160	1.0	1.0	1.0	2.9	1.9	1.9	1.0
Chromium	mg/L		0.00037	0.00066	0.00052	0.00026	0.00026	0.00018	0.00015	0.00015	0.00015	0.00048	0.00048	0.00032	0.00019
Cobalt	mg/L		0.0015	0.0036	0.0027	0.00077	0.00077	0.00032	0.00014	0.00014	0.00014	0.0027	0.0015	0.0015	0.00039
Copper	mg/L	0.1	0.0016	0.0041	0.0032	0.0015	0.0015	0.0013	0.0014	0.0014	0.0014	0.0027	0.0020	0.0020	0.0014
Cyanate	mg/L		<0.00001	3.3	1.3	0.000015	0.000014	0.000015	0	0	0	0	0	0	0
Fluoride	mg/L		0.020	0.025	0.022	0.020	0.020	0.018	0.020	0.020	0.020	0.024	0.022	0.022	0.020
Free Cyanide	mg/L		0	0	0	0	0	0	0	0	0	0	0	0	0
Hardness	mg/L		18	32	35	11	790	230	11	11	11	132	66	66	11
Iron	mg/L		0.18	0.28	0.22	0.090	0.10	0.045	0.016	0.016	0.016	0.083	0.064	0.064	0.046
Lead	mg/L	0.08	0.000055	0.0022	0.0012	0.000053	0.00013	0.000069	0.000050	0.000050	0.000050	0.00031	0.00031	0.00016	0.000051
Lithium	mg/L		0.0049	0.0083	0.0068	0.0050	0.13	0.040	0.0050	0.0050	0.0050	0.013	0.013	0.0088	0.0049
Magnesium	mg/L		2.0	1.8	1.7	1.4	19	6.1	1.3	1.3	1.3	2.6	1.9	1.9	1.3
Manganese	mg/L		0.013	0.019	0.017	0.0073	0.057	0.018	0.0020	0.0020	0.0020	0.068	0.033	0.033	0.0041
Mercury	mg/L		0.0000068	0.0000059	0.0000052	0.0000050	0.0000050	0.0000046	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050
Molybdenum	mg/L		0.00011	0.0017	0.0010	0.000078	0.00080	0.00026	0.000051	0.000051	0.000051	0.00075	0.00037	0.00037	0.000062
Nickel	mg/L	0.25	0.0076	0.0085	0.0083	0.0054	0.0054	0.0034	0.0034	0.0034	0.0034	0.011	0.0074	0.0074	0.0042
Nitrate	mg-N/L		0.52	2.9	2.0	0.012	0.025	0.015	0.0065	0.0065	0.0065	0.32	0.15	0.15	0.0064
Nitrite	mg-N/L		0.026	0.041	0.034	0.0010	0.0031	0.0015	0.0010	0.0010	0.0010	0.080	0.037	0.036	0.00098
Orthophosphate	mg-P/L		0.00096	0.00092	0.00077	0.0010	0.0019	0.0012	0.0010	0.0010	0.0010	0.00099	0.00092	0.00092	0.00098
Phosphate	mg-P/L		0.0015	0.000027	0.000014	0.0000010	0.0038	0.0011	0	0	0	0	0	0	0

Constituents	Units	MDMER Limit ^(a)	PN04			PN05			PN06			PN08			PN09 ^(b)
			Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations	Closure	Post-Closure	Operations
Phosphorus	mg/L		0.0027	0.0073	0.0089	0.0022	0.0094	0.018	0.0019	0.0019	0.0019	0.033	0.016	0.016	0.0020
Potassium	mg/L		0.62	4.4	2.8	0.34	4.6	1.5	0.34	0.34	0.34	7.7	6.9	3.6	0.34
Selenium	mg/L		0.00012	0.00034	0.00024	0.00011	0.00025	0.00013	0.00010	0.00010	0.00010	0.00036	0.00022	0.00022	0.00010
Silicon	mg/L		0.67	2.2	1.7	0.47	0.47	0.31	0.28	0.28	0.28	5.2	2.8	2.5	0.36
Silver	mg/L		0.00001	0.000027	0.000019	0.000010	0.000024	0.000013	0.000010	0.000010	0.000010	0.000014	0.000012	0.000012	0.000010
Sodium	mg/L		<1	210	110	0.66	120	34	<1	<1	<1	1	2	2	<1
Strontium	mg/L		0.028	0.066	0.04	0.0099	5.7	1.7	0.0094	0.0094	0.0094	0.05	0.046	0.028	0.0093
Sulphate	mg/L		6.5	340	180	5.2	7.6	4.8	4.1	4.1	4.1	34	18	18	4.6
TDS	mg/L		25	23	21	23	460	280	23	23	23	23	21	21	23
Tellurium	mg/L		0.0019	0.0018	0.0016	0.0020	0.0019	0.0018	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020
Thallium	mg/L		0.000049	0.000047	0.000042	0.000050	0.00012	0.000065	0.000050	0.000050	0.000050	0.000066	0.000066	0.000056	0.000049
Thiocyanate	mg/L		0	1.9	0.12	0	0	0	0	0	0	0	0	0	0
Thorium	mg/L		0	0.000034	0.000022	<0.0000001	0.00000036	0.00000010	0	0	0	0.000036	0.000016	0.000016	0
Tin	mg/L		0.000097	0.0002	0.00018	0.00010	0.00025	0.00013	0.00010	0.00010	0.00010	0.0008	0.00073	0.00041	0.000098
Titanium	mg/L		0.013	0.013	0.012	0.012	0.012	0.0095	0.010	0.010	0.010	0.013	0.012	0.012	0.011
TOC	mg/L		3.9	3.7	3.1	4.0	3.9	3.6	4.0	4.0	4.0	4.0	3.7	3.7	3.9
Total Cyanide	mg/L	0.5	0.0022	0.0021	0.0016	0.0023	0.0022	0.00049	0.0023	0.0023	0.0023	0.0023	0.0021	0.0021	0.0023
TSS	mg/L	15	2.9	2.8	2.3	3.0	2.9	2.7	3.0	3.0	3.0	3.0	2.8	2.8	3.0
Uranium	mg/L		0.000011	0.0010	0.00069	0.000011	0.000050	0.000021	0.000010	0.000010	0.000010	0.0039	0.0035	0.0017	0.000010
Vanadium	mg/L		0.00012	0.00057	0.00051	0.000083	0.00066	0.00022	0.000054	0.000054	0.000054	0.0037	0.0033	0.0017	0.000066
WAD Cyanide	mg/L		0	0.000063	0.000034	<0.000001	<0.000001	<0.000001	0	0	0	0	0	0	0
Zinc	mg/L	0.4	0.0039	0.0043	0.0041	0.0034	0.0079	0.0042	0.0030	0.0030	0.0030	0.0047	0.0039	0.0039	0.0032
Zirconium	mg/L		0.00039	0.00040	0.00043	0.00040	0.00039	0.00036	0.00040	0.00040	0.00040	0.00092	0.00063	0.00063	0.00039

Note:

(a) Refer to Table 5-2 for MDMER discharge limits

(b) PN09 is not active after Operations (i.e., at the start of closure)

TDS = total dissolved solids; TOC = total organic carbon; TSS = total suspended solids; WAD = weak acid dissociable; mg/L = milligrams per litre; mg-N/L = milligrams of nitrogen per litre; mg-P/L = milligrams of phosphorus per litre