Volume 1 Annex V1-7 Type A Water Licence Applications

Package P5-4

Madrid-Boston Project Water and Load Balance,
Hope Bay Project

MAC RESOURCES

Madrid-Boston Project Water and Load Balance, Hope Bay Project

Prepared for

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SRK Consulting (Canada) Inc.
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Change Log

The following table provides an overview of material changes to this report from the previous version issued as Appendix V3-2D as part of the DEIS for Phase 2 of the Hope Bay Project dated December 2016.

Changes by Section

Information Request, Technical Comment, or Other Change	Section	Comments
ECCC-IR9	3.7.6	No model change.
ECCC-IR10		No model change.
ECCC-IR11	3.7.8	A water treatment facility at Doris has been added to treat the Doris TIA and mine water.
ECCC-IR12	3.7.11	No model change.
ECCC-IR13	3.7.5	Applicable model parameters are presented in Appendix C-2 and Section 3.7.5 of this report.
ECCC-IR15	3.3.5; 3.5.1	The same methodology for Madrid contact water was applied in the FEIS model (water is transferred to the Doris TIA). The same methodology for Boston sewage management was applied with updated values. During Construction (2020-2021) and closure (2030-2031), treated sewage will be discharged to the tundra at a rate of 90 m^3/day. During operations sewage will be discharged at a rate of 90 m^3/day along with the combined water treatment plant effluent to Aimaokatalok lake via a diffuser.
ECCC-IR17	3.7.3	No model change, the Boston TMA geomembrane cover at closure was still considered in the model.
ECCC-IR18	3.7.4	No model or report change needed. Refer to memorandum: 'Information Requests received from Environment and Climate Change Canada regarding the Draft Environmental Impact Statement for the Madrid-Boston Phase 2 Project', dated March 17, 2017.
INAC-IR7	3.7.5	No model change.
INAC-IR10	3.7.14	Change to cryoconcentration modelling method.
INAC-IR17	3.5.1	No model change.
INAC-IR18	3.3.2	Model updated to include a lake evaporation of 284 mm for Doris and 291 mm for Boston and the updated evaporation distribution for each.
KIA-IR129/KIA-DEIS-40		No model change.
KIA-IR130	Appendix A	Total Phosphorous included in model parameters.
KIA-IR136	3.3.5 and 3.4.2	No model change.
KIA-IR139	3.7.10	No model change.
KIA-IR140	3.7.10	No model change.
KIA-IR141/ KIA-DEIS-47	3.7.14	Change to cryoconcentration modelling method.

Information Request, Technical Comment, or Other Change	Section	Comments
KIA-DEIS-38	8.3	High mine flows modeled.
KIA-DEIS-41	Appendix A	Total Phosphorous included in model parameters.
KIA-DEIS-43		No model change.
KIA-DEIS-48	3.4.3 and 3.3.6	Additional bathymetry and stage storage curve data were added to the model.
KIA-DEIS-49		No model change.
NRCan-IR13	Appendix A	No model change.
NRCan-2.2.2		No model change.
ECCC-4.7	3.6, 3.7.11 and Appendix A	No model change.
ECCC-4.8	3.7.8	Model includes a treatment plant for the Doris TIA water.
ECCC-4.10		No model change.
ECCC-4.11		No model change.
ECCC-4.12	3.7.6	Modeled treatment effluent TDS has been fixed.
ECCC-4.15	3.7.12	Updated chloride loading based on observed data.
ECCC-4.16		No model change.
ECCC-4.18	3.7.4	No model change.
ECCC-4.19		No model change.
INAC-TRC3	3.7.14	Change to cryoconcentration modelling method.
INAC-TRC4	3.7.14	Change to cryoconcentration modelling method.
INAC-TRC6	7, Appendix C	Model results will be presented this way moving forward (comparing open water and under ice concentrations to baseline).
INAC-TRC7	3.3	No model change.
Other change	3.7.14	Blasting residue source terms were updated based on monitoring data.
Other change	3.3.6 and 3.7.1	Crown pillar recovery trenches were added to the mine plan.
Other change	3.2, 3.3, 3.5 and 3.7	Updated Boston mine plan to include pouring of doré.
Other change	3.3.1	Updated the temperature correlation from the Cambridge Bay historic record for the Doris and Boston temperature predictions
Other change	3.3.1 and 3.3.2	Updated the climate change trends for temperature (added in trend) and precipitation (smoothed out curve).
Other change	3.7.10	Updated background water quality to include 2016/17 data.
Other change	3.3.6, 3.7.1, , 3.7.11 and 3.7.13	Updated waste rock, ore, quarry rock, backfill source terms, Boston TSS and crown pillar source terms.

Information Request, Technical Comment, or Other Change	Section	Comments
Other change	3.3.1	Updated Cambridge Bay precipitation and temperature records to the end of 2016 when possible.
Other change	3.4.1	Changed the start date of marine discharge until July 2018. All mine water intercepted before then is directed to the Doris TIA. The pumping rate from the TIA to the Marine Mixing Box (by way of the treatment plant) increased to 6,750 m3/day.
Other change	3.3	Adjusted the hydrology model to prevent any rainfall or over winter melting to occur. The outflow from lakes was limited to prevent any over winter outflow.

1 Introduction

The Hope Bay Project (the Project) is a gold mining and milling undertaking of TMAC Resources Inc. The Project is located 705 km northeast of Yellowknife and 153 km southwest of Cambridge Bay in Nunavut Territory, and is situated east of Bathurst Inlet. The Project comprises three distinct areas of known mineralization plus extensive exploration potential and targets. The three areas that host mineral resources are Doris, Madrid, and Boston.

The Project consists of two phases: Phase 1 (Doris project), which is currently being carried out under an existing water licence and Phase 2 which is in the environmental assessment stage. Phase 1 includes mining and infrastructure at Doris only, while Phase 2 includes mining and infrastructure at Madrid (Madrid North and Madrid South mines) and Boston (Boston Mine) located approximately 10 and 60 km south from Doris Mine, respectively (Figure 1).

The Phase 2 operational plan will result in the production of an additional 18.6 Mt of ore over a period of about 14 years. This increase will affect the water management plan through increased tailings deposition to the Doris tailings impoundment area (TIA) and the addition of Madrid and Boston surface development areas.

SRK Consulting (Canada) Inc. was retained by TMAC Resources Inc. to update the Water and Load Balance (SRK 2016a) to address comments from the DEIS, and changes to the Project, including gold extraction at Boston, crown pillar recovery trench mining (Doris, Madrid North and Boston), Doris water treatment and evaporation climate change trends. The model is designed to evaluate water management needs and predict water quality at the Project and downstream receptors. Other key objectives of the model are to assess the effect of underground mining on Doris, Windy, Patch, Imniagut, and Wolverine lake water levels and post-closure water quality and to predict Doris TIA levels.

Water quality predictions were made at a number of nodes within and downstream of the Project footprint to assess the environmental impact of the expanded mining activities.

The report is organized as follows. Section 2 of this document provides a summary of the mine plan and conceptual model for the Project. The water balance and load balance model descriptions and inputs are presented in Section 3. The implementation of the model is described in Section 4. Section 5 describes model calibration. Water quantity and water quality results are presented in Sections 6 and 7, respectively. A sensitivity analysis is presented in Section 8 and conclusions are included in Section 9.

2 Conceptual Water Balance

2.1 Processing Options

The Project includes processing at Doris, Madrid and Boston. The Doris process plant is designed to have a maximum processing rate of 2,400 tonnes per day (tpd) and will have both flotation and cyanide leach circuits. The Madrid concentrator will operate a flotation circuit at a maximum milling rate of 1,200 tpd. Concentrate produced at the Madrid concentrator will be transported to the Doris process plant for cyanidation. All Doris ore and a portion of ore from the Madrid Mine will be processed at the Doris process plant. The remaining portion of the Madrid ore will be processed at the Madrid concentrator. TMAC are considering two options for processing of the Boston ore, as follows:

- Option 1: All Boston ore is processed at the Boston process plant (flotation and cyanidation circuits) at a maximum processing rate of 2,400 tpd.
- Option 2: A portion of ore from the Boston Mine is processed at the Doris process plant and the remaining Boston ore is processed at the Boston concentrator (flotation circuit only) at a maximum milling rate of 1,200 tpd. In this case, all Boston flotation concentrates would undergo cyanidation at the Doris process plant.

For clarity, a summary of the processing rates and quantities associated with each of these options is provided in Table 2-1.

Table 2-1: Summary of Processing Options

Processing Facility	Parameter	Units	Option 1: All Boston Ore at Boston Process Plant	Option 2: Boston Ore Milled at Doris Process Plant & Boston Concentrator
Boston: Option 1: Process Plant Option 2: Concentrator	Max Rate Total Ore Ore Sources	tpd Mt	**2,400** **5.1** Boston	1,200 3.6 Boston
Madrid Concentrator	Max Rate Total Ore Ore Sources	tpd Mt	**1,200** **5.1** Madrid	
Doris Process Plant	Max Rate Total Ore Ore Sources	tpd Mt	2,000 11 Doris, Madrid	**2,400** **12.5** Doris, Madrid, Boston

Source: \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb

Notes: **Bold** values highlight the values carried forward in the model.

The Doris process will produce flotation and detoxified tailings, the latter which are from the leach circuit. The flotation tailings from the Doris process plant and Madrid concentrator will be placed as a subaerial slurry in the Doris tailings impoundment area (TIA). Detoxified tailings would be co-disposed with waste rock as backfill in the stopes of the Doris and Madrid North underground. Process water from the Doris process plant (which is a mixture from the flotation and detoxified tailings circuits) would be pumped to the Doris TIA. Flotation tailings from the Boston process plant will be managed in a dry stack tailings management area (TMA). Detoxified tailings would be co-disposed with waste rock as backfill in the stopes of the Boston underground.

Because the Doris process plant and Boston process plant are located in independent watersheds, it was possible to evaluate the maximum potential effects of each of the Boston processing options by modelling the maximum rates of processing from both the Boston and Doris process plants at the same time. In other words, in the model, the portion of the Boston ore that could be processed at Doris or Boston was conservatively assumed to be processed at both Doris and Boston. This approach ensured the most conservative results were predicted within each watershed, without having to carry two independent scenarios through the model.

W:\01_SITES\Hope.Bay\1CT022.004_Phase 2 DEIS - Engineering Support\Task 300_Water_Load_Balance\Deliverables\WB_Report\040_Figures \ Figure 1 Location of the Main Deposits, Hope Bay Project

Figure 2-1: Location of the Main Deposits, Hope Bay Project

2.2 Water Management Overview

The Project consists of the Doris (existing), Madrid North, Madrid South, and Boston underground mines within the broader Doris, Madrid, and Boston mining areas. The Doris, Madrid North, and Madrid South mines are located in close proximity, while the Boston Mine is roughly 60 km to the south, as shown in Figure 2-1.

2.2.1 Doris

The flowsheet for water management in the Doris mining area is presented in Figure 2-2. Water management for the Doris Mine was provided in the Doris project – Water and Load Balance report (SRK 2015a) prepared in support of the Type A Water Licence Amendment (2AM-DOH1323). The flowsheet for the operations period presented in Figure 2-2, was, however, modified from the previous study to include connections between the other mining areas as appropriate and to address issues identified during the Type A Water Licence Amendment. Additions to the Doris Mine water management plan and flowsheet were as follows:

- Water collected in the Madrid North and Madrid South contact water ponds (CWPs) will be transported to the Doris TIA, if the water does not meet discharge criteria.
- A portion of the Madrid North and Boston Mine ore will be processed along with all of the Doris and Madrid South Mine ore in the Doris process plant. All flotation tailings (comprising 94% by mass of the total processed ore) will be deposited subaerially in the Doris TIA.
- Concentrate from all mining areas (Doris, Madrid, and Boston) will be processed in the Doris process plant with detoxified, dewatered (filtered) tailings placed underground at the Doris and Madrid North mines with waste rock. This comprises 6% by mass of the total ore volume.
- Doris Deep ore and waste rock will be added to the mining and processing quantities. A total of 214,000 tonnes of ore and 272,000 tonnes of waste rock will be produced and an additional 178,000 tonnes of backfill will be required in the underground mine.
- An operational source term was developed based on the expected ratio of backfill materials (waste rock and detoxified tailings) at closure. This loading will be added to the groundwater source term based on the proportion of backfill placed at any given time relative to total amount placed over the entire mine life.
- An operational source term was developed for the Doris crown pillar recovery trench. It was applied in the model to any precipitation falling within the footprint while the trench is open and contributing to the mine water.
- A mine closure source term was developed based on the type and quantity of backfill material to be placed in the Doris Mine. Once the Doris Mine floods, roughly 36 m^3/day of groundwater is expected to flow through the mine to Doris Lake. For modelling purposes, this flow was initiated in post-closure.
- Inflows from upstream lakes that will be affected by the Madrid Mine were added to the Doris flowsheet.

- Mine water from Doris and water from the Doris TIA will be treated for arsenic prior to discharge in Robert's Bay.
- At post-closure, the Doris site will be reclaimed, and natural flows will be restored. The Doris CWPs will be decommissioned and the catchment previously reporting to these ponds will flow to Doris Lake. Water withdrawal and drawdown from Doris Lake will cease. The Doris process plant will cease operations and the Doris TIA will be pumped empty. A rock cover will be placed on the Doris TIA beach and the North Dam will be breached to restore the natural Tail Lake Catchment flow.

2.2.2 Madrid

The Madrid South Mine area is located within the Doris Watershed. The Madrid North Mine area is located in the Doris and Windy watersheds. Windy Lake flows through Glenn Lake to Roberts Bay. The operations period flowsheet for water management at Madrid North and Madrid South mines is presented in Figure 2-3.

Industrial water for these mines will be drawn from Doris Lake. Contact water (surface water runoff) from the waste rock piles, ore storage areas, and all other surface infrastructure pads will be collected in Contact Water Ponds (CWPs). These event ponds will normally be maintained empty by pumping to the Doris TIA.

The Madrid North Mine will intercept the talik below Patch, Windy, and Imniagut lakes. Mining at Madrid South Mine is expected to intercept the talik below Wolverine and Patch Lakes. This intercepted ground water is expected to be high in salinity (similar to the Doris Mine groundwater inflows). The groundwater source term was developed in a similar manner as the Doris groundwater (previous subsection). Additionally, potential loads associated with backfill were considered in the model.

Intercepted talik and drawdown from these lakes will be quantified through the Hope Bay Groundwater Model (SRK 2017a) and included as an input in the water and load balance model. Groundwater will be pumped or hauled to the Doris Mine for transfer to an arsenic treatment plant. The effluent of the treatment plant will be pumped to the Marine Mixing Box (MMB) and discharged to the ocean.

A concentrator will be constructed at the Madrid North site to process a portion of the Madrid North ore through a flotation circuit. The resulting tailings will be deposited in the Doris TIA and the concentrate trucked to the Doris process plant for cyanidation. The Madrid concentrator will source freshwater and reclaim water from the Doris Lake and the Doris TIA, respectively.

All Madrid North and Madrid South ore will be stockpiled at the mines on the designated pads. As required, this ore will be processed at the Madrid concentrator or trucked to the Doris process plant for processing. For modelling purposes, the stockpile volume was assumed to be five time the maximum daily production rate.

Waste rock from Madrid North and Madrid South mines will be stored on surface until backhauled underground as backfill. Madrid South Mine will have a surplus of waste rock that will be trucked to Madrid North for backfill as required. To make up a backfill deficit at Madrid North Mine, quarry

rock will be used. Contact water loadings were calculated based on the transient growth and contraction of the surface waste rock pile at each mine.

At post-closure, the Madrid sites will be reclaimed with the restoration of natural flow. The Madrid North and Madrid South CWPs will be decommissioned and the catchment previously reporting to these ponds will flow to Wolverine, Patch and Windy lakes based on catchment delineation. Water withdrawal from Windy Lake will cease. Drawdown through the Madrid North and Madrid South mines will cease. Once the mines flood, water will flow from the Madrid North and Madrid South mines to Windy and Patch lakes, respectively. For modelling purposes, this flow was initiated in post-closure.

2.2.3 Boston

The Boston mining area is located on the southern end of Aimaokatalok Lake. Aimaokatalok Lake flows into the Koignuk River, which flows into Hope Bay. The Aimaokatalok Watershed is south of and separate from the Doris or Windy Watershed system. The operations period flowsheet for water management in the Boston mining area is presented in Figure 2-4.

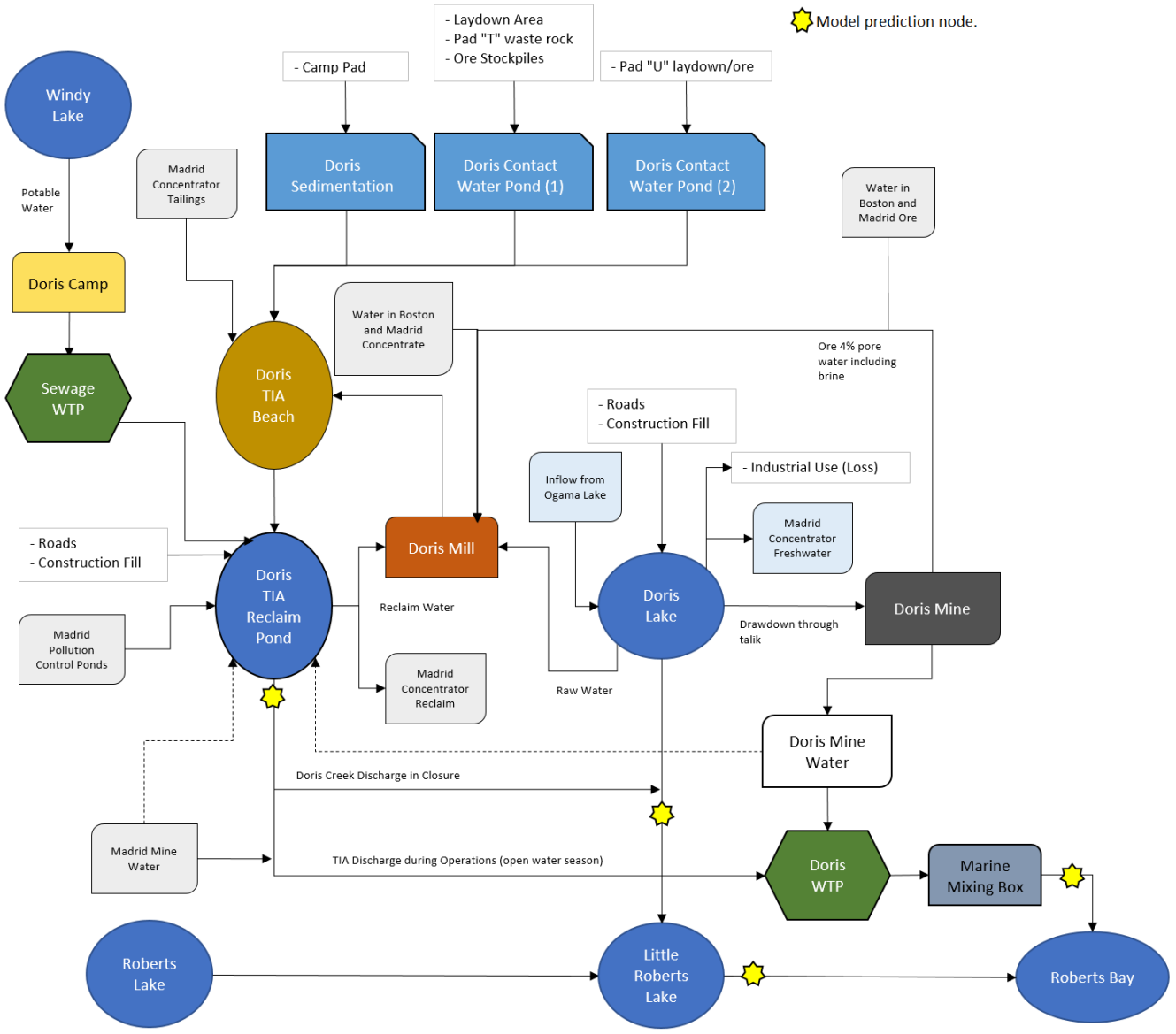
At the Boston Mine, potable and raw water for industrial use (brine mixing, dust suppressant, and process makeup water) will be sourced from Aimaokatalok Lake.

The Boston Mine will be completely within permafrost, and no groundwater interception is anticipated. Boston ore will be processed at a process plant in the Boston area (Section 2.1). The flotation tails (94% of ore stream) will be dewatered via a filter press and deposited in the Boston TMA dry stack facility. The detoxified tailings will be placed back underground with waste rock as backfill in the Boston mine. Filter press water is internally recycled in the Boston process plant. A bleed stream from the process plant will first be treated in a two-stage treatment plant for metals removal followed by a biological process for ammonia removal.

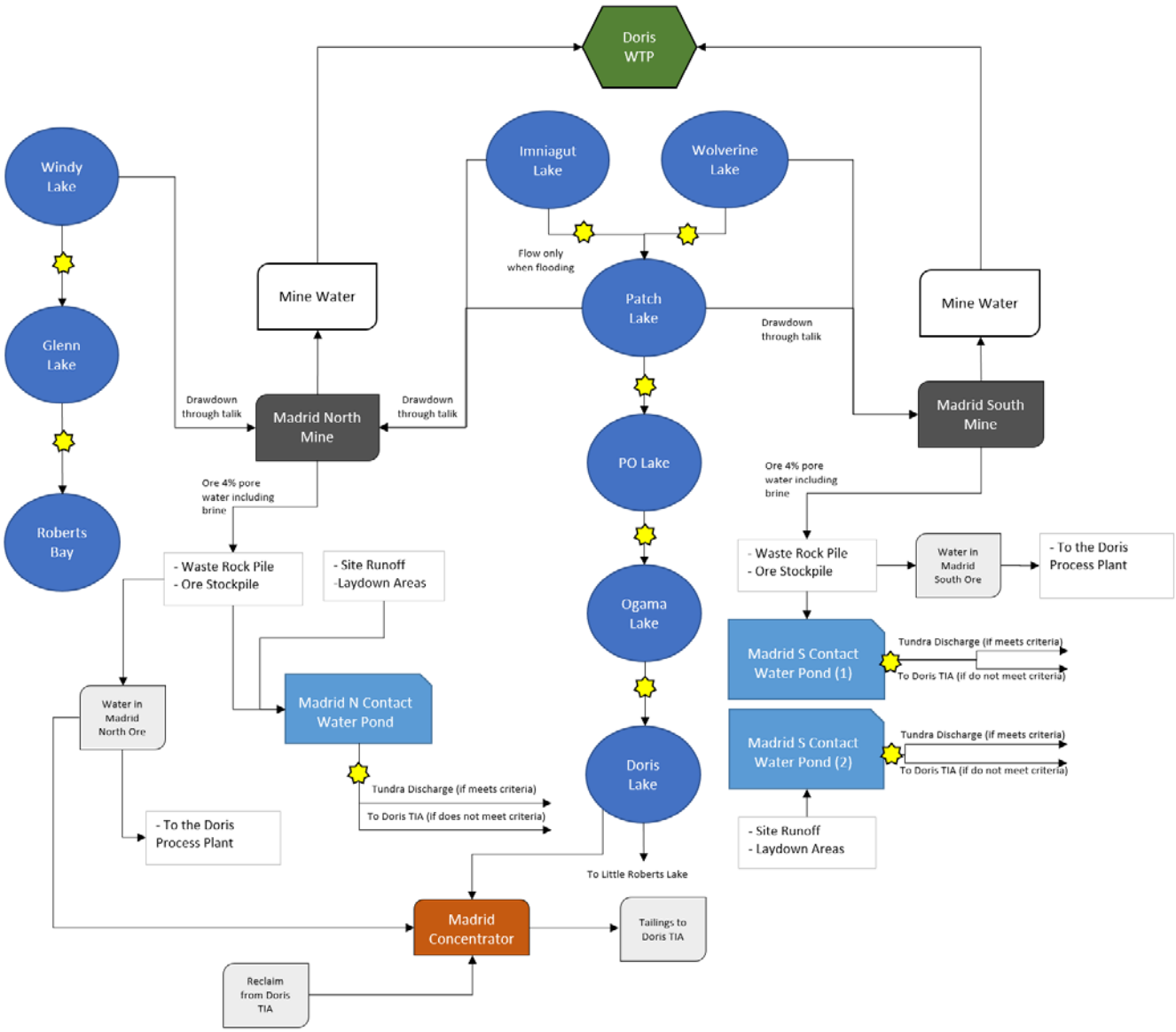
Contact water from the waste rock pile, ore storage pad, and other mine surface infrastructure pads will be collected in CWPs. Contact water from the Boston TMA will be collected in three additional CWPs, which were represented as one pond within the model. All CWPs are event ponds that will be normally managed empty. Where possible, water from these ponds will be used to supplement make up (and other industrial use) water. Excess water from the event ponds will be treated in a two stage treatment plant prior to discharge in Aimaokatalok Lake.

Waste rock will be stockpiled on surface at the Boston Mine until it is placed underground as backfill. There is a net deficit for backfill and this deficit will be supplemented from local quarry rock. The contact water loading from the waste rock pile was modelled based on the transient growth and contraction of waste rock over time.

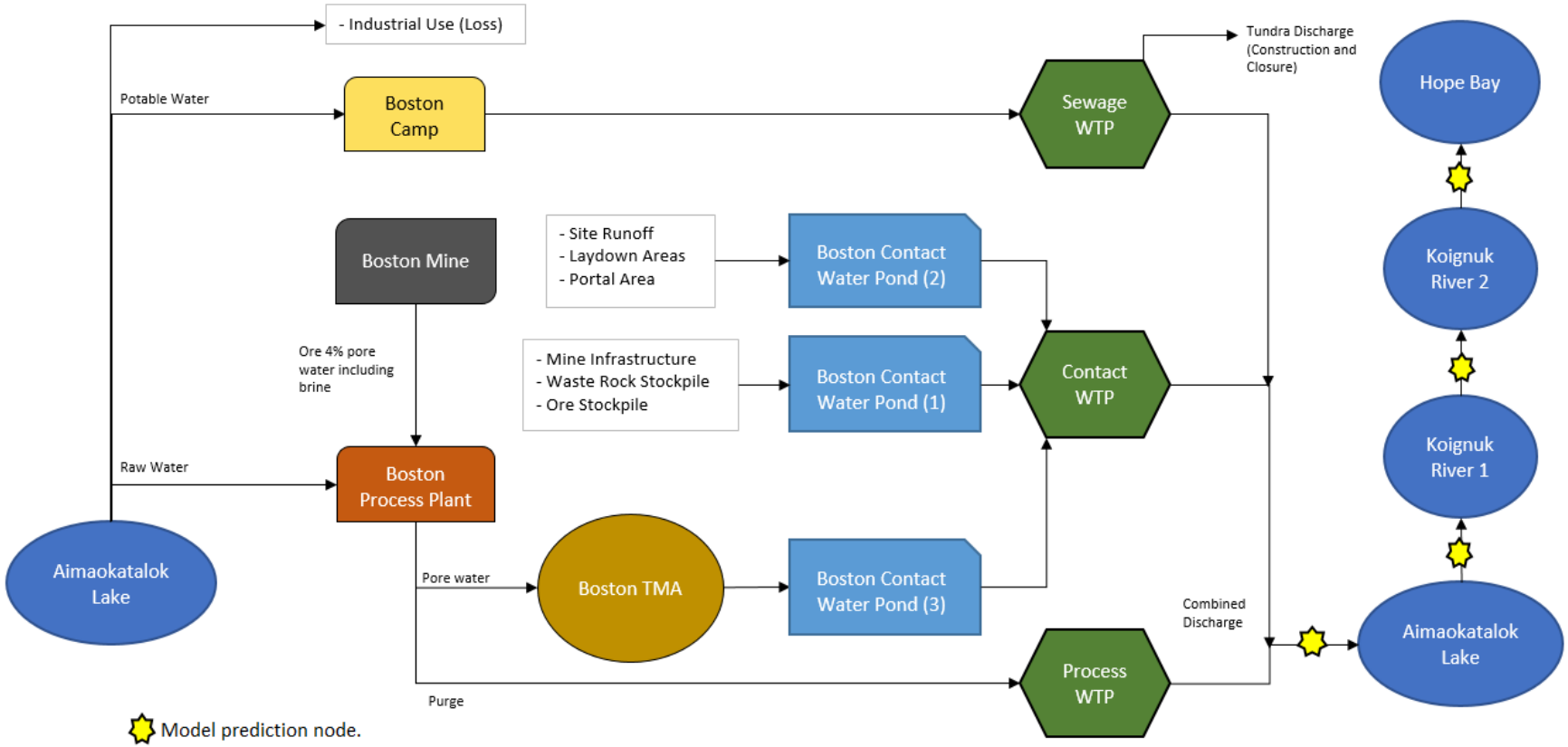
At post-closure, the Boston Mine site will be reclaimed with the restoration of natural flow. The Boston CWPs will be decommissioned and the flow previously reporting to these ponds will flow to Stickleback and Aimaokatalok lakes based on catchment delineation. The Boston process plant and Boston water treatment plants will cease operations and will be decommissioned. A synthetic liner followed by a quarry rock cover will be placed on the Boston TMA.



srk consulting	TMAC RESOURCES	Water and Load Balance
		Doris Operational Water Management Overview
Job No: 1CT022.013 Filename: HopeBay_WLB_ConceptualFigures_1CT022-013_R00_ajbpptx	HOPE BAY PROJECT	Date: Nov. 2017 | Approved: CH | Figure: **2-2**



srk consulting	TMAC RESOURCES	Water and Load Balance
		Madrid Operational Water Management Overview
Job No: 1CT022.013 Filename: HopeBay_WLB_ConceptualFigures_1CT022-013_R00_ajbpptx	HOPE BAY PROJECT	Date: Nov. 2017 / Approved: CH / Figure: **2-3**



srk consulting	TMAC RESOURCES	Water and Load Balance
		Boston Operational Water Management Overview
Job No: 1CT022.013 Filename: HopeBay_WLB_ConceptualFigures_1CT022-013_R00_ajbpptx	HOPE BAY PROJECT	Date: Nov. 2017 / Approved: CH / Figure: **2-4**

2.3 Modelling Approach

The water and load balance for the Project ran from June 2010 to 2099 on a daily time step. This allowed for a calibration and validation period between 2010 and 2015 and a post-closure period defined by the amount of time required for the Project areas to reach steady state.

The water balance was run using probabilistic simulations, with multiple realizations and variable hydrology. The load balance was run as a deterministic simulation under average hydrological conditions. The load balance was also run deterministically for 1 in 20 wet and 1 in 20 dry hydrological conditions for sensitivity analysis.

In general, the model adopted conservative assumptions in the characterization of loading sources and flows. This means that assumptions made in the model select from the higher range of possible values to reduce the likelihood of underestimating concentrations.

2.4 Prediction Nodes and Parameters

Water quality and flow predictions were produced for 13 modelling nodes (Table 2-2 and Figure 2-5). Prediction nodes were selected to resolve spatial gradients of project related effects through the Doris, Windy, and Aimaokatalok watersheds.

Table 2-2: Prediction Nodes

Modelled Nodes		
Doris Watershed	**Windy Watershed**	**Aimaokatalok Watershed**
Wolverine Lake Outflow (East and North outflows to be modelled as one)	Windy Lake Outflow	Aimaokatalok Lake Outflow
Patch Lake Outflow	Glenn Lake Outflow	Koignuk 1
PO Lake Outflow		Koignuk 2
Ogama Lake Outflow		Boston Local Study Area (LSA) Outflow
Doris Lake Outflow (TL-2)		
Tail Lake Outflow		
Little Roberts Lake Outflow		

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Parameter selection was based on the applicable guidelines for the Project including Metal Mining Effluent Regulations (MMER) and the Canadian Council of Ministers for the Environment (CCME) for Aquatic Life (marine and freshwater and livestock and irrigation parameters). Water quality predictions were made for all parameters with an applicable guideline (Table 2-3).

Table 2-3: Model Parameters

Parameters to Model			
Fluoride	Aluminum	Cobalt	Nickel
Chloride	Antimony	Copper	Selenium
Total Cyanide	Arsenic	Iron	Silver
WAD Cyanide	Barium	Lead	Thallium
Ammonia	Beryllium	Lithium	Uranium
Nitrate	Boron	Magnesium	Vanadium
Nitrite	Calcium	Manganese	Zinc
Sulphate	Cadmium	Mercury	Radium
Salinity	Chromium	Molybdenum	Phosphorous

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Water quality was predicted in terms of dissolved concentrations. However, because water quality guidelines are generally reported as total concentrations, dissolved concentrations were converted to total concentrations using the same methodology used by the previous model (SRK 2015a). Total concentrations were predicted by adding predicted dissolved concentrations to suspended metal concentrations associated with suspended solids from mine related sources. (Suspended metals concentrations are based on solid phase concentrations of each of the source materials, i.e., tailings, backfill, and an assumption of the total suspended solid (TSS) content in the discharges)

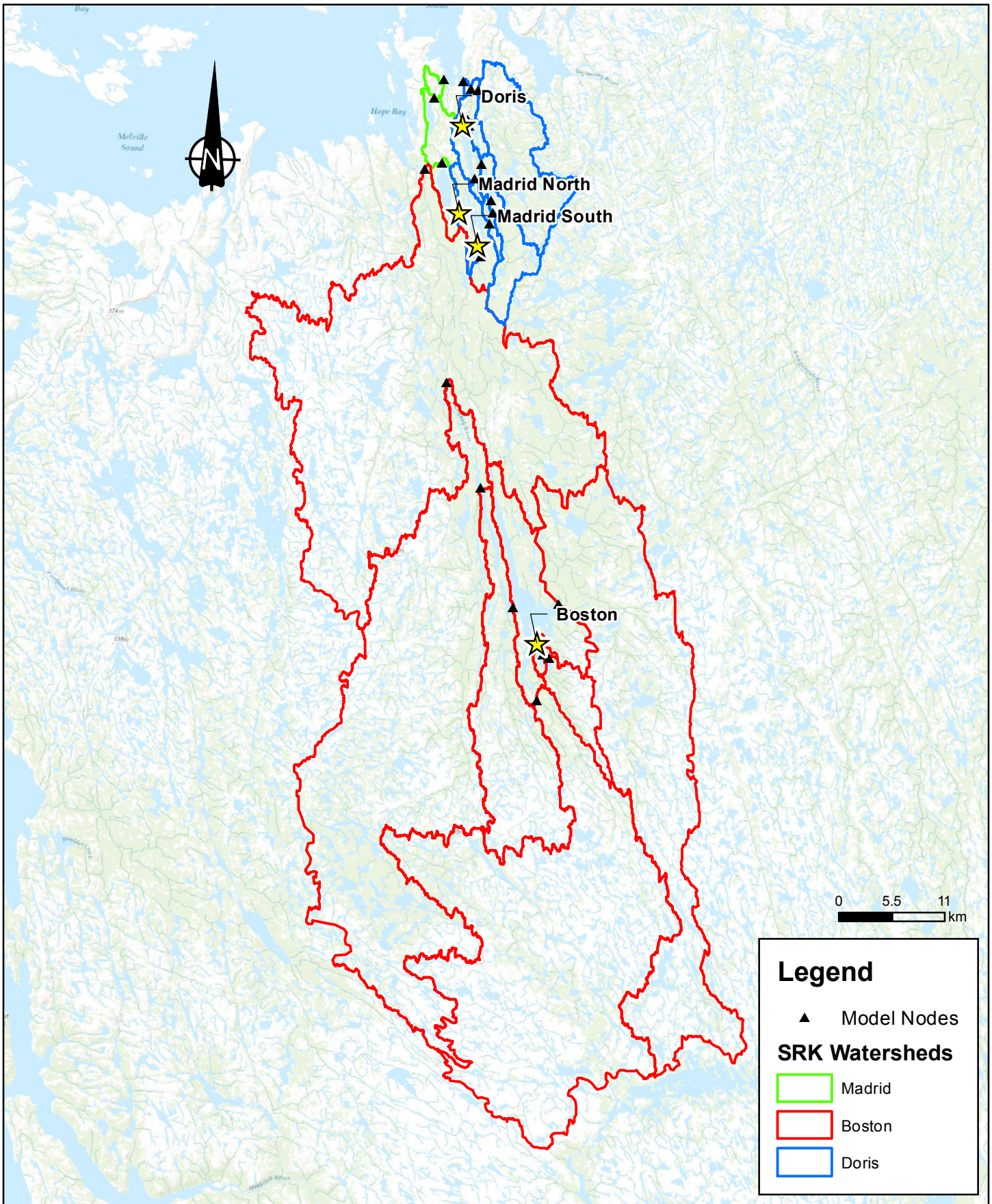
Total and weakly acid dissociable (WAD) cyanide were modelled. However, water quality guidelines for cyanide are in terms of total and free cyanide. WAD cyanide is always greater than or equal to the free cyanide concentration. Therefore, comparison of the WAD cyanide results to the free cyanide guidelines will provide a conservative indication of potential effects from free cyanide when these results are presented.

Predicted concentrations for chromium are in terms of total (all forms) chromium present in the dissolved fraction. However, water quality guidelines for chromium are provided in terms of speciated forms of chrominum (trivalent (Cr III) or hexavalent (Cr VI)). Preliminary screening compared the more stringent of these guidelines (i.e., guideline for Cr VI) to the predictions.

2.5 Key Model Dates

The calibration period for the model is 2010 to 2015. Key dates of planned activities for Doris, Madrid North, Madrid South, and Boston mines are presented in Figure 2-6. Project activities related to Phase 1 and 2 are shown separately, including the period of time where the activities overlap. The construction, operations and post-closure phases are indicated for each mine. Key dates include when:

- Ore will be mined
- Ore will be processed
- Waste rock will remain on surface
- Backfill will be placed



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Coordinate System: NAD
1983 UTM Zone 13N

srk consulting

Job No: 1CT022.013
Filename: Fig2-5_Model_Nodes_and_Watersheds_rev0

TMAC RESOURCES

HOPE BAY PROJECT

Water and Load Balance

Hope Bay Project
Watershed Overview

Date:	Approved:	Figure:
Dec 2017	CH	2-5

Hope Bay FEIS Water and Load Balance Inputs
Key Dates Summary
Rev.0

Area	Phase	Zone	Type	Phase 1 Project							Phase 1 and 2 Overlap				Phase 2 Project												Post-Closure Period[1]
				2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	
Model Calibration																											
	Operations	Mill	1,100 tpd																								
			2,000 tpd																								
			2,400 tpd																								
		Ore	Mined																								
			Processed at Doris Mill																								
		Backfill	Waste Rock Stockpiled																								
			Backfill from Doris Waste Rock																								
			Backfill from Detoxified Tails																								
	Closure																										
	Post-Closure																										
Madrid North	Construction																										
	Operations	Mill	1,000 tpd																								
			1,200 tpd																								
		Ore	Mined																								
			Processed at Madrid Mill																								
			Processed at Doris Mill																								
		Backfill	Waste Rock Stockpiled																								
			Backfill from Madrid North Waste Rock																								
			Backfill from Doris Waste Rock																								
			Backfill from Madrid South Waste Rock																								
			Backfill from Cyanide Leach Tails																								
			Backfill from Quarry Rock																								
	Closure																										
	Post-Closure																										
Madrid South	Construction																										
	Operations	Ore	Mined																								
			Processed at the Doris Mill																								
		Backfill	Waste Rock Stockpiled																								
			Backfill from Madrid South Waste Rock																								
	Closure																										
	Post-Closure																										
Boston (Inputs to Doris Watershed)	Construction																										
	Operations	Mill	400 tpd																								
			1,200 tpd																								
		Ore	Mined																								
			Processed at Boston Mill (filtration only)																								
			Processed at Doris Mill																								
		Backfill	Waste Rock Stockpiled																								
			Backfill from Boston																								
			Backfill from Quarry																								
	Closure																										
	Post-Closure																										
Boston (Modelled in Boston Watershed)	Construction																										
	Operations	Mill	400 tpd																								
			800 to 1,000 tpd																								
			2,400 tpd																								
		Ore	Mined																								
			Processed at Boston Mill (filtration only)																								
		Backfill	Waste Rock Stockpiled[2]																								
			Backfill from Boston																								
			Backfill from Detoxified Tails																								
			Backfill from Quarry																								
	Closure																										
	Post-Closure																										

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1 - Closure Period is the time required to reach steady state conditions after closure. This will be determined by the model's iterative process.
2 - Boston Wasterock includes 196,000 m3 of blasted rock from the mill pad that is unfit for use as a construction material and must be placed underground.

3 Model Inputs

3.1 Water and Load Calculation Overview

The water and load balance for the Project was developed in GoldSim Pro™ (version 11.1.5) software. The software runs a mass balance on flow and individual parameters tracking all inflows, outflows, and available storage within reservoirs. The volume in a reservoir at a given time (*t*) can be simplistically represented as follows:

$$Volume_t = Volume_{t-1} + \left(\sum Inflows_t - \sum Outflows_t\right)$$

The key water inflows for the Project will be groundwater and precipitation. Water outflows will include evaporation, industrial water use, and discharges to Roberts and Hope Bay. The primary water storage facility at the Project site will be the Doris TIA, which will store tailings solids and water in the reclaim pond and within tailings voids.

Table 3-1 provides a summary of key inputs required for the water and load a balance model, which are described in the reminder of this section.

Table 3-1: Water and Load Balance Inputs

Water Balance Component	Input Required
Mining Quantities	Doris Mine schedule Madrid Mine schedule Boston Mine schedule
Processing Quantities	Doris processing parameters Madrid processing parameters Boston processing parameters
Hydrological Conditions	Historical precipitation and temperature Open water evaporation rates Catchment delineations Runoff coefficients Contact water pond flows Crown pillar recovery trench infiltration Regional stream flow
Water Storage	Doris TIA volume, deposition and discharge Boston TMA CWP and discharge Lake Bathymetry
Water Consumption	Camp use Industrial use Process plant freshwater use
Groundwater	Groundwater interception rates Lake drawdown rates Groundwater flow at closure
Water Quality (Source Terms)	Ore, waste rock, and crown pillar recovery trenches Placed backfill Doris TIA tailings contact water Boston TMA contact water Process water effluent Sewage water Treatment plant effluents Surface infrastructure pads Background water Groundwater Blasting and drilling residues Brine residues Total metals Cryoconcentration Cyanide degradation rates

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb

3.2 Mining and Processing Quantities

The mining and processing quantities were provided by TMAC (TMAC 2017), with adjustments to account for the addition of detoxified tailings from the Doris process plant to the backfill values reported (Table 3-5).

3.2.1 Doris and Madrid Mining

Since 2011, 183,000 tonnes of waste rock and 9,400 tonnes of ore extracted from the Doris Hinge and North Mine (permafrost zone) have been on the waste rock and ore stockpile pad. A total of 2.6 Mt of ore will be processed from underground development of the Doris Mine over a six year mine life.

A total of 13.5 Mt will be processed from underground development of the Madrid mines over a 14-year mine life. Of that, 12.5 Mt of ore will come from Madrid North and 1.0 Mt of ore will come from Madrid South.

The Doris Mine will contain Doris waste rock and detoxified tailings as backfill. A small portion of Doris waste rock will be placed at Madrid North Mine to allow for detoxified tailings placement prior to backfill availability at Madrid North.

There is a surplus of waste rock for backfill available at Madrid South and a deficit at Madrid North. Therefore, extra waste rock from Madrid South will be trucked to Madrid North. This amount along with the Doris waste rock and detoxified tailings will still not provide enough backfill material. During the Madrid North Mine life, quarry rock will be placed to make up the remaining backfill requirements.

3.2.2 Doris Process Plant

Processing quantities were used to determine the amount of water lost to tailings voids and amount of water available as reclaim.

The Doris process plant is assumed to start in 2017 at a rate of 1,100 tpd and increases up 2,400 tpd in 2023 before dropping to 1,600 tpd in 2032, the final year of processing. For modelling purposes, it was assumed the Doris process plant will process ore from the Doris, Madrid, and Boston mining areas. As discussed previously, it is possible that some or all of the Boston ore could be processed at Boston (Section 2.1). However, Boston ore that could be processed at Doris or Boston was conservatively assumed to be processed at both Doris and Boston. The maximum production rate of 2,400 tpd includes processing of 400 tpd of Boston ore. Flotation tailings solids (comprising 94% of the total tailings produced) will be placed in the Doris TIA. The detoxified tailings (6% of tailings) will be placed underground as backfill at Doris and Madrid North mines.

The flotation tailings properties assumed for the Doris process plant are unchanged from those used in the 2015 water and load balance (Table 3-2, SRK 2015a).

Table 3-2: Doris Processing Parameters

Parameter	Value
Specific Gravity of Tailings	2.8 tonne/m^3
Tailings Dry Density	1.4 tonne/m^3
Void Ratio	1
Slurry Percent Solids	39%
Ore Moisture Content	4%
Freshwater Demand – Flotation and Cyanidation	0.23 m^3/tonne ore processed
Freshwater Demand – Cyanidation Only	0.14 m^3/tonne ore processed

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3.2.3 Madrid Concentrator

The Madrid concentrator is assumed to start processing in 2020 at a rate of 1,000 tpd, with increases up to 1,200 tpd in 2022 until the end of 2031. The Madrid concentrator will process ore solely from the Madrid North mining area. Flotation tailings solids (comprising 94% of the total tailings produced) will be placed in the Doris TIA.

The flotation tailings properties assumed for the Madrid concentrator (Table 3-3) are the same as those used in Doris process plant.

Table 3-3: Madrid Processing Parameters

Parameter	Value
Specific Gravity of Tailings	2.8 tonne/m^3
Tailings Dry Density	1.4 tonne/m^3
Void Ratio	1
Slurry Percent Solids	39%
Ore Moisture Content	4%
Freshwater Demand – Flotation Only	0.09 m^3/tonne ore processed

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3.2.4 Boston Mining

A total of 5.1 Mt of ore and 2.2 Mt of waste rock will be mined from underground development of the Boston Mine over the 11-year mine life. All of the waste rock and an additional 1.2 Mt of quarry rock will be placed as backfill in the mine.

3.2.5 Boston Process Plant

The Boston process plant is assumed to start processing in 2022 at a rate of 200 tpd, increasing up to a rate of 2,400 tpd in 2025 until the end of 2028 before dropping back down to 1,200 tpd in 2029. As discussed previously, it is possible that some of the Boston ore could be processed at the Doris process plant. However, the portion of the Boston ore that could be processed at Doris or Boston was conservatively assumed to be processed at both Doris and Boston. The maximum production rate of 2,400 tpd at Boston includes processing of 400 tpd of Boston ore that could be processed at Doris.

The Boston process plant will generate filtered flotation tailings for dry stacking. The assumed water content in dry stacked tailings was based on previous tailings density test results conducted on the Boston flotation tailings (SRK 2009). The freshwater demand was calculated based on the amount of freshwater used in the flotation circuit mass balance presented in the Interim Engineering Study conducted by Gekko (2014).

The Boston process plant includes a flotation and cyanide leach circuits. Detoxified tails from the Boston process plant will be dewatered and placed underground at Boston as backfill in permafrost. Table 3-4 presents the assumptions for required modelling parameters. The moisture contained in the produced concentrate.

Table 3-4: Boston Processing Parameters

Parameter	Value
Ore Moisture Content	10%
Concentrate Moisture Content	15%
Tailings Moisture Content	11%
Freshwater Demand – Flotation and Cyanidation	0.23 m^3/tonne ore processed

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

Table 3-5: Hope Bay Project Mining Quantities

Hope Bay FEIS Water and Load Balance Inputs
Mining and Milling Quantities
Rev.0

Mining Year	Calendar Year	Doris Material									
		(tonnes)			(m³)						
		Ore Mined at Doris	Ore Processed at Doris	Ore On Surface[1]	Leach Tails Production	Waste Rock Produced	Waste Rock On Surface[1]	Total Backfill Required	Backfill from Doris Waste Rock	Backfill from Doris Detoxified Tails	Doris Waste Rock to Madrid North
2011	-6	9,000		9,000		102,000	102,000				
2015	-2			9,000		10,000	112,000				
2016	-1	32,000		42,000		19,000	115,000	15,000	15,000		
2017	1	357,000	398,000	12,000	14,000	105,000	102,000	132,000	118,000	14,000	
2018	2	676,000	676,000	12,000	24,000	392,000	267,000	250,000	227,000	24,000	
2019	3	720,000	720,000	12,000	26,000	97,000	125,000	267,000	240,000	26,000	
2020	4	680,000	680,000	12,000	39,000			252,000	125,000	39,000	
2021	5	104,000	104,000	12,000	39,000	151,000	62,000	39,000	89,000	39,000	
2022	6				41,000		62,000				62,000
2023	7				52,000						
2024	8				62,000						
2025	9				62,000						
2026	10				62,000						
2027	11				62,000						
2028	12				62,000						
2029	13				62,000						
2030	14				62,000						
2031	15				60,000						
2032	16				21,000						
Total		2,579,000	2,579,000		747,000	876,000		955,000	814,000	142,000	62,000

Mining Year	Calendar Year	Madrid North Material											
		(tonnes)				(m³)							
		Ore Mined	Ore Processed at Doris	Ore Processed at Madrid N	Ore On Surface[1]	Waste Rock Produced	Waste Rock On Surface[1]	Total Backfill Required	Backfill from Madrid North Waste Rock	Backfill from Madrid South Waste Rock	Backfill from Doris Detoxified Tails	Backfill from Doris Waste Rock	Backfill from Quarry Rock
2019	3	25,000	25,000		16,000	12,000	2,000	9,000	9,000				
2020	4	415,000	50,000	365,000	16,000	510,000	359,000	154,000	154,000				
2021	5	991,000	626,000	365,000	16,000	214,000	206,000	367,000	367,000				
2022	6	1,095,000	657,000	438,000	16,000	70,000		406,000	276,000		41,000	62,000	26,000
2023	7	1,168,000	730,000	438,000	16,000	75,000		433,000	75,000		52,000		307,000
2024	8	1,168,000	730,000	438,000	16,000	67,000		433,000	67,000		62,000		304,000
2025	9	1,168,000	730,000	438,000	16,000	82,000		433,000	82,000		62,000		243,000
2026	10	1,168,000	730,000	438,000	16,000	377,000		433,000	377,000		62,000		
2027	11	1,168,000	730,000	438,000	16,000	94,000		433,000	94,000		62,000		
2028	12	1,168,000	730,000	438,000	16,000	392,000		433,000	392,000		62,000		
2029	13	1,143,000	705,000	438,000	16,000	291,000		423,000	291,000	115,000	62,000		
2030	14	968,000	530,000	438,000	16,000	240,000		359,000	240,000	307,000	62,000		
2031	15	856,000	418,000	438,000	16,000	162,000		317,000	162,000	75,000	60,000		
2032	16									0	21,000		
Total		12,501,000	7,391,000	5,110,000		2,586,000		4,630,000	2,586,000	497,000	606,000	62,000	879,000

Mining Year	Calendar Year	Madrid South Material							
		(tonnes)			(m³)				
		Ore Mined	Ore Processed at Doris	Ore On Surface[1]	Waste Rock Produced	Waste Rock On Surface[1]	Total Backfill Required	Backfill from Madrid South Waste Rock	Backfill To Madrid North
2019	3								
2020	4								
2021	5								
2022	6								
2023	7								
2024	8								
2025	9								
2026	10								
2027	11								
2028	12								
2029	13	25,000	25,000	7,000	125,000	115,000	9,000	9,000	115,000
2030	14	200,000	200,000	7,000	435,000	361,000	74,000	74,000	307,000
2031	15	250,000	250,000	7,000	113,000	75,000	93,000	93,000	75,000
2032	16	516,000	516,000	7,000	191,000	0	191,000	191,000	0
Total		991,000	991,000		864,000		367,000	367,000	497,000

Mining Year	Calendar Year	Boston Material - Milled at Doris and Boston								
		(tonnes)				(m³)				
		Ore Mined	Ore Processed at Doris	Ore Processed at Boston	Ore On Surface[1]	Waste Rock Produced	Waste Rock On Surface[1,2]	Total Backfill Required	Backfill from Boston Waste Rock	Backfill From Quarry
2022	6	73,000	73,000		6,000	121,000	290,000	27,000	27,000	
2023	7	292,000	146,000	146,000	6,000	167,000	349,000	108,000	108,000	
2024	8	584,000	146,000	438,000	6,000	172,000	304,000	216,000	216,000	
2025	9	584,000	146,000	438,000	6,000	73,000	161,000	216,000	181,000	35,000
2026	10	584,000	146,000	438,000	6,000	116,000	61,000	216,000	116,000	100,000
2027	11	584,000	146,000	438,000	6,000	64,000		216,000	64,000	152,000
2028	12	584,000	146,000	438,000	6,000	43,000		216,000	43,000	173,000
2029	13	584,000	146,000	438,000	6,000	250,000	34,000	216,000	216,000	
2030	14	584,000	146,000	438,000	6,000	117,000		216,000	150,000	66,000
2031	15	584,000	208,000	376,000	6,000	54,000		216,000	54,000	161,000
2032	16	67,000	67,000		6,000	26,000		25,000	26,000	
Total		5,104,000	1,516,000	3,588,000		1,203,000		1,890,000	1,203,000	688,000

Mining Year	Calendar Year	Boston Material - Milled at Boston									
		(tonnes)				(m³)					
		Ore Mined	Ore Processed at Doris	Ore Processed at Boston	Ore On Surface[1]	Waste Rock Produced	Waste Rock On Surface[1,2]	Total Backfill Required	Backfill from Boston Waste Rock	Backfill from Boston Detoxified Tails	Backfill From Quarry
2022	6	73,000		73,000	12,000	121,000	293,000	27,000	24,000	3,000	
2023	7	292,000		292,000	12,000	167,000	362,000	108,000	98,000	10,000	
2024	8	803,000		803,000	12,000	207,000	300,000	297,000	269,000	28,000	
2025	9	876,000		876,000	12,000	108,000	114,000	324,000	212,000	31,000	82,000
2026	10	876,000		876,000	12,000	151,000		324,000	151,000	31,000	143,000
2027	11	876,000		876,000	12,000	100,000		324,000	100,000	31,000	194,000
2028	12	876,000		876,000	12,000	250,000		324,000	250,000	31,000	44,000
2029	13	432,000		432,000	12,000	99,000		160,000	99,000	15,000	46,000
2030	14										
2031	15										
2032	16										
Total		5,104,000		5,104,000		1,203,000		1,890,000	1,203,000	180,000	507,000

Source: \\Van-svr0.van.rsk.ad\projects \01_SITES\Hope.Bay\1CT022.004_Phase 2 DEIS - Engineering Support\Task 300_Water_Load_Balance\Model\Inputs\Ore_and_Wasterock\ HopeBay_WBInputs_Ore&WasterockBreakdown_1CT022.004_R09_ajb.xlsx

1. Ore and waste rock on surface is the volume of rock on surface at any given time (assumed to be the volume at the end of the year for the purposes of modeling).
2. Boston Waste rock includes 196,000 m3 of blasted rock from the mill pad that is unfit for use as quarry rock and must be placed underground.

3.3 Surface Runoff and Direct Precipitation

3.3.1 Historical Precipitation and Temperature

The Doris water and load balance model (SRK 2015a, 2016a), used historical precipitation data from the Doris meteorological station between 2010 and 2015 supplemented with the Cambridge Bay meteorological station dating back to 1953. This data was used to calibrate the model. For future projections, a synthetic dataset was generated using the historic Cambridge Bay record.

SRK reviewed all site specific baseline precipitation data including data for the Boston Exploration camp and the Doris Mine (SRK 2016b). The review concluded there are no discernable differences with respect to the precipitation distribution at the Boston mining area as compared to the Doris mining area. Therefore, the water balance for both areas used the same precipitation data. The 2016 review also concluded that there was a trend between the Cambridge Bay station and the historic temperature record at Doris and Boston (Table 3-6).

Table 3-6: Doris and Boston Temperature Correlations from Cambridge Bay

Area	Correlation
Doris & Madrid	Cambridge Temp + 1.9°C
Boston	Cambridge Temp + 2.2°C

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

Model variability was addressed in two ways. First, to account for water balance variability, a Monte Carlo simulation was used to select 100 combinations of years from the synthetic data set to run the model. In other words, every simulation was in fact representative of 100 simulations. Second, to evaluate the model variability associated with the load balance (acknowledging the fact that some source concentrations are a function of the precipitation), two scenarios were evaluated: a 1 in 20 dry year, and 1 in 20 wet year.

Climate change was accounted for in the model with predicted increases to temperature (applied in Kelvin) and precipitation. The values incorporated into the model were based on the results of the climate change analysis (SRK 2017b) (Table 3-7).

Table 3-7: Climate Change For Temperature and Precipitation

Area	Parameter	Percent Increase
Doris	Temperature(1)	-0.000000384*(Year - 2140.2269)^3 + -0.0001*(Year - 2140.2269)^2 + 0.0185*(Year - 2140.2269) + 3.8531
	Precipitation	0.0002*(Year - 2062.3631)^2 + 0.2077*(Year - 2062.3631) + 14.1327
Boston	Temperature(1)	0.0000012*(Year - 2042.9066)^3 + -0.00000000901*(Year - 2042.9066)^2 + 0.0201*(Year - 2042.9066) + 1.1413
	Precipitation	50.4111+ (-99.7727 - 50.4111) / (1 + ((Year - 1293.1565) / 614.8605)^5.1023)

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

Note: (1) Temperature increase must be applied in Kelvin.

3.3.2 Lake Evaporation Rates

SRK reviewed evaporation rates from lakes on the project (SRK 2017c). Climate change was accounted for in the model with predicted increases to evaporation based on the results of the climate change analysis (SRK 2016b). The base evaporation rates for the Doris and Boston mining areas are presented in Table 3-8. The monthly distribution is presented in Table 3-9.

Table 3-8: Annual Evaporation with an Adjustment for Climate Change

Area	Annual Evaporation (mm)
Doris	284 + (Year -2017)*0.8
Boston	291 + (Year -2017)*0.7

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

Table 3-9: Monthly Evaporation Distribution

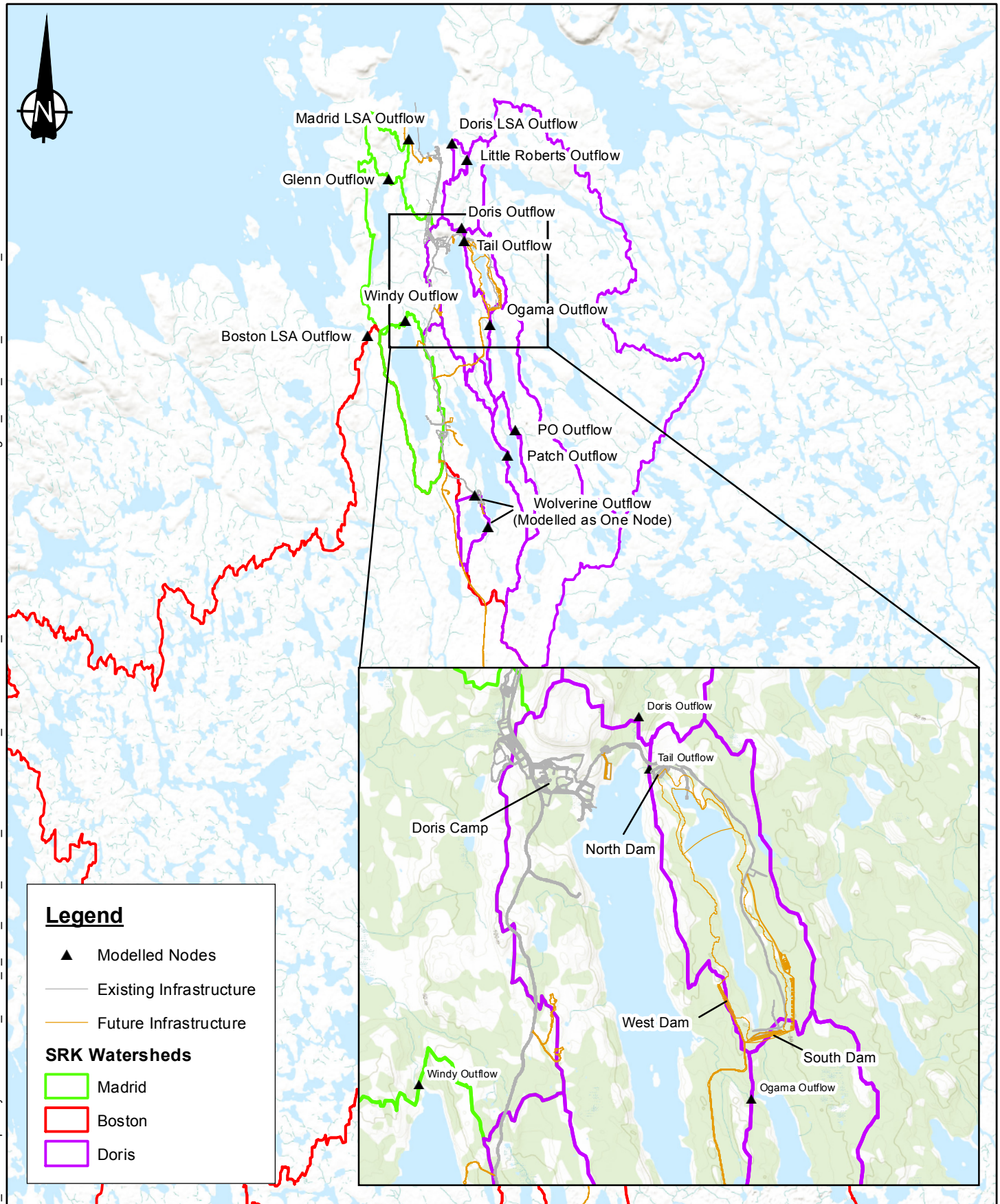
Area	Ice Cover Season				Melting Season		Open Water Season			Ice Cover Season		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Doris	0	0	0	0	0.127	0.296	0.313	0.197	0.067	0	0	0
Boston	0	0	0	0	0.110	0.299	0.320	0.203	0.069	0	0	0

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

3.3.3 Catchment Delineation

For modelling purposes, the Project area and its surroundings were divided into sub-catchments. Catchment delineation was based on surface infrastructure development drawings generated by SRK and on the CanVac 1:50,000 Toporama data (EC 2017). The disturbed watersheds were divided such that each sub-catchment had a unique combination of flow path and source term. Global Mapper software was used to delineate watersheds and to calculate catchment areas (Figure 3-1 to Figure 3-3). The areas applied in the model vary with time as new facilities are built and existing facilities are expanded or closed.

Mine infrastructure and upstream catchments for the Doris area were delineated as part of the previous model for Doris. These areas were updated to reflect any new surface infrastructure footprint such as the expanded Doris TIA.



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Coordinate System: NAD 1983 UTM Zone 13N

0 2.5 5 km

srk consulting

Job No: 1CT022.013

Filename: Fig3-1_Doris_Model_Infrastructure_rev0

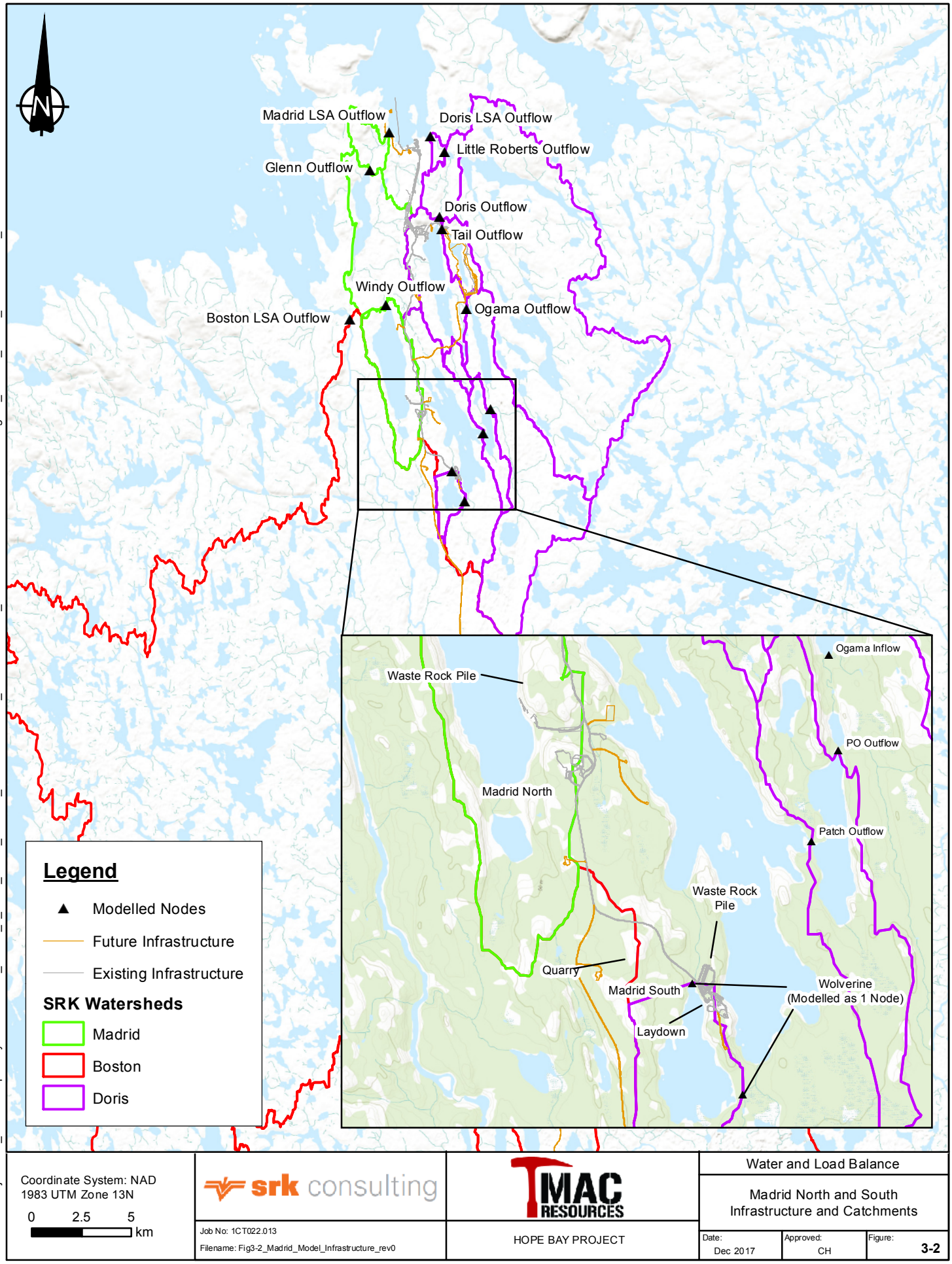
TMAC RESOURCES

HOPE BAY PROJECT

Water and Load Balance

Doris Mine Infrastructure and Catchments

Date:	Approved:	Figure:
Dec 2017	CH	3-1



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Coordinate System: NAD 1983 UTM Zone 13N

0 2.5 5 km

srk consulting

Job No: 1CT022.013

Filename: Fig3-2_Madrid_Model_Infrastructure_rev0

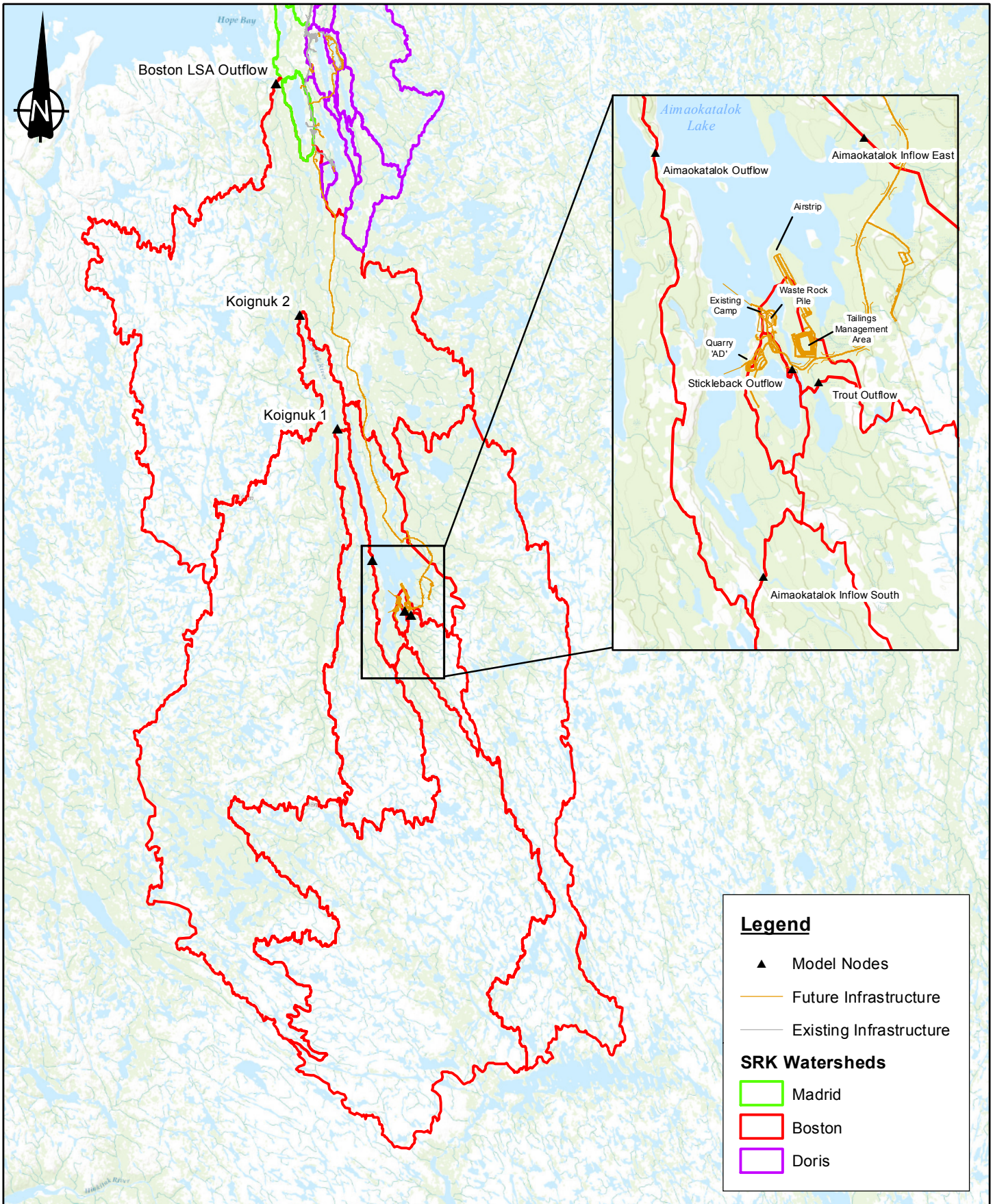
TMAC RESOURCES

HOPE BAY PROJECT

Water and Load Balance

Madrid North and South Infrastructure and Catchments

Date:	Approved:	Figure:
Dec 2017	CH	3-2



\\wan-svr0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\040_AutoCAD\GIS_MXD\Water and Load Balance\Fig3-3_Boston_Model_Nodes_and_Watersheds_rev0.mxd

Coordinate System: NAD 1983 UTM Zone 13N

0 5 10 km

srk consulting

Job No: 1CT022.013

Filename: Fig3-3_Boston_Model_Nodes_and_Watersheds_rev0

TMAC RESOURCES

HOPE BAY PROJECT

Water and Load Balance

Boston Infrastructure and Catchments

Date:	Approved:	Figure:
Dec 2017	CH	3-3

3.3.4 Runoff Coefficients

Runoff coefficients were applied in the model to estimate the total yield from precipitation and to account for losses due to evapotranspiration, soil storage, and infiltration.

Runoff coefficients for unimpacted catchment areas were selected during the model calibration based on matching predicted flows with hydrometric station data. Calibration for the Doris mining area was completed as part of the previous model. Calibrated coefficients averaged 0.5 in the summer months and 0.6 in the winter months. Madrid runoff coefficients were assumed to be the same as those used for Doris as Madrid is close in proximity and similar to the surface features (geology, catchment size, lake coverage). The Boston runoff coefficients averaged 0.4 in the summer months and 0.6 over the winter months.

3.3.5 Mine Site Contact Water Pond Flows

TMAC provided measured volumes of water pumped and hauled from CWPs for the Doris area to the end of 2016 (TMAC 2015). These data were applied in the model to calibrate runoff coefficients for the Doris catchment.

Predicted inflows to CWPs were estimated by calculating the runoff volumes reporting to the ponds based on the catchment delineations. Due to permafrost requirements, it was assumed that the ponds will be maintained empty. When the model predicted contact water would be contained within the ponds, consideration was given for evaporative losses. For modelling purposes, the ponds were removed at each site at post-closure, and the runoff returned to pre-site flow paths.

3.3.6 Crown Pillar Recovery Trenches

The model included the mining of near surface portions of the crown pillars in the Doris, Madrid North and Boston mine areas. It was assumed that crown pillar recovery trenches would be initiated in June and would last for a six month period. During this time, precipitation falling on the maximum footprint would report to the underground mine. Natural runoff would be diverted around the footprint and continue to flow in the natural catchment. After the crown pillar recovery trenches are covered, natural runoff flow would be restored. A summary of footprint, catchment and activation date are presented in Table 3-10.

Table 3-10: Crown Pillar Recovery Trench Areas, Catchments and Start Dates

Crown Pillar Recovery Trench	Area (m^2)	Catchment Located In:	Date Active:
Doris	10,000	Doris Lake	6/1/2018
Madrid 1	7,500	Windy Lake	6/1/2025
Madrid 2	20,000	Patch Lake	6/1/2025
Boston	30,000	Aimaokatalok Lake - Section 2a	6/1/2026

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

3.3.7 Regional Stream Flow

Hydrology data for lake outflows and elevation between 2004 and 2016 was provided by ERM (Golder 2009, Rescan 2009, 2011a, 2011b, 2012, 2014, ERM 2015, 2016) (Table 3-11).

Table 3-11: Streams with Measured Flow Data

Catchment	Node	Years with Data Available												
		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Doris	Patch Lake Outflow			L, F	L	L, F	L, F	L, F	L, F					
	PO Lake Outflow				F	L, F	L, F	L, F	L, F					
	Ogama Lake Outflow			L, F	L, F	L, F	F	F	F					
	Doris Creek (TL-2)	L, F	L, F	L, F	L, F	L, F	L[1], F	L[1], F	L, F	L, F	L, F	L, F	L, F	L, F
Madrid	Windy Lake Outflow				L, F	L, F	L, F	L, F	L	L, F	L, F	L, F	L	
	Glenn Lake Outflow													
Boston	Aimaokatalok Lake Inflow South													
	Aimaokatalok Lake Inflow East							F						
	Stickleback Lake							L, F						
	Aimaokatalok Lake Outflow							L, F	L[1], F					

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

[1] Note enough information to adjust data into geodetic reference

3.4 Water Storage

3.4.1 Doris TIA Volume and Discharge

The Doris TIA stage capacity curve was updated to reflect the deposition of tailings associated with the Doris process plant and Madrid concentrator, including tailings from Doris, Madrid, and Boston mines (SRK 2017d).

Measured discharge from the Doris TIA to Doris Creek to the end of 2016 was applied in the model based on pumping records provided by TMAC.

Starting in 2017 and for the duration of operations, the Doris TIA will cease to discharge to Doris Creek. Instead, water will be pumped from the Doris TIA to Doris water treatment plant the MMB at a constant rate until the target storage volume is reached, i.e., 880,000 m^3 plus a 2.0 m pond depth above this volume (based on the maximum six month total reclaim requirement for the Madrid concentrator and Doris process plant plus a 2 m pond depth to allow for ice entrainment). The constant pump rate will be 6,750 m^3/day during the open water season.

At closure, the same rate will be applied to dewater the Doris TIA to Roberts Bay until the Doris TIA is completely drained. The Doris TIA will be decommissioned at this time. The North Dam will be breached to restore the natural Tail Lake Catchment flowRunoff through the Tail Lake catchment will flow to Doris Lake and subsequently to Doris Creek. In the model, flow from the Tail Lake catchment bypasses Doris Lake and flows directly into Doris Creek to prevent dilution of this water with the entire Doris Lake volume. Although Tail Lake catchment runoff will mix to some extent with Doris Lake, the assumption that all Tail Lake catchment runoff reports to Doris Creek is an overly-conservative approach.

3.4.2 Boston TMA Contact Water Pond and Discharge

The Boston TMA has a series of three contact water ponds (CWP) where water can collect. In the model, these were represented with a single CWP. The pond was modelled as an event pond and was not designed to store water for prolonged periods of time. Following an event, the pond will be emptied by preferentially directing the water as process make-up water, with any excess discharged to Aimaokatalok Lake via a treatment plant.

Because the Boston TMA is a dry stack facility, the pore moisture contained in the tailings when it is placed will be permanently locked as the tailings freeze back. The entrained moisture was assumed to be 11% by volume based on the 2009 Knight Piesold test work (SRK 2009).

At closure, the TMA will be covered with a synthetic liner following by a cover of quarry rock. Infiltration of the liner was modelled at a rate of 0.63 m3/day and up to four days after an event. The infiltration was passed through the liner and seeped out of the Boston TMA over the period of the open water season. The remaining portion of the event was treated as runoff from the TMA facility.

3.4.3 Lake Bathymetry

Measured lake elevations provided for the Project were relative elevations not referenced to a geodetic datum, except for Doris and Tail lake (Golder Associates 2009, Rescan 2009, 2011a, 2011b, 2012, 2014, ERM 2015, 2016) (Table 3-11Table 3-12). Each lake survey assigned an arbitrary benchmark value of 100 m to a prominent feature near each station. However, the 100 m benchmark at one lake did not correspond to the same geodetic elevation as the 100 m benchmark of another lake. The developed stage-discharge curves were based on the arbitrary reference system.

Bathymetry data was provided by ERM (Table 3-12), only Windy, Patch and Doris Lake bathymetry is referenced to a geodetic elevation and the remainder are provided as depths. Bathymetry data for Aimaokatalok Lake is a three-part composite constructed by ERM using data from 1994, 2006 and 2010. The 2006 data covers the area north of the Aimaokatalok Inflow South node while the 2010 data covers the area west of the Aimaokatalok Inflow East node. The 1994 bathymetry was traced from a report figure and covers the entire lake.

Table 3-12: Lake Bathymetry Data Applied in the Model

Catchment	Lake	Bathymetry in Model
Doris	Wolverine	X[1]
	Imniagut	X[1]
	Patch	X
	PO	X[1]
	Ogama	X[1]
	Doris	X
	Tail/Doris TIA	X
	Little Roberts	
Madrid	Windy	X
	Glenn	
Boston	Trout	
	Stickleback	X[1]
	Aimaokatalok	X[1]

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

Note:[1] Raw data is not geodetic and provided as depth from surface

To correlate the lake elevations with bathymetry and establish a stage-storage curve, lake elevations were adjusted into a geodetic elevation using the hydrometric station coordinates and recent LiDAR information. A geodetic elevation was assigned to each arbitrary 100 m benchmark, and the elevation dataset was shifted by an equivalent difference. Depth bathymetry data were similarly adjusted into geodetic data. The 0 m depth contour was considered equivalent to the captured LiDAR lake elevation.

ERMs stage-discharge relations were used where possible. The intercept of the stage-discharge curves represents the stage where discharge is 0 m^3/s. Since the curves were generated relative to an arbitrary 100 m elevation, the intercept was adjusted into a geodetic data in the same manner as measured lake elevations. For years where no rating curve equation was available, elevation and flow data was used to back-calculate a representative stage-discharge curve.

The Windy Lake level station was moved in 2015 from the northern outlet to the southeast corner of the lake. A new 100 m benchmark was selected at the new site but was not tied into the original 100 m benchmark. The level data was adjusted accordingly to consider this change.

No historical flow data were collected at Wolverine and Imniagut lakes. No outflow is noted at Imniagut lake, while No defined flow channel was noted at Wolverine lake. There are two outflows from Wolverine Lake, one to the north and one to the east. In the absence of flow data, these were modelled as one overflow in the model. Trout, Glenn and Little Roberts were modeled without bathymetry data, instead an average depth of 3 m was assumed (based on average depth data for the lakes with bathymetry). For these lakes, once the maximum elevation or volume (for lakes without bathymetry) was reached, the lake overflowed in the model.

The nature of the GoldSim calculations was to treat a modelled lake as a perfectly mixed reservoir. Due to the shape of Aimaokatalok Lake, treated effluent has the potential to short-circuit the lake and not represent a perfectly mixed lake. Therefore, Aimaokatalok Lake was modelled as two reservoirs: the first for the portion of the lake between Boston mining area and the lake outlet and bordered by the chain of islands in the middle of the lake (Aimaokatalok Section 2a and 2b) and the second for the remainder of the lake (Aimaokatalok Section 1a and 1b) (Figure 3-4). Discharge from the Boston Mine will report to disturbed portion of the lake (Aimaokatalok Section 2a). This approach is conservative as it allows for dilution from only a portion of the lake instead of the entire lake volume.

Lake drawdown was calculated for Doris, Windy, Wolverine, Imniagut and Patch lakes. For lakes with stage storage curves, drawdown was the difference in the predicted lake elevation with respect to the base of the weir.

3.5 Water Consumption

The freshwater withdrawl from the Doris and Madrid watershed (Table 3-13) and the Boston watershed (Table 3-14) are detailed in the sections below.

Table 3-13: Maximum Daily and Annual Freshwater Withdrawl from the Doris and Madrid Watershed

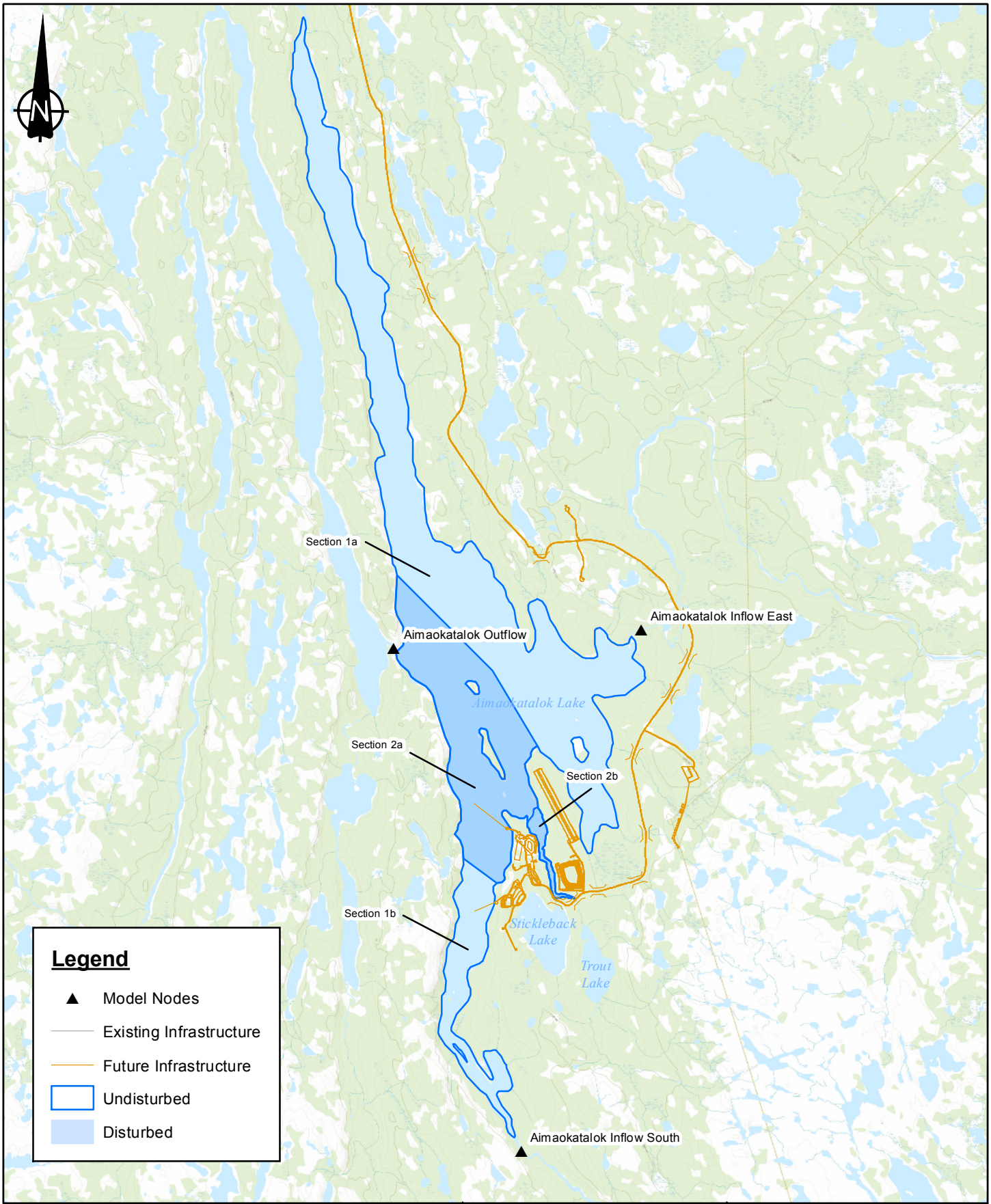
Doris and Madrid Water Use Summary	Peak Use (2017 to 2028)		Peak Use (2029 to 2032)	
	Daily Use (m^3/day)	Annual Use (m^3/yr)	Daily Use (m^3/day)	Annual Use (m^3/yr)
Windy Lake Use				
Doris Camp	120	44,000	120	44,000
Total Windy Lake Draw	**120**	**44,000**	**120**	**44,000**
Doris Lake Use				
Doris Process Plant	880	320,000	4,000	1,100,000
Madrid Concentrator	110	40,000	1,800	460,000
Doris Industrial	760	210,000	760	210,000
Madrid Industrial	710	160,000	710	160,000
Total Doris Lake Draw	**2,460**	**730,000**	**2,460**	**1,930,000**

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

Table 3-14: Maximum Daily and Annual Freshwater Withdrawl from the Boston Watershed

Boston Water Use Summary	Peak Use	
	Daily Use (m^3/day)	Annual Use (m^3/yr)
Boston Camp	90	33,000
Boston Process Plant	550	200,000
Industrial Water	1,000	250,000
Total Aimaokatalok Lake Draw	**1,600**	**480,000**

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx



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Coordinate System: NAD 1983 UTM Zone 13N

0 1 2 km

srk consulting

Job No: 1CT022.013

Filename: Fig3-4_Aim_Lake_rev0

MAC RESOURCES

HOPE BAY PROJECT

Water and Load Balance

Modelling of Aimaokatalok Lake

Date:	Approved:	Figure:
Dec 2017	CH	3-4

3.5.1 Camp Use

There will be two accommodation complexes (camps) within the Project area: Doris Camp, and Boston Camp. In the model, potable water use was assumed constant at the maximum expected extraction rate during construction, operations, and closure, after which potable water extraction was assumed to cease (Table 3-15). A sewage effluent rate of 0.3 m^3/day per person was applied to determine the daily and yearly potable water requirements for each camp.

The 400-person Doris Camp is expected to extract up to 120 m^3/day (44,000 m^3/y) from Windy Lake for potable use. Throughout operations, treated sewage effluent will be discharged to the Doris TIA. Doris Camp will be left operational for two years after closure and grey water will be released to the tundra during this period.

The expected water demand for the 300-person Boston Camp is 90 m^3/day (33,000 m^3/year) from Aimaokatalok Lake. Treated sewage effluent will be combined with the Boston contact water and process plant treatment plant effluents and discharge into Aimaokatalok Lake. The camp will be in operation for two years before and after operations.

Table 3-15: Potable Water Use Summary

Parameter	Units	Doris	Boston
Camp Size	people	400	300
Potable Water Use	m^3/d	120	90
	m^3/y	44,000	33,000
Source	lakes	Windy	Aimaokatalok
Duration	years	2011-2034	2020-2032

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

3.5.2 Industrial Water

Industrial water will be used for dust suppression and in wash bays and machine shops. For modelling purposes, this water was assumed to be lost and was removed to a water balance sink. Construction and closure industrial water use is expected to be negligible and was assumed to be zero in the model. Operations water use is summarized in Table 3-16. The industrial water use rates for Boston and Madrid were estimated based on demand at Doris.

Table 3-16: Industrial Water Use Summary

Industrial Water Use	Water Use (m^3/day)			Timing
	Doris	Madrid	Boston	
Dust Suppression	760	1,200	1,400	June - October
Other Industrial	800	400	800	Year Round
Extra	120	58	120	Year Round
Total	**1,700**	**1,600**	**2,300**	**June - October**
	910	**460**	**910**	**Nov - May**
Lake	Doris	Doris	Aimaokatalok	

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

3.5.3 Process Water

Freshwater for the Doris process plant will be sourced from Doris Lake, recycled within the plant, and then directed to the Doris TIA as tailings slurry. Freshwater for the Doris process plant will range from 250 m^3/d (91,000 m^3/y) to 880 m^3/d (320,000 m^3/y) depending on production rates. During the period of 2029 to 2032, the over winter withdrawl from Doris Lake will increase to 4,000 m^3/d (1,100,000 m^3/y), to make up for the lack of reclaim water in the Doris TIA.

Freshwater for the Madrid concentrator will be sourced from Doris Lake, recycled within the process plant, and then directed to the Doris TIA as tailings slurry. Freshwater will range from 90 m^3/day (33,000 m^3/yr) to 110 m^3/day (40,000 m^3/y). During the period of 2029 to 2032, the over winter withdrawl from Doris Lake will be increased to 1,800 m^3/d (460,000 m^3/y), to make up for the lack of reclaim water in the Doris TIA.

Freshwater for the Boston process plant will be sourced from Aimaokatalok Lake, recycled within the process plant, and periodically purged at a rate of 10% to a process water treatment plant before being discharged to Aimaokatalok Lake. Freshwater demand for the Boston process plant will range from 46 m^3/day (17,000 m^3/y) to 550 m^3/day (200,000 m^3/y), based on calculations using the freshwater requirements in the flotation mass balance presented in the Interim Engineering Study conducted by Gekko (2014).

3.6 Permafrost and Groundwater

The Project is located in the continuous permafrost region of the Canadian Arctic. Groundwater is limited to talik zones beneath lakes and at depth (below 400 m). Where mines intercept talik zones, the groundwater inflow is characterized by fractured flow from the host bedrock. In areas where mining is in close proximity to lakes, a considerable portion of the mine inflow is from lake water, with the remainder from regional groundwater (SRK 2017a).

The Doris, Madrid North, and Madrid South mines are all expected to intercept talik and therefore have mine inflows. At Doris Mine, a component of the mine inflow was drawdown from Doris Lake. At Madrid North Mine a portion of the mine inflow was from Windy, Imniagut, and Patch lakes and at Madrid South Mine a portion of the mine inflow was from Patch and Wolverine lakes. The Boston Mine does not intercept any talik and was modelled as a dry mine.

For operations, transient groundwater inflows based on the mine development schedule (SRK 2017a) were included in the water and load balance model. It was assumed that Doris Mine water will be batch pumped directly from mine sumps to the MMB for discharge to Roberts Bay at a rate of 3,000 m^3/day.

Peak mine inflow to Madrid North Mine was estimated to be 1,200 m^3/day and peak inflow from Madrid South Mine was estimated at 550 m^3/day (SRK 2017a). The model has the capability to direct this water to either the Doris TIA (base case) or the Doris process plant outflow mixing box for disposal to Roberts Bay, if chloride levels are too high for marine discharge.

At post-closure, the groundwater flow system will return to the initial state, with flow directions driven by the distribution of open taliks and lakes. The three affected lakes are Doris, Windy, and Patch. The estimated rates of flow are shown in Table 3-17.

In all cases, groundwater is expected to travel very slowly, with predicted travel times greater than 1,000 years for Madrid North and South mines. To assess impacts within the model, the timeline for this flow was compressed, i.e., the flows were assumed to be discharged to each lake once the respective mining area is reclaimed.

Table 3-17: Flows from Talik Mines at Closure

Affected Lake	Source of Flow	Flowrate (m^3/day)
Doris	Doris Mine	36
Windy	Madrid North Mine	0.3
Patch	Madrid South Mine	0.6

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3.7 Water Quality

3.7.1 Ore and Waste Rock

Currently, a sediment and contact water pond collects water from existing ore and waste rock piles at the Doris Mine. Water collected at monitoring station ST-2 located downstream of the contact water ponds was considered representative of Doris waste rock and ore stockpile runoff. The median (base case) and 75th percentile (conservative case) monthly water quality data for ST-2 were used as source terms for the existing ore and waste rock in the model (Appendix A-1).

Source terms for all other sources of ore and waste rock were developed based on the Doris Mine site data at ST-2 and humidity cell test results for waste rock from all deposits. The results were corrected to account for differences between laboratory and field conditions as part of the SRK Geochemical Characterization program and are presented in SRK (2017e). Source terms developed for inclusion in the model included:

- Doris crown pillar recovery trench;
- Madrid North waste rock;
- Madrid North ore;
- Madrid North crown pillar recovery trenches;
- Madrid South waste rock;
- Madrid South ore;
- Boston waste rock; and
- Boston ore; and
- Boston crown pillar recovery trench.

3.7.2 Doris TIA Beach

Seepage and runoff from the exposed tailings beach in Doris TIA are expected to differ from that previously modelled due to the addition of Madrid and Boston flotation tailings. Source terms for the tailings beach (separate terms for operations and closure) were developed based on humidity cell data corrected to account for differences between laboratory and field conditions as part of the geochemical characterization program (SRK 2017e).

For operations, the source term was applied to any beach contact water. This loading was added to the Doris TIA. At closure, it is assumed that a rock cover will be placed on the Doris TIA Beach. The resulting contact water chemistry at closure was calculated from the maximum of the surface infrastructure source term, which represents the cover material (Section 3.7.6) and the Doris TIA beach closure source term. This loading was combined with all Tail Lake Catchment loading and added directly to Doris Creek (rationale presented in Section 3.4.1).

3.7.3 Boston TMA Contact Water

Two source terms for the Boston TMA contact water (operations and closure) were developed based on humidity cell test results corrected to account for differences between laboratory and field conditions as part of the SRK Geochemical Characterization program and are presented in SRK (2017e).

The operations source term was applied to seepage through the active layer during summer months only. At closure, a geosynthetic liner and a rock cover will be constructed, which will greatly limit the amount of infiltration. However, in the model, a small amount of runoff was assumed to infiltrate the liner and seep out during the open water season. This seepage was assigned the Boston TMA closure source term, while runoff interacting with the cover was assigned the infrastructure source term (Section 3.7.6).

3.7.4 Process Water Effluent

Process water quality was developed from historical metallurgical test work conducted on representative samples from the Doris, Madrid North, and Boston deposits. The source term for the process water for Madrid South ore was based on a proxy, with Boston representing the most representative analog (SRK 2017e). The laboratory testing flowsheet included a flotation stage followed by a cyanide leaching circuit. For the Doris process plant two tailings streams will be produced, the majority as the flotation tails (94%) and a smaller stream as detoxified tailings (6%). The Boston process plant will process ore through a flotation stage followed by a cyanide leaching circuit. The source terms are presented in SRK (2017g).

The Doris process plant will process ore from two or three deposits at any given time. The effluent source term was calculated based on a weighted average of the process water source terms (based on percent of ore processed from each mine for any given time step). The process effluent reporting to the Doris TIA changed over time according to the processing schedule.

The Boston TMA source term was applied to the effluent of the Boston process plant. The effluent water quality was based on a flotation specific source term and did not include any cyanide or its cyanide derivatives. This source term was applied to the purge water from the process plant entering the water treatment facility.

3.7.5 Sewage Water

Concentrations of treated effluent discharged from all camps during operations and closure were based on typical performance estimates from packaged sewage treatment plants (Table 3-18). For parameters without estimates, the respective Doris or Boston background concentrations were applied (Appendix A-2 and A-3).

Table 3-18: Sewage Effluent Source Term

Parameter	Concentration (mg/L)	Parameter	Concentration (mg/L)
Ammonia as N	10	Lead	0.00005
Nitrate as N	1	Molybdenum	0.00005
Nitrite as N	30	Nickel	0.0005
Chromium	0.0025	Uranium	0.0002
Copper	0.002	Zinc	0.002
Iron	0.025		

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3.7.6 Boston Contact Water Treatment Plant Discharge

A contact water treatment plant will be required at the Boston Mine site. Model results for water from the CWPs showed that elevated levels of metals were of concern, specifically arsenic and cadmium. Based on the concentrations of these two metals, a two stage treatment process was designed.

The first stage will target arsenic removal with a ferric co-precipitation process. Arsenic co-precipitates with iron to lower the arsenic concentration to acceptable discharge limits. A second lime neutralization stage is also required for cadmium levels to meet acceptable discharge limits. In order to remove cadmium, the solution pH must be raised to ten with the addition of lime. Ferric sulphate may be required as a coagulant. In addition to cadmium removal, lime neutralization also targets the precipitation of other metals with increasing pH such as nickel, copper and zinc. In the model, water quality was assigned for the target treatment parameters and other ions like nickel, calcium and sulphate. Parameters such as chloride that would be unaffected by the treatment process or any parameter already under the CCME guidelines were not adjusted (Table 3-19). Parameters such as total dissolved solids (TDS) and hardness were calculated based on the composition of the treated effluent in the model and all modeled effluents reflect this.

Both processes produced sludge containing precipitated metals and arsenic. Since the Boston Mine is located within permafrost, it was assumed that any sludge produced will be placed underground where it will freeze and remain immobilized. The model assumed the treatment plant will be initiated at the start of the operations phase at Boston and remain in place through the post-closure period to treat any water collected in the site ponds. Once the site enters post-closure, the treatment facility will no longer be required and will cease operations.

Table 3-19: Boston Contact Water Treatment Plant Effluent Quality

Parameter	Concentration (mg/L)	Parameter	Concentration (mg/L)
TSS	15	Copper	0.001
Hardness	498	Iron	0.5
Aluminum	0.1	Molybdenum	0.01
Arsenic	0.01	Nickel	0.005
Cadmium	0.0001	Selenium	0.002
Calcium	199	Zinc	0.02

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3.7.7 Boston Process Water Treatment Plant

A process water treatment plant will be required at the Boston Mine site for the duration of the Boston process plant operations. Model results for the process plant bleed showed elevated levels of metals are of concern, specifically arsenic and cadmium as well as ammonia (by-product of cyanide destruction). Therefore, a three stage treatment process was designed.

The first two stages will be identical to the Boston contact water treatment plant and the effluent water from this stage will be the same as presented in Table 3-19 . The thirds stage will be a biological process to address ammonia. This stage is located after metals removal, as some metals can be toxic to the microbial community.

The effluent from the first two stages is pumped to a moving bed biological reactor (MMBR) where ammonia is removed by nitrification (conversion to nitrate). Nutrients (e.g. MKP) and lime are added to the aerated MMBR to sustain and maintain pH for the nitrifying bacteria. The water will then pass through a subsequent denitrification stage (conversion to nitrogen gas). A carbon source (e.g. methanol) and can be added to sustain the denitrifying bacteria, additional nutrient addition may be required. The effluent will pass through a clarification stage and the sludge produced will be placed underground along with the other treatment sludges. Performance of MBBR’s at other sites was considered, however, the proposed sewage RBC effluent (similar process) parameters for ammonia, nitrate and nitrite were more conservative and applied (Table 3-18).

In the model, the Boston process water treatment plant used influent concentrations for any parameters that were not assigned an effluent concentration. Hardness and TDS were calculated based on the composition of the treated effluent in the model and all modeled effluents reflect this.

3.7.8 Doris Contact Water Treatment Plant

Once the Madrid project comes online, arsenic concentrations in the mine water and Doris TIA are predicted to increase above the current MMER regulations (0.5 mg/L) in 2025 and exceed the proposed MMER regulations (0.1 mg/L) in 2021 onwards. A Doris contact water treatment plant will be required to remove arsenic. The process will employ the first stage of the Boston contact water treatment plant, which is arsenic removal via ferric co-precipitation. In the model, the arsenic and iron concentrations from the Boston contact water plant effluent were applied to the Doris contact water plant (Table 3-19). Although other projects have observed additional metals removal with ferric-coprecipitation, all other parameters were assumed to be unaffected by the treatment process.

The sludge produced from the process will be placed underground at Doris and Madrid mines within zones of permafrost where it will remain frozen and immobilized. The plant will be in operations from 2018 to 2035 while there is discharge from the MMB.

3.7.9 Surface Infrastructure

The road, pad, and tailings cover concentrations were based on site data collected in 2013 and 2014 (SRK 2017e). The 75th and 95th percentile concentrations were used in the model to represent a base case and a reasonable worse case, respectively.

3.7.10 Background Water Quality

Historic background water quality for various lakes in the Project were reviewed for inclusion in the model. Water was collected under two main programs: compliance sampling completed by TMAC and the annual environmental monitoring program collected by ERM from 1990s to 2017. The data collected by ERM had lower detection limits, which provided a higher degree of resolution for parameters where the majority of the data was close to, at, or below the detection limit. This was a deviation from the previous model that relied on the compliance data sampled at location TL-2. Two separate source terms were developed for Doris and Boston to represent background conditions. For each, the seasonal median and 75th percentile data were used in the model for the base case and a reasonable upper case (Appendix A-2 and A-3).

For the Doris background source term, water quality from Windy, Doris, Roberts, and Pelvic lakes was considered as potential background sources and was found to be comparable among the lakes. Doris Lake water quality from 2012 to 2017 was selected as representative of background conditions and was applied to the remaining lakes and to all undisturbed surface runoff in the Doris or Windy watersheds upon model activation. The only exception to this was Tail Lake, which is used to store water collected in the Doris sedimentation pond. To apply background concentrations to the lake would not be representative of the effects of these activities. Therefore, either the Tail Lake water quality (TL-1) (Appendix A-4) or the Doris background concentrations (whichever was highest) were applied instead.

For the Boston background source term, water quality from Aimaokatalok, Stickleback and Trout Lakes were also reviewed for inclusion in the model. Water quality from Trout and Aimaokatalok lakes were found to be comparable, while Stickleback Lake showed higher concentrations of elements such as chloride and copper. Aimaokatalok Lake water quality collected between 2012 and 2017 was selected as representative of background conditions and was applied to all lakes and all undisturbed runoff in the Boston watershed except Stickleback Lake. A separate source term was developed for Stickleback Lake and was applied as the starting concentration for this lake upon model activation (Appendix A-5).

3.7.11 Groundwater

Based on the Doris groundwater prediction model (SRK 2017e), intercepted underground flows in the Doris area for the model were composed of water stored in rock, Doris Lake, and regional flows at the base of the talik. The proportion of water coming from each contributor changed with depth and was an output of the Project's groundwater model (SRK 2017a). A mass balance was carried out to determine the expected concentration of intercepted water during mining (Appendix A-6). Groundwater quality was based on results from Westbay Well data (SRK 2015b). The same methodology was applied for the Madrid North and Madrid South mines.

Waste rock and quarry rock stored underground at Doris and Madrid, and detoxified tailings stored underground at Doris and Madrid North have the potential to interact with intercepted groundwater. Source terms were developed for the Doris, Madrid North, and Madrid South mines based on the quantity and source of backfill material in each mine at closure (SRK 2017e). Once backfill commences, the source term load was added to the intercepted groundwater based on the amount of backfill placed at that time step.

A separate source term was developed water in the reflooded mines at closure to account for release of stored oxidation products from the backfill (SRK 2017e). This was applied to the predicted groundwater flow (Section 3.6) and added to the respective lakes. Due to the magnitude in predicted timelines (greater than 100 years), the timeline was compressed in the model such that once the individual mine is reclaimed (post-closure), flow from that mine to the respective lake is assigned the closure source term loading.

3.7.12 Drilling Residuals

The Project will require the use of calcium chloride during mining. The brine residuals in ore and waste rock stockpiles and in the ore processed in the process plant were assumed to be flushed out over time. The flushing of brine was treated in the same manner as the blasting residues (Section 3.7.14). The values were derived based on shake flask test extractions (MEND 2009) of ten samples run-of-mine (ROM) collected at Doris in 2017 by TMAC and later SRK. The -2 mm fraction of ROM collected from either the muck pile underground or surface stockpiles (waste rock and ore). Test work was conducted at Bureau Veritas (Maxxam) in Burnaby, BC. Based on the test work results and scaling for grain size (refer to SRK 2017e for background), the chloride source term due to leaching of residuals of calcium chloride drilling brine is 440 mg/kg.

TMAC expect brine use demand to lesson for ore in permafrost as the method from drilling ore can be done with freshwater. Therefore a lower value for ore in permafrost was applied at 220 mg/kg compared to the value of 440 mg/kg for waste rock. TMAC have made changes to the underground drilling methods and brine water management in areas with talik resulting in lower brine loading estimates (110 and 55 mg/kg for waste rock and ore respectively). Therefore, the resulting brine loading for each deposit was based on the ratio of the deposit within permafrost and talik. The method used to estimate these loading rates is thought to be conservative. A flush rate of 20% annually was assumed for the stockpiles. For the process plant, a flush rate of 100% was assumed.

The Doris mining zones were located all in talik or all in permafrost and two source terms where developed in the 2015 model. These values were used to develop the Madrid North, Madrid South and Boston values. The entire Boston Mine was found to be located in permafrost and the same values for Doris ore and waste rock located in permafrost were applied. The Madrid North and South mines were located partially located in talik, 57% and 84% respectively.
The concentrations applied to Madrid North, Madrid South and Boston were based on the relative ratio of the Doris talik and permafrost concentrations (Table 3-20).

Table 3-20: Brine Loadings Applied to Ore and Waste Rock

Material	Material	Location	Chloride Loading (mg/kg)
Waste Rock	Doris	Talik and Permafrost	206
	Madrid North	Talik and Permafrost	276
	Madrid South	Talik and Permafrost	336
	Boston	Permafrost	440
Ore	Doris	Talik and Permafrost	103
	Madrid North	Talik and Permafrost	138
	Madrid South	Talik and Permafrost	168
	Boston	Permafrost	220

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

3.7.13 Total Metals Concentrations

Estimates of total metals concentrations were made to allow comparisons of predicted water quality against water quality guidelines based on total metals. The predictions were made by multiplying total suspended solids (TSS) by the respective solids composition for any given source, and is explained in further detail in SRK 2017e. This amount was added onto the dissolved predictions at each effluent point.

3.7.14 Blasting Residues

The model considered nitrogen loadings from blasted rock. Loadings for ammonia, nitrate and nitrite were developed based on the same method as the chloride source term, specifically scaled shake flask extraction test results for ROM rock from Doris. Table 3-21 presents the source terms for nitrate, nitrate and ammonia due to leaching of blast residues.

Table 3-21 Nitrogen Loading from Blast Residues Applied to Ore and Waste Rock

Loading	Nitrate	Nitrite	Ammonia
mg/kg (as N)	**23**	**0.035**	**9.6**

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

As ore or waste rock was mined in talik, 33% of the nitrogen load was added to the mine water loading. The rest of the nitrogen load was transferred to two separate reservoirs on surface, representing the ore and waste rock placed on surface. Loading was flushed from these reservoirs to the respective contact water ponds at a rate of 40% per year. Loading could also be removed from the ore reservoir as it was processed through a process plant. The removed load was added to the process plant effluent. Loading could be removed from the waste rock reservoir when waste rock was placed underground as backfill. If the backfill was placed in talik, load was accumulated in a backfill reservoir and flushed to mine water at a rate of 40% per year.

3.7.15 Cryoconcentration

The FEIS model addressed cryoconcentration in a different manner than the Type A and DEIS models. In the DEIS model, lakes with bathymetry data were modeled assuming 100% exclusion of solutes from a maximum ice layer 2.1 m thick while lakes without bathymetry data were modeled with 100% exclusion of solutes from a maximum of half the lake volume. Modelled ice development or lake volume reduction started in October, peaked in February and ceased in June (Table 3-22).

Table 3-22: Ice Development and Volume Reduction used for Cryoconcentration in the DEIS Model

Month	Ice Development (m)	Volume Reduction
October	0.42	10%
November	0.84	20%
December	1.26	30%
January	1.68	40%
February	2.1	50%
March	1.68	40%
April	1.05	25%
May	0.42	10%

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

To address uncertainties in the cryoconcentration assumptions, modelled cryoconcentration factors were compared to cryoconcentration factors calculated from baseline data. The modelled cryoconcentration factors were calculated by dividing predicted monthly average TDS concentrations from February (maximum under ice) by predicted monthly average TDS concentrations from the prior August (open water) Baseline cryoconcentration factors were calculated by dividing median TDS concentrations for under ice months (data limited to April and May) by median TDS concentrations from the previous open water months (June to September). For years without sequential data (2006 open water and 2007 winter data) the cryoconcentration factors were calculated from data collected in the same calendar year (2007 winter and open water data). The comparison (Table 3-23) showed that the DEIS model underpredicted and overpredicted cryoconcentration in some shallow lakes, notably Trout and Wolverine Lake (Figure 3-5). Differences are attributed to uncertainties in the bathymetry for these lakes.

Table 3-23: Comparison of Modelled and Baseline Cryoconcentration Factors

Lake	Average Lake Depth (m)	DEIS Cryoconcentration Factor	Baseline Cryoconcentration Factors
Windy	9.9	1.2	1.1
Doris	7.3	1.3	1.3
Patch	4.1	2.0	1.5
Ogama	2.6	2.0	2.5
Wolverine	2.3	5.9	2.2
Stickleback	2.5	2.9	2.7
Trout	2.3	1.9	4.4
Aimaokatalok Section 2a	6.4	2.0	1.4
Little Roberts	2.3	1.1	2.7

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

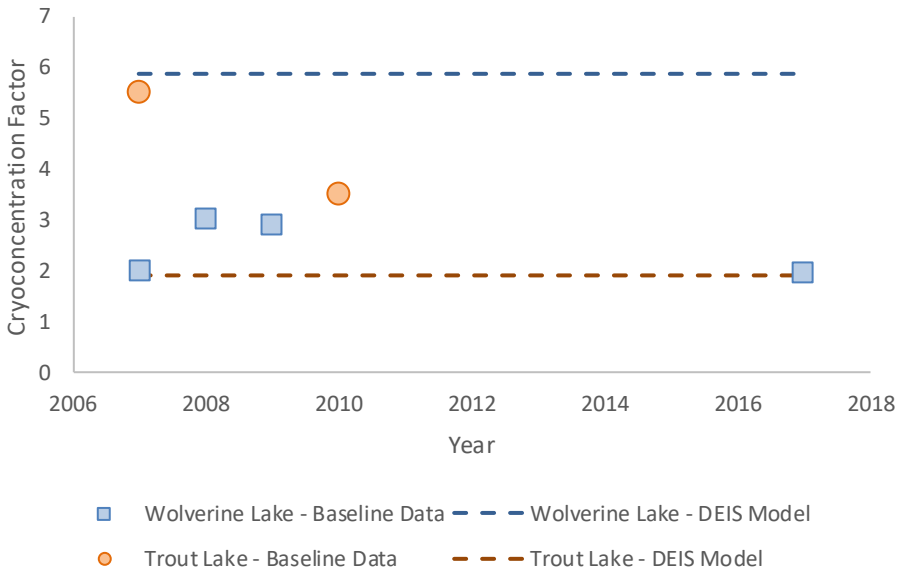

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Figure 3-5: Cryoconcentration Factors for Modeled and Background TDS Values

For the FEIS model, cryoconcentration factors from the baseline data were used to develop lake specific cryoconcentration factors.

Initially all parameters were considered in the attempt to develop parameter specific cryoconcentration factors by ERM and SRK. However, some parameters were at or very close to the detection limits, skewing the cryoconcentration factor towards a value of one (e.g. a lake with a median open water concentration of <0.005 mg/L and median under ice concentration of 0.006 mg/L results in a cryoconcentration factor of 1.2 when in fact it could be much greater than 1.2). For this reason, parameters with more than a few instances of non-detect data were removed from the data set.

The remaining parameters with strong data sets were: TDS, chloride, calcium, sodium, aluminum, copper, manganese, uranium and total phosphorous. The annual cryoconcentration factors ERM calculated for this suite of parameters was compared by lake, presented in Table 3-24. Factors for total phosphorous, aluminum, copper, manganese and uranium all showed considerable variability within each lake, while factors for TDS, chloride, calcium and sodium were all reasonably consistent within each lake.

Total phosphorous, aluminum, copper, manganese and uranium are susceptible to a number of complex biogeochemical processes, including sorption to sediments that may result in seasonal changes in mobility. Since these mechanisms are not sufficiently understood for modelling purposes and are not a direct function of cryoconcentration, parameter-specific cryoconcentration factors were not considered in the model. In contrast, TDS, chloride, calcium and sodium tend to behave in a geochemically “conservative” manner in that they are relatively unaffected by these other processes, and therefore provide a much more direct indication of the effects of cryoconcentration. Although all of these parameter showed similar values, TDS cryoconcentration

factors were selected as the basis for modelling cryoconcentration because TDS was present in the datasets well above the detection limits, and is representative of the dissolved parameters (metals were collected as totals). Nonetheless, it should be recognized that the model does not account for other biogeochemical processes such as sorption that are evident in the system, and may therefore result in an overprediction of under ice concentrations. The lake specific TDS factors in Table 3-23 were applied in the model for each lakes where adequate baseline data were available. Glenn, PO and Section 2b of Aimaokatalok lake did not have sufficient data sets to calculate cryoconcentration factors so Stickleback Lake was selected as an analog for all shallow lakes. The cryoconcentration factors were applied in the model following the same ice build up or lake volume reduction pattern presented in Table 3-22. As an example, the cryoconcentration factor for Wolverine Lake started in October at 1.2 and built up to a peak in February of 2.2.

For the Doris TIA, cryoconcentration factors from background data were not applied in the model. The Doris TIA will receive contact water well above the background Tail Lake natural conditions. Pieters and Lawrence (2009) found ice excluded 99% of salt at Tailings Lake at Colomac Mine. Based on this, the Doris TIA was modeled with 100% exclusion of solutes from ice to maintain conservatism. An approximation of 100% exclusion was applied for simplicity of modelling and ice thickness followed the same progression as presented in Table 3-22.

Table 3-24: Parameter Specific Cryoconcentration Factors

Parameter	Statistic	Lakes with average Depth < 4 m[1]					Lakes with average Depth > 4 m[1]				
		Wolverine	Trout	Little Roberts	Stickleback	Ogama	Patch	Aimaokatalok	Doris	Windy	Roberts
TDS	Count	4	2	6	3	3	4	4	7	5	2
	50th Percentile	2.2	4.4	2.7	2.7	2.5	1.5	1.4	1.3	1.1	1.3
	75th Percentile	2.7	4.9	3.7	2.7	3.1	1.5	1.5	1.3	1.2	1.3
	95th Percentile	3.3	5.2	4.4	2.7	3.6	1.7	1.7	1.3	1.2	1.3
Chloride	Count	4	1	6	2	3	4	3	7	5	2
	50th Percentile	2.3	3.1	2.6	2.7	2.5	1.5	1.9	1.3	1.2	1.3
	75th Percentile	2.8	3.1	2.8	2.7	3.3	1.6	1.9	1.3	1.2	1.3
	95th Percentile	3.3	3.1	4.3	2.7	3.9	1.7	1.9	1.3	1.2	1.3
Total Phosphorous	Count	4	2	9	3	3	4	4	11	5	3
	50th Percentile	1.7	1.4	1.5	2.1	0.9	0.8	0.9	1.0	0.8	0.7
	75th Percentile	2.8	1.5	2.4	2.2	1.0	0.9	1.0	1.2	0.9	1.0
	95th Percentile	4.1	1.6	4.3	2.2	1.0	1.1	1.3	1.5	0.9	1.3
Aluminum	Count	4	2	9	2	3	4	4	11	5	2
	50th Percentile	0.4	0.5	0.2	1.1	0.2	0.5	0.7	0.2	0.2	0.9
	75th Percentile	1.1	0.6	0.3	1.3	0.7	0.8	0.8	0.3	0.3	1.2
	95th Percentile	2.7	0.7	1.7	1.4	1.1	0.8	0.8	2.0	0.5	1.5
Calcium	Count	4	2	9	3	3	4	4	11	5	3
	50th Percentile	2.5	4.0	2.2	2.8	2.4	1.6	1.5	1.2	1.2	1.3
	75th Percentile	2.7	4.0	2.5	2.9	2.7	1.6	1.6	1.3	1.2	1.3
	95th Percentile	3.0	4.0	4.2	3.1	2.9	1.6	1.7	1.3	1.2	1.4
Copper	Count	4	2	9	3	3	4	4	11	5	3
	50th Percentile	1.1	2.4	1.6	1.5	1.7	1.3	1.3	1.1	1.0	1.0
	75th Percentile	1.2	2.7	1.7	2.0	1.9	1.6	1.6	1.3	1.1	1.1
	95th Percentile	1.3	3.0	1.8	2.4	2.0	1.6	1.7	1.7	1.2	1.2
Manganese	Count	4	2	9	3	3	4	4	11	5	3
	50th Percentile	24.6	20.3	8.3	31.0	4.8	0.7	0.4	0.2	0.4	1.8
	75th Percentile	37.5	29.3	10.2	75.0	5.8	0.9	0.5	0.3	0.5	2.0
	95th Percentile	42.0	36.5	53.0	110.2	6.6	1.2	0.6	0.4	0.6	2.2
Sodium	Count	4	2	9	3	3	4	4	11	5	3
	50th Percentile	2.6	3.7	2.6	2.6	2.5	1.5	1.5	1.2	1.2	1.3
	75th Percentile	2.9	4.2	2.7	2.7	3.0	1.5	1.6	1.3	1.2	1.3
	95th Percentile	3.3	4.5	4.7	2.8	3.4	1.6	1.7	1.4	1.2	1.4
Uranium	Count	4	2	9	3	3	4	4	11	5	3
	50th Percentile	1.2	2.4	1.5	2.6	1.5	1.1	1.3	1.1	1.1	1.0
	75th Percentile	1.4	2.5	1.7	3.1	1.6	1.1	1.6	1.1	1.2	1.1
	95th Percentile	1.7	2.6	1.9	3.5	1.7	1.2	1.7	1.2	1.2	1.1

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Note: [1] Note darkest shading represents the 50th percentile of all the shallow and deep lake cryoconcentration factors presented, shading decreases the further away the cryoconcentration factor is from the 50th percentile.

3.7.16 Degradation Rates

Cyanide degradation (oxidation) occurs naturally, but can be enhanced by adding nutrients to promote biological activity (enhanced natural removal, ENR). Mass balance calculations on cyanide and intermediate degradation products can be used to estimate degradation rates.

SRK derived degradation rates for total cyanide (TCN), cyanate (OCN-), thiocyanate (SCN-), and ammonia (NH4+). There are four relevant degradation reactions for these species, which are summarized in Table 3-25. Other species involved in the reactions (such as sulphate and carbon dioxide) are omitted for clarity.

Table 3-25: Degradation Reactions and Relevant Species

No.	Degradation Reaction	Losing Species	Gaining Species
1	TCN degrades to OCN-	TCN	OCN-
2	OCN- degrades to NH4+	OCN-	NH4+
3	SCN- degrades to NH4+	SCN-	NH4+
4	NH4+ degrades to a variety of other forms of nitrogen	NH4+	Various N forms

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SRK used mass balance data from the Colomac Mine[1] to estimate both natural and enhanced degradation rates. The masses of TCN, OCN-, SCN-, and NH4+ in the Colomac tailings lake had been calculated periodically before adding nutrients (2000 and 2001) and after adding nutrients (2002 and 2003), so it was possible to calculate the net change in mass for each of these species (SRK 2004).

To determine degradation rates, SRK performed the following calculations:

- The masses of TCN, OCN-, SCN-, and NH4+ from the Colomac dataset were converted to an equivalent mass on a nitrogen basis (e.g., TCN as N) to easily track mass changes between species.
- The total change in mass (on a nitrogen basis) for each species was calculated for each of the four years of data. The losses of TCN and SCN- were straightforward, but OCN- and NH4+ are both degradation products from other species and are themselves degraded.
- The total mass change for each species was divided by the duration to calculate daily rates of mass change (in tonnes as N per day), which were then converted to daily rates of $mg/m^2/day$ using the area of the Colomac tailings lake.
- The lowest degradation rates were extracted to represent enhanced degradation and the average of observed rates were selected to represent natural degradation (Table 3-26).
- In the Doris water and load balance model, natural degradation rates were used.
- The natural degradation rates were used within the base case model run.

[1] Colomac Mine, Closed Mine (1997), Northwest Territories

Table 3-26: Summary of Nitrogen Based Degradation Rates

Parameter	Natural Degradation Rate ($mg/m^2/day$)	Enhanced Degradation Rate ($mg/m^2/day$)
Total CN-N	-218	-291
CNO-N	-300	-439
CNS-N	-674	-1033
NH4_N	-249	-1113

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4 Model Implementation

4.1 Version

The water and load balance model for the Project was developed using the GoldSim Pro (version 11.1.5) software package.

4.2 Limitations

The model included the following limitations:

- The water balance was calibrated based on measured site data. Any error in this data collection would directly affect the reliability of the model calibration.
- Solubility limits were not applied in the model. Consequently, some parameters may precipitate prior to reaching the modelled concentrations.
- Although degradation of some parameters was modelled, geochemical factors such as attenuation along flow paths and removal of loads in storage facilities were not simulated.
- The model treated all lakes and reservoirs as perfectly mixed containers. This mixing occurred instantaneously at every time step and may not be reflective of actual conditions.
- During winter months, the model simulates cryoconcentration of the parameters based on lake specific differences between open water and under-ice TDS concentrations (Section 3.7.15). Although comparison of open water and under-ice baseline data showed evidence of increased sequestration of some parameters to the sediment column, and other biogeochemical processes that lead to seasonal changes in metal mobility, these other processes were not accounted for within the model.

4.3 Water Quality Objectives

One of the key objectives of the water and load balance model was to predict water quality in the Doris TIA and all effluent sources to the environment including the MMB and the Boston WTP. For screening purposes, the results were also compared to relevant guidelines, described below.

Current operations are regulated under Water Licence No. 2AM-DOH1323 that includes specifications relating to discharge from ponds and the Doris TIA and water quality limits in Doris Creek. The water quality limits for the Doris TIA and TL-3 are shown in Table 4-1.

Current MMER (2016), proposed MMER (GC 2017) (Table 4-2) and CCME (2016) freshwater, irrigation, and livestock (Table 4-3) were used as a basis for screening all other freshwater effluents. For hardness-based guidelines, a value of 40 mg/L was used. For pH based guidelines, a pH of 7.5 was used. For ammonia, a pH of 8.0 and a temperature of 5°C was used, which gives a more conservative value that a pH of 7.5. Where multiple guidelines were available, the minimum was used.

Table 4-1: Water Quality Objectives under Licence 2AM-DOH1323

Parameter	Doris TIA Effluent to TL-4		TL-3
	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
pH	Between 6-9.5	Between 6-9.5	Between 6-9.0
TSS	15	30	15
Total Oil and Grease			5
Chloride			150
Free Cyanide			0.005
Total Cyanide	1	2	0.01
Biological Oxygen Demand	80	160	
Fecal Coliform	10,000 CFU/100 mL	10,000 CFU/100 mL	
Radium 226	0.37 Bq/L	1.11 Bq/L	
Total Ammonia-N	6		1.54
Nitrate N			2.9
Nitrite N			0.06
Total Aluminum			0.1
Total Arsenic	0.5	1	0.005
Total Cadmium			0.000017
Chromium (VI)			0.001
Total Copper	0.3	0.6	0.002
Total Iron			0.3
Total Mercury			0.000026
Total Molybdenum			0.073
Total Nickel	0.5	1	0.025
Total Lead	0.2	0.4	0.001
Total Selenium			0.001
Total Silver			0.0001
Total Thallium			0.0008
Total Zinc	0.5	1	0.03

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Table 4-2: MMER and Proposed MMER Guidelines for Model Parameters

Parameter	Units	Maximum Authorized Monthly Mean Concentration		Maximum Authorized Concentration in a Grab Sample	
		Current	Proposed	Current	Proposed
pH		6 to 9.5	6 to 9.5	6 to 9.5	6 to 9.5
TSS	mg/L	15	15	30	30
Total Cyanide	mg/L	1	0.5	2	1.0
Arsenic	mg/L	0.5	0.1	1	0.2
Copper	mg/L	0.3	0.1	0.6	0.2
Lead	mg/L	0.2	0.08	0.4	0.16
Nickel	mg/L	0.5	0.25	1	0.5
Zinc	mg/L	0.5	0.4	1	0.8
Unionized Ammonia	mg/L	n/a	0.5	n/a	1.0

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Table 4-3: CCME Guidelines for Model Parameters

Parameter	Units	Freshwater		Irrigation	Livestock
		Short Term Concentrations	Long Term Concentrations		
pH	s.u.	6.5 to 9.0			
TSS	mg/L	Change >25 mg/L	Change >5 mg/L		
Fluoride	mg/L		0.12	1	2
Chloride	mg/L	640	120	250	
Free Cyanide	mg/L		0.005		
Total Cyanide	mg/L		0.005		
Ammonia	mg/L as N		1.54		
Nitrate	mg/L as N	124	3		
Nitrite	mg/L as N		60		10
Sulphate	mg/L				1000
Aluminum	mg/L		0.1	5	5
Arsenic	mg/L		0.005	0.1	0.025
Beryllium	mg/L			0.1	0.1
Boron	mg/L	29	1.5	0.5	5
Cadmium	mg/L	0.0076	0.0018	0.0051	0.08
Chromium	mg/L		0.001	0.008	0.05
Cobalt	mg/L			0.05	1
Copper	mg/L		0.002	0.1	0.5
Iron	mg/L		0.3	5	
Lead	mg/L		0.001	0.2	0.1
Lithium	mg/L			2.5	
Manganese	mg/L			0.2	
Mercury	mg/L		0.000026		0.003
Molybdenum	mg/L		0.073	0.01	0.5
Nickel	mg/L		0.025	0.2	1
Selenium	mg/L		0.001	0.02	0.05
Silver	mg/L		0.00025		
Thallium	mg/L		0.0008		
Uranium	mg/L	0.033	0.015	0.01	0.2
Vanadium	mg/L			0.1	0.1
Zinc	mg/L		0.03	5	50

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5 Model Evaluation

5.1 Model QA/QC

A thorough QA/QC procedure was used in evaluating the water and load balance model. Quality analysis of the model included the following:

- Verification that storages, inflows and outflows are correctly located and allocated to the right source and sink.
- Cross checking of flows to ensure they are not duplicated or missed.
- Checking of status elements and mine dates to ensure the timing of events is accurate according to the current mine plan.
- Verification of model functions and expressions to ensure they are working as intended.
- Professional judgement and experience to evaluate if results reflect the understanding of the Project and model inputs.

5.2 Calibration

SRK calibrated model hydrology using data collected for the Doris TIA during the calibration period of 2010 to 2016. The data collected included the following:

- Lake elevation data.
- Hauled or pumped flowrates from the sedimentation ponds.
- Discharge pumping rates.
- Precipitation data collected onsite (supplemented with Cambridge Bay data).

Hydrological parameter inputs such as runoff coefficients and snowmelt factors were calibrated to optimize the agreement between measured and predicted lake elevations. The overall predicted model elevations and measured data for the Doris TIA show a strong correlation (Figure 5-1).

For the Windy watershed, the calibrated runoff coefficients and snowmelt factors for the Doris Watershed were applied. Limited site data was available for calibration for the Boston Watershed. However, measured flow data for the Aimaokatalok Lake outflow were compared to the model predictions (Figure 5-2). The calibrated runoff coefficients for the Doris watershed were applied to Boston as a starting point and were adjusted slightly to match the 2011 elevation and flow data for Aimaokatalok Lake.

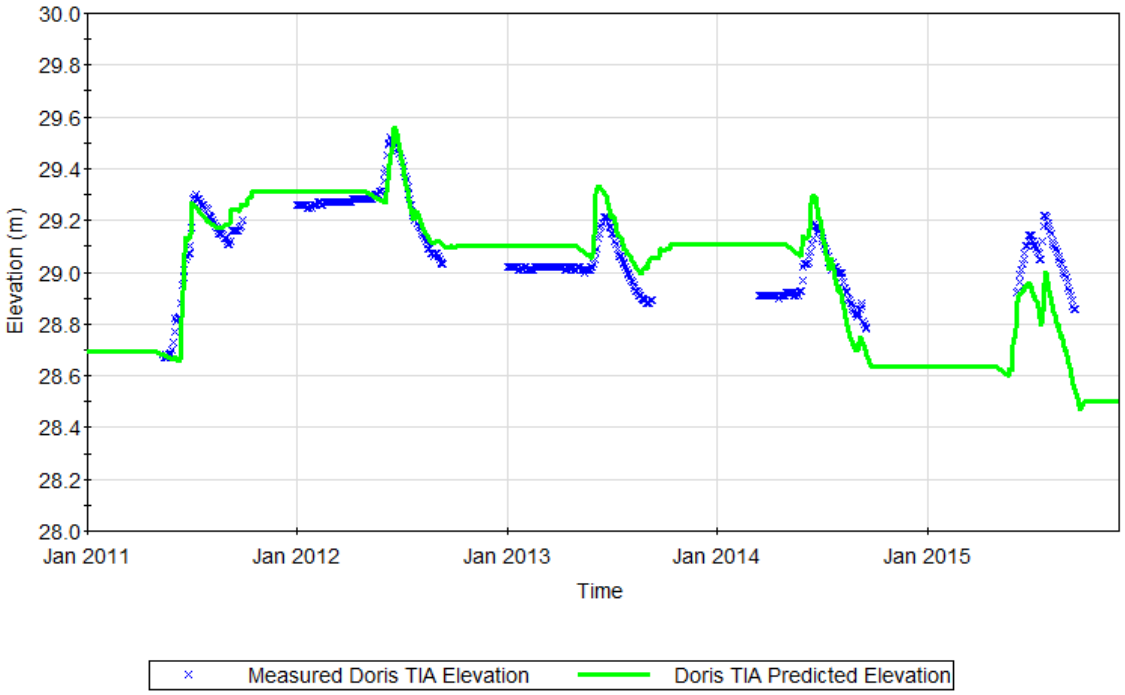

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Figure 5-1: Doris TIA Calibration – Measured and Predicted Lake Elevation Comparison

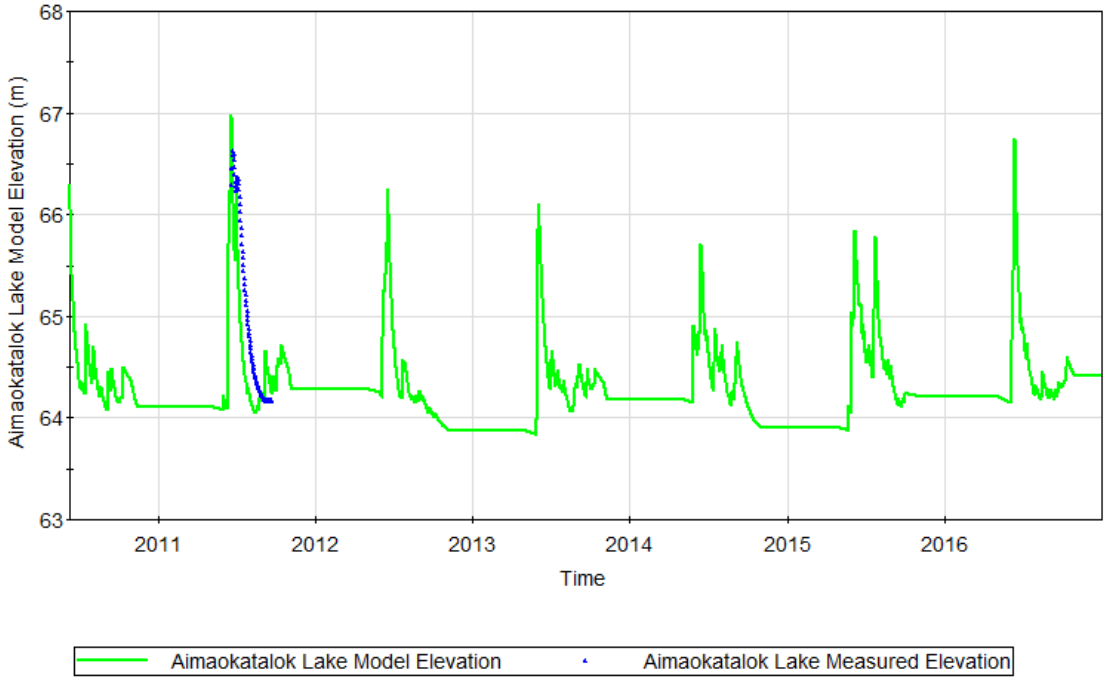

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Figure 5-2: Boston Watershed Calibration – Measured and Predicted Aimaokatalok Elevation Comparison

5.3 Validation

In general, the measured and predicted flow data are in good agreement, providing confidence in the model and its results.

Five flow stations were selected as points to validate the model calibration. Locations with strong data sets (multiple years of data collection) were considered. Both the Doris and Boston watersheds showed strong validation through a comparison of measured and mode predicted outflows (Figure 5-3 to Figure 5-5 and Figure 5-7). The Madrid watershed calibration is weaker. The Windy Lake station was moved in 2015 and there challenges were encountered when linking arbitrary benchmarks to each other (Figure 5-6). Since the Doris and Madrid watersheds are similar and within close proximity, the use of the Doris calibration values still provides the best prediction base for the Windy watershed results.

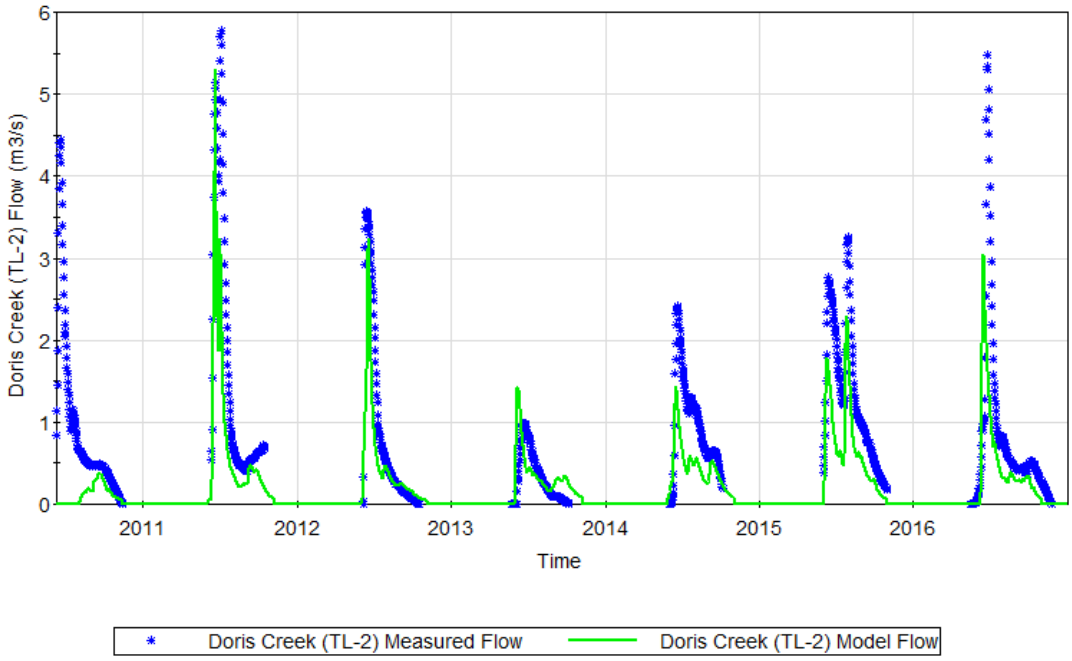

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Figure 5-3: Doris Watershed Validation - Measured and Predicted Patch Lake Outflow Comparison

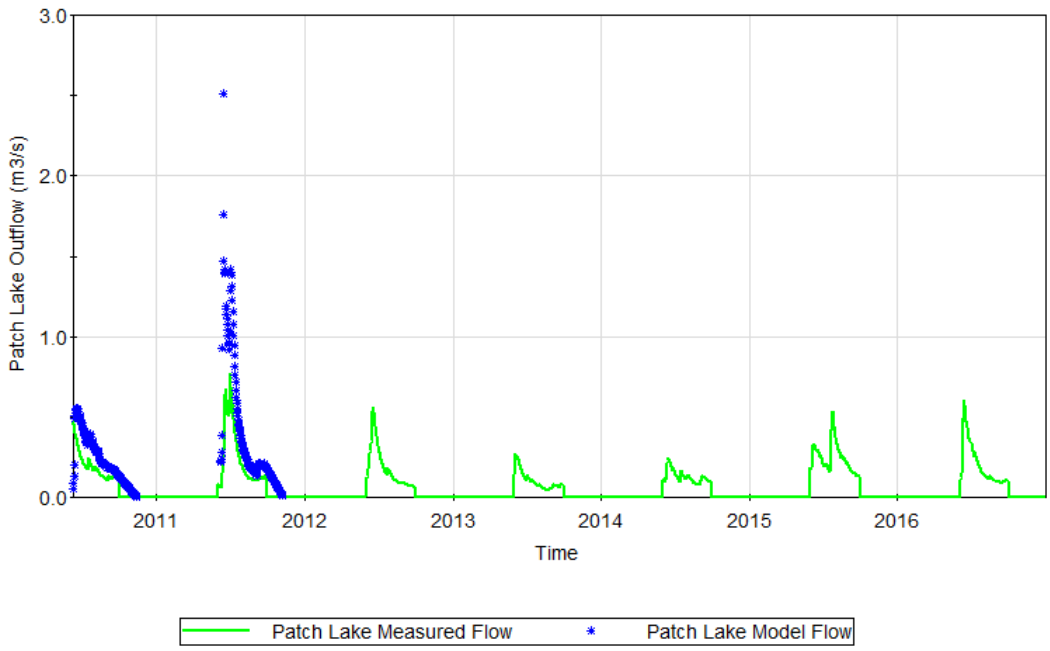

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Figure 5-4: Doris Watershed Validation - Measured and Predicted Patch Lake Outflow Comparison

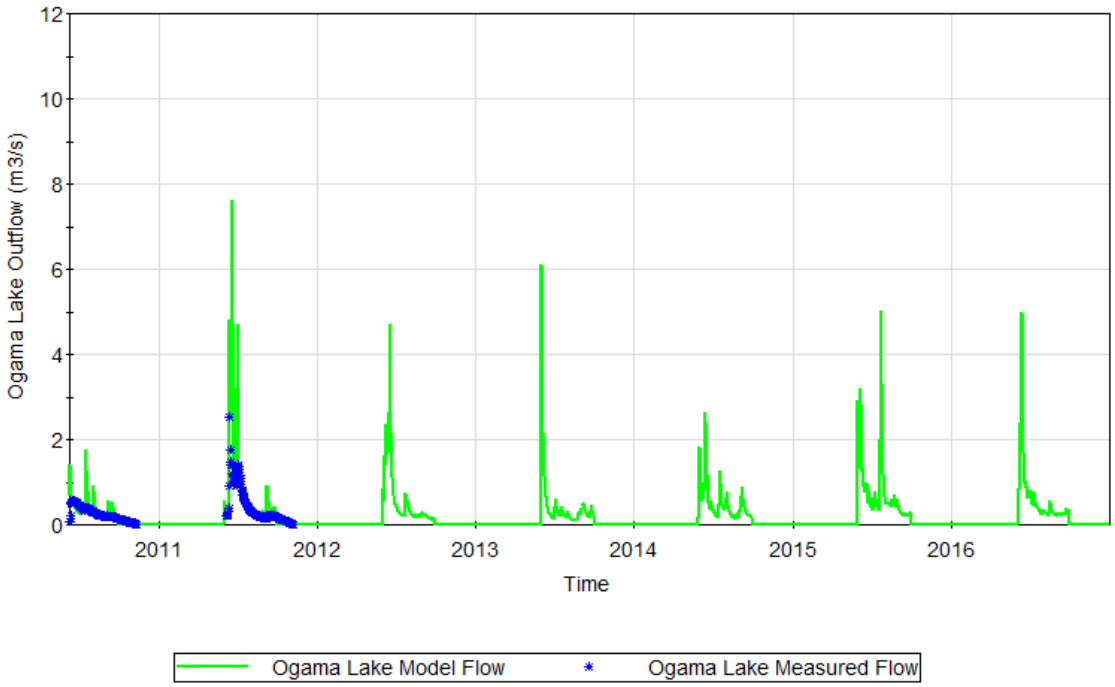

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Figure 5-5: Doris Watershed Validation - Measured and Predicted Ogama Lake Outflow Comparison

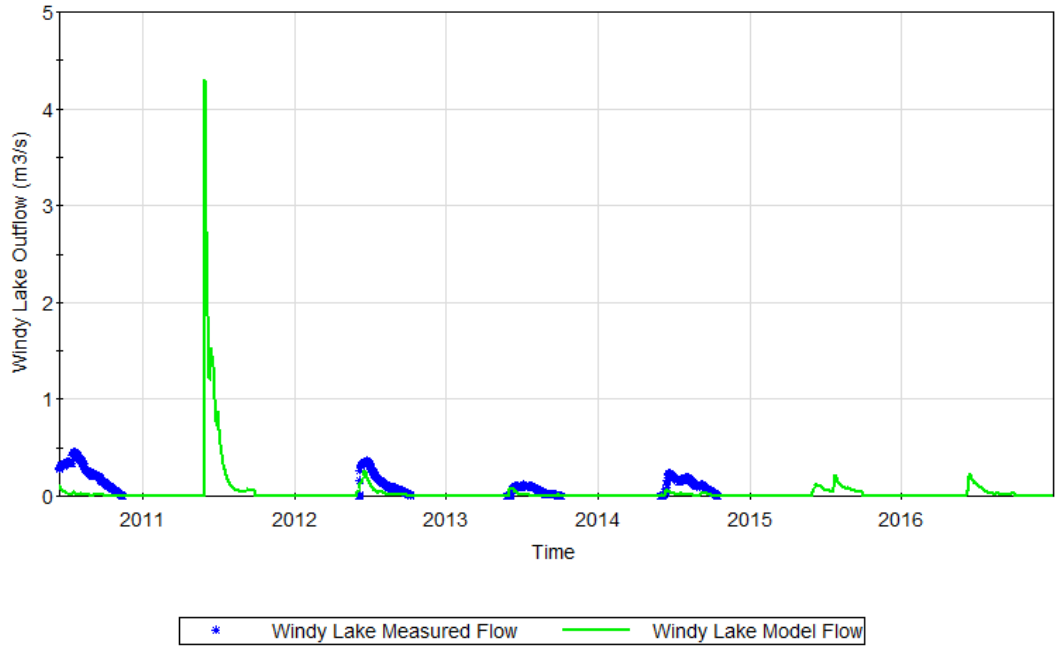

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Figure 5-6: Windy Watershed Validation - Measured and Predicted Windy Lake Outflow Comparison

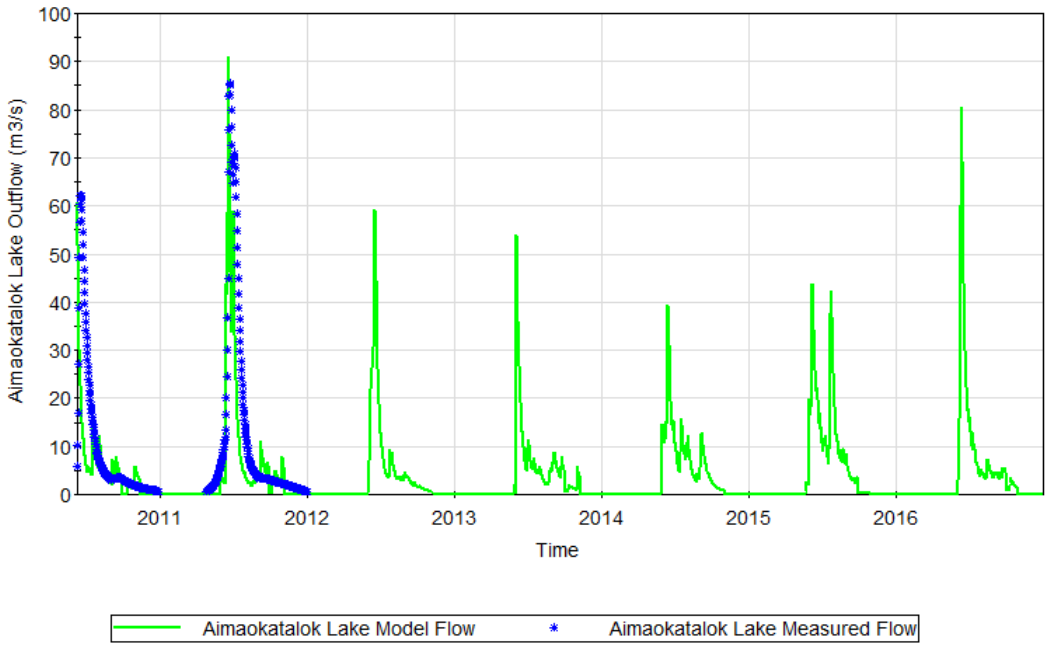

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Figure 5-7: Boston Watershed Validation - Measured and Predicted Aimaokatalok Lake Outflow Comparison

6 Water Balance Model Results and Discussion

The water balance results are presented by watershed starting with the most upstream node and progressing to the most downstream node. The MMB discharge contains water from the Doris and Windy watersheds and results are presented separately. A summary of inflows, outflows, and other noteworthy results are provided for each node.

The results mainly focus on changes in flow rates and lake elevations resulting from project activities. Project effects were evaluated using the base case model. The annual precipitation used in the base case was based on the interpretation of available weather data and climate models (SRK 2016b).

For comparison, predictions were made using the 1 in 20 wet and 1 in 20 dry year precipitation estimates for the Project. These were applied for a representative year during operations and for a representative year during closure. Historic climate data were reviewed to find two years that matched the annual precipitation data for the 1 in 20 wet and dry years (SRK 2016b) (Table 6-1). When a dry or wet year was run, the historical daily data from the corresponding year were used in the model. All other years were run as average precipitation years. The year started in January and ended in December, so the effect of running a wet or dry year was observed over two subsequent years due to seasonal snow pack. The results were compared back to the average base case results to assess sensitivity. Operations and post-closure results were averaged to develop a generalised model response to dry/wet conditions.

The complete water balance results are provided in Appendix B.

Table 6-1: Hydrological Sensitivity Analysis Inputs

Statistic	Annual Precipitation (mm)	Representative Year	Representative Year Annual Precipitation (mm)	Applied in Model Year for Boston	Applied in Model Year for Doris
Average	210	2004	215	All Years	All Years
1 in 20 Wet	277	2009	281	2029, 2055	2030, 2055
1 in 20 Dry	158	2006	156	2029, 2055	2030, 2055

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_FlowTables_1CT022-013_R00_ajb.xlsx

6.1 Doris Watershed

The effect of varying hydrological conditions was evaluated at the following nodes: Wolverine, Patch, and Doris lakes. Outflows and lake levels for each node were compared back to the respective year predicted under average hydrological conditions, to eliminate any effects from climate change. All nodes predicted changes in outflow greater than +/- 10% compared to average hydrological conditions.

6.1.1 Wolverine Lake

Inflows to Wolverine Lake consist of precipitation, undisturbed runoff, and disturbed runoff. In the model, total flows averaged 560,000 m^3/yr (Figure 6-1). Disturbed runoff, starts in 2028 with the onset of Madrid South infrastructure construction, and these flows are captured and conveyed to Madrid South CWP1. Disturbed runoff is predicted to reach a constant rate of 2,700 m^3/yr from 2029 to the end of operations. Once the site is reclaimed in 2035, the runoff will be allowed to report back to the natural catchment, at an additional predicted rate of 9,100 m^3/yr.

Outflows from Wolverine Lake include evaporation, drawdown through the Madrid South Mine, and overflow to Patch Lake (Figure 6-2 and Figure 6-3). Maximum drawdown to the Madrid South Mine was modelled at a rate of 66,000 m^3/yr in 2031. The maximum reduction in Wolverine Lake outflow occurred in 2032 (60,000 m^3/yr), which represents a 56% reduction compared to the baseline prediction of 130,000 m^3/yr.

Predicted elevation for Wolverine Lake decreased slightly throughout the model including post-closure (Figure 6-4). A notable decrease was predicted for the duration of the Madrid South mining activities. This drawdown resulted in a maximum monthly lake elevation decrease of 5 cm in May 2032 when compared to baseline data. The lake elevation was predicted to recover once the site is reclaimed and flows return to pre-mining conditions.

Predictions for flow and lake elevation during the 1 in 20 wet and dry years were compared with base case predictions (Table 6-2). During the dry year, the small catchment contributes lower runoff and outflow from the lake ceases. During the wet year, the residence time of the small lake decreases and the outflow increases by 94%. The outflow rate takes four and two years to restore the dry year and wet year flows, respectively, to the rate predicted under average hydrological conditions. The annual average lake elevation decreases by 6 cm during the dry year and increases by 3 cm for a wet year.

Wolverine Lake was not effected by the wet and dry year outside of the natural effects.

Table 6-2: Wolverine Lake Hydrological Sensitivity Analysis

Year	Hydrological Year	Change in Lake Outflow Relative to Average Hydrological Year	
		Dry Year	Wet Year
1	Dry/Wet	19%	77%
2	Average	-100%	94%
3	Average	-56%	0%
4	Average	-9%	0%
Elevation Change		-6 cm	3 cm

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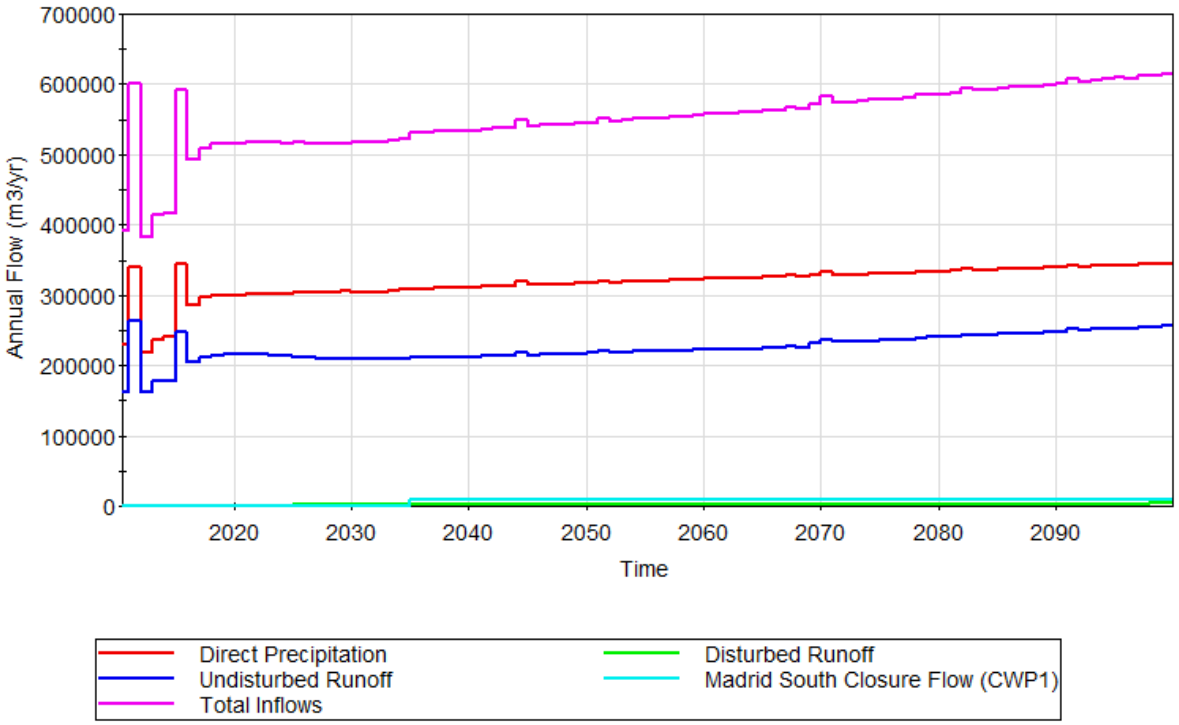

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Figure 6-1: Wolverine Lake Annual Inflows

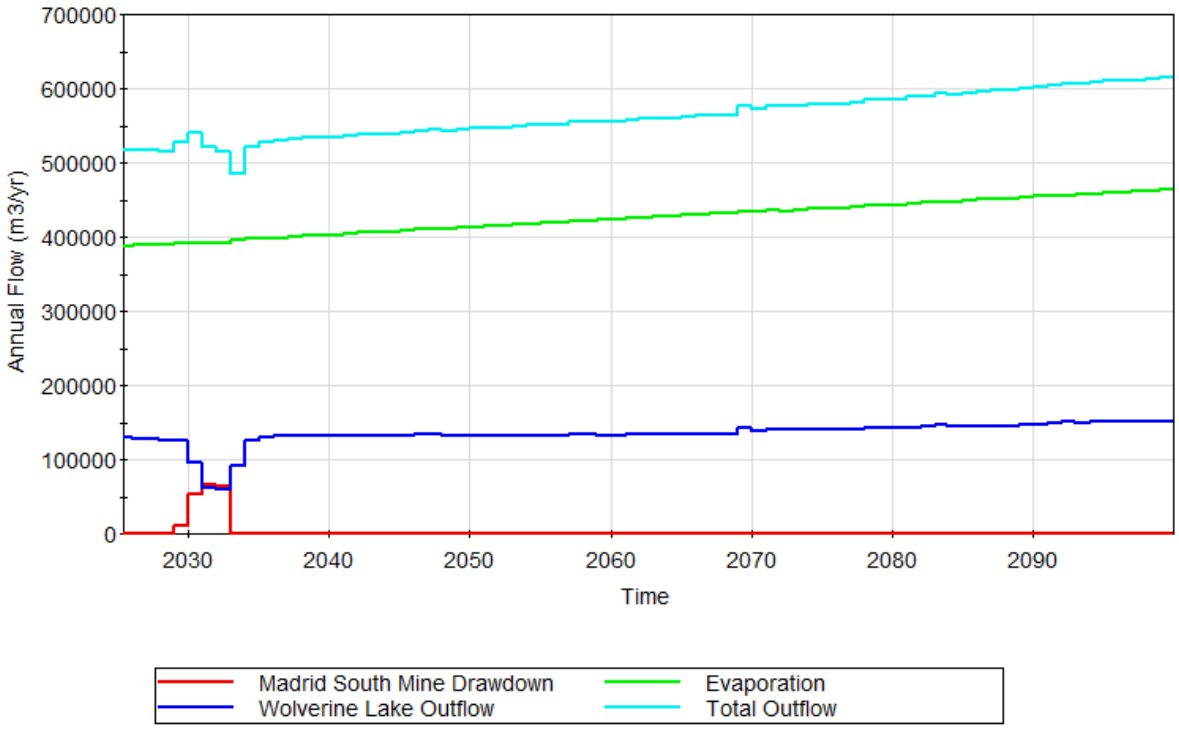

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Figure 6-2: Wolverine Lake Annual Outflows

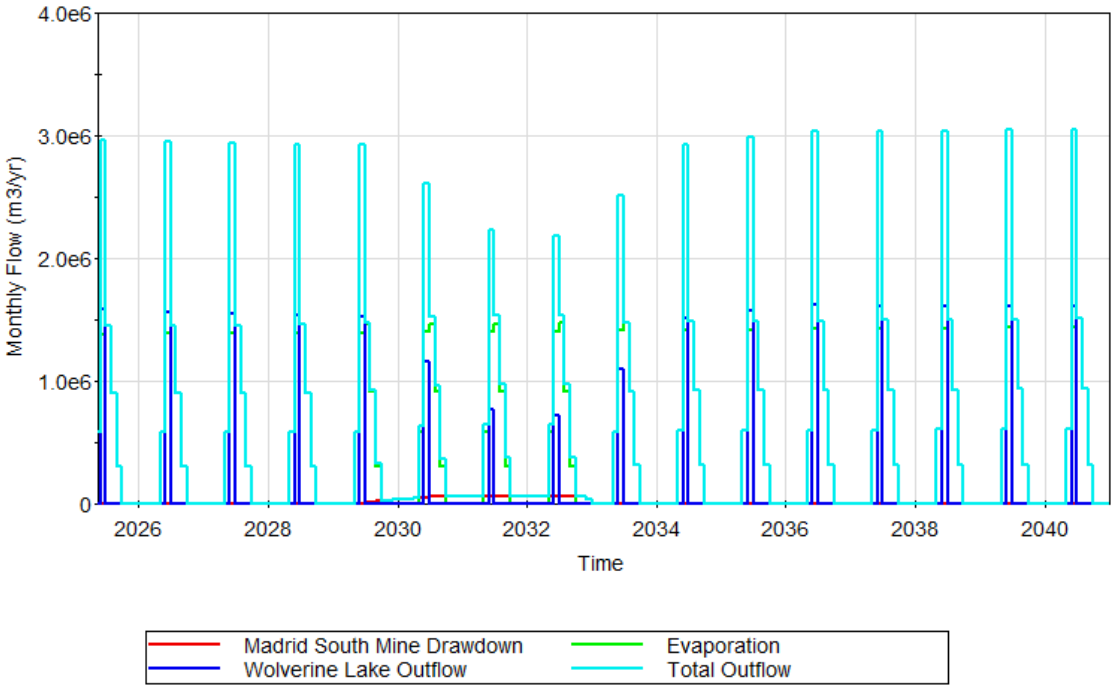

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Figure 6-3: Wolverine Lake Monthly Outflows

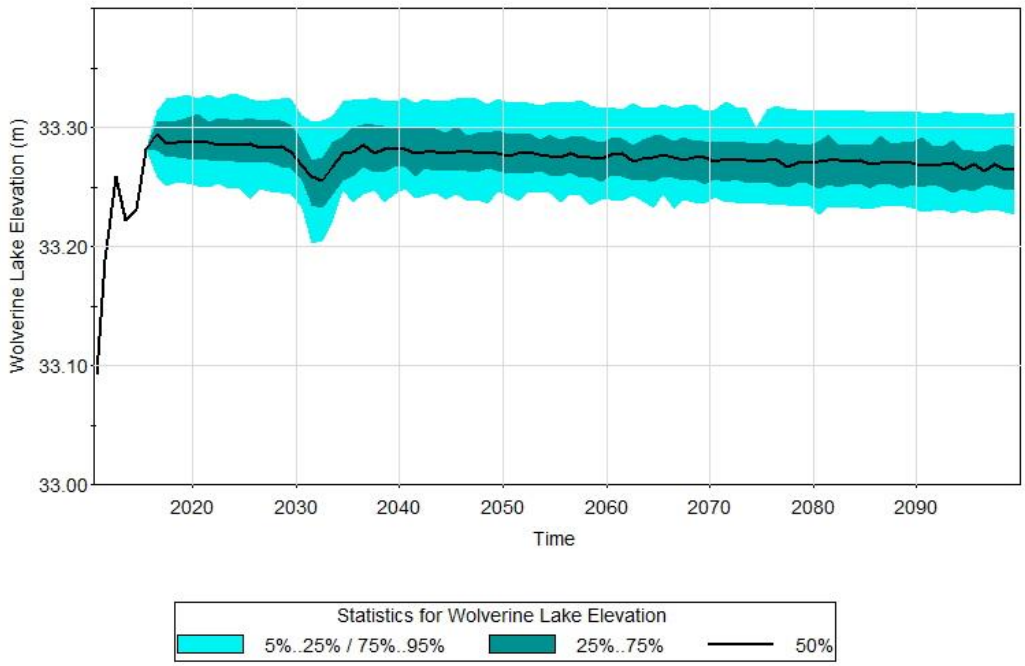

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Figure 6-4: Wolverine Lake Elevation Probabilities

6.1.2 Imniagut Lake

Inflows to the lake are direct precipitation and runoff from the small surrounding catchment and totalled 36,000 m^3/yr in the model (Figure 6-5).

Outflows include evaporation and drawdown through the Madrid North Mine (Figure 6-6). Although aerial photos did not indicate a distinct outflow, the outflow from Imniagut Lake was assumed to flow to Patch Lake if the model predicted any outflow.

Drawdown begins in 2020 and ends in 2031 during Madrid North mining activities. Drawdown peaked at a rate of 21,000 m^3/yr in the model. The effect of drawdown on the Imniagut Lake level was seen through elevation changes with a maximum monthly decrease of 176 cm extending from December 2031 to May 2032 when compared to the baseline elevation data (Figure 6-7). The effect outflow could not be quantified with respect to baseline conditions, as no flow data was collected from the Imniagut outflow under baseline conditions.

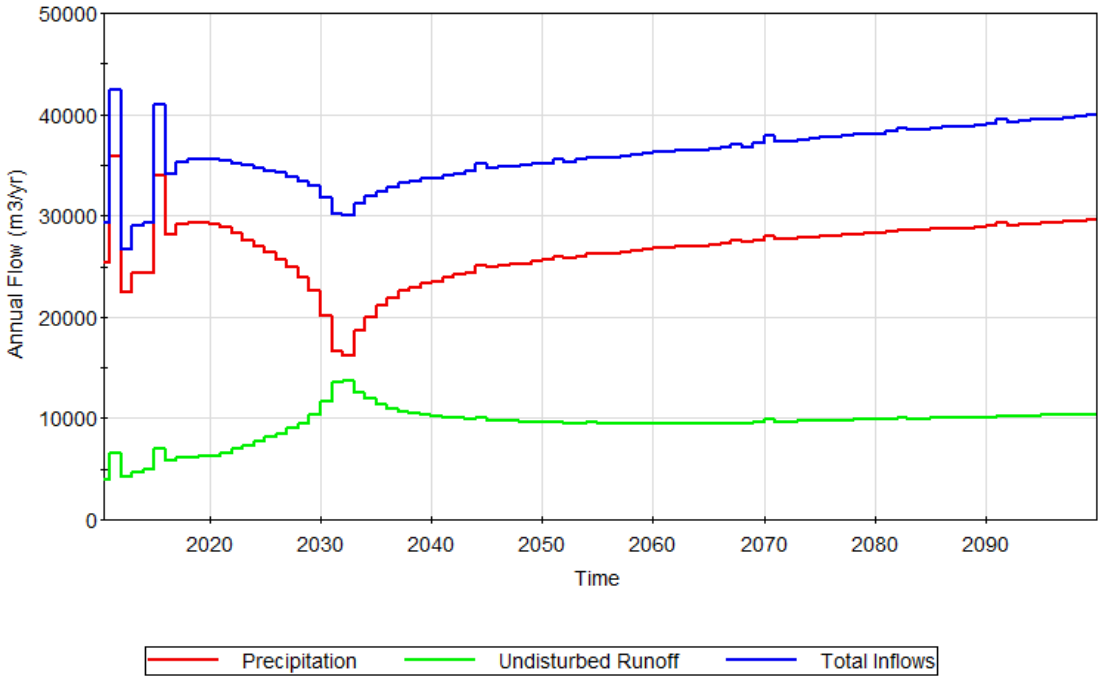

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Figure 6-5: Imniagut Lake Inflows

Source: \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\Water_Load_Balance\Model\Results\Model_V21_20171110 - Issued to ERM\HopeBay_FEISWLBalance_TypeA_Rev21_AJB.gsm

Figure 6-6: Imniagut Lake Outflows

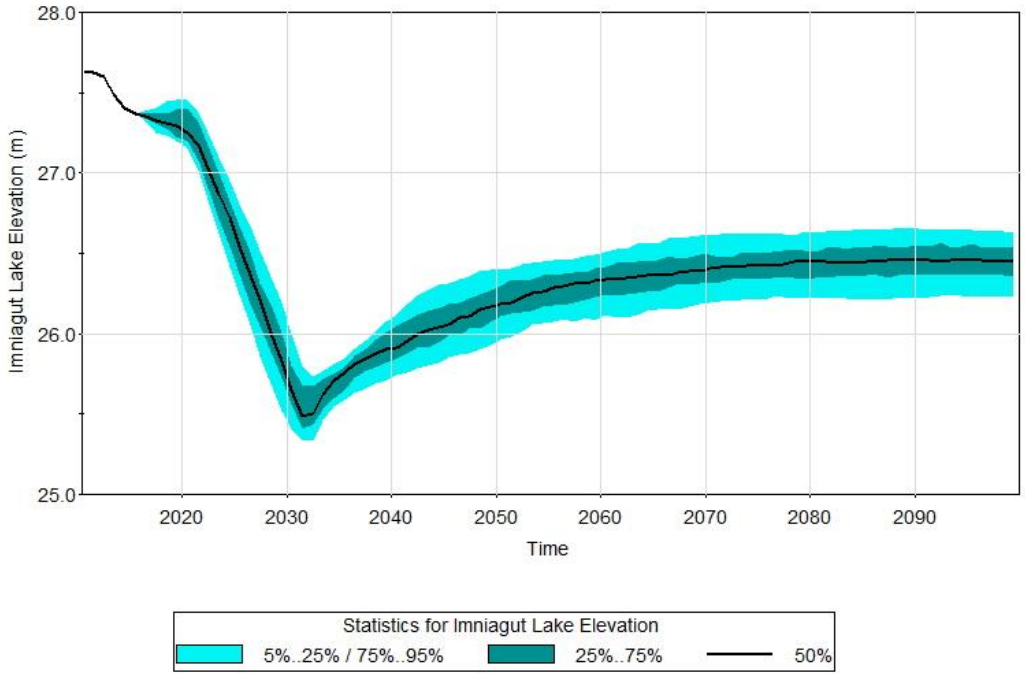

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Figure 6-7: Imniagut Lake Elevation Probabilities

6.1.3 Patch Lake

Inflows to Patch Lake are from precipitation, undisturbed runoff, Wolverine and Imniagut lake overflow, disturbed runoff from Madrid North and South mining areas, and a small amount of flow from the Madrid South underground at closure (Figure 6-8 and Figure 6-9). In the model, the average annual inflow totalled 4,400,000 m^3/yr.

Annual inflows from the disturbed footprint at Madrid North and Madrid South were 17,000 and 2,000 m^3/yr, respectively, with an additional 2,200 m^3/yr from the Madrid South site at closure. The inflow from the Madrid South Mine underground of 220 m^3/yr was predicted to start in post-closure in 2035 (Section 3.6).

The outflows from Patch Lake are evaporation, drawdown through the Madrid North and South mines during operations, and outflow to PO Lake (Figure 6-10). Madrid South drawdown starts in 2028 and ends in 2032, with maximum predicted flows of 110,000 m^3/yr. Madrid North drawdown starts in 2020 and ends in 2031, with peak flows of 390,000 m^3/yr. The maximum extent of drawdown was predicted to occur in 2031, when Patch Lake outflow decreased from 2,400,000 m^3/yr to 1,800,000 m^3/yr. This represents a 23% reduction compared to the baseline conditions.

The effect of drawdown on Patch Lake is reflected in the change in predicted lake elevation with a maximum monthly decrease of 7 cm in May 2030 and April 2031 to May 2031 when compared to baseline elevation data (Figure 6-11). The lake elevation was expected to remain above the base of the weir and, although a change in outflow rate was predicted.

Predictions for Patch Lake outflow and lake elevation during the 1 in 20 wet and dry years were compared with base case predictions (Table 6-3). Patch Lake is a large lake located within a large catchment and is able to handle large changes in inflow with little effect on lake elevation. During the dry year, the predicted outflow decreased by 30% and during the wet year, increased by 33%. For both the 1 in 20 wet and dry years, the effect was greatest in the second year as the loss or increase to snowpack from October to December has a large effect on the subsequent spring melt and summer outflow. In total, the predicted recovery in lake levels and outflow rates took four years, under average hydrological conditions. The lake decreased by 3 cm during a dry year and increased by 6 cm during a wet year.

Table 6-3: Patch Lake Hydrological Sensitivity Analysis

Year	Hydrological Year	Average Annual Change in Lake Outflow Relative to Average Hydrological Year	
		Dry Year	**Wet Year**
1	Dry/Wet	-13%	32%
2	Average	-30%	33%
3	Average	-5%	2%
4	Average	-1%	0%
Elevation Change		-3 cm	6 cm

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_FlowTables_1CT022-013_R00_ajb.xlsx

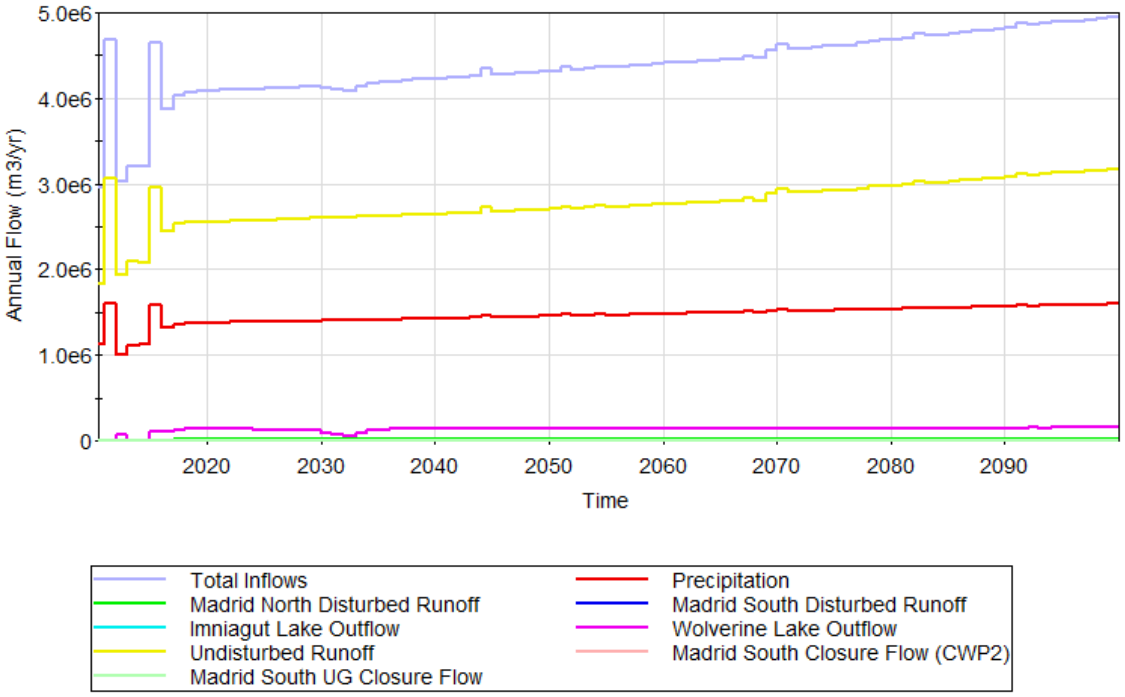

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Figure 6-8: Patch Lake Annual Inflows – All Flows

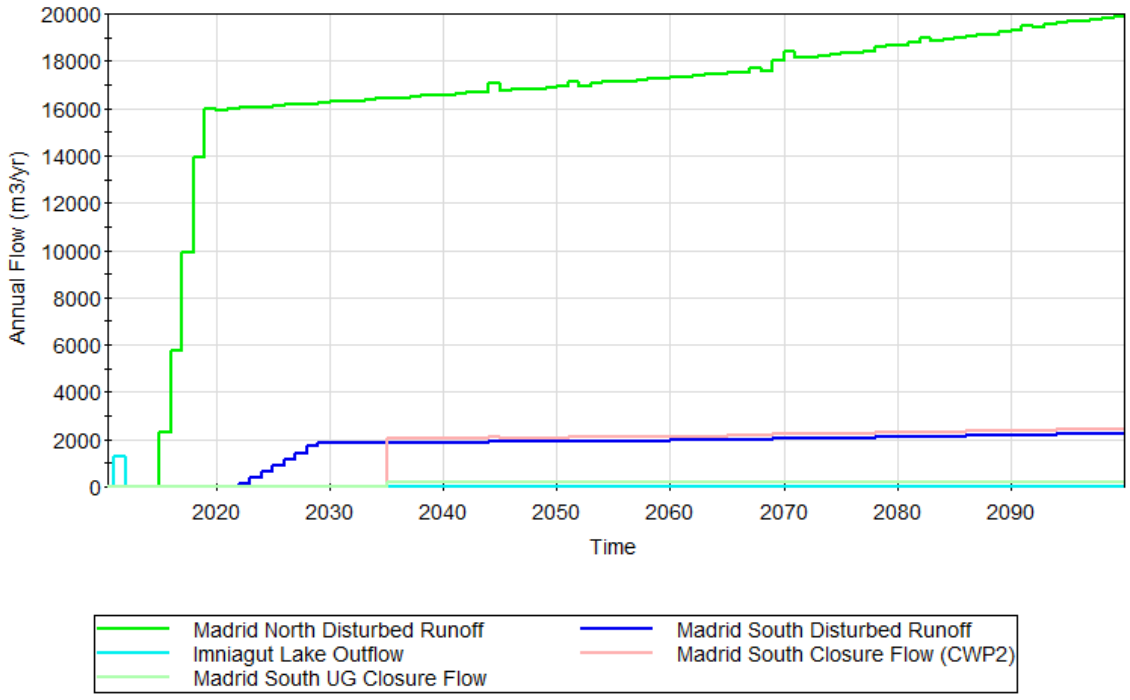

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Figure 6-9: Patch Lake Annual Inflows – Small Flows

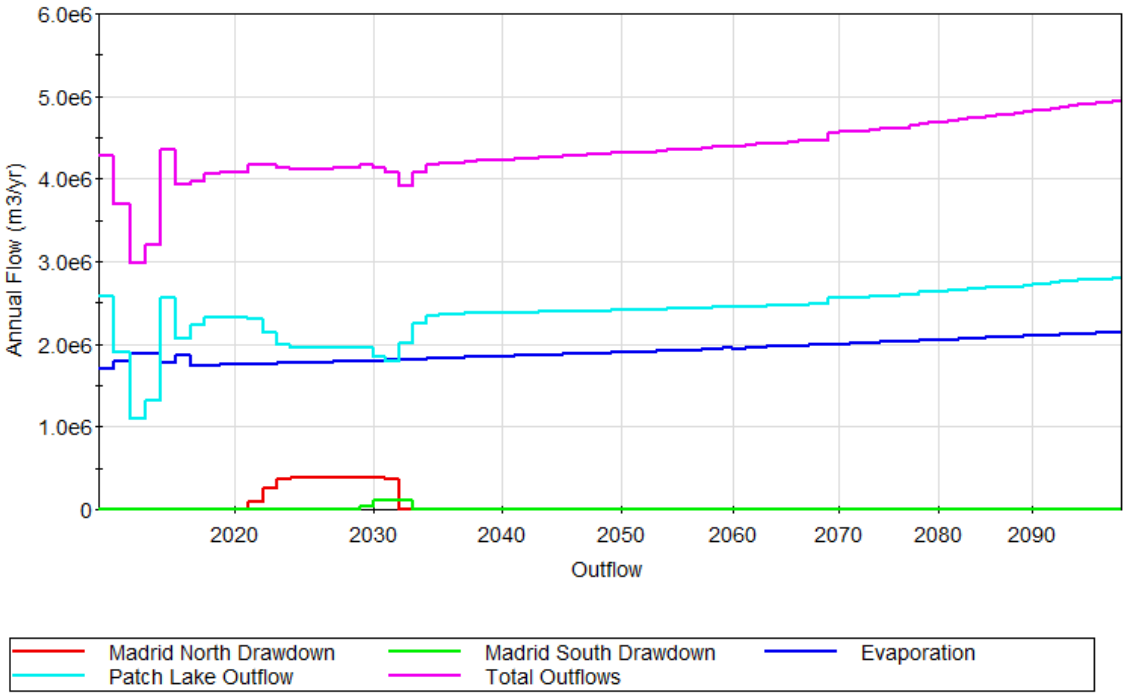

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Figure 6-10: Patch Lake Annual Outflows

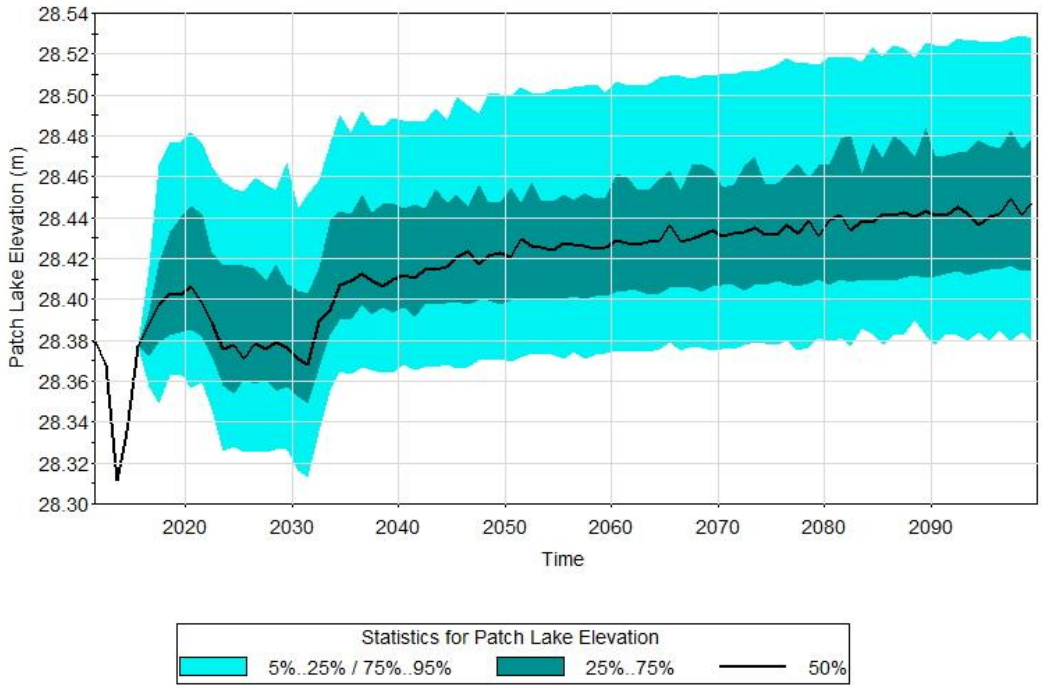

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Figure 6-11: Patch Lake Elevation Probability

6.1.4 Doris TIA Discharge

In the model, the Doris TIA is maintained as a water reservoir throughout operations for all site contact water sources in the Doris and Madrid watersheds. Water enters the Doris TIA from six major sources: runoff from within the Tail Lake catchment, direct precipitation to the lake surface, discharge from CWPs (Doris, Madrid North, and Madrid South), grey water, the Doris process plant tailings water and the Madrid concentrator tailings water (Figure 6-12). The model results showed that during operations, the Doris process plant tailings water varied from approximately 470,000 up to 1,700,000 m^3/yr as the processing rate changed. The Madrid concentrator tailings water varied from 420,000 up to 500,000 m^3/yr as the milling rate changed. The modelled average total inflow to the Doris TIA each year was roughly 2,100,000 m^3 during operations and 640,000 m^3 during pre-operations and post-closure.

Water leaves the Doris TIA via five flow paths over the lifetime of the Project: pumping to Doris Creek during pre-operations, evaporation, Doris process plant and Madrid concentrator reclaim, pumping to the MMB, and the restoration of natural flow at closure with the removal of the North Dam (Figure 6-13). Modelled outflows averaged 590,000 m^3 during pre-operations, 2,300,000 m^3 during operations, and 6,400,000 m^3 during post-closure. The net outflow of water from the Doris TIA is a result of pumping to lower water levels to the natural lake elevation of 28.3 m during pre-operations and to account for the volume displacement by tails deposited during operations.

Water levels in the Doris TIA are maintained to ensure sufficient freeboard and availability of reclaim water during winter months for the Doris process plant and Madrid concentrator (Figure 6-14). Towards the end of the mine life, the majority of Doris TIA will be filled with tailings resulting in an increased water level. Water level is maintained through the release of water from the Doris TIA to the environment. During pre-operations, the amount of water pumped out of the Doris TIA is modelled based on historical records (up to 2016). Once Doris enters operations, water is pumped to the environment via the MMB at a maximum rate of 6,750 m^3/day. However, if the minimum reclaim volume required for winter operations is reached, pumping will cease.

For the last four years of operations (2029 to 2032), the Doris TIA does not have enough under ice reclaim volume to sustain the Madrid concentrator and Doris process plant throughout the winter. During these winters, the Madrid concentrator and Doris process plant will withdraw the reclaim volume from Doris Lake. In the model this switch occurred once the open water season was over, while realistically the transition will occur slowly as reclaim would still be available at the start of winter. During open water season, the process plants will still withdraw reclaim water from the Doris TIA. Throughout this four year period, water will be constantly removed from the Doris TIA at a rate of 6,750 m^3/yr to maintain sufficient space for the spring freshet volume. The optimization of reclaim water withdrawal from the Doris TIA during the start of winter was not investigated and further optimization is possible. For the purposes of this model, the greater effect to Doris Lake was modelled.

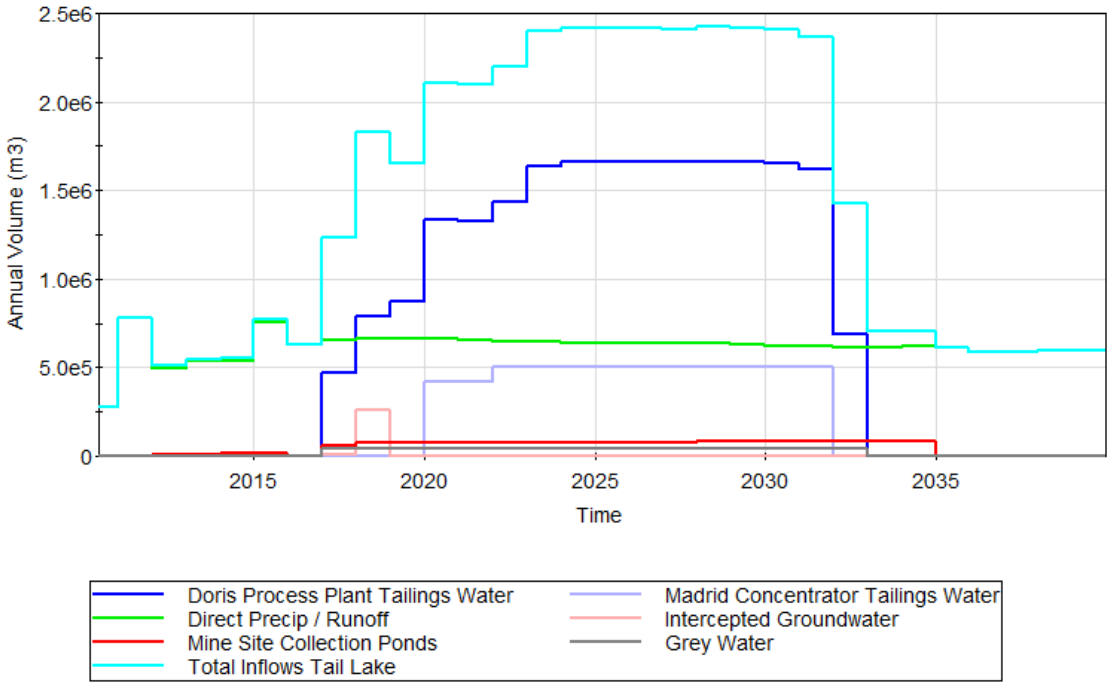

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Figure 6-12: Doris TIA Inflows

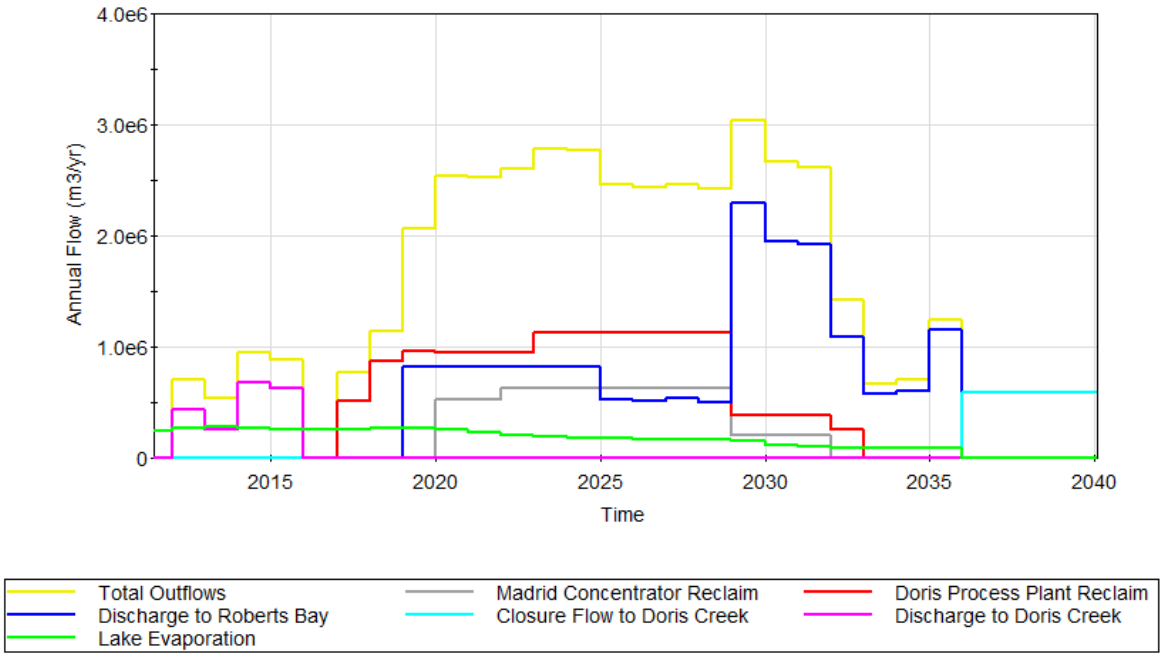

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Figure 6-13: Doris TIA Outflows

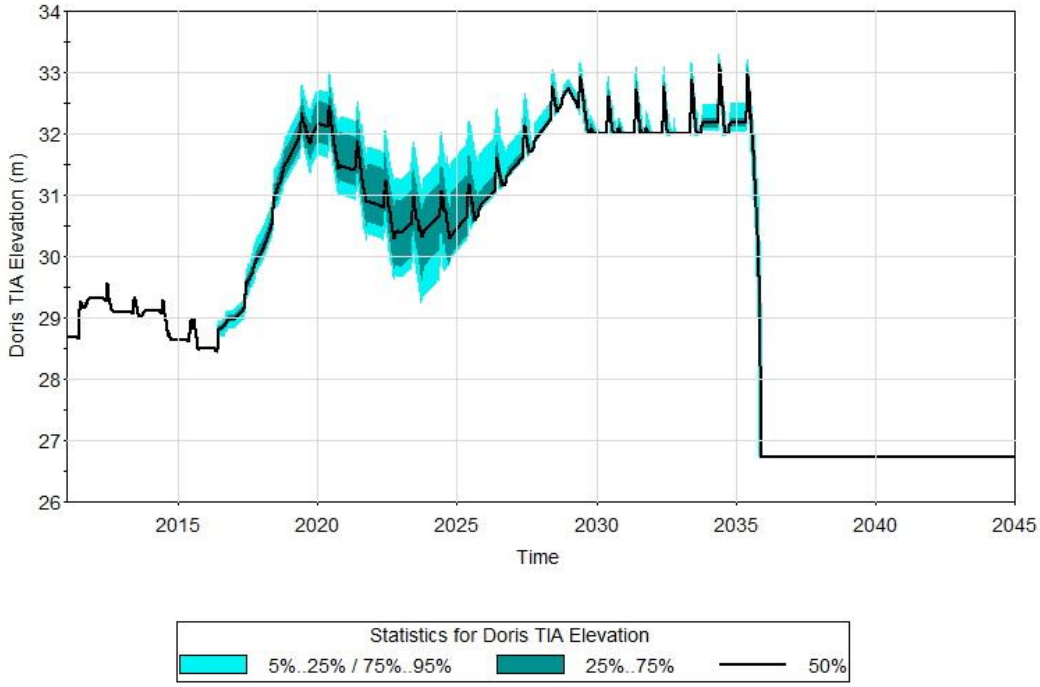

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Figure 6-14: Doris TIA Level Sensitivity Analysis

6.1.5 Doris Lake

The inflows to Doris Lake are direct precipitation, undisturbed runoff, Ogama Lake outflow, disturbed runoff from the Doris site, and flow from the Doris Mine underground in closure (Figure 6-15). Precipitation and undisturbed runoff were relatively constant in the model at an average rate of 850,000 m^3/yr and 1,400,000 m^3/yr, respectively. The outflow from Ogama Lake averaged 7,300,000 m^3/yr during operations and 8,300,000 m^3/yr in post-closure. The increase in outflow from Ogama Lake in closure is linked to the cessation of mining activities (ponded water transfer to the Doris TIA and drawdown) and climate change.

Modelled runoff from existing infrastructure averaged 62,000 m^3/yr during operations and increased to 68,000 m^3/yr, during post-closure once the Doris site ponds are reclaimed in 2035. The underground flow from the Madrid North Mine also starts at that time (Section 3.6) and is predicted to contribute an additional 13,000 m^3/yr of flow. At closure, the flow from the Tail Lake catchment is directed to Doris Creek and is not included as Doris Lake inflow (Section 3.3.1).

The outflows from Doris Lake include evaporation, Doris process plant and Madrid concentrator freshwater demand, drawdown through the Doris Mine, Doris and Madrid industrial water use, and outflow to Doris Creek (Figure 6-16). In the model, Doris Lake evaporation averaged 1,100,000 m^3/yr. Freshwater demand by the Doris process plant varied from up 91,000 m^3/yr to 320,000 m^3/yr, based on an increase in production. When reclaim water is sourced from Doris Lake, the process plant freshwater demand increases to 1,100,000 m^3/yr. Similarly, the Madrid concentrator freshwater demand varies from 33,000 m^3/yr up to 40,000 m^3/yr based on the processing rate. When reclaim water is sourced from Doris Lake, the concentrator freshwater demand increases to 460,000 m^3/yr. The greatest effect to Doris Lake was modelled; however, other sources could be assessed for this reclaim water demand. Drawdown from Doris Lake to Doris Mine occurs from 2017 to 2021 at a peak rate of 600,000 m^3/yr in 2019.

Based on this discharge rate, lake elevation was predicted using lake bathymetry data (Figure 6-17). The effects of water demand and mine drawdown were seen in the predicted lake levels. The greatest decrease in monthly lake level when compared to baseline data (40 cm) was predicted to occur when Doris and Madrid reclaim water is sourced from the lake (May 2030 and 2031), and the lake returns to its pre-mining elevation in post-closure in 2036. The delay in recovery is due to continual water removal for industrial and potable use during closure and recovery from drawdown in Patch and Wolverine lakes, which results in reduced flow into Doris Lake.

Flows predicted for Doris Creek throughout the project were compared to baseline flows. During operations, the largest effect on flow was in year 2031 when discharge from Doris Lake is reduced due to high water demand and mine drawdown rates. In 2031 the model predicted an annual outflow of 6,300,000 m^3/yr compared to the baseline flow of 9,300,000 m^3/yr, which represents a decrease of 32% (Table 6-4). When Madrid mining ceases, the lake recovers to baseline flows in 2036.

Table 6-4: Change in Doris Creek Flow Relative to Baseline Conditions

Condition	Change in Doris Creek Flow		
	Low Flow (5%)	Average Flow (50%)	High Flow (95%)
Peak Change (2031)	-42%	-31%	-24%
Average Operations	-25%	-19%	-15%
Post-Closure Average	2%	1%	0%

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_FlowTables_1CT022-013_R00_ajb.xlsx

Doris Lake is a large lake located within a large catchment, and is reasonably robust to changes in water elevation and outflow rates. Predictions for Doris Lake elevation and outflow during the 1 in 20 wet and dry years were compared with base case predictions (Table 6-5). During the dry year, the lake elevation was maintained through a decrease in outflow of 19%. During the wet year, Doris Lake outflow increased by 39%. For both the 1 in 20 wet and dry years, the effects were predicted to last for three years. The annual average lake elevation decreased by 1 cm during a dry year and increased by 3 cm during a wet year.

Doris Lake was not effected by the wet and dry year outside of the natural effects.

Table 6-5: Doris Lake Hydrological Sensitivity Analysis

Year	Hydrological Year	Change in Lake Outflow Relative to Average Hydrological Year	
		Dry Year	Wet Year
1	Dry/Wet	-16%	39%
2	Average	-19%	13%
3	Average	-2%	1%
Elevation Change		-1 cm	3 cm

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_FlowTables_1CT022-013_R00_ajb.xlsx

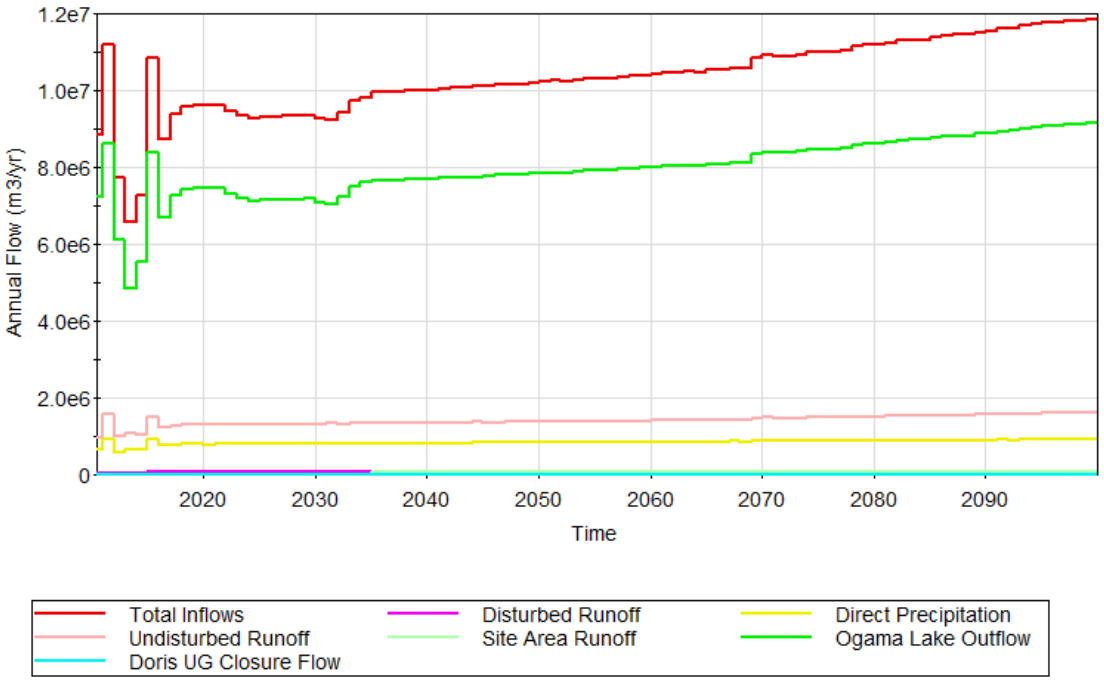

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Figure 6-15: Doris Lake Annual Inflows

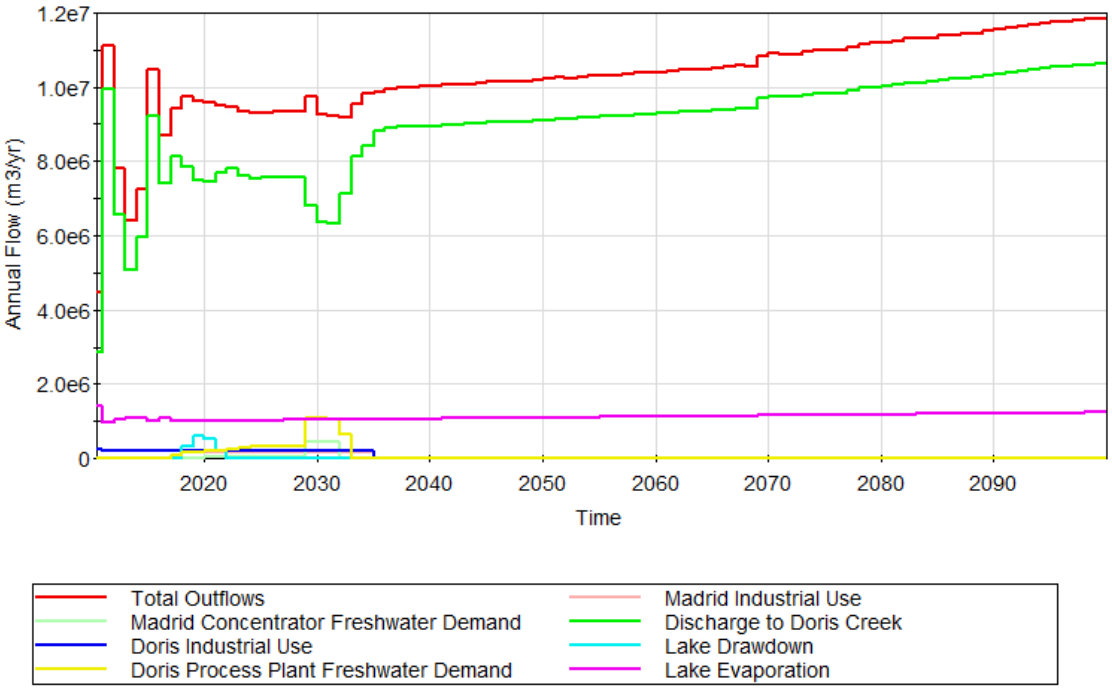

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Figure 6-16: Doris Lake Annual Outflows

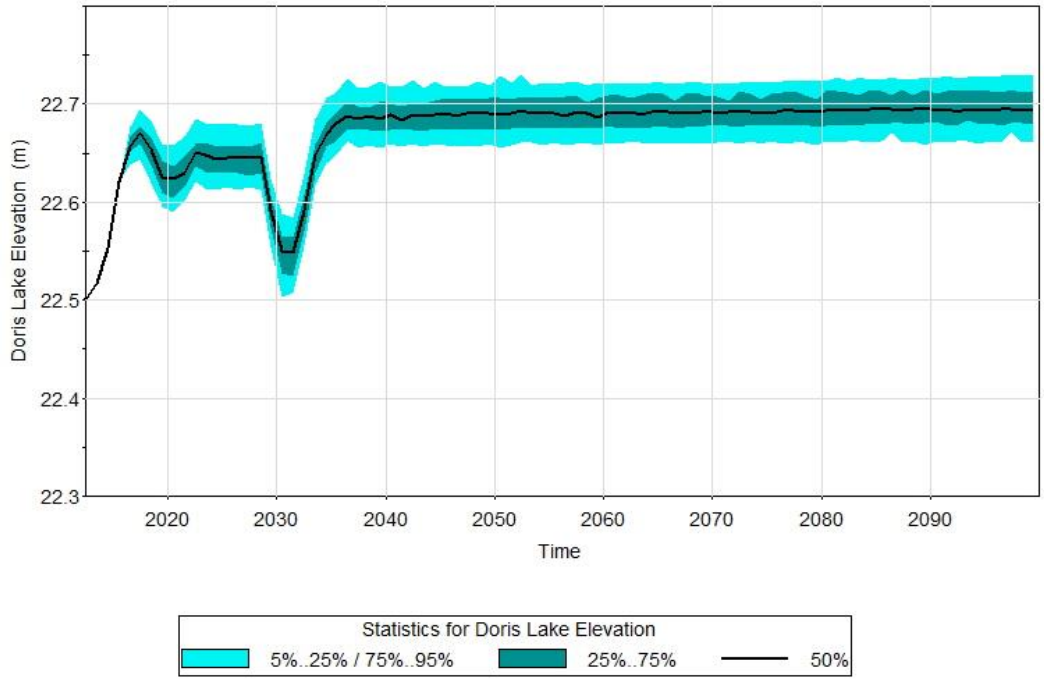

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Figure 6-17: Doris Lake Elevation Probabilities

6.2 Windy Watershed

The effect of varying hydrological conditions was evaluated for the Madrid Watershed at Windy Lake. Outflow and lake levels were compared back to the respective year predicted under average hydrological conditions, to eliminate any effects from climate change. Windy Lake was affected through drawdown to the Madrid North Mine. The predicted lake outflow change was greater than ±10% compared to average hydrological conditions.

6.2.1 Windy Lake

Inflows to Windy Lake are direct precipitation, undisturbed runoff from the Windy Lake catchment, disturbed runoff from the Madrid North site, and flow from the Madrid North Mine at closure (Figure 6-18). The model showed that the majority of annual inflows were from direct precipitation on the lake and undisturbed runoff at 1,200,000 m^3/yr each. Disturbed runoff within the catchment averaged 13,000 m^3/yr. Once the Madrid North CWP area is reclaimed in 2035, an additional 15,000 m^3/yr of disturbed runoff was predicted to enter the lake. In comparison, inflows to Windy Lake from Madrid North Mine, starting in 2035 (Section 3.6) were minor (110 m^3/yr).

Outflows from Windy Lake include Doris Camp use, drawdown from the Madrid North Mine during operations, evaporation, and Windy Lake outflow to Glenn Lake (Figure 6-19). The model predicted average camp use of 44,000 m^3/yr during operations, which stops once the Doris site is reclaimed (assumed to be two years after mining stops). Drawdown through the Madrid North Mine was predicted to occur between 2021 and 2031 when the mine is active at a maximum rate of 4,500 m^3/yr. The modelled outflow from Windy Lake averaged 770,000 m^3/yr during operations and increased up to 960,000 m^3/yr in post-closure due to climate change.

The effect of drawdown from Windy Lake is reflected in the changing water elevation (Figure 6-20). The lake elevation was predicted to remain above the spill point elevation. Although a change in lake elevation is noted in Figure 6-21, the effect of drawdown does not lower the lake below the discharge level. Throughout operations there is a 7% reduction in lake outflow (770,000 m^3/yr) compared to baseline conditions (830,000 m^3/yr). The lake outflow recovers to baseline conditions after 2036.

Windy Lake is a large lake located within a small catchment, and is robust to changes in lake elevation and outflow rates. Predictions for Windy Lake elevation and outflow during the 1 in 20 wet and dry years were compared with base case predictions (Table 6-6). The dry year had a four year effect on the outflows from Windy Lake with a maximum reduction in flow of 41% occurring in year two. The wet year had a three year effect on the outflows from Windy Lake with the maximum increase in flow of 43% occurring in both year one and two. Overall, the annual average lake elevation decreases by 2 cm during a dry year and increases by 4 cm during a wet year.

Table 6-6: Windy Lake Hydrological Sensitivity Analysis

Year	Hydrological Year	Change in Lake Outflow Relative to Average Hydrological Year	
		Dry Year	Wet Year
1	Dry/Wet	-21%	43%
2	Average	-41%	43%
3	Average	-6%	4%
4	Average	-1%	0%
Elevation Change		-2 cm	4 cm

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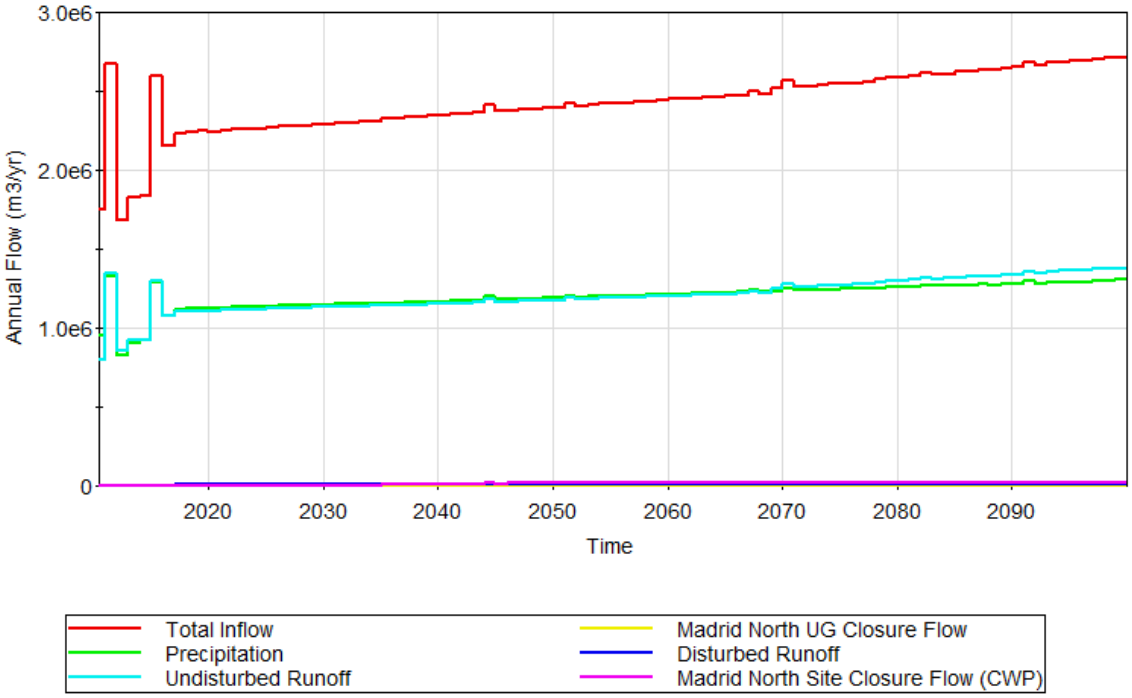

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Figure 6-18: Windy Lake Annual Inflows

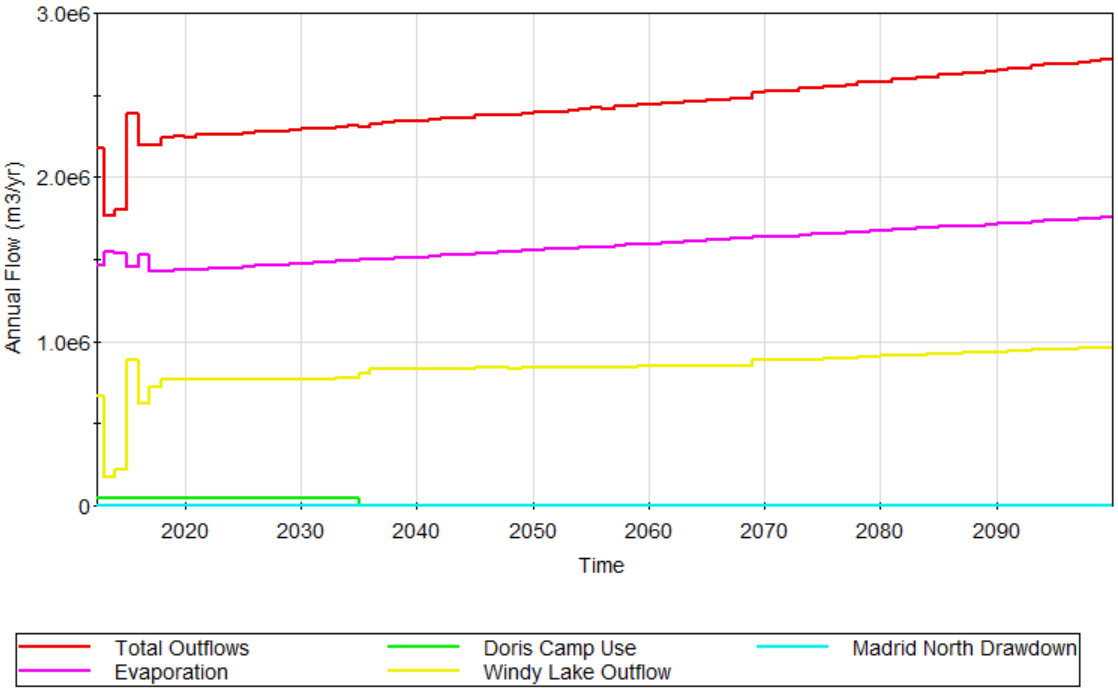

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Figure 6-19: Windy Lake Annual Outflows

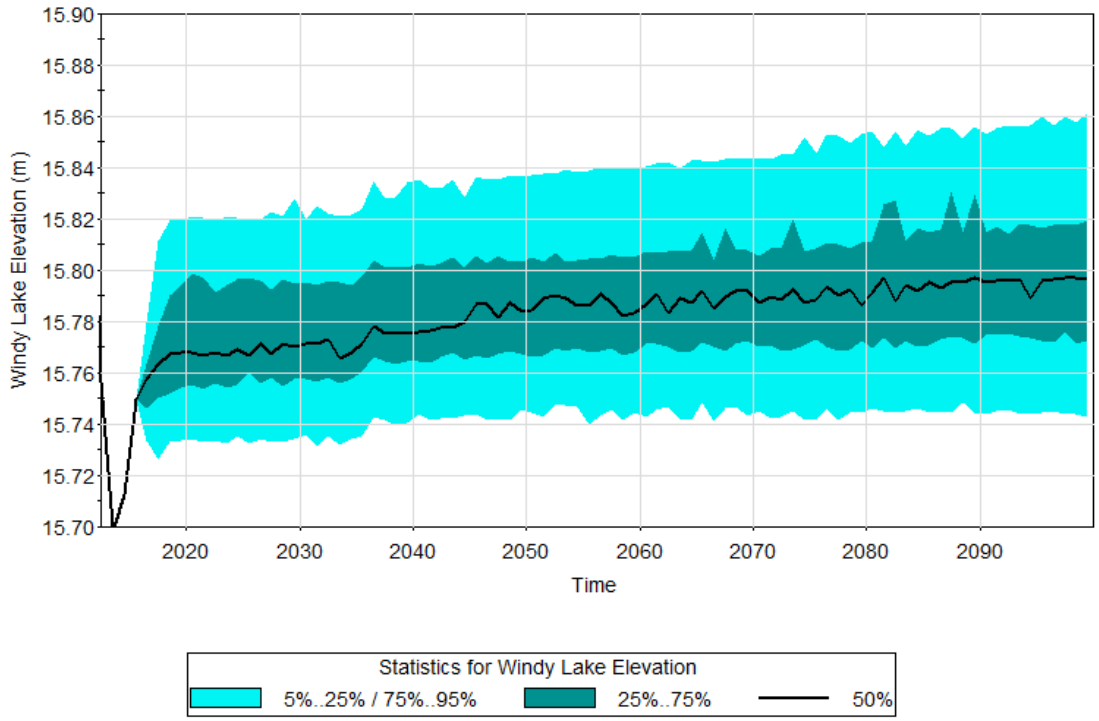

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Figure 6-20: Windy Lake Elevation Probabilities

6.3 Roberts Bay Outfall

Once operations begin, water from the Doris TIA and intercepted groundwater collected in underground sumps will be pumped to Roberts Bay through the MMB (Figure 6-21). Other outflows to Roberts Bay include the outflow from the Doris and Madrid LSAs.

6.3.1 Doris Water Treatment Plant and the Marine Mixing Box

The Doris water treatment plant receives inputs from the Doris TIA and mine water (Doris, Madrid North and Madrid South), both sources are treated for arsenic using ferric co-precipitation. Treated effluent from the Doris water treatment plant is discharged o Roberts Bay via the MMB.

For the majority of operations (2017 to 2028), the Doris TIA discharges to the Doris water treatment plant only during the open water season and was modelled at a constant rate of 6,750 m^3/day. From 2029 to 2032, water is pumped from the Doris TIA at the same constant rate of 6,750 m^3/day, but over the entire year to maintain safe water levels. During closure, the Doris TIA is dewatered by pumping to Roberts Bay via the Doris water treatment plant and the MMB. The dewatering occurs during the open water season at a predicted rate of 6,750 m^3/day and takes 5.5 months to complete.

Mine water is pumped to the Doris water treatment plant up to a maximum modelled rate of 3,000 m^3/day. Mine water from the Doris Mine is intercepted from January 2018 to July 2021 and reached a maximum rate of 3,000 m^3/day (Figure 6-21). For the period of January to June in 2018, the Doris mine water is directed to the Doris TIA before the MMB is constructed. Mine water from Madrid South Mine is intercepted from January 2029 to December 2032 and from Madrid North Mine from March 2020 to December 2031. The model predicted maximum mine water flows of 550 and 1,300 m^3/day, respectively. Mine Water rates were based on groundwater modelling results (SRK 2017a). Groundwater collection was assumed to cease during closure as the mines are allowed to flood.

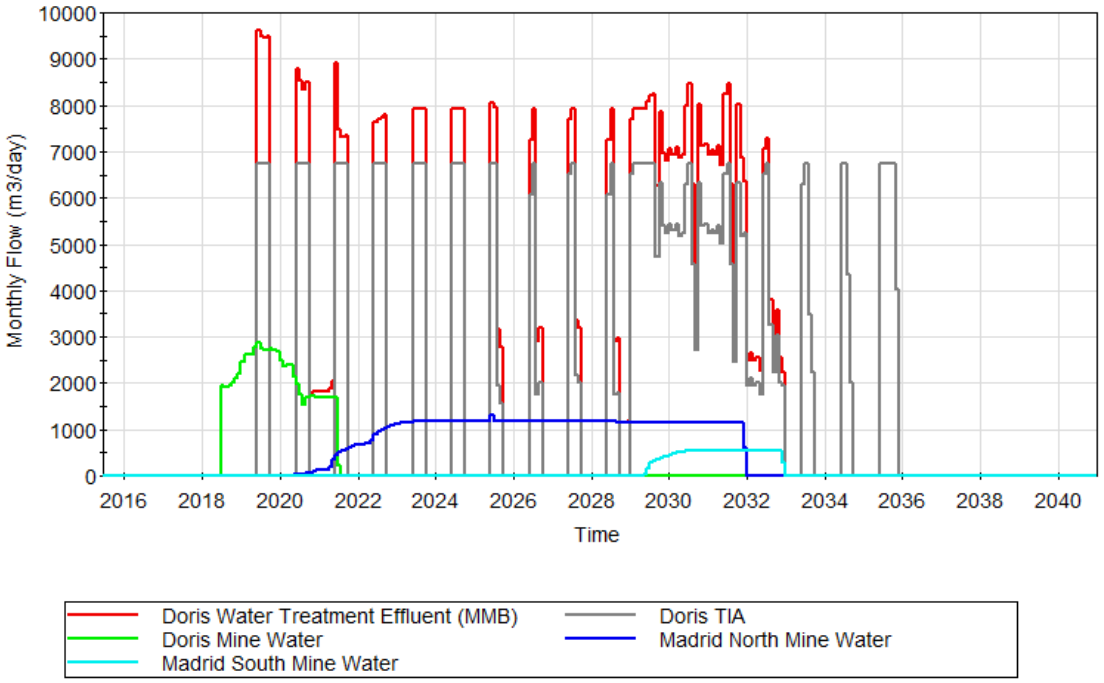

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Figure 6-21: Doris Water Treatment Plant Effluent / Marine Mixing Box Discharge

6.4 Boston Watershed

Two nodes were evaluated in the Boston Watershed: Aimaokatalok Lake and Stickleback Lake for overflow and lake level. Outflow and lake levels were compared back to the respective year predicted under average hydrological conditions, to eliminate any effects from climate change. Both nodes predicted changes in outflow greater than ± 10% compared to average hydrological conditions.

6.4.1 Stickleback Lake

Inflows to Stickleback Lake are direct precipitation, undisturbed runoff from the Stickleback Lake Catchment, and disturbed runoff from the Boston site (Figure 6-22). Precipitation and undisturbed runoff represents the majority of predicted inflow to the lake at 230,000 and 180,000 m^3/yr, respectively. Disturbed runoff was present at the model onset due to existing infrastructure at the Boston site and averaged a rate of 1,100 m^3/yr until 2020. During a two-year construction period, the disturbed runoff rate was predicted to increase to an average pf 4,900 m^3/yr throughout operations. At closure, the disturbed runoff increased to an average of 22,000 m^3/yr, reflecting reclamation of the CWPs.

Outflows from Stickleback Lake are evaporation and overflow to Aimaokatalok Lake (Figure 6-23). The model showed average evaporation rates of 310,000 m^3/yr, and average overflow rates to Aimaokatalok Lake of 110,000 m^3/yr during operations and post-closure. The average overflow rates to Aimaokatalok Lake during operations represented a 12% decrease compared to baseline. Average lake levels remain fairly consistent, taking into account a slight decrease over time due to evaporative climate change effects (Figure 6-24).

Predictions for flow and elevation during the 1 in 20 wet and dry years were compared back to the base case predictions (Table 6-7). For the dry year, the lake outflow decreased by a maximum amount of 55% in year two. During the wet year, the outflow increased by a maximum amount of 54% in year two. In total, the lake took four years to return back to base case predictions. Overall, the lake decreased by 4 cm during a dry year and increased by 4 cm during a wet year.

Table 6-7: Stickleback Lake Hydrological Sensitivity Analysis

Year	Hydrological Year	Change in Lake Outflow Relative to Average Hydrological Year	
		Dry Year	Wet Year
1	Dry/Wet	-20%	43%
2	Average	-55%	54%
3	Average	-12%	5%
4	Average	-2%	1%
Elevation Change		-4 cm	4 cm

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_FlowTables_1CT022-013_R00_ajb.xlsx

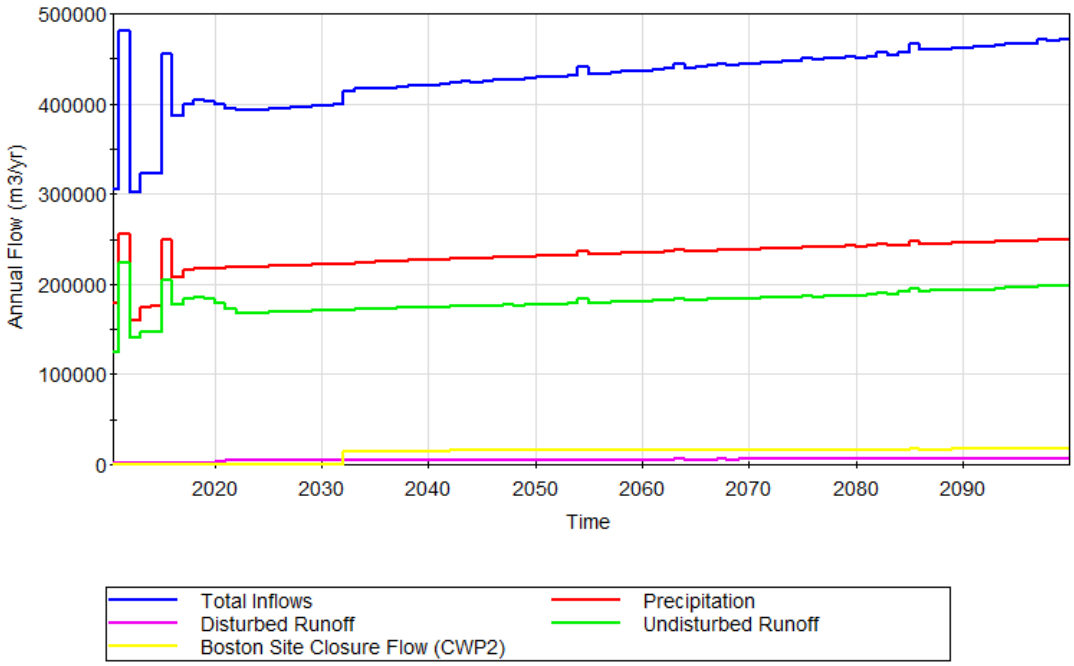

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Figure 6-22: Stickleback Lake Annual Inflows

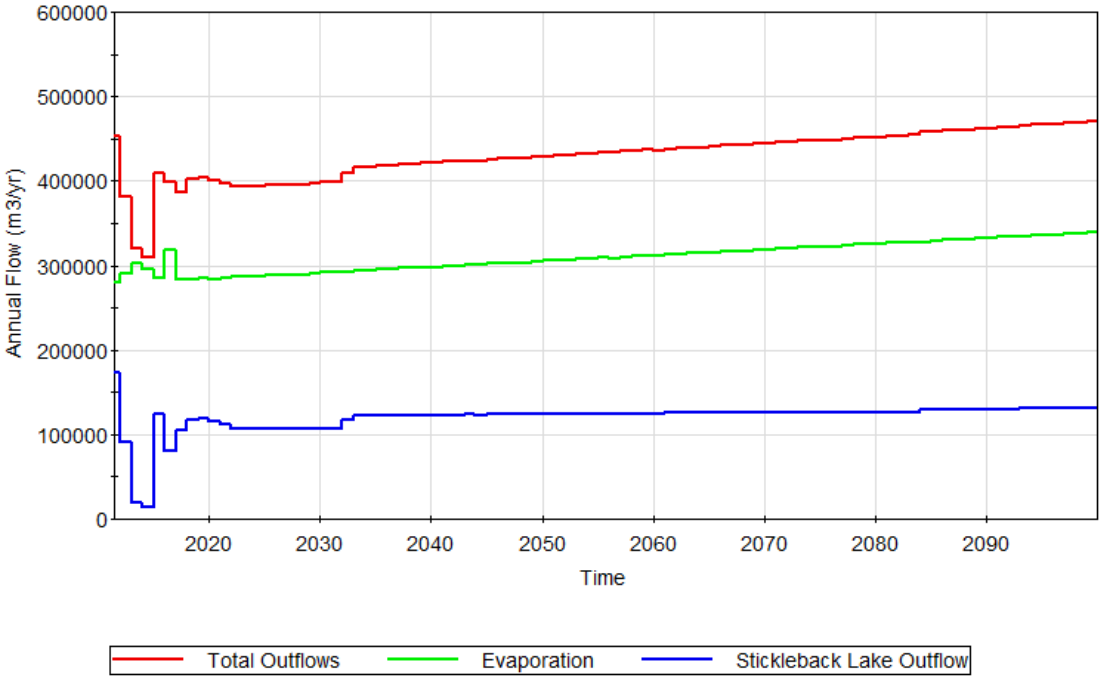

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Figure 6-23: Stickleback Lake Annual Outflows

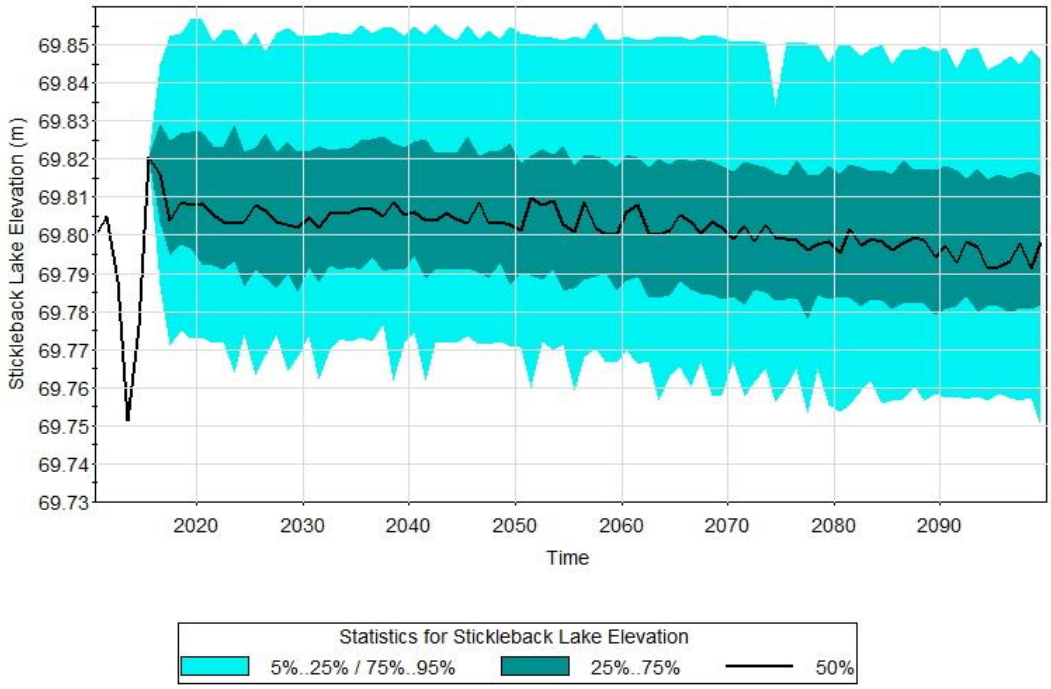

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Figure 6-24: Stickleback Lake Elevation Probabilities

6.4.2 Aimaokatalok Lake

Inflows to Aimaokatalok Lake include direct precipitation, natural runoff, stream inflows from the South and East Inflows, Stickleback and Trout lake outflows, disturbed runoff from the Boston site, and Boston combined effluent (process plant, contact water and sewage treatment plant effluents) (Figure 6-25 and Table 6-8). Disturbed runoff from the Boston site was predicted at the model start due to existing infrastructure at a rate of 4,500 m^3/yr and increased in 2019 during the two-year construction period up to 67,000 m^3/yr.

Discharge of combined treatment effluent begins in 2020 when the Boston site CWPs are planned to start collecting contact water. The contact water treatment plant treats water during the open water season through to the end of closure when the CWPs are decommissioned and natural catchment flow is restored. The contact water peak monthly flow was 81,000 m^3/month. The process plant water treatment plant is in operation from 2022 to 2029 while treatment of the process plant bleed is required. The average annual flow increases from 11,000 to 130,000 m^3/yr as the mining rate increases. The sewage treatment plant is in operations from 2020 to 2031 at a constant rate of 33,000 m^3/yr. During construction (2020-2021) and post-closure (2030-2031) the effluent is discharged to the tundra. During operations (2022 to 2029) the effluent is combined with the process plant and contact water treatment plants and discharged to Aimaokatalok Lake.

Table 6-8: Summary of Average Annual Inflows to Aimaokatalok Lake

Inflow	Average Annual Flowrate from 2020 to 2099 (m^3/yr)
Direct Precipitation	5,000,000
Undisturbed Runoff from the Aimaokatalok Lake Catchment	8,700,000
Aimaokatalok South Inflow	82,000,000
Aimaokatalok East Inflow	58,000,000
Trout Lake Outflow	4,000,000
Stickleback Lake Outflow	120,000
Disturbed Boston Runoff	77,000
Closure Flow from Boston (CWP1)	7,700
Closure Flow from the Boston TMA (CWP3)	36,000
Boston Water Treatment Plant Effluent	210,000

Source Y:\01_SITES\Hope.Bay\1CT022.004_Phase 2 DEIS - Engineering Support\Task 300_Water_Load_Balance\Deliverables\WB_Report\020_Tables\HopeBay_WBReport_Tables_1CT022.004_R01_ajb

Outflows from Aimaokatalok include evaporation, Boston process plant freshwater use, Boston Camp water use, Boston industrial water use, and the Aimaokatalok Lake overflow to the Koignuk River (Figure 6-26 and Figure 6-27). The model showed lake evaporation of 6,400,000 m^3/yr. Boston camp and industrial water use are 22,000 and 180,000 m^3/yr, respectively, during operations (2020 to 2035) and also extend during the two-year construction and closure periods. The Boston process plant freshwater demand varies from 17,000 m^3/yr up to 200,000 m^3/yr based on the processing rate. Due to the large catchment areas reporting to Aimaokatalok Lake (Figure 3-3), no significant change was predicted on the Aimaokatalok outflow, which remained relatively constant in the model at 140,000,000 m^3/yr (Figure 6-28).

Similarly, no change in flow was predicted for downstream nodes Koignuk River Node 1, Koignuk River Node 2, and Boston LSA where the only effect on flow predicted over time is the effect of climate change (Figure 6-29 to Figure 6-31).

Aimaokatalok Lake is a large lake located within a large catchment and is therefore robust to changes. Predictions for flow and elevation during the 1 in 20 wet and dry years were compared back to the base case predictions (Table 6-9). For the dry year, the lake elevation was maintained however the outflow decreased by 16%. For the wet year, the outflow increased by 27% with an increase in elevation of 8 cm. For both the 1 in 20 wet and dry years, the effects were observed across two years prior to returning to base case predictions.

Aimaokatalok Lake was unaffected by the dry or wet year outside of the natural effects.

Table 6-9: Aimaokatalok Lake Hydrological Sensitivity Analysis

Year	Hydrological Year	Change in Lake Outflow Relative to Average Hydrological Year	
		Dry Year	Wet Year
1	Dry/Wet	-16%	27%
2	Average	-7%	1%
Elevation Change		0 cm	8 cm

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_FlowTables_1CT022-013_R00_ajb.xlsx

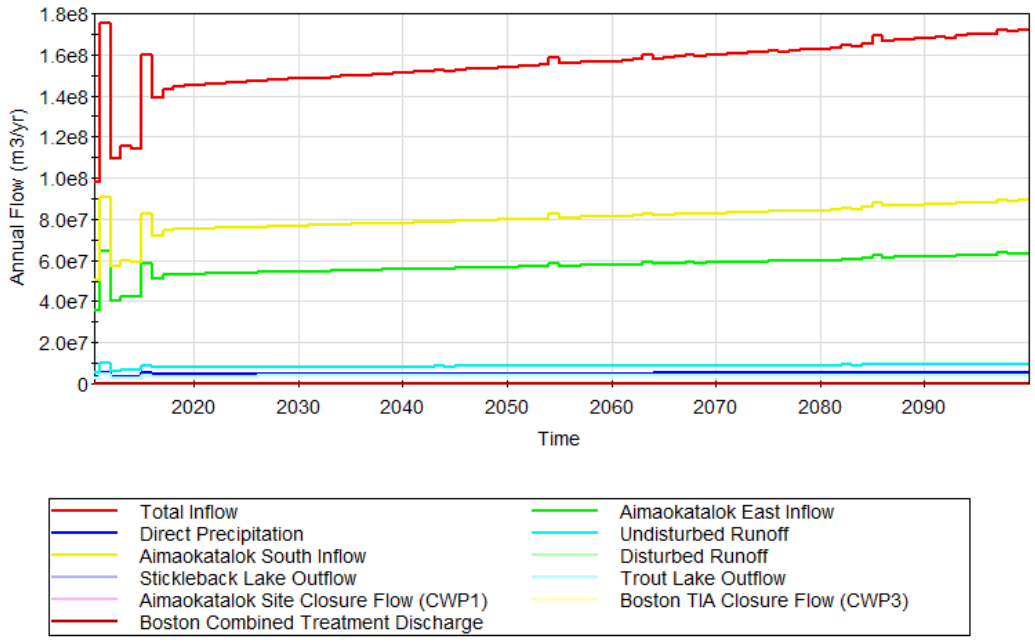

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Figure 6-25: Aimaokatalok Lake Annual Inflows

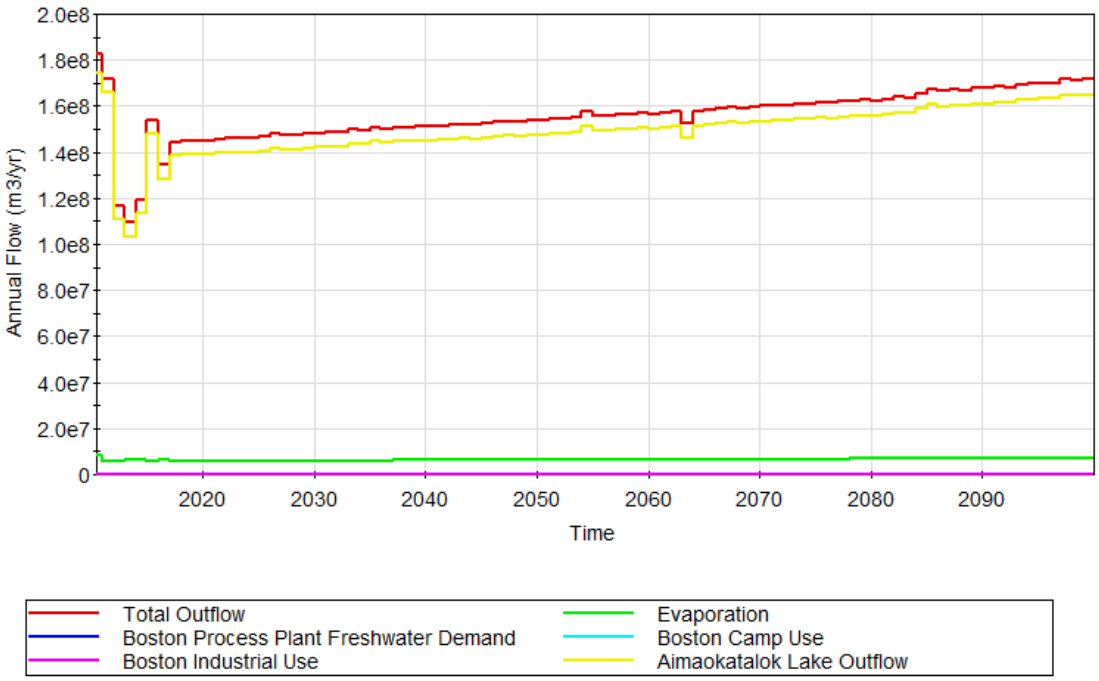

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Figure 6-26: Aimaokatalok Lake Annual Outflows – All Flows

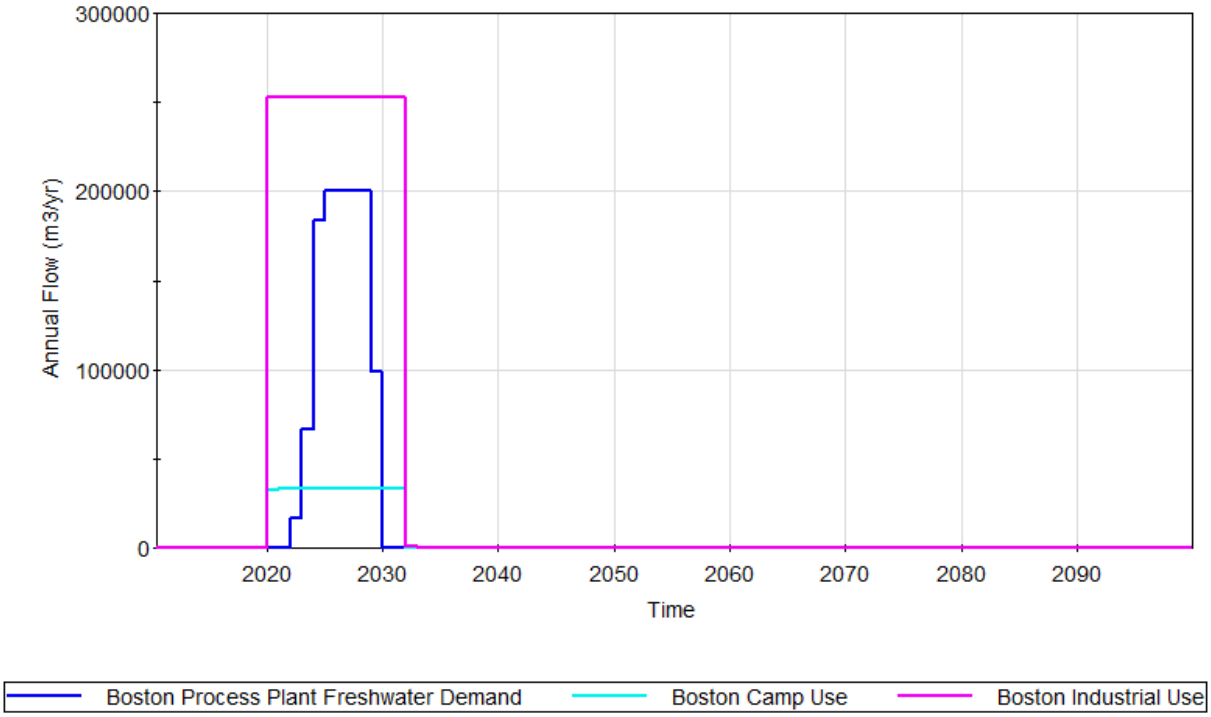

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Figure 6-27: Aimaokatalok Lake Annual Outflows – Small Flows

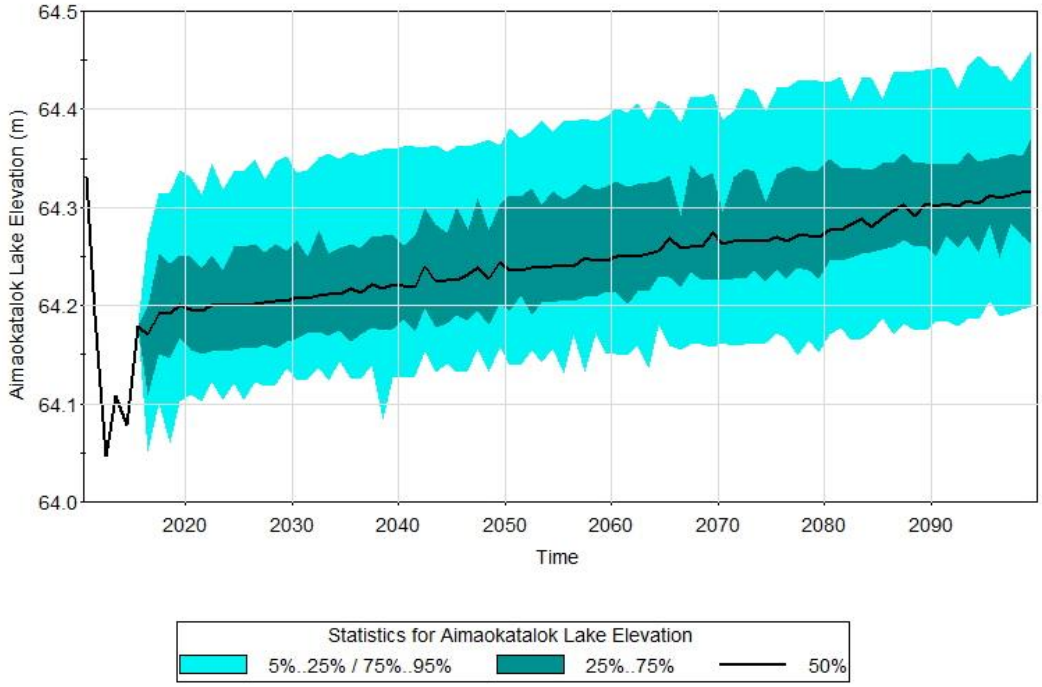

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Figure 6-28: Aimaokatalok Lake Elevation Probabilities

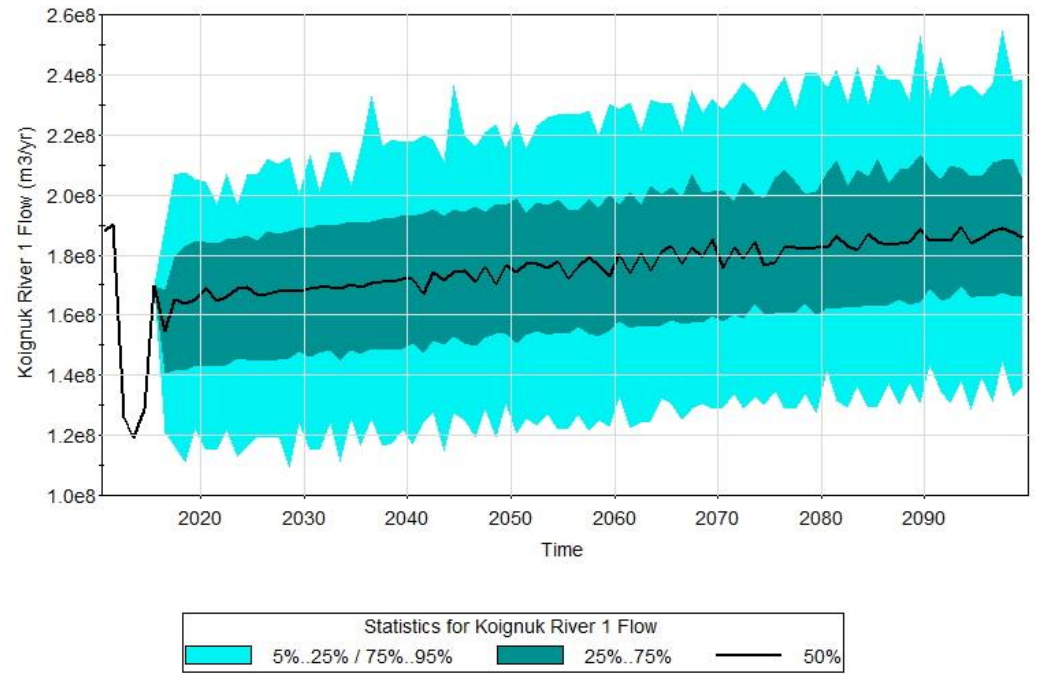

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Figure 6-29: Koignuk River 1 Outflows

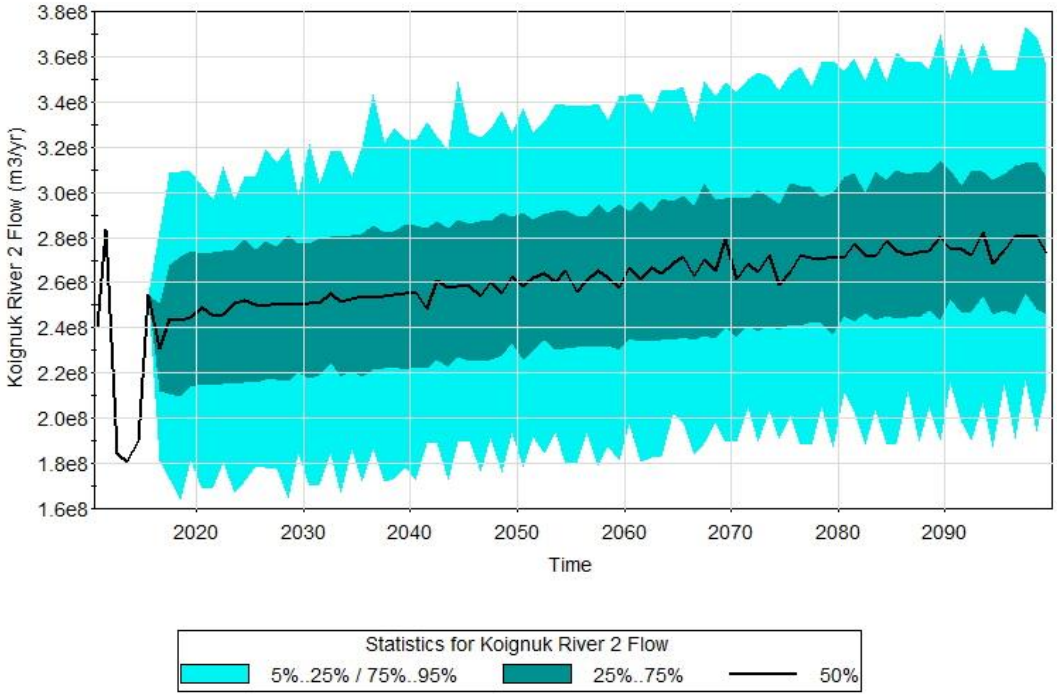

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Figure 6-30: Koignuk River 2 Outflows

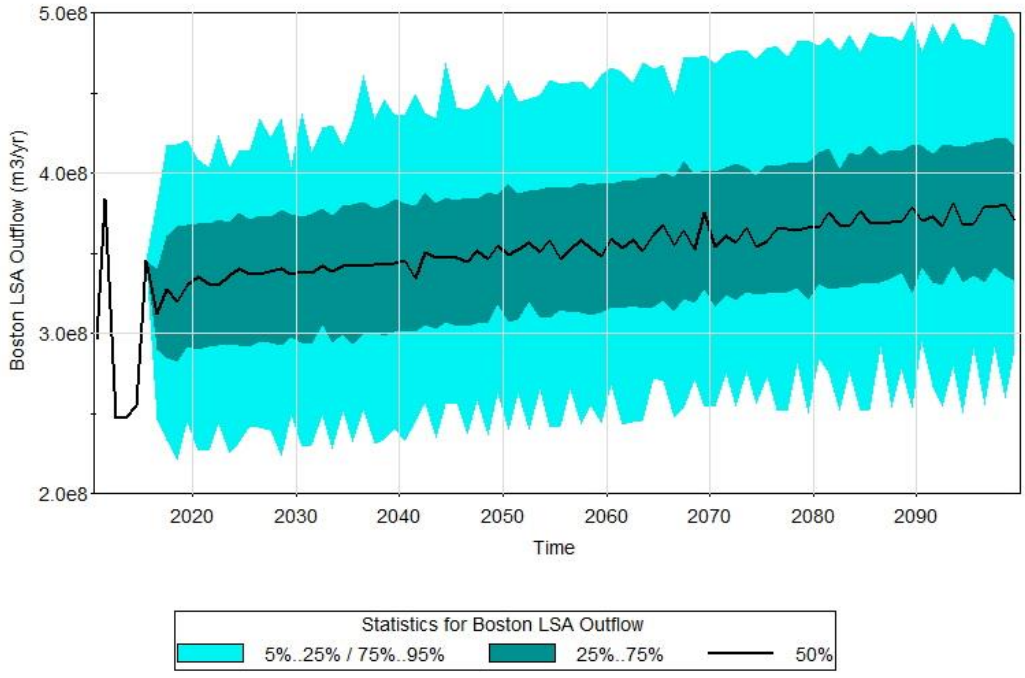

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Figure 6-31: Boston LSA Outflows

7 Load Balance Model Results and Discussion

The load balance results are presented in two sections: mine effluents and lakes. Comparisons between baseline, base case and upper case model predictions were made to better understand the project related effects. All mine effluents were compared to MMER regulations, while lakes were compared to CCME guidelines for freshwater aquatic life. The results presented in Sections 7.1 and 7.2 highlight and discuss potential exceedances.

For each prediction node, a complete set of results, generated from the base and upper-case water quality, (for all predicted parameters) is presented in Appendix C. Figures showing the predicted concentrations over time for all parameters for the four major discharges to the environment are presented in Appendix C.

7.1 Mine Effluents

7.1.1 Doris TIA Discharge

The following sources contribute loading to the Doris TIA: Doris process plant effluent water, Madrid concentrator effluent water, disturbed runoff from the Tail Lake catchment, sewage effluent, CWPs from Doris and Madrid, and the tailings beach. As operations progress, concentrations in the Doris TIA increase because of a decrease in pond storage capacity and arsenic concentrations increase once Madrid ore is brought online.

During operations predicted arsenic concentrations exceed the current MMER regulations from January 2022 to May 2032 and the proposed MMER concentrations from September 2020 until the Doris TIA is emptied right before post-closure (Figure 7-1). Spikes in arsenic concentrations represent the under ice peaks due to cryoconcentration. The Doris process plant and Madrid concentrator are the major sources of arsenic loading to the Doris TIA. For the Doris process plant, effluent concentrations change over the process plant life to account for the origin of the ore being processed. The most notable change in process water chemistry is the increase in arsenic which is attributed to the Madrid North ore. Doris TIA water quality predictions for the base and upper case are presented in Table 7-1. As discussed in Section 7.1.2, water from the Doris TIA and water from the underground mine and will be treated to remove arsenic prior to the MMB.

At post-closure, water quality predictions in the Doris TIA node (no pond remains during post-closure) meets both the current and proposed MMER regulations. Runoff from the tailings beach is the primary source of arsenic and copper load to the Doris TIA node. Arsenic loading is linked to the tailings while the copper loading is linked to the cover. In the model, the Doris TIA catchment runoff was directed to Doris Creek allowing for conservative water quality predictions in the creek (Section 6.1.4). However, in reality this runoff is anticipated to enter the north end of Doris Lake where some localized mixing and dilution with lake water could occur.

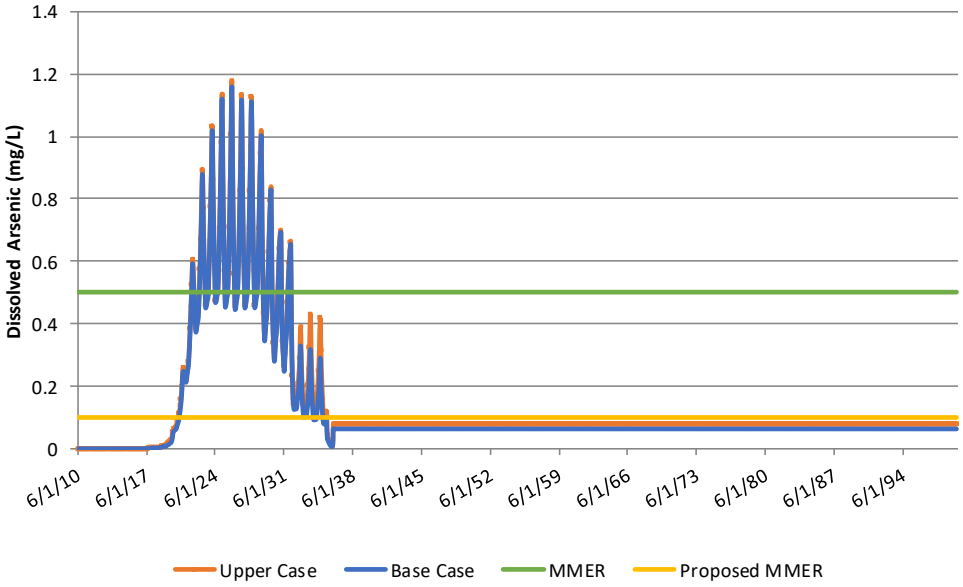

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Figure 7-1: Doris TIA Base and Upper Case Dissolved Arsenic Concentrations

Table 7-1: Doris TIA Base Case and Upper Case Water Quality Predictions

Parameter	MMER		Operations and Closure (mg/L)				Post- Closure (mg/L)			
			Average		Maximum		Average		Maximum	
	Current[1]	Proposed[2]	Base Case	Upper Case	Base Case	Upper Case	Base Case	Upper Case	Base Case	Upper Case
TSS	15	15	2.8	3.3	11	14	3.3	4.3	3.9	4.9
Fluoride	-	-	0.091	0.094	0.33	0.33	0.049	0.06	0.051	0.06
Chloride	-	-	190	190	1,700	1,700	39	40	39	40
Dissolved Aluminum	-	-	0.13	0.14	1.6	1.6	0.071	0.081	0.073	0.086
Dissolved Arsenic	0.5	0.1	0.19	0.20	***1.2***	***1.2***	0.064	0.079	0.064	0.079
Dissolved Chromium	-	-	0.0038	0.0038	0.019	0.019	0.00068	0.00087	0.00068	0.00087
Dissolved Copper	0.3	0.1	0.0092	0.01	0.041	0.042	0.0042	0.0066	0.0043	0.0067
Dissolved Iron	-	-	0.48	0.51	2.8	2.9	0.1	0.16	0.12	0.18
Dissolved Mercury	-	-	0.000025	0.000026	0.000096	0.000097	0.0000044	0.0000053	0.0000045	0.0000053
Total Aluminum	-	-	0.13	0.14	1.7	1.7	0.073	0.085	0.075	0.09
Total Arsenic	0.5	0.1	0.19	0.2	***1.2***	***1.2***	0.064	0.079	0.064	0.079
Total Chromium	-	-	0.004	0.004	0.02	0.02	0.00073	0.001	0.00074	0.001
Total Copper	0.3	0.1	0.0093	0.01	0.041	0.042	0.0042	0.0066	0.0043	0.0067
Total Iron	-	-	0.57	0.61	3.1	3.1	0.13	0.22	0.15	0.24
Total Mercury	-	-	0.000044	0.000047	0.00017	0.00018	0.0000095	0.000018	0.0000097	0.000018

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WQReport_WQTables_1CT022-013_R00_ajb.xlsx

Notes:

[1] ***Current MMER Exceedance shown in bold italics***

[2] Proposed MMER Exceedance shown in grey highlight

7.1.2 Doris Marine Mixing Box

The MMB discharges water to Roberts Bay throughout operations and during the closure period. Two sources contribute loading to the MMB: the Doris TIA (discussed previously), and mine water. Mine water quality is driven by several factors:

1. The progression of mining from Doris to Madrid North; and finally, to Madrid South.
2. The type and amount of backfill placed in each mine. Doris and Madrid North backfill contain detoxified tailings resulting in higher concentrations in comparison to Madrid South. Madrid North ore and waste rock also contain higher levels of arsenic than predicted at Doris.
3. The background concentration of water that infiltrates to the mine is a source of chloride, but otherwise is insignificant to mine water loadings.
4. The amount of material extracted from each mine. The model assumes that brine and ANFO loadings introduced through mining activities are flushed to groundwater.

The results indicated there were two parameters of concern in the mine water, namely arsenic and chloride.

The model predicted that in the absence of treatment, arsenic concentrations in the MMB would exceed proposed MMER guidelines (0.1 mg/L) from 2025 to 2032 and exceed the current MMER guidelines (0.5 mg/L) from 2029 onwards. The increase in arsenic concentrations occurs as Madrid North comes online, originating in the mine water as a result of placed backfill, and in the Doris TIA as a result of the tailings beach and process water.

To address the potential for elevated arsenic concentrations, TMAC have committed to incorporating a water treatment plant (WTP) as required to treat both mine water and Doris TIA water. Water treatment would occur prior to the MMB.

The combined WTP influent and effluent arsenic concentrations are presented in Figure 7-2. The arsenic concentrations in the upper case water quality predictions for the MMB remain the same as the base case and upper case source terms for the WTP effluent were assigned the same concentrations. The upper case WTP influent arsenic concentration is 10% higher than base case concentrations.

Elevated chloride concentrations in the MMB effluent are attributed to the intercepted groundwater. Predicted chloride concentrations in the model average 4,700 mg/L, and reach a peak concentration of 18,000 mg/L during operations. Chloride will be unaltered by the Doris contact water treatment plant. The chloride concentration in the mine water varies as each mine is brought online, with peak concentrations associated with the Doris Mine.

The upper case water quality predictions are presented in Table 7-2.

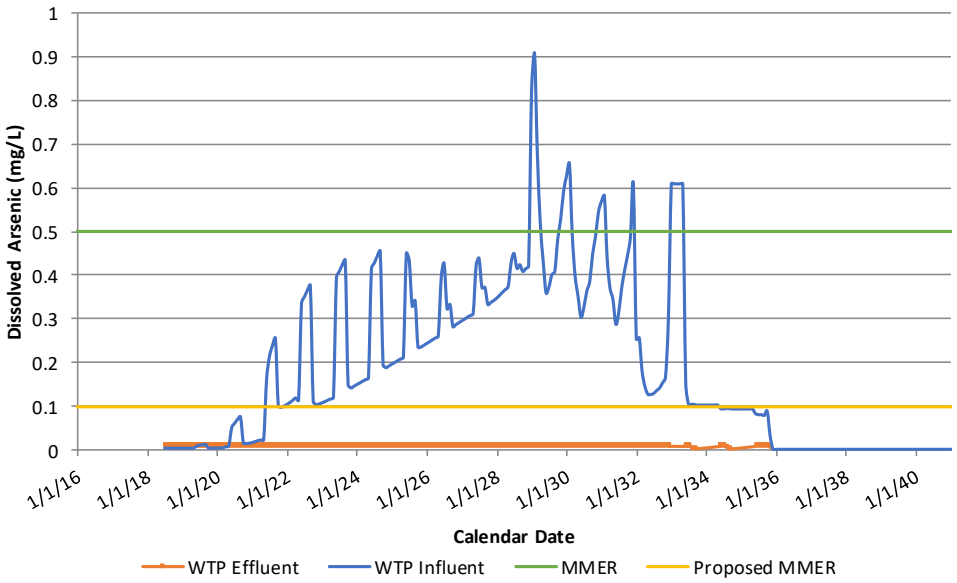

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Figure 7-2: Doris Contact Water Treatment Plant Influent and Effluent Arsenic Concentrations

Table 7-2: Marine Mixing Box Base Case and Upper Case Water Quality Predictions

Parameter	MMER		Operations - 2018 to 2032 (mg/L)				Closure - 2033 to 2035 (mg/L)			
			Average		Maximum		Average		Maximum	
	Current[1]	Proposed[2]	Base Case	Upper Case	Base Case	Upper Case	Base Case	Upper Case	Base Case	Upper Case
TSS	15	15	15	15	15	15	12	12	15	15
Fluoride			0.29	0.29	0.74	0.75	0.057	0.065	0.093	0.10
Chloride			4,800	4,800	18,000	18,000	94	95	490	490
Dissolved Aluminum			0.11	0.11	0.32	0.32	0.15	0.16	0.35	0.35
Dissolved Arsenic	0.5	0.1	0.010	0.010	0.010	0.010	0.0081	0.0081	0.010	0.010
Dissolved Chromium			0.003	0.003	0.014	0.014	0.0017	0.0018	0.0037	0.0038
Dissolved Copper	0.3	0.1	0.008	0.0082	0.03	0.031	0.0051	0.0069	0.0084	0.01
Dissolved Iron			0.50	0.50	0.50	0.50	0.40	0.40	0.50	0.50
Dissolved Mercury			0.000036	0.000036	0.000075	0.000076	0.0000054	0.0000061	0.0000085	0.00001
Total Aluminum			0.35	0.35	0.55	0.55	0.15	0.16	0.36	0.37
Total Arsenic	0.5	0.1	0.014	0.014	0.015	0.015	0.0081	0.0081	0.010	0.010
Total Chromium			0.0062	0.0063	0.017	0.017	0.0018	0.002	0.0039	0.0042
Total Copper	0.3	0.1	0.0093	0.0095	0.031	0.032	0.0052	0.007	0.0085	0.01
Total Iron			1.3	1.3	1.4	1.4	0.4	0.4	0.5	0.5
Total Mercury			0.00025	0.00025	0.0003	0.0003	0.000018	0.000025	0.000034	0.00004

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WQReport_WQTables_1CT022-013_R00_ajb.xlsx

Notes:

[1] Current MMER Exceedance shown in bold italics

[2] Proposed MMER Exceedance shown in grey highlight

7.1.3 Boston Combined Discharge

During operations and closure, combined effluent from the three Boston water treatment plants will be discharged directly into Section 2a of Aimaokatalok Lake (Figure 3-4). In the model, discharge occurs from construction in 2020 to the end of closure in 2031. The combined effluent will reflect a mixture of water from the three treatment plant effluents:

1. Contact water treatment plant (Section 3.7.6) in operation during the open water season from 2020 to 2031.
2. Process water treatment plant (Section 3.7.7) in operation year round from 2022 to 2029.
3. Sewage treatment plant (Section 3.7.5) with treated water directed to the combined discharge from 2022 to 2031.

The combined effluent meets MMER regulations (Table 7-3), as it is all treated prior to discharge.

Table 7-3: Boston Combined Effluent Base and Upper Case Water Quality Predictions

Parameter	MMER		Post-Closure (mg/L)			
			Average		Maximum	
	Current[1]	Proposed[2]	Base Case	Upper Case	Base Case	Upper Case
TSS	15	15	8.5	9.1	14	14
Fluoride	-	-	0.053	0.055	0.28	0.3
Chloride	-	-	180	180	670	670
Dissolved Aluminum	-	-	0.033	0.034	0.095	0.098
Dissolved Arsenic	0.5	0.1	0.003	0.003	0.009	0.009
Dissolved Chromium	-	-	0.0031	0.0031	0.01	0.011
Dissolved Copper	0.3	0.1	0.00048	0.00048	0.0018	0.0018
Dissolved Iron	-	-	0.14	0.14	0.45	0.45
Dissolved Mercury	-	-	0.0000045	0.0000049	0.000028	0.000028
Total Aluminum	-	-	0.078	0.08	0.24	0.25
Total Arsenic	0.5	0.1	0.0041	0.0041	0.013	0.013
Total Chromium	-	-	0.0041	0.0041	0.014	0.014
Total Copper	0.3	0.1	0.00061	0.00061	0.0019	0.0019
Total Iron	-	-	0.39	0.39	1.3	1.3
Total Mercury	-	-	0.000059	0.00006	0.0002	0.00021

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WQReport_WQTables_1CT022-013_R00_ajb.xlsx

Notes:

[1] Current MMER Exceedance shown in bold italics

[2] Proposed MMER Exceedance shown in grey highlight

7.1.4 Boston TMA Closure Runoff

At closure, the Boston TMA runoff and seepage will report to Section 2b of Aimaokatalok Lake (Figure 3-4). Direct runoff from the quarry cover is a source of copper while the limited amount of seepage that interacts with the tailings is a source of arsenic. The seepage and runoff will be mixed prior to entering Section 2b of Aimaokatalok Lake (Table 7-4).

Both arsenic and copper concentrations are below MMER and remain relatively consistent during the post-closure period (Figure 7-3 and Figure 7-4).

Table 7-4: Boston TMA Closure Runoff Base Case and Upper Case Water Quality Predictions

Parameter	MMER		Post-Closure (mg/L)			
			Average		Maximum	
	Current[1]	Proposed[2]	Base Case	Upper Case	Base Case	Upper Case
TSS	15	15	1.8	2.8	2	6
Fluoride	-	-	0.046	0.059	0.051	0.064
Chloride	-	-	8	8	8	10
Dissolved Aluminum	-	-	0.038	0.06	0.038	0.061
Dissolved Arsenic	0.5	0.1	0.040	0.044	0.080	0.081
Dissolved Chromium	-	-	0.00042	0.00059	0.00063	0.00079
Dissolved Copper	0.3	0.1	0.0085	0.014	0.0086	0.014
Dissolved Iron	-	-	0.053	0.14	0.055	0.14
Dissolved Mercury	-	-	0.00001	0.00001	0.000011	0.000011
Total Aluminum	-	-	0.038	0.061	0.039	0.062
Total Arsenic	0.5	0.1	0.04	0.044	0.08	0.081
Total Chromium	-	-	0.00042	0.0006	0.00064	0.0008
Total Copper	0.3	0.1	0.0085	0.014	0.0086	0.014
Total Iron	-	-	0.053	0.14	0.056	0.15
Total Mercury	-	-	0.000011	0.000011	0.000011	0.000011

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WQReport_WQTables_1CT022-013_R00_ajb.xlsx

Notes:

[1] Current MMER Exceedance shown in bold italics

[2] Proposed MMER Exceedance shown in grey highlight

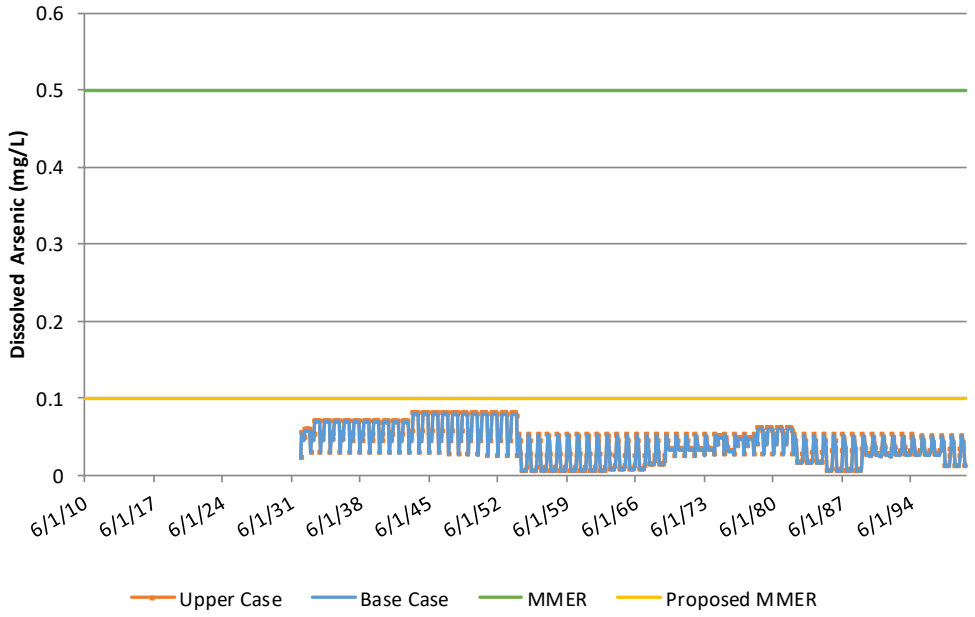

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Figure 7-3: Boston TMA Closure Runoff Dissolved Arsenic Concentrations

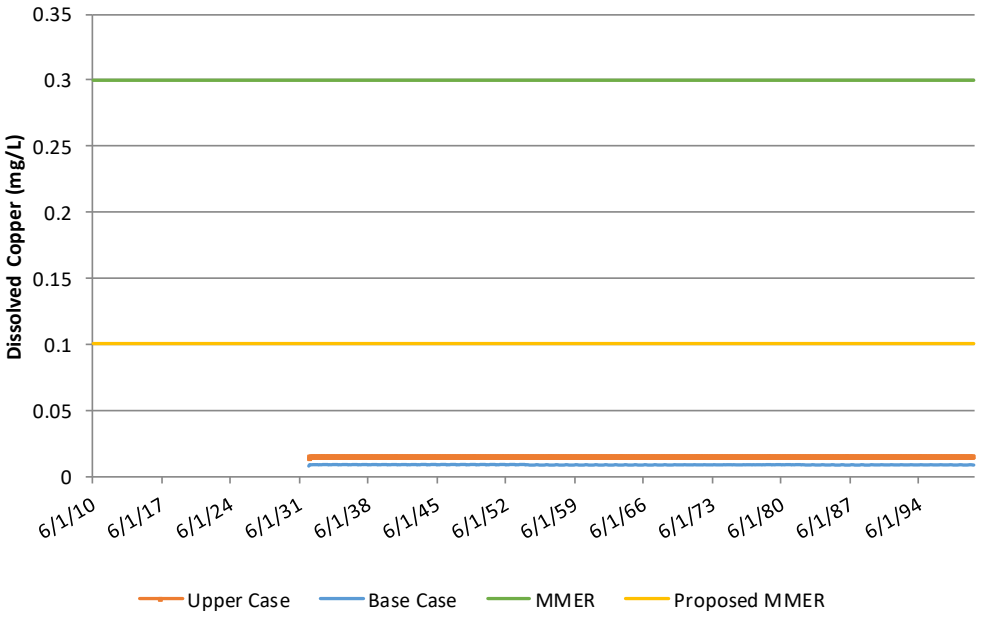

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Figure 7-4: Boston TMA Closure Runoff Dissolved Copper Concentrations

7.2 Lakes

Water quality predictions are presented as average open water and maximum under ice concentrations during the operations and post-closure periods in Appendix C. Lakes with predicted exceedances of CCME guidelines during operations and closure (under-ice only), or post-closure are shown in Table 7 5. All of the figures presented in this section of the report show modelled concentrations for base case, upper case, and baseline concentrations. The modelled baseline reflects the baseline used in the base case predictions (i.e. the 50th percentile baseline concentrations as affected by model processes such as cryoconcentration and evaporative effects). Upper case baseline results (75th percentile baseline concentrations) are not shown in the figures, therefore caution should be applied in comparing the upper case and baseline predictions.

Copper and arsenic were selected as indicative parameters for the discussion of potential effects from the disturbed runoff and the tailings, respectively. For reference the base and upper case source terms are presented in Table 7-6.

Table 7-5: Project Lakes with CCME Guideline Exceedances

Catchment	Node	Base Case Exceedances	Additional Upper Case Exceedances
Doris	Wolverine	Fluoride, Chloride, Aluminum, Copper, Chromium and Iron	
	Patch	Copper	Total Iron
	Doris Creek (TI-2)	Arsenic, Copper	Aluminum and Total Iron
Windy	Windy	Copper	
Boston	Stickleback	Fluoride, Aluminum, Copper, Chromium and Iron	Mercury
	Aimaokatalok Section 2b	Aluminum, Copper, Iron and Mercury	
	Aimaokatalok Section 2a		

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WQReport_WQTables_1CT022-013_R00_ajb.xlsx

Table 7-6: Source Term Concentrations for Arsenic and Copper

Catchment	Parameter	Units	Background		Disturbed Runoff		Tailings Seepage – Post-closure	
			Base Case	Upper Case	Base Case	Upper Case	Base Case	Upper Case
Doris and Windy	Total Arsenic	mg/L	0.0003	0.00035	0.00074	0.002	0.17	0.21
	Total Copper		0.0014	0.0016	0.0084	0.014	0.0013	0.0048
Boston	Total Arsenic		0.00016	0.00017	0.00074	0.002	3.8	3.8
	Total Copper		0.0009	0.00098	0.0084	0.014	0.017	0.017

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WQReport_WQTables_1CT022-013_R00_ajb.xlsx

In the model, most contact water is collected and treated during operations and closure with limited runoff reporting to Project lakes. As a result, no CCME exceedances occurred during the open water season, although increases relative to baseline were noted. During the under-ice period there were some CCME exceedances, but most of these were due to cryoconcentration and were also observed in the modelled baseline.

For the post-closure period, three sources of project loading are noted:

1. Tailings seepage and runoff from the covered Doris TIA and Boston TMA, with arsenic from the tailings and copper from the cover material,

2. Disturbed runoff from mine infrastructure (all ore and waste rock are removed from pads in post-closure), which result in increased copper loadings once contact water ponds are decommissioned and natural flow paths are restored, and

3. Re-flooded mine water, which is a source of arsenic in groundwater that will discharging to some lakes in post-closure.

Water quality for the post-closure period generally showed minimal change in comparison to baseline, with the exception of arsenic and copper. Copper effects could be seen in most project lakes, while the most notable arsenic effects were limited to Doris Creek.

Wolverine, Windy and Stickleback lakes were affected by the balance between precipitation and evaporation, as no loading is assigned or removed with either term. For the Hope Bay Project evaporation starts out roughly 30% greater than precipitation and remains 30% greater throughout the model run (precipitation and evaporation both increase 20% over course of the model due to climate change). For small catchments with large lake to catchment ratios and limited recharge (longer residence times), evaporation represents a significant loss of water from the lake. Since no loading is removed with this water, a concentration of parameters is noted in both the model baseline and project case predictions. This same observation is not noted in other larger lakes with greater recharge and smaller lake to catchment ratios. For these lakes, the residence time is much lower and evaporation represents a smaller percentage of water removed from the lake.

In evaluating the results, it is important to note that the Doris background water quality contains elevated levels of chloride, aluminum, copper and iron. The average concentrations for these parameters is roughly the half of the minimum CCME guideline (Table 7-7). Similarly, the Boston background water quality contains elevated concentrations of aluminum. The average and 75th percentile concentration were roughly 65% of the minimum CCME guideline for (Table 7-8). As a result, these parameters are more sensitive to project effects.

Table 7-7: Elevated Parameters in Doris Background Water Quality

Parameter	Minimum CCME Guideline (mg/L)	Average Values		75th Percentile Values	
		Concentration (mg/L)	Percent of Guideline (%)	Concentration (mg/L)	Percent of Guideline (%)
Chloride	110	62	56%	64	58%
Aluminum	0.1	0.055	55%	0.069	69%
Copper	0.002	0.0014	72%	0.0016	79%
Iron	0.3	0.14	46%	0.16	54%

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

Table 7-8: Elevated Parameters in the Boston Background Water Quality

Parameter	Minimum CCME Guideline (mg/L)	Average Values		75th Percentile Values	
		Concentration (mg/L)	Percent of Guideline (%)	Concentration (mg/L)	Percent of Guideline (%)
Aluminum	0.1	0.049	49%	0.064	64%

Source \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_InputTables_1CT022-013_R00_ajb.xlsx

7.2.1 Wolverine Lake

Wolverine lake had predicted exceedances of copper in the open water season during post-closure, which were also observed in the baseline data. It also had exceedances in fluoride, chloride, aluminum, copper, chromium and iron in the post-closure under ice season. All parameters with the exception of copper, did not increase above background parameters. Peak concentrations were predicted to occur during under ice conditions.

Arsenic concentrations remain close to baseline predictions (Figure 7-5), while increases in copper concentrations are attributed runoff from Madrid South Mine surface infrastructure (Figure 7-6, Figure 7-7). Modelled baseline copper concentrations also increase over the course of the project due to the negative evaporation and precipitation balance.

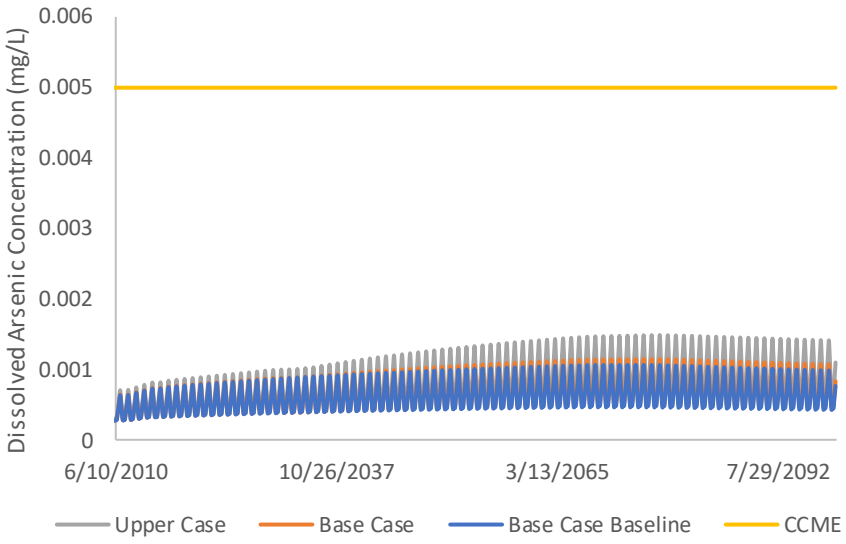

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Figure 7-5: Wolverine Lake Baseline, Base Case and Upper Case Arsenic Predictions

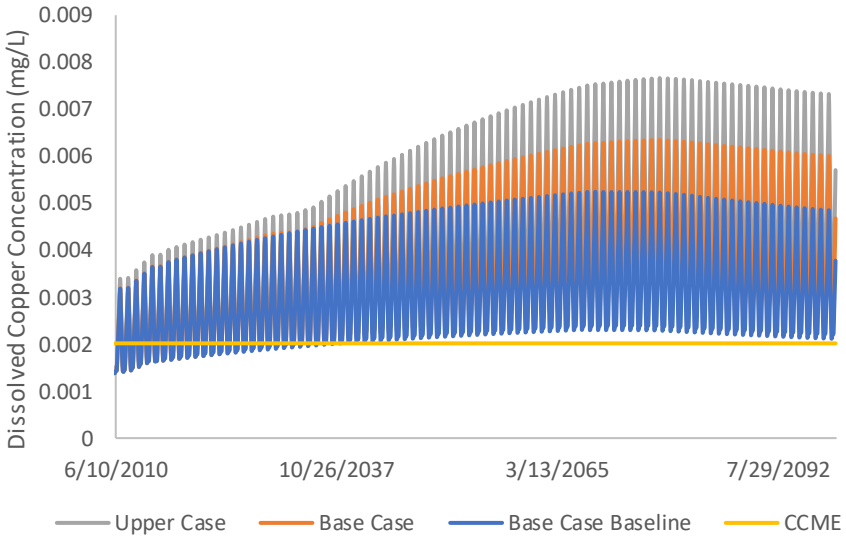

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Figure 7-6: Wolverine Lake Baseline, Base Case and Upper Case Copper Predictions

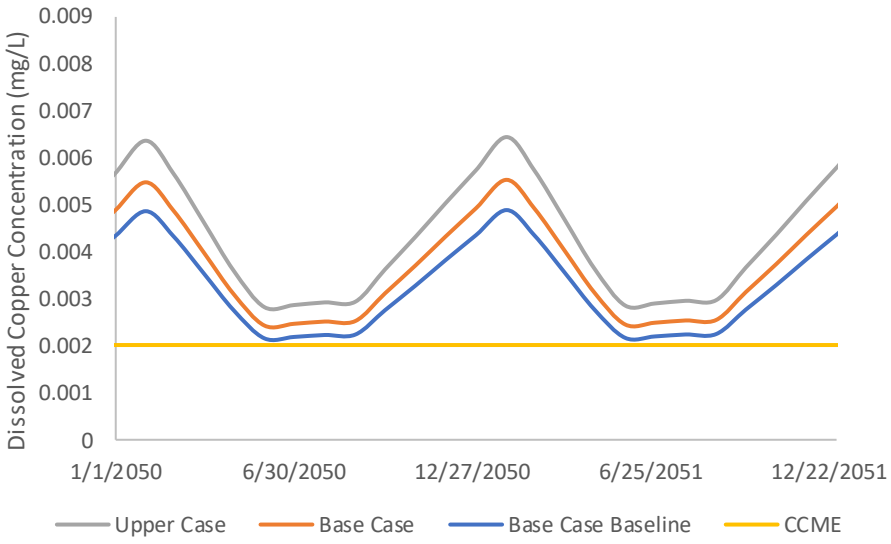

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Figure 7-7: Wolverine Lake Baseline, Base Case and Upper Case Copper Predictions - Close up

7.2.2 Patch

During operations, Patch Lake water quality is generally unaffected by the project.

At closure, more runoff from Madrid North and South Mine infrastructure reports to the lake as well as the closure groundwater flow from the flooded Madrid South Mine. Predicted arsenic concentrations increase but do not exceed CCME guidelines (Figure 7-8). Copper concentrations increased, but exceedances are also predicted for the baseline under ice concentrations observed in the lake (Figure 7-9). A close-up of the change in baseline to base and upper case predictions for copper is presented as (Figure 7-10).

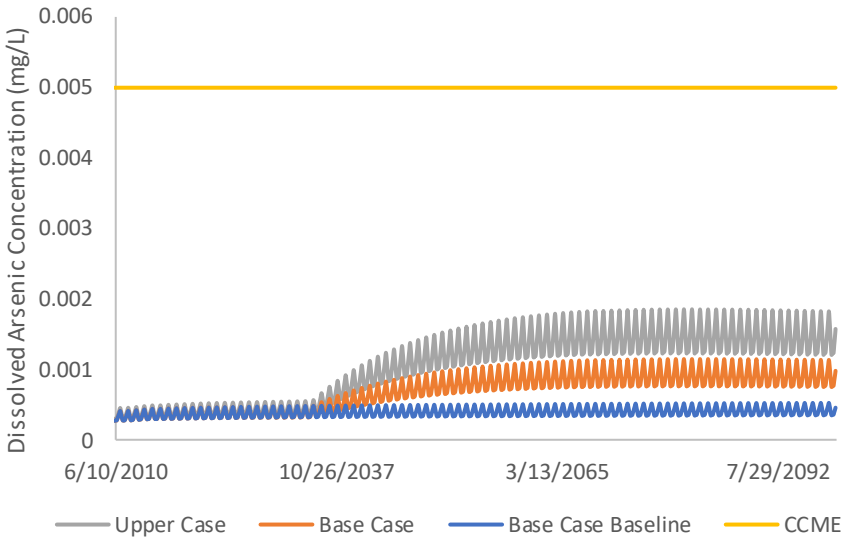

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Figure 7-8: Patch Lake Baseline, Base Case and Upper Case Arsenic Predictions

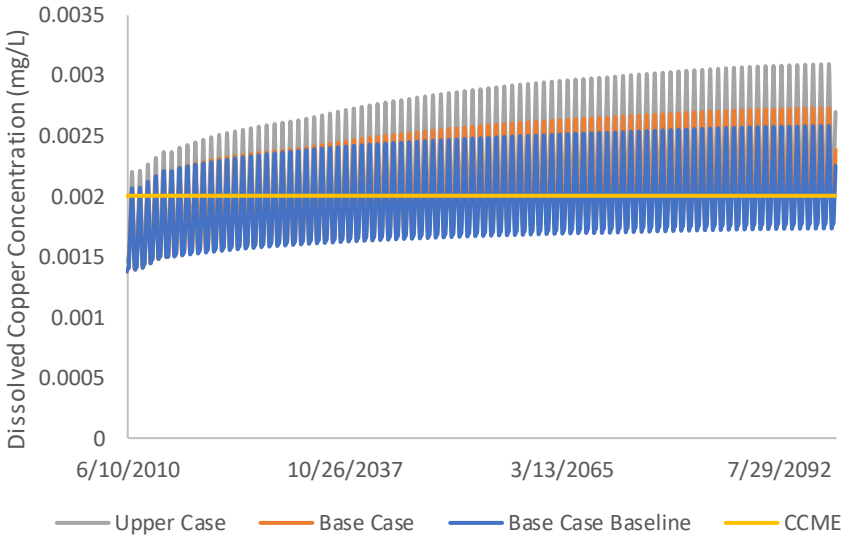

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Figure 7-9: Patch Lake Baseline, Base Case and Upper Case Copper Predictions

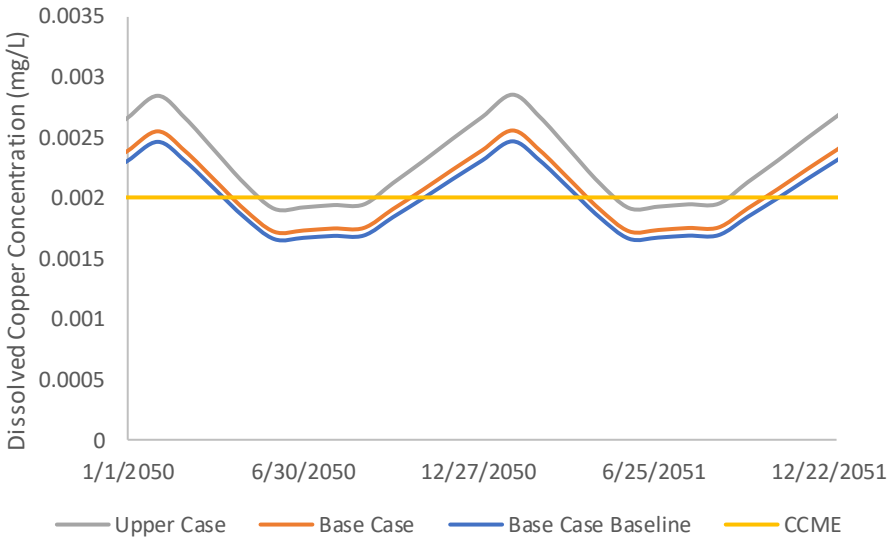

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Figure 7-10: Patch Lake Baseline, Base Case and Upper Case Copper Predictions - Close-up

7.2.3 Doris Creek

During operations, base case arsenic concentrations match baseline predictions (Figure 7-11). Base case copper concentrations approach and sometimes exceed the CCME guideline during operations while baseline predictions only approach the guideline (Figure 7-12). In post-closure, arsenic and copper concentrations increase to peaks of 0.1 and 0.0021 mg/L, respectively, and are higher than baseline predictions. A close up of arsenic concentrations for the period of 2050 to 2051 is shown in Figure 7-13.

During operations, Doris Creek water quality is effected by runoff from Doris Mine infrastructure. During post-closure, the covered Doris TIA contributes arsenic and copper to Doris Creek. The shoulder seasons predict the highest concentrations as the Doris Lake outflow is delayed compared to the Doris TIA catchment flow. The Doris TIA catchment flows directly to Doris Creek after freshet or a rain event, while runoff and precipitation to Doris Lake is delayed by the stage storage discharge curve until the lake elevation increases. When low flow is seen from Doris Lake and higher flows from the Doris TIA catchment, water quality at Doris Creek is more reflective of the Doris TIA catchment quality.

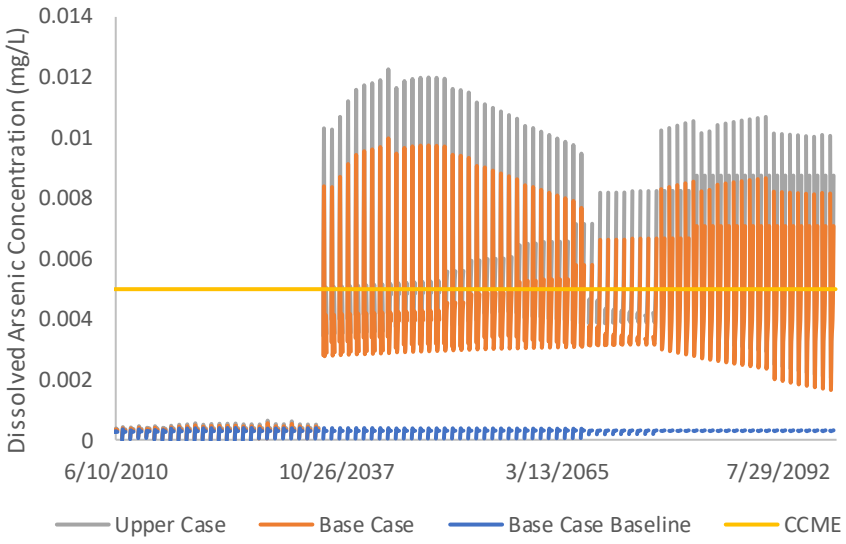

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Figure 7-11: Doris Creek (TL-2) Baseline, Base Case and Upper Case Arsenic Predictions

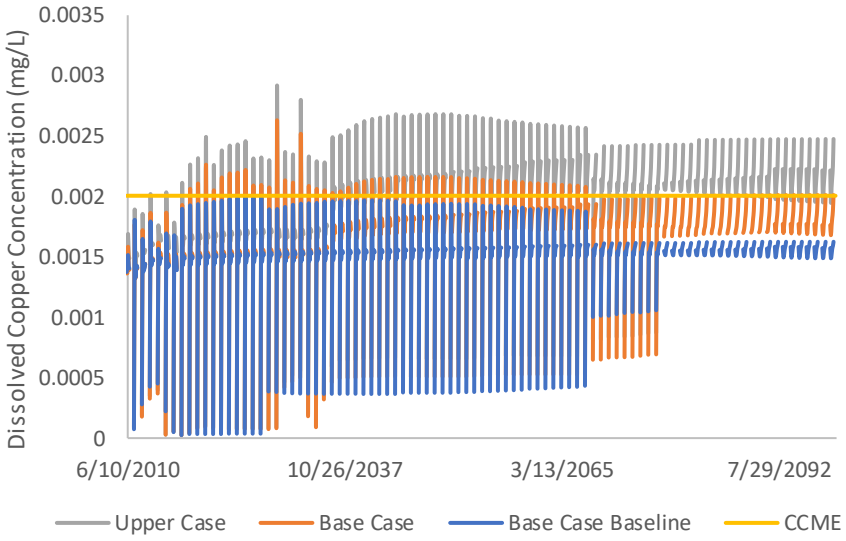

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Figure 7-12: Doris Creek (TL-2) Baseline, Base Case and Upper Case Copper Predictions

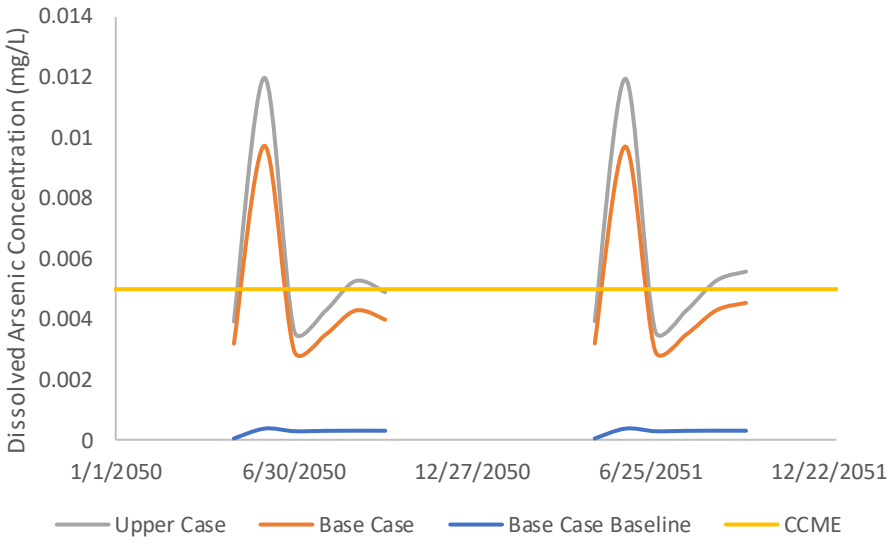

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Figure 7-13: Doris Creek (TL-2) Baseline, Base Case and Upper Case Arsenic Predictions - Close-up

7.2.4 Windy

During operations, Windy Lake will receive a small amount of runoff from the Madrid North Mine surface infrastructure. However, the model results show that water quality in the lake is unaffected. Once Madrid North enters post-closure, additional loads from disturbed runoff that was previously captured in the Madrid North CWP and groundwater flow from the Madrid North Mine are predicted to enter the lake.

The residence time of Windy Lake is estimated at 30 years, and the time to achieve steady state conditions is roughly 150 to 300 years. Therefore, a calculation was completed in Excel® to estimate the steady state post-closure concentrations. The predictions are compared to the model generated results confirming the initial predictions.

Predicted base case arsenic concentrations increased by a factor of six relative to baseline predictions, while upper case arsenic concentrations increased by a factor of eleven, and exceeded the CCME guideline (Figure 7-14). Predicted base case, upper case, and baseline copper concentrations exceeded the CCME guideline(Figure 7-15).

Water quality is also affected by the evaporation precipitation balance, with predicted baseline concentrations increasing over the course of the model duration.

Upper case predictions for arsenic and copper are notably different as the upper case copper source term increase by 1.1 times (0.014 to 0.015 mg/L) while the arsenic source term doubles (20 to 40 mg/L).

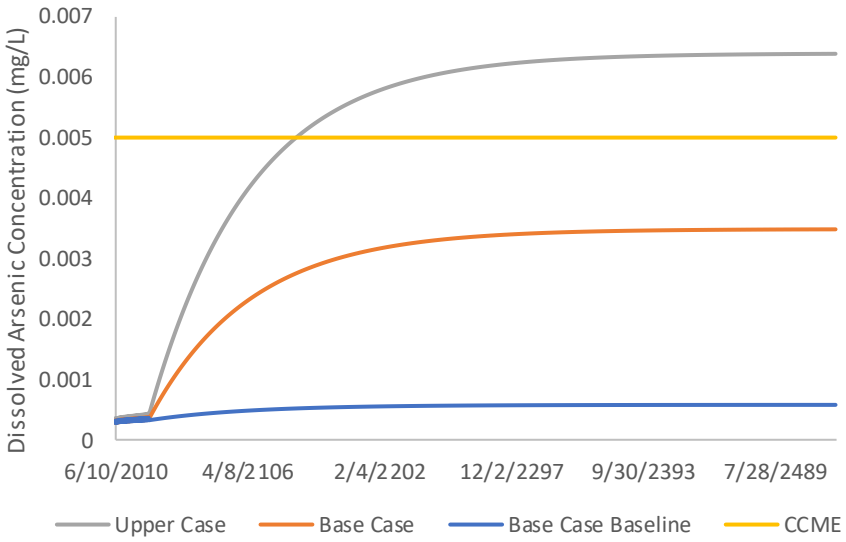

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Figure 7-14: Windy Lake Baseline, Base Case and Upper Case Arsenic Predictions

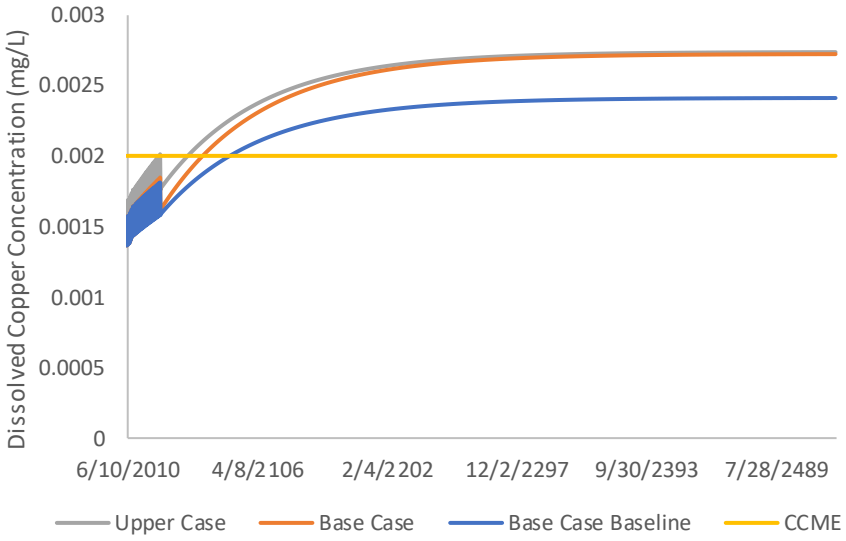

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Figure 7-15: Windy Lake Baseline, Base Case and Upper Case Copper Predictions

7.2.5 Stickleback

During operations, the model predicted a slight increase in arsenic and copper concentrations in both the baseline and base and upper case results due to the evaporation precipitation balance.

During post-closure, arsenic concentrations increased in Stickleback lake by 1.4 times relative to baseline (Figure 7-16). Copper concentration increased by a factor of 1.8 times during this same period (Figure 7-17). Base case copper concentrations exceeded the CCME guideline year round during post-closure, while the modelled baseline concentrations only exceeded during the under ice season (Figure 7-18). The upper case predictions followed the same trends as the base case predictions.

Increases in arsenic and copper concentrations are attributed increased runoff from the Boston Mine infrastructure during post-closure as natural catchment flows are restored.

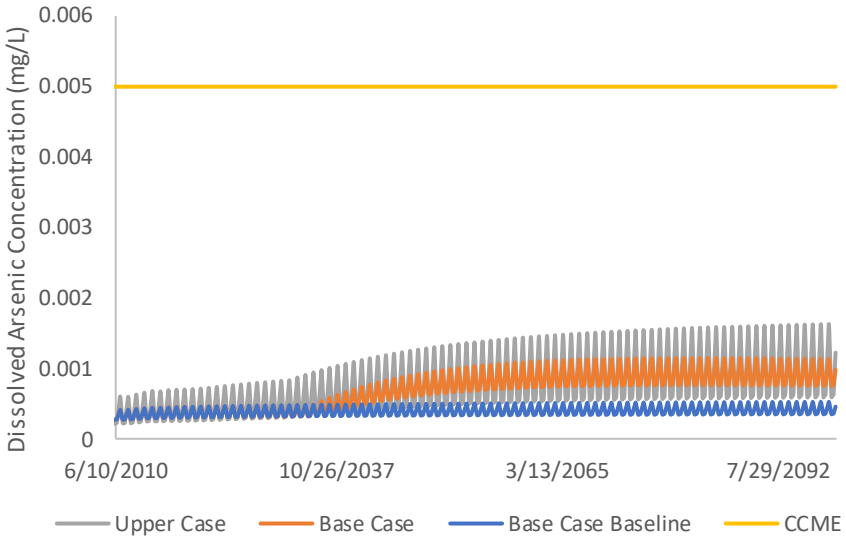

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Figure 7-16: Stickleback Lake Baseline, Base Case and Upper Case Arsenic Predictions

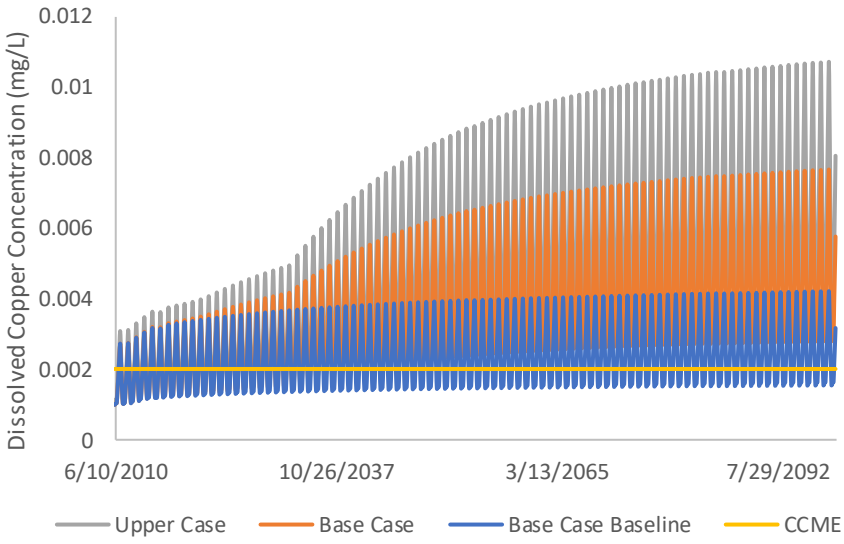

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Figure 7-17: Stickleback Lake Baseline, Base Case and Upper Case Copper Predictions

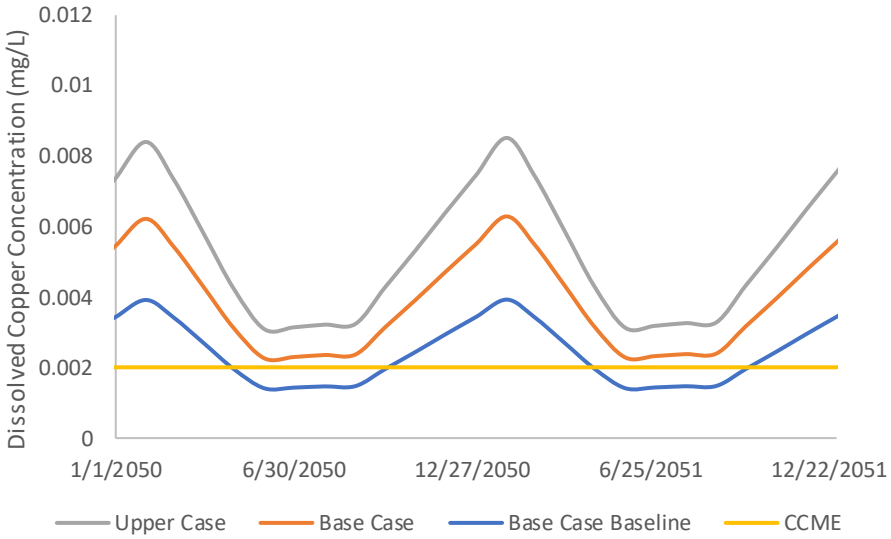

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Figure 7-18: Stickleback Lake Baseline, Base Case and Upper Case Copper Predictions - Up-close

7.2.6 Aimaokatalok

Separate water quality predictions are presented for Sections 2b and 2a of Aimaokatalok Lake. Section 2b is representative of the portion of lake where most Boston Mine infrastructure runoff reports to, while Section 2a is representative of lake outflow concentrations.

Section 2b

During operations predicted arsenic concentrations in Section 2a of the lake were similar to baseline concentrations (Figure 7-19). Predicted copper concentrations increased relative to baseline by a factor of 1.2 times (Figure 7-20). The increase in copper concentrations in Section 2b are attributed to surface runoff from the Boston Mine infrastructure reporting to both Section 2b and Stickleback Lakes.

During post-closure, arsenic concentrations increased in the open water and under ice season by factors of 2.3 and 3.1 times, respectively, above modeled baseline concentrations, but remained well below CCME guidelines (Figure 7-19). Copper concentrations showed a further increase during this period reaching a maximum of 1.3 times higher than modelled baseline concentrations (Figure 7-20). Copper concentrations in the baseline, base case and uppercase predictions exceeded the CMME guideline during the under-ice season (Figure 7-21). The footprint of Boston Mine infrastructure reporting to Stickleback Lake and Section 2b increases resulting in an increase to copper concentrations.

Section 2a

Predicted arsenic and copper concentrations in Section 2a remained close to baseline predictions throughout the operations and post-closure periods (Figure 7-22 and Figure 7-23). The upper case water quality predictions for copper are higher than the base case water quality predictions, but still remain below the CCME guideline.

Since no project infrastructure is located downstream of Section 2a of Aimaokatalok Lake and outflow water quality predictions were under CCME, therefore no effects are expected in Koignuk River.

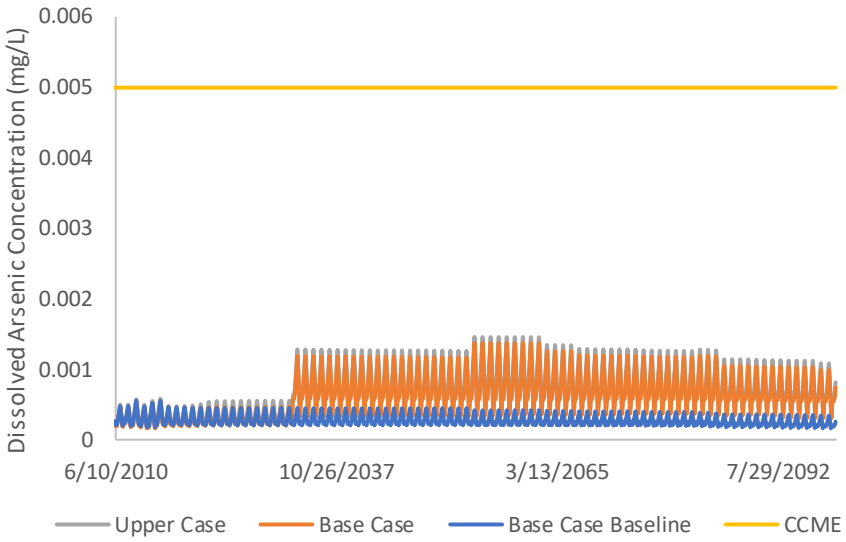

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Figure 7-19: Section 2b Aimaokatalok Lake Baseline, Base Case and Upper Case Arsenic Predictions

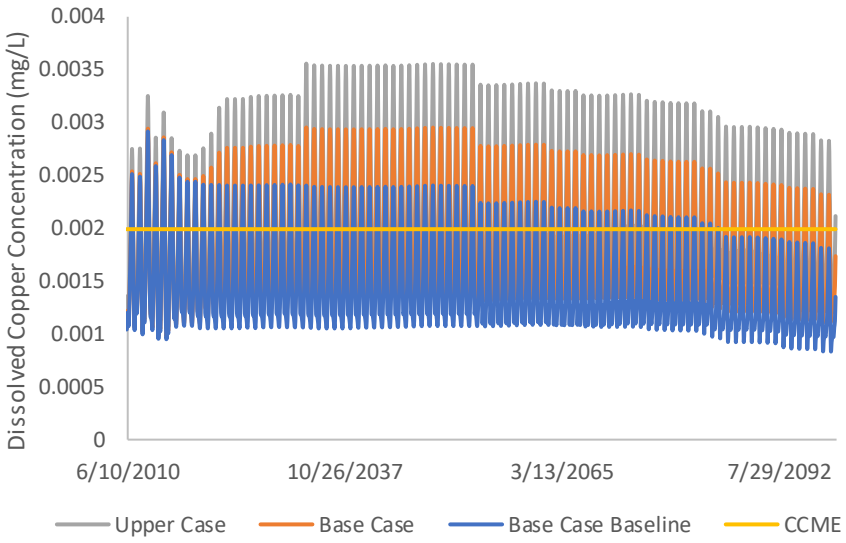

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Figure 7-20: Section 2b Aimaokatalok Lake Baseline, Base Case and Upper Case Copper Predictions

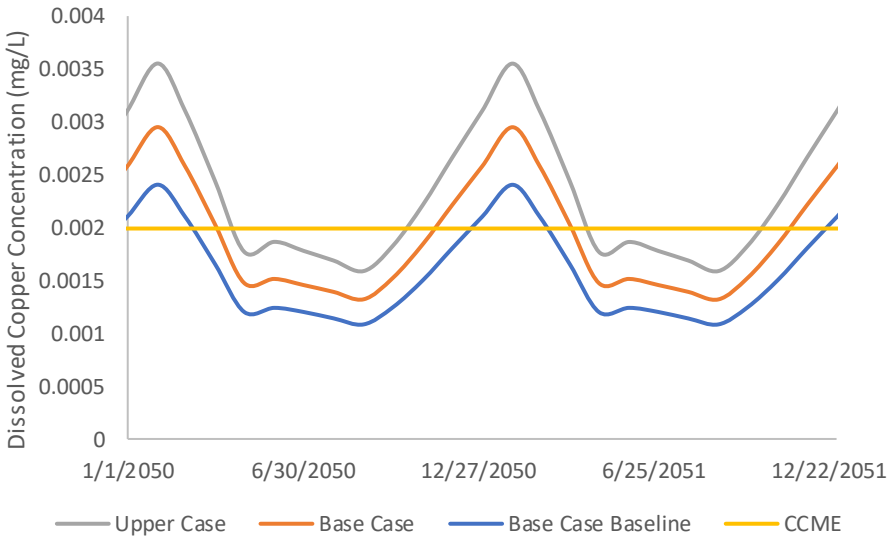

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Figure 7-21: Section 2b Aimaokatalok Lake Baseline, Base Case and Upper Case Copper Predictions - Close-up

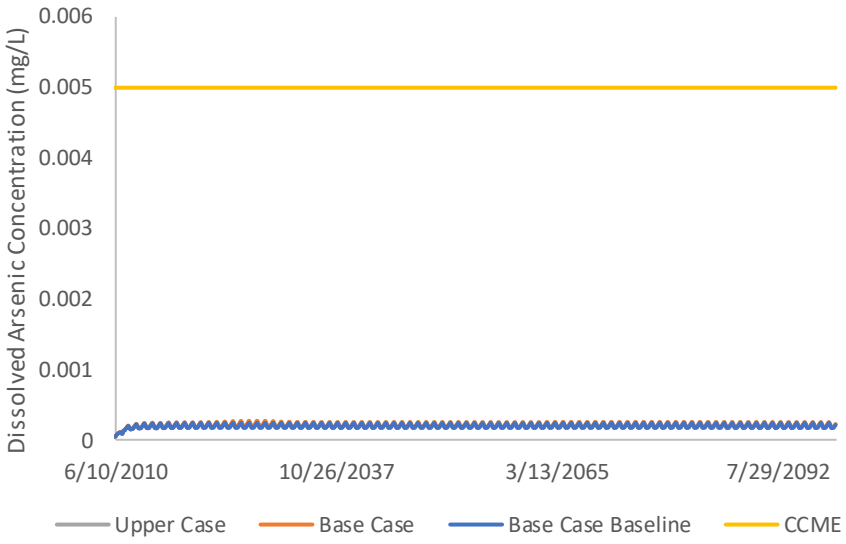

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Figure 7-22: Section 2a Aimaokatalok Lake Baseline, Base Case and Upper Case Arsenic Predictions

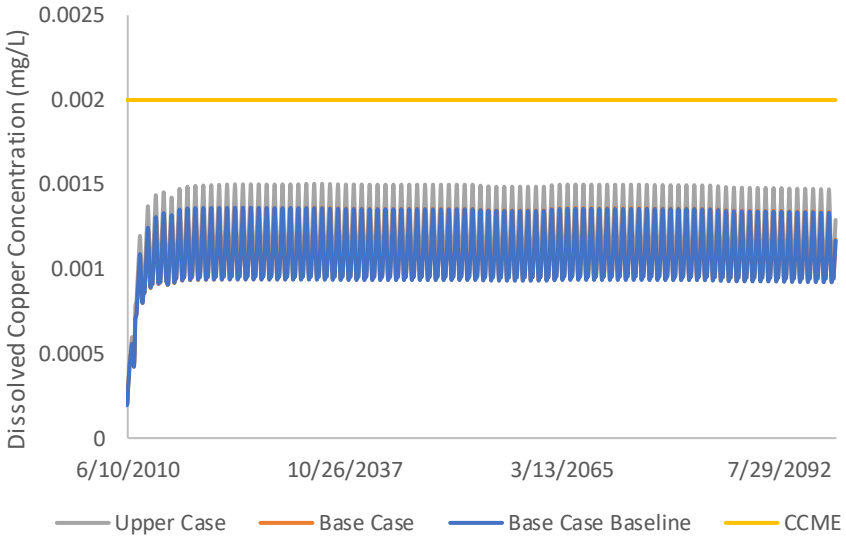

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Figure 7-23: Section 2a Aimaokatalok Lake Baseline, Base Case and Upper Case Copper Predictions

8 Sensitivity Analysis

To account for uncertainty in the input parameters and to provide an understanding of how inputs and certain water management decisions affect the final results, a sensitivity analysis was completed. The analysis included variations in:

- Intercepted groundwater management strategy,
- The source of freshwater to the Madrid concentrator; and
- Higher groundwater inflows to the Madrid Mines.

Table 8-1 provides an outline of the cases modelled in the sensitivity analysis. The *sensitivity* column describes either the variation in the water management strategy used or the range the variable was changed from against the base case value.

Table 8-1: Sensitivity Cases Modelled

Scenario	Variable	Base Case	Sensitivity
1	Intercepted Groundwater Management	Groundwater to MMB	Periodic Groundwater to Doris TIA throughout operations
2	Madrid concentrator Freshwater Source	Doris Lake	Windy or Patch lakes
3	Higher groundwater inflows to the Madrid Mine	Average groundwater interception predictions	Upper case groundwater interception predictions

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8.1 Intercepted Groundwater Management

In the base case model, mine water is managed by pumping to the Doris TIA prior to July 2018 and to the MMB from July 2018 onwards at a maximum rate of 3,000 m3/day There could be an operational need to pump the mine water to the Doris TIA for a period of time. Therefore, the model was used to evaluate pumping of mine water to the Doris TIA over a duration of 5 days, 30 days and 180 days at different points over the mine life, i.e. starting in June 1 of 2020, 2025, and 2032. Predicted water quality in the Doris TIA was compared to the base case water quality predictions (Figure 8-1). June 1 was selected as the starting date for each of these sensitivity cases because maximum water levels are present in the TIA at that time.

Because the chemical signature associated with backfill was similar to the chemical signature in the process water effluent, little effect or change in water quality in the Doris TIA was noted for parameters like arsenic, cadmium, aluminum, and iron. However, in the base case, the Doris TIA does not receive a significant amount of chloride loading after 2018, and periodic inputs of mine water result in increased chloride concentrations. The magnitude and duration of the increases depends on the mine water source, the timing, and pumping duration. Predicted chloride concentrations in the TIA were close to base case predictions for the 5-day, and 30-day pumping events, and reached peaks of 2,600 and 3,100 mg/L during the 180 day events in 2025 and 2032 respectively. In contrast, the base case peak chloride concentrations reached 1,700 mg/L in 2018.

The results are sensitive to the mine water flow rate, the volume of ponded water in the TIA and mine water chloride concentration. Based on the observed results, the Doris TIA could hold water mine water for shorter periods of time. Prolonged use of the Doris TIA for storage of mine water should be avoided.

Table 8-2: Doris TIA Chloride Predictions Sensitivity Summary

Date Pumping Commences	Groundwater Source	Pump to TIA Duration (days)	Peak Chloride Concentration (mg/L)	Time to recover within 5% (months)
6/1/2020	Doris	0	730	-
		5	780	22
		30	1,040	53
		180	2,600	60
6/1/2025	Madrid North	0	240	-
		5	240	4
		30	280	16
		180	550	33
6/1/2032	Madrid South	0	670	-
		5	690	6
		30	900	>42*
		180	3,100	>42*

Source: Y:\01_SITES\Hope.Bay\1CT022.004_Phase 2 DEIS - Engineering Support\Task 300_Water_Load_Balance\Deliverables\WB_Report\020_Tables\HopeBay_WBReport_Tables_1CT022.004_R01_ajb

Notes: * – Closure pumping from the Doris TIA ceases prior to the chloride prediction recovering to baseline predictions

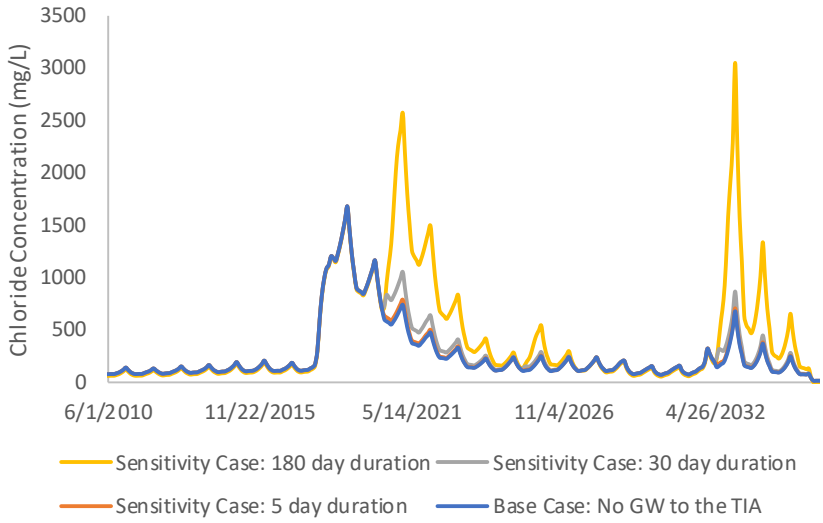

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Figure 8-1: Doris TIA Chloride Concentration Sensitivity Analysis

8.2 Madrid Concentrator Freshwater Source

Variations in the source of freshwater to the Madrid concentrator were evaluated, including use of fresh water from Patch, Windy and Doris lakes. The base case models assume that water for the Madrid concentrator would be withdrawn from Doris Lake, as this was found to have the least effects on lake elevation and lake outflows.

The model was run sourcing water from all three lakes and compared back to the base case project predictions, which is withdrawal from Doris Lake. The maximum drawdown and flow reduction for each lake occurred in 2031 (Table 8-3).

Windy Lake is the most sensitive lake with respect to water withdrawal. It is located in a relatively small catchment and is unable to generate enough inflow through direct precipitation and runoff to maintain lake elevation and outflows. If Windy Lake were selected as the freshwater source, almost a 60% reduction in outflow is predicted for 2031 (Figure 8-2 and Figure 8-3).

Patch Lake is more sensitive to freshwater withdrawal in comparison to Doris Lake, because the catchment contributing runoff is one third of the size of the catchment to Doris Lake. This is evident in the relative change in lake outflows to project base case flows.

Table 8-3: Madrid Concentrator Freshwater Source Sensitivity Summary

Madrid concentrator Freshwater Source	Year of Maximum Effect	Maximum Annual Drawdown* (cm)	Maximum Flow Reduction* (%)
Windy Lake	2031	-6	-58%
Patch Lake	2031	-5	-54%
Doris Lake	2031	-4	-18%

Source: \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_SensitivtyTables_1CT022-013_R00_ajb.xlsx

Note: * – Comparisons were made to the project results for the respective year without withdrawl from Madrid North process plant not baseline results.

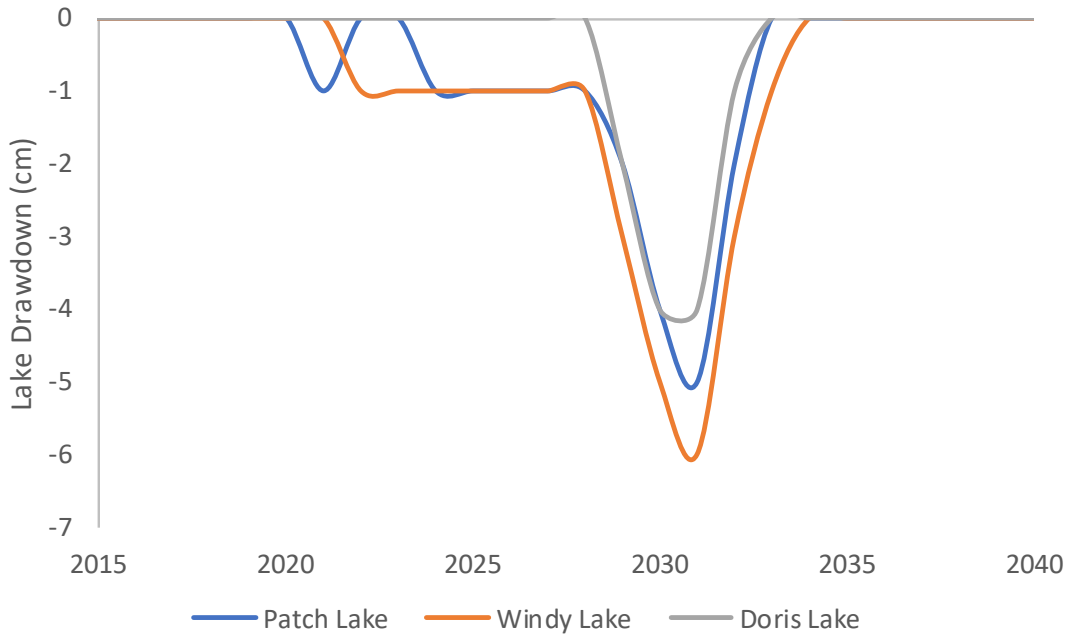

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Figure 8-2: Freshwater Source Effect on Lake Drawdown

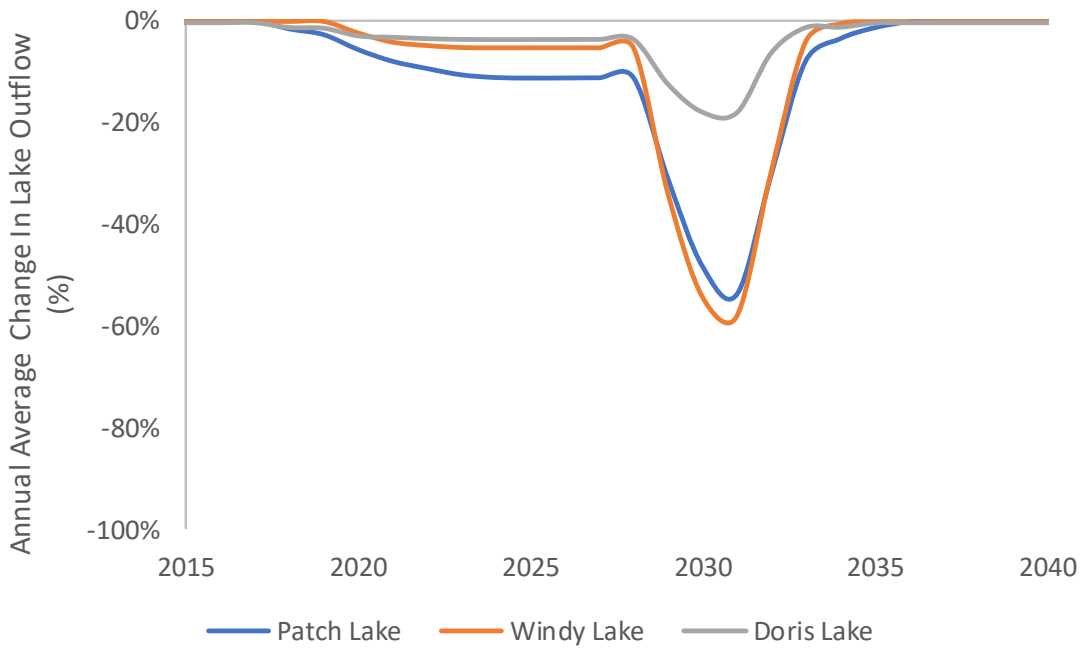

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Figure 8-3: Freshwater Source Effect on Lake Overflow

8.3 Higher Groundwater Inflows to the Madrid Mine

The model was found to be sensitive to the groundwater inflows predicted for the Madrid North and Madrid South mines. Increased groundwater inflows to the Madrid North and Madrid South mines were assumed to be 5,300 and 1,900 m^3/day, respectively, representing increases of 4.4 to 3.4 times that of the base case results (Table 8-4). These were based on results from the groundwater model (SRK 2017a).

Table 8-4: Increase in Madrid Groundwater Flow

Groundwater Flow	Madrid North (m^3/day)	Madrid South (m^3/day)
Base Case (Reasonable Upper Bound)	1,300	550
High Flow Case (Unreasonable Upper Range)	5,300	1,900
Increase	4.4x	3.4x

Source: \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_HFGWTables_1CT022-013_R01_aw.xlsx

Water Balance Results

The model assumes that intercepted mine water from the Doris, Madrid North and Madrid South Mines is pumped to the Doris water treatment plant prior to the MMB year round along with Doris TIA water during the open water season. The model results based on increased groundwater inflow rates (sensitivity case) indicate that the total annual volume of mine water pumped to Roberts Bay would increase by a factor of 2 times as more intercepted groundwater is encountered in the Madrid North and Madrid South Mines (Figure 8-4). The increase in pumping is less than the increase in mine water as the MMB pumping capacity was designed for the Doris mine water flow at a rate of 3,000 m^3/day. The total pumping capacity would need to increase by a factor of 1.4 times.

Table 8-5: Increase in Marine Mixing Box Peak Flow from Increased Groundwater Inflows

Groundwater Flow	Peak Flow (m^3/day)		
	Doris TIA	Mine Water	Total
Base Case	6,750	3,000	9,750
Sensitivity Case	6,750	6,000	12,750
Increase	0%	2x	1.4x

Source: \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_HFGWTables_1CT022-013_R01_aw.xlsx

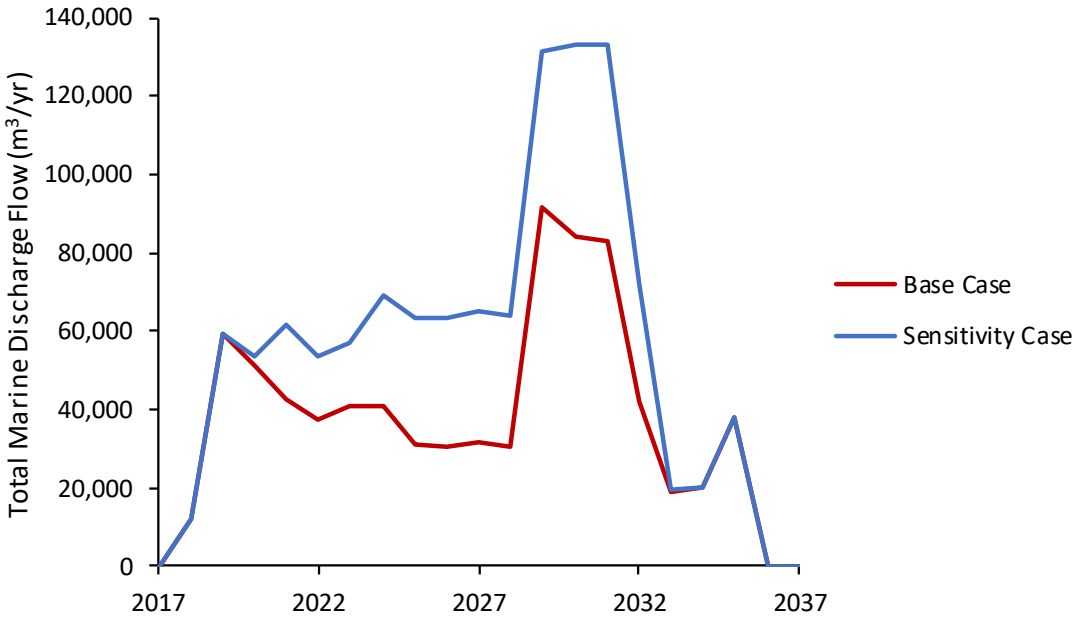

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Figure 8-4: Marine Mixing Box Sensitivity Case Outflows

Potential effects on hydrology were evaluated by comparing the average annual flow and elevation predictions for the base case and sensitivity case to the average annual 5th percentile and 95th percentile baseline flow and elevation predictions, presented in Appendix D. The model includes the combined influence of all mining activities (water withdrawl and surface runoff), which were discussed previously. The lakes affected fall within the Doris and Madrid catchments and a summary of effects is presented in Table 8-6.

Flow and elevation results for Windy Lake were not affected by the high flow groundwater case.

Patch and Wolverine showed decreases in flow that fell below the 5th percentile baseline flows. For the period of 2030 to 2034, the model predicted there would be no outflow from Wolverine Lake.

All lakes in the Doris catchment had predicted decreases in elevation lower than the 5th percentile baseline data. Wolverine, Patch and Doris recovered to baseline elevations after 2036. Imniagut Lake recovered back to the 5th percentile by the model duration end, similar to the base case.

Table 8-6: Flow and Elevation Changes Outside Baseline 5th and 95th Statistics Resulting from Increased Groundwater Inflows

Catchment	Lake	Flow		Elevation	
		Base Case	Sensitivity Case	Base Case	Sensitivity Case
Doris	Wolverine		X		X
	Imniagut	n/a	n/a	X	X
	Patch		X		X
	Doris				X
Windy	Windy				

Source: \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_HFGWTables_1CT022-013_R01_aw.xlsx

Load Balance Results

The sensitivity water quality predictions were compared to the base case average and maximum concentrations during operations. Tables showing a summary of key parameters are presented in Appendix D. A summary of the trends observed are presented in Table 8-7 below.

The sensitivity results for higher groundwater inflows showed slight improvements to water quality in Wolverine and Patch lake . This was attributed to loss of volume and associated load from the respective lake to the underground mines. The increased loss of water from the lake also decreases the residence time of the lake and results in more rapid improvements to water quality as loads are flushed from the system.

Doris Lake has less outflow in the sensitivity case compared to base case. No water is being lost to the Doris mine once it is offline in 2022, but decreases in upstream catchment inflows directly translates to lower outflows. The sensitivity case has a longer residence time than the base case, resulting in a slight deterioration to water quality.

There is very little relative change in infiltration from Windy Lake between the sensitivity case (24 m^3/day) and the base case (13 m^3/day). Water quality is unaffected in Windy Lake as a result.

Water quality for mine water sent to the Doris water treatment plant is predicted to improve due to increased dilution of loads associated with backfill This improvement is also predicted for the MMB (treatment effluent) for parameters not affected by the treatment process.

Table 8-7: Water Quality Trends Resulting from Increased Groundwater Inflows

Catchment	Lake	Trend to Water Quality
Doris	Wolverine Lake	Slight decrease
	Patch	Slight decrease
	Doris	Slight increase
Windy	Windy	No notable change

Source: \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_HFGWTables_1CT022-013_R01_aw.xlsx

9 Conclusions

SRK developed a water and load balance model to predict flows and water quality for the Phase 2 Hope Bay Project from construction to post-closure.

The model encompassed four mines: Doris (existing), Madrid North, Madrid South, and Boston located within the Doris, Madrid and Boston independent watersheds. At the time of model construction, TMAC had yet to decide where the Boston ore was to be processed. The model was set up to simultaneously process this ore in both the Boston process plant and Doris process plant. Since these sites are located in independent watersheds, the predictions produced the most conservative results for each watershed and the Project as a whole.

The water balance was run as a stochastic simulation using combinations of historical data to predict variability in flows and lake levels at the select model nodes. The load balance was run as a deterministic simulation under average hydrological conditions. Model inputs included geochemical source terms, groundwater flows, site monitoring data, climate data, and the mine plan. Conservative assumptions were made where possible. The model was run under various sensitivity cases in order to assess the range in expected results.

In total, seven lakes (Wolverine, Imniagut, Patch, Doris, Windy, Stickleback and Aimaokatalok) will be directly affected by mining activities. The annual water withdrawl for industrial, potable and process plant water use is presented as Table 9-1 and Table 9-2. The major conclusions for the water and load balance predictions are summarised by each watershed below (Table 9-3). Overall the model is intended for use as a water management decision making tool and to identify potential effects from the Project.

Major conclusions and key water management practices the presented model predictions rely on are as follows:

1. Water from the Doris TIA and the underground mine are predicted to have arsenic concentrations in excess current and proposed MMERs starting in 2029 and 2025, respectively, through to mine closure. Arsenic originates in the Madrid deposits and is released from ore, waste rock and tailings during operations. All water discharged from the MMB will be treated using ferric co-precipitation to remove arsenic.
2. The Doris TIA water level must be maintained so that there is sufficient volume available for the Doris process plant and Madrid concentrator reclaim demand throughout the winter, while ensuring there is sufficient storage capacity available for spring runoff. In 2029 there is insufficient over winter reclaim capacity in the Doris TIA and water for the Madrid concentrator and Doris process plant will need to be sourced from Doris Lake for this and each subsequent winter.
3. The use of the Doris TIA as a holding reservoir for mine water should be avoided for prolonged periods. Mine water (especially during Doris mining) contains high levels of chloride that would negatively effect process performance in the Doris process plant.

However infrequent use of the facility in this capacity for durations under 30 days did not drastically increase the chloride concentration.

4. Elevated arsenic and copper concentrations are predicted for process water and contact water at Boston. A contact water and process water treatment plant must be operational at Boston in order to discharge CWP contact water and the Boston process plant effluent to Aimaokatalok Lake.

5. Post-closure flows from the Doris TIA and Boston TMA were predicted to contain elevated levels of arsenic and copper. Flow from the Doris TIA catchment was directed to the node TL-2 without accounting for any mixing in Doris Lake. Flow from the Boston TMA was perfectly mixed in Section 2b of Aimaokatalok Lake. In reality there could be a plume of elevated copper and arsenic concentrations within these lakes.

6. The two major parameters of concern for the project were arsenic and copper. Arsenic loading originated from process water, tailings and backfill while copper loading was from site infrastructure built with quarry rock. The other parameters with elevated concentrations compared to the CCME guidelines were not linked to a specific discharge, but were a result of cryoconcentration. In most cases, cryoconcentration had as much of an effect on modelled baseline concentrations as on modelled base case results.

Table 9-1: Maximum Annual Freshwater Withdrawl from the Doris and Madrid Watershed

Period	Years	Freshwater Demand (m^3/y)					
		Potable Water	Doris Process Plant	Madrid Concentrator	Doris and Madrid Industrial	Total	
Construction	Model start to 2016	44,000	-	-	370,000	44,000	370,000
Operations - average	2017 to 2028	44,000	320,000	40,000	370,000	44,000	730,000
Operations - peak	2029 to 2032	44,000	1,100,000	460,000	370,000	44,000	1,930,000
Closure	2033 to 2034	44,000	-	-	370,000	44,000	370,000
Source Lake:		**Windy**	**Doris**		**Doris**	**Windy**	**Doris**

Source: \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_ConclusionTables_1CT022-013_R01_aw.xlsx

Table 9-2: Maximum Annual Freshwater Withdrawl from the Boston Watershed

Period	Years	Freshwater Demand (m^3/y)			
		Potable Water	Boston Process Plant	Boston Industrial	Total
Construction	2020 to 2021	33,000	-	250,000	283,000
Operations	2022 to 2029	33,000	200,000	250,000	483,000
Closure	2030 to 2031	33,000	-	250,000	283,000
Source Lake:		**Aimaokatalok**			

Source: \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_ConclusionTables_1CT022-013_R01_aw.xlsx

Table 9-3: Summary of Water and Load Balance Predictions

Watershed	Prediction Node	Water Balance Effects	Load Balance Effects	Predicted Magnitude of Effect
Doris	Wolverine Lake	Drawdown through Madrid South Mine	Disturbed runoff from mine infrastructure	53% reduction in outflow during operations
		Removal of water from catchment during operations via MS CWP1		Predicted CCME exceedances (F, Cl, Al, Cr, Cu, Fe)
				Drawdown of up to 5 cm
	Imniagut Lake	Drawdown through Madrid North		Drawdown of up to 176 cm to Madrid North Mine
	Patch Lake	Drawdown through Madrid North and South mines	Disturbed runoff from mine infrastructure	23% reduction in outflow during operations
		Removal of water from catchment during operations via MS CWP2	Underground flow from Madrid South Mine at post-closure	Drawdown of up to 7 cm
		Industrial water use withdrawal		Predicted CCME copper exceedance
	Doris Lake	Drawdown through Doris Mine	Disturbed runoff from mine infrastructure	32% reduction in outflow during operations
		Removal of water from catchment during operations via D CWP	Underground flow from Doris Mine at post-closure	Drawdown of up to 40 cm
		Industrial water use withdrawal for Doris and Madrid	Doris North TIA beach closure runoff	Predicted CCME exceedances (As, Cu)
Marine Discharge	Marine Mixing Box	Intercepted groundwater flow	Intercepted groundwater loadings including flush of backfilled material	No predicted MMER exceedances
		Doris North TIA discharge during open water season	Loadings from Doris North TIA including the following sources: • Doris process plant • Madrid concentrator • contact water • grey water • beach runoff	Discharge to Roberts Bay ranging from 3,000 m^3/day to 10,000 m^3/day
Madrid	Windy Lake	Drawdown through Madrid North Mine	Disturbed runoff	7% reduction in outflow during operations
		Removal of water from catchment during operations via MN CWP2	Underground flow from Madrid North Mine at post-closure	No change in lake level through drawdown
		Industrial and potable water use withdrawal		Predicted CCME copper exceedance during closure
Boston	Stickleback Lake	Removal of water from catchment during operations via B CWP1 and B CWP3	Disturbed runoff from mine infrastructure	12% reduction in outflow during operations due to diversion of CWP water to WTP and discharged directly to Aimaokatalok Lake.
				CCME exceedances (F, Al, Cr, Cu, Fe) due to cryoconcentration
	Aimaokatalok Lake	Removal of water from catchment during operation via B CWP2	Disturbed runoff from mine infrastructure	No change in predicted outflow during operations
		Industrial and potable water use withdrawal	Grey water	No predicted CCME exceedances
			Boston WTP effluent	
			Boston TIA closure seepage	

Source: \\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_ConclusionTables_1CT022-013_R01_aw.xlsx

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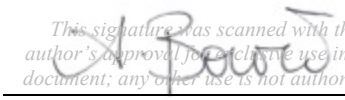
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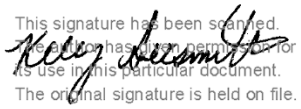
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Appendix A: Model Inputs

ST-2 - Median														
Parameter	Units	January	February	March	April	May	June	July	August	September	October	November	December	Minimum Guideline
TSS	mg/L	16	16	16	16	11	4.5	3	6.3	9	16	16	16	Variable
TDS	mg/L	3700	3700	3700	3700	1800	1800	2200	2900	3700	3700	3700	3700	-
Fluoride	mg/L	**2**	**2**	**2**	**2**	0.1	**0.2**	**0.26**	**0.41**	**1**	**2**	**2**	**2**	0.12
Chloride	mg/L	**2100**	**2100**	**2100**	**2100**	**1100**	**1100**	**1200**	**1700**	**2100**	**2100**	**2100**	**2100**	110
Free Cyanide	mg/L	0.0025	0.0025	0.0025	0.0025	0.0025		0.0025	0.0025	0.0025	0.0025	0.0025	0.0025	-
Total Cyanide	mg/L	**0.029**	**0.029**	**0.029**	**0.029**	**0.081**	**0.053**	**0.0096**	**0.0088**	**0.011**	**0.029**	**0.029**	**0.029**	0.005
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	**43**	**43**	**43**	**43**	**18**	**24**	**23**	**22**	**29**	**43**	**43**	**43**	1.54
Nitrate	mg/L as N	**87**	**87**	**87**	**87**	**42**	**44**	**71**	**87**	**87**	**87**	**87**	**87**	3
Nitrite	mg/L as N	0.72	0.72	0.72	0.72	0.77	0.59	0.5	0.5	0.55	0.72	0.72	0.72	60
Sulphate	mg/L	120	120	120	120	47	64	130	190	180	120	120	120	1000
Alkalinity	mg/L	84	84	84	84	66	76	100	140	120	84	84	84	-
Hardness	mg/L	2400	2400	2400	2400	1200	1300	1700	1400	2800	2400	2400	2400	-
Aluminum Dissolved	mg/L	**0.13**	**0.13**	**0.13**	**0.13**	**0.43**	**0.12**	**0.11**	**0.13**	0.09	**0.13**	**0.13**	**0.13**	0.1
Antimony Dissolved	mg/L	0.00065	0.00065	0.00065	0.00065	0.00045	0.0005	0.0005	0.0005	0.0005	0.00065	0.00065	0.00065	-
Arsenic Dissolved	mg/L	0.0008	0.0008	0.0008	0.0008	0.0007	0.00078	0.0013	0.0006	0.00094	0.0008	0.0008	0.0008	0.005
Barium Dissolved	mg/L	0.2	0.2	0.2	0.2	0.074	0.086	0.09	0.096	0.18	0.2	0.2	0.2	-
Beryllium Dissolved	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.1
Boron Dissolved	mg/L	0.23	0.23	0.23	0.23	0.18	0.21	0.32	0.44	0.3	0.23	0.23	0.23	0.5
Cadmium Dissolved	mg/L	**0.00015**	**0.00015**	**0.00015**	**0.00015**	0.00005	0.000066	0.00012	0.00012	**0.00018**	**0.00015**	**0.00015**	**0.00015**	0.00012
Calcium Dissolved	mg/L	750	750	750	750	380	380	440	430	730	750	750	750	-
Chromium Dissolved	mg/L	**0.0075**	**0.0075**	**0.0075**	**0.0075**	**0.011**	**0.0041**	**0.0045**	**0.002**	**0.0025**	**0.0075**	**0.0075**	**0.0075**	0.001
Cobalt Dissolved	mg/L	0.0078	0.0078	0.0078	0.0078	0.0042	0.0036	0.003	0.0042	0.0061	0.0078	0.0078	0.0078	0.05
Copper Dissolved	mg/L	**0.0064**	**0.0064**	**0.0064**	**0.0064**	**0.016**	**0.0081**	**0.0074**	**0.0077**	**0.0075**	**0.0064**	**0.0064**	**0.0064**	0.002
Iron Dissolved	mg/L	**0.89**	**0.89**	**0.89**	**0.89**	**0.79**	0.24	0.3	0.3	**0.47**	**0.89**	**0.89**	**0.89**	0.3
Lead Dissolved	mg/L	0.00038	0.00038	0.00038	0.00038	0.00044	0.00034	0.00045	0.0005	0.0005	0.00038	0.00038	0.00038	0.001
Lithium Dissolved	mg/L	0.24	0.24	0.24	0.24	0.11	0.1	0.059	0.053	0.092	0.24	0.24	0.24	2.5
Magnesium Dissolved	mg/L	78	78	78	78	34	37	48	69	85	78	78	78	-
Manganese Dissolved	mg/L	**2.1**	**2.1**	**2.1**	**2.1**	**0.3**	**0.32**	**0.78**	**0.87**	**1.4**	**2.1**	**2.1**	**2.1**	0.2
Mercury Dissolved	mg/L	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.000007	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.000016
Molybdenum Dissolved	mg/L	0.0067	0.0067	0.0067	0.0067	0.005	0.005	0.0052	0.0081	0.0053	0.0067	0.0067	0.0067	0.01
Nickel Dissolved	mg/L	0.0064	0.0064	0.0064	0.0064	0.012	0.0024	0.0036	0.0066	0.007	0.0064	0.0064	0.0064	0.025
Selenium Dissolved	mg/L	**0.0017**	**0.0017**	**0.0017**	**0.0017**	0.00075	0.00098	**0.0018**	**0.0026**	**0.0023**	**0.0017**	**0.0017**	**0.0017**	0.001
Silver Dissolved	mg/L	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00025
Sodium Dissolved	mg/L	460	460	460	460	160	190	360	460	480	460	460	460	-
Thallium Dissolved	mg/L	0.00023	0.00023	0.00023	0.00023	0.00016	0.0002	0.0002	0.0002	0.0002	0.00023	0.00023	0.00023	0.0008
Uranium Dissolved	mg/L	**0.0013**	**0.0013**	**0.0013**	**0.0013**	0.00047	0.00056	**0.001**	**0.0019**	**0.0016**	**0.0013**	**0.0013**	**0.0013**	0.0008
Vanadium Dissolved	mg/L	0.002	0.002	0.002	0.002	0.0048	0.001	0.0013	0.002	0.002	0.002	0.002	0.002	0.1
Zinc Dissolved	mg/L	**0.11**	**0.11**	**0.11**	**0.11**	0.0071	0.0056	0.0082	0.016	**0.13**	**0.11**	**0.11**	**0.11**	0.03
Phosphorous Dissolved	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	Variable
Aluminum Total	mg/L	**0.13**	**0.13**	**0.13**	**0.13**	**0.43**	**0.12**	**0.11**	**0.13**	0.09	**0.13**	**0.13**	**0.13**	0.1
Antimony Total	mg/L	0.00065	0.00065	0.00065	0.00065	0.00045	0.0005	0.0005	0.0005	0.0005	0.00065	0.00065	0.00065	-
Arsenic Total	mg/L	0.0008	0.0008	0.0008	0.0008	0.0007	0.00078	0.0013	0.0006	0.00094	0.0008	0.0008	0.0008	0.005
Barium Total	mg/L	0.2	0.2	0.2	0.2	0.074	0.086	0.09	0.096	0.18	0.2	0.2	0.2	-
Beryllium Total	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.1
Boron Total	mg/L	0.23	0.23	0.23	0.23	0.18	0.21	0.32	0.44	0.3	0.23	0.23	0.23	0.5
Cadmium Total	mg/L	**0.00015**	**0.00015**	**0.00015**	**0.00015**	0.00005	0.000066	0.00012	0.00012	**0.00018**	**0.00015**	**0.00015**	**0.00015**	0.00012
Calcium Total	mg/L	750	750	750	750	380	380	440	430	730	750	750	750	-
Chromium Total	mg/L	**0.0075**	**0.0075**	**0.0075**	**0.0075**	**0.011**	**0.0041**	**0.0045**	**0.002**	**0.0025**	**0.0075**	**0.0075**	**0.0075**	0.001
Cobalt Total	mg/L	0.0078	0.0078	0.0078	0.0078	0.0042	0.0036	0.003	0.0042	0.0061	0.0078	0.0078	0.0078	0.05
Copper Total	mg/L	**0.0064**	**0.0064**	**0.0064**	**0.0064**	**0.016**	**0.0081**	**0.0074**	**0.0077**	**0.0075**	**0.0064**	**0.0064**	**0.0064**	0.002
Iron Total	mg/L	**0.89**	**0.89**	**0.89**	**0.89**	**0.79**	0.24	0.3	0.3	**0.47**	**0.89**	**0.89**	**0.89**	0.3
Lead Total	mg/L	0.00038	0.00038	0.00038	0.00038	0.00044	0.00034	0.00045	0.0005	0.0005	0.00038	0.00038	0.00038	0.001
Lithium Total	mg/L	0.24	0.24	0.24	0.24	0.11	0.1	0.059	0.053	0.092	0.24	0.24	0.24	2.5
Magnesium Total	mg/L	78	78	78	78	34	37	48	69	85	78	78	78	-
Manganese Total	mg/L	**2.1**	**2.1**	**2.1**	**2.1**	**0.3**	**0.32**	**0.78**	**0.87**	**1.4**	**2.1**	**2.1**	**2.1**	0.2
Mercury Total	mg/L	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.000007	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.000016
Molybdenum Total	mg/L	0.0067	0.0067	0.0067	0.0067	0.005	0.005	0.0052	0.0081	0.0053	0.0067	0.0067	0.0067	0.01
Nickel Total	mg/L	0.0064	0.0064	0.0064	0.0064	0.012	0.0024	0.0036	0.0066	0.007	0.0064	0.0064	0.0064	0.025
Selenium Total	mg/L	**0.0017**	**0.0017**	**0.0017**	**0.0017**	0.00075	0.00098	**0.0018**	**0.0026**	**0.0023**	**0.0017**	**0.0017**	**0.0017**	0.001
Silver Total	mg/L	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00025
Sodium Total	mg/L	460	460	460	460	160	190	360	460	480	460	460	460	-
Thallium Total	mg/L	0.00023	0.00023	0.00023	0.00023	0.00016	0.0002	0.0002	0.0002	0.0002	0.00023	0.00023	0.00023	0.0008
Uranium Total	mg/L	**0.0013**	**0.0013**	**0.0013**	**0.0013**	0.00047	0.00056	**0.001**	**0.0019**	**0.0016**	**0.0013**	**0.0013**	**0.0013**	0.0008
Vanadium Total	mg/L	0.002	0.002	0.002	0.002	0.0048	0.001	0.0013	0.002	0.002	0.002	0.002	0.002	0.1
Zinc Total	mg/L	**0.11**	**0.11**	**0.11**	**0.11**	0.0071	0.0056	0.0082	0.016	**0.13**	**0.11**	**0.11**	**0.11**	0.03
Phosphorous Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	Variable

ST-2 - 75th Percentile														
Parameter	Units	January	February	March	April	May	June	July	August	September	October	November	December	Minimum Guideline
TSS	mg/L	16	16	16	16	11	4.5	3	6.3	9	16	16	16	Variable
TDS	mg/L	3700	3700	3700	3700	1800	1800	2200	2900	3700	3700	3700	3700	-
Fluoride	mg/L	**2**	**2**	**2**	**2**	0.1	**0.2**	**0.26**	**0.41**	**1**	**2**	**2**	**2**	0.12
Chloride	mg/L	**2100**	**2100**	**2100**	**2100**	**1100**	**1100**	**1200**	**1700**	**2100**	**2100**	**2100**	**2100**	110
Free Cyanide	mg/L	0.0038	0.0038	0.0038	0.0038	0.0038	0.0035	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	-
Total Cyanide	mg/L	**0.029**	**0.029**	**0.029**	**0.029**	**0.081**	**0.053**	**0.0096**	**0.0088**	**0.011**	**0.029**	**0.029**	**0.029**	0.005
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	**43**	**43**	**43**	**43**	**18**	**24**	**23**	**22**	**29**	**43**	**43**	**43**	1.54
Nitrate	mg/L as N	**87**	**87**	**87**	**87**	**42**	**44**	**71**	**87**	**87**	**87**	**87**	**87**	3
Nitrite	mg/L as N	0.72	0.72	0.72	0.72	0.77	0.59	0.5	0.5	0.55	0.72	0.72	0.72	60
Sulphate	mg/L	120	120	120	120	47	64	130	190	180	120	120	120	1000
Alkalinity	mg/L	84	84	84	84	66	76	100	140	120	84	84	84	-
Hardness	mg/L	2400	2400	2400	2400	1200	1300	1700	1400	2800	2400	2400	2400	-
Aluminum Dissolved	mg/L	**0.13**	**0.13**	**0.13**	**0.13**	**0.43**	**0.12**	**0.11**	**0.13**	0.09	**0.13**	**0.13**	**0.13**	0.1
Antimony Dissolved	mg/L	0.00065	0.00065	0.00065	0.00065	0.00045	0.0005	0.0005	0.0005	0.0005	0.00065	0.00065	0.00065	-
Arsenic Dissolved	mg/L	0.0008	0.0008	0.0008	0.0008	0.0007	0.00078	0.0013	0.0006	0.00094	0.0008	0.0008	0.0008	0.005
Barium Dissolved	mg/L	0.2	0.2	0.2	0.2	0.074	0.086	0.09	0.096	0.18	0.2	0.2	0.2	-
Beryllium Dissolved	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.1
Boron Dissolved	mg/L	0.23	0.23	0.23	0.23	0.18	0.21	0.32	0.44	0.3	0.23	0.23	0.23	0.5
Cadmium Dissolved	mg/L	**0.00015**	**0.00015**	**0.00015**	**0.00015**	0.00005	0.000066	0.00012	0.00012	**0.00018**	**0.00015**	**0.00015**	**0.00015**	0.00012
Calcium Dissolved	mg/L	750	750	750	750	380	380	440	430	730	750	750	750	-
Chromium Dissolved	mg/L	**0.0075**	**0.0075**	**0.0075**	**0.0075**	**0.011**	**0.0041**	**0.0045**	**0.002**	**0.0025**	**0.0075**	**0.0075**	**0.0075**	0.001
Cobalt Dissolved	mg/L	0.0078	0.0078	0.0078	0.0078	0.0042	0.0036	0.003	0.0042	0.0061	0.0078	0.0078	0.0078	0.05
Copper Dissolved	mg/L	**0.0064**	**0.0064**	**0.0064**	**0.0064**	**0.016**	**0.0081**	**0.0074**	**0.0077**	**0.0075**	**0.0064**	**0.0064**	**0.0064**	0.002
Iron Dissolved	mg/L	**0.89**	**0.89**	**0.89**	**0.89**	**0.79**	0.24	0.3	0.3	**0.47**	**0.89**	**0.89**	**0.89**	0.3
Lead Dissolved	mg/L	0.00038	0.00038	0.00038	0.00038	0.00044	0.00034	0.00045	0.0005	0.0005	0.00038	0.00038	0.00038	0.001
Lithium Dissolved	mg/L	0.24	0.24	0.24	0.24	0.11	0.1	0.059	0.053	0.092	0.24	0.24	0.24	2.5
Magnesium Dissolved	mg/L	78	78	78	78	34	37	48	69	85	78	78	78	-
Manganese Dissolved	mg/L	**2.1**	**2.1**	**2.1**	**2.1**	**0.3**	**0.32**	**0.78**	**0.87**	**1.4**	**2.1**	**2.1**	**2.1**	0.2
Mercury Dissolved	mg/L	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.000007	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.000016
Molybdenum Dissolved	mg/L	0.0067	0.0067	0.0067	0.0067	0.005	0.005	0.0052	0.0081	0.0053	0.0067	0.0067	0.0067	0.01
Nickel Dissolved	mg/L	0.0064	0.0064	0.0064	0.0064	0.012	0.0024	0.0036	0.0066	0.007	0.0064	0.0064	0.0064	0.025
Selenium Dissolved	mg/L	**0.0017**	**0.0017**	**0.0017**	**0.0017**	0.00075	0.00098	**0.0018**	**0.0026**	**0.0023**	**0.0017**	**0.0017**	**0.0017**	0.001
Silver Dissolved	mg/L	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00025
Sodium Dissolved	mg/L	460	460	460	460	160	190	360	460	480	460	460	460	-
Thallium Dissolved	mg/L	0.00023	0.00023	0.00023	0.00023	0.00016	0.0002	0.0002	0.0002	0.0002	0.00023	0.00023	0.00023	0.0008
Uranium Dissolved	mg/L	**0.0013**	**0.0013**	**0.0013**	**0.0013**	0.00047	0.00056	**0.001**	**0.0019**	**0.0016**	**0.0013**	**0.0013**	**0.0013**	0.0008
Vanadium Dissolved	mg/L	0.002	0.002	0.002	0.002	0.0048	0.001	0.0013	0.002	0.002	0.002	0.002	0.002	0.1
Zinc Dissolved	mg/L	**0.11**	**0.11**	**0.11**	**0.11**	0.0071	0.0056	0.0082	0.016	**0.13**	**0.11**	**0.11**	**0.11**	0.03
Phosphorous Dissolved	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	Variable
Aluminum Total	mg/L	**0.13**	**0.13**	**0.13**	**0.13**	**0.43**	**0.12**	**0.11**	**0.13**	0.09	**0.13**	**0.13**	**0.13**	0.1
Antimony Total	mg/L	0.00065	0.00065	0.00065	0.00065	0.00045	0.0005	0.0005	0.0005	0.0005	0.00065	0.00065	0.00065	-
Arsenic Total	mg/L	0.0008	0.0008	0.0008	0.0008	0.0007	0.00078	0.0013	0.0006	0.00094	0.0008	0.0008	0.0008	0.005
Barium Total	mg/L	0.2	0.2	0.2	0.2	0.074	0.086	0.09	0.096	0.18	0.2	0.2	0.2	-
Beryllium Total	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.1
Boron Total	mg/L	0.23	0.23	0.23	0.23	0.18	0.21	0.32	0.44	0.3	0.23	0.23	0.23	0.5
Cadmium Total	mg/L	**0.00015**	**0.00015**	**0.00015**	**0.00015**	0.00005	0.000066	0.00012	0.00012	**0.00018**	**0.00015**	**0.00015**	**0.00015**	0.00012
Calcium Total	mg/L	750	750	750	750	380	380	440	430	730	750	750	750	-
Chromium Total	mg/L	**0.0075**	**0.0075**	**0.0075**	**0.0075**	**0.011**	**0.0041**	**0.0045**	**0.002**	**0.0025**	**0.0075**	**0.0075**	**0.0075**	0.001
Cobalt Total	mg/L	0.0078	0.0078	0.0078	0.0078	0.0042	0.0036	0.003	0.0042	0.0061	0.0078	0.0078	0.0078	0.05
Copper Total	mg/L	**0.0064**	**0.0064**	**0.0064**	**0.0064**	**0.016**	**0.0081**	**0.0074**	**0.0077**	**0.0075**	**0.0064**	**0.0064**	**0.0064**	0.002
Iron Total	mg/L	**0.89**	**0.89**	**0.89**	**0.89**	**0.79**	0.24	0.3	0.3	**0.47**	**0.89**	**0.89**	**0.89**	0.3
Lead Total	mg/L	0.00038	0.00038	0.00038	0.00038	0.00044	0.00034	0.00045	0.0005	0.0005	0.00038	0.00038	0.00038	0.001
Lithium Total	mg/L	0.24	0.24	0.24	0.24	0.11	0.1	0.059	0.053	0.092	0.24	0.24	0.24	2.5
Magnesium Total	mg/L	78	78	78	78	34	37	48	69	85	78	78	78	-
Manganese Total	mg/L	**2.1**	**2.1**	**2.1**	**2.1**	**0.3**	**0.32**	**0.78**	**0.87**	**1.4**	**2.1**	**2.1**	**2.1**	0.2
Mercury Total	mg/L	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.000007	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.000016
Molybdenum Total	mg/L	0.0067	0.0067	0.0067	0.0067	0.005	0.005	0.0052	0.0081	0.0053	0.0067	0.0067	0.0067	0.01
Nickel Total	mg/L	0.0064	0.0064	0.0064	0.0064	0.012	0.0024	0.0036	0.0066	0.007	0.0064	0.0064	0.0064	0.025
Selenium Total	mg/L	**0.0017**	**0.0017**	**0.0017**	**0.0017**	0.00075	0.00098	**0.0018**	**0.0026**	**0.0023**	**0.0017**	**0.0017**	**0.0017**	0.001
Silver Total	mg/L	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00025
Sodium Total	mg/L	460	460	460	460	160	190	360	460	480	460	460	460	-
Thallium Total	mg/L	0.00023	0.00023	0.00023	0.00023	0.00016	0.0002	0.0002	0.0002	0.0002	0.00023	0.00023	0.00023	0.0008
Uranium Total	mg/L	**0.0013**	**0.0013**	**0.0013**	**0.0013**	0.00047	0.00056	**0.001**	**0.0019**	**0.0016**	**0.0013**	**0.0013**	**0.0013**	0.0008
Vanadium Total	mg/L	0.002	0.002	0.002	0.002	0.0048	0.001	0.0013	0.002	0.002	0.002	0.002	0.002	0.1
Zinc Total	mg/L	**0.11**	**0.11**	**0.11**	**0.11**	0.0071	0.0056	0.0082	0.016	**0.13**	**0.11**	**0.11**	**0.11**	0.03
Phosphorous Total	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	Variable

Doris Overflow B/G - Median														
Parameter	Units	January	February	March	April	May	June	July	August	September	October	November	December	Minimum Guideline
TSS	mg/L	5.7	5.7	5.7	3.8	4.4	4.4	4.4	4.2	5.7	5.7	5.7	5.7	Variable
TDS	mg/L	170	170	170	200	150	150	150	160	170	170	170	170	-
Fluoride	mg/L	0.052	0.052	0.052	0.064	0.053	0.053	0.053	0.057	0.052	0.052	0.052	0.052	0.12
Chloride	mg/L	61	61	61	77	62	62	62	61	61	61	61	61	110
Free Cyanide	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	-
Total Cyanide	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.005
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	1.54
Nitrate	mg/L as N	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	3
Nitrite	mg/L as N	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	60
Sulphate	mg/L	2.7	2.7	2.7	3.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	1000
Alkalinity	mg/L	31	31	31	36	29	29	29	29	31	31	31	31	-
Hardness	mg/L	49	49	49	61	48	48	48	49	49	49	49	49	-
Aluminum Dissolved	mg/L	0.052	0.052	0.052	0.008	0.059	0.059	0.059	0.051	0.052	0.052	0.052	0.052	0.1
Antimony Dissolved	mg/L	0.00003	0.00003	0.00003	0.00003	0.000023	0.000023	0.000023	0.000023	0.00003	0.00003	0.00003	0.00003	-
Arsenic Dissolved	mg/L	0.00032	0.00032	0.00032	0.00033	0.00028	0.00028	0.00028	0.0003	0.00032	0.00032	0.00032	0.00032	0.005
Barium Dissolved	mg/L	0.0033	0.0033	0.0033	0.0032	0.0036	0.0036	0.0036	0.0034	0.0033	0.0033	0.0033	0.0033	-
Beryllium Dissolved	mg/L	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.1
Boron Dissolved	mg/L	0.033	0.033	0.033	0.033	0.031	0.031	0.031	0.03	0.033	0.033	0.033	0.033	0.5
Cadmium Dissolved	mg/L	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.00012
Calcium Dissolved	mg/L	8.7	8.7	8.7	11	8.7	8.7	8.7	8.8	8.7	8.7	8.7	8.7	-
Chromium Dissolved	mg/L	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.001
Cobalt Dissolved	mg/L	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.05
Copper Dissolved	mg/L	0.0015	0.0015	0.0015	0.0017	0.0014	0.0014	0.0014	0.0014	0.0015	0.0015	0.0015	0.0015	0.002
Iron Dissolved	mg/L	0.094	0.094	0.094	0.03	0.17	0.17	0.17	0.12	0.094	0.094	0.094	0.094	0.3
Lead Dissolved	mg/L	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.000050	0.001
Lithium Dissolved	mg/L	0.0039	0.0039	0.0039	0.0045	0.0037	0.0037	0.0037	0.0036	0.0039	0.0039	0.0039	0.0039	2.5
Magnesium Dissolved	mg/L	6.5	6.5	6.5	8.1	6.4	6.4	6.4	6.4	6.5	6.5	6.5	6.5	-
Manganese Dissolved	mg/L	0.021	0.021	0.021	0.005	0.02	0.02	0.02	0.027	0.021	0.021	0.021	0.021	0.2
Mercury Dissolved	mg/L	0.00000056	0.00000056	0.00000056	0.00000064	0.0000007	0.0000007	0.0000007	0.00000073	0.00000056	0.00000056	0.00000056	0.00000056	0.000016
Molybdenum Dissolved	mg/L	0.00021	0.00021	0.00021	0.00022	0.00017	0.00017	0.00017	0.0002	0.00021	0.00021	0.00021	0.00021	0.01
Nickel Dissolved	mg/L	0.00053	0.00053	0.00053	0.00056	0.00053	0.00053	0.00053	0.00056	0.00053	0.00053	0.00053	0.00053	0.025
Selenium Dissolved	mg/L	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.001
Silver Dissolved	mg/L	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.0000050	0.00025
Sodium Dissolved	mg/L	32	32	32	41	33	33	33	32	32	32	32	32	-
Thallium Dissolved	mg/L	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0000020	0.0008
Uranium Dissolved	mg/L	0.000036	0.000036	0.000036	0.000039	0.000034	0.000034	0.000034	0.000036	0.000036	0.000036	0.000036	0.000036	0.0008
Vanadium Dissolved	mg/L	0.00018	0.00018	0.00018	0.000083	0.00018	0.00018	0.00018	0.00017	0.00018	0.00018	0.00018	0.00018	0.1
Zinc Dissolved	mg/L	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.03
Phosphorous Dissolved	mg/L	0.027	0.027	0.027	0.025	0.022	0.022	0.022	0.027	0.027	0.027	0.027	0.027	Variable
Aluminum Total	mg/L	0.052	0.052	0.052	0.008	0.059	0.059	0.059	0.051	0.052	0.052	0.052	0.052	0.1
Antimony Total	mg/L	0.00003	0.00003	0.00003	0.00003	0.000023	0.000023	0.000023	0.000023	0.00003	0.00003	0.00003	0.00003	-
Arsenic Total	mg/L	0.00032	0.00032	0.00032	0.00033	0.00028	0.00028	0.00028	0.0003	0.00032	0.00032	0.00032	0.00032	0.005
Barium Total	mg/L	0.0033000	0.0033000	0.0033000	0.0032000	0.0036000	0.0036000	0.0036000	0.0034000	0.0033000	0.0033000	0.0033000	0.0033	-
Beryllium Total	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050	0.1
Boron Total	mg/L	0.0330000	0.0330000	0.0330000	0.0330000	0.0310000	0.0310000	0.0310000	0.0300000	0.0330000	0.0330000	0.0330000	0.033	0.5
Cadmium Total	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050	0.00012
Calcium Total	mg/L	8.70000	8.70000	8.70000	11.00000	8.70000	8.70000	8.70000	8.80000	8.70000	8.70000	8.70000	8.7	-
Chromium Total	mg/L	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.000500	0.00050	0.001
Cobalt Total	mg/L	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.000050	0.05
Copper Total	mg/L	0.0015	0.0015	0.0015	0.0017	0.0014	0.0014	0.0014	0.0014	0.0015	0.0015	0.0015	0.0015	0.002
Iron Total	mg/L	0.094000	0.094000	0.094000	0.030000	0.170000	0.170000	0.170000	0.120000	0.094000	0.094000	0.094000	0.094	0.3
Lead Total	mg/L	0.0001	0.0001	0.0001	0.00005	0.00005	0.00005	0.00005	0.00005	0.0001	0.0001	0.0001	0.000050	0.001
Lithium Total	mg/L	0.0039	0.0039	0.0039	0.0045	0.0037	0.0037	0.0037	0.0036	0.0039	0.0039	0.0039	0.0039	2.5
Magnesium Total	mg/L	6.5	6.5	6.5	8.1	6.4	6.4	6.4	6.4	6.5	6.5	6.5	6.5	-
Manganese Total	mg/L	0.021	0.021	0.021	0.005	0.02	0.02	0.02	0.027	0.021	0.021	0.021	0.021	0.2
Mercury Total	mg/L	0.00000056	0.00000056	0.00000056	0.00000064	0.0000007	0.0000007	0.0000007	0.00000073	0.00000056	0.00000056	0.00000056	0.00000056	0.000016
Molybdenum Total	mg/L	0.00021	0.00021	0.00021	0.00022	0.00017	0.00017	0.00017	0.0002	0.00021	0.00021	0.00021	0.00021	0.01
Nickel Total	mg/L	0.00053	0.00053	0.00053	0.00056	0.00053	0.00053	0.00053	0.00056	0.00053	0.00053	0.00053	0.00053	0.025
Selenium Total	mg/L	0.0002000	0.0002000	0.0002000	0.0002000	0.0002000	0.0002000	0.0002000	0.0002000	0.0002000	0.0002000	0.0002000	0.00020	0.001
Silver Total	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.0000050	0.00025
Sodium Total	mg/L	32.0000000	32.0000000	32.0000000	41.0000000	33.0000000	33.0000000	33.0000000	32.0000000	32.0000000	32.0000000	32.0000000	32	-
Thallium Total	mg/L	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.000002	0.0000020	0.0008
Uranium Total	mg/L	0.000036	0.000036	0.000036	0.000039	0.000034	0.000034	0.000034	0.000036	0.000036	0.000036	0.000036	0.000036	0.0008
Vanadium Total	mg/L	0.0002	0.0002	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.00018	0.1
Zinc Total	mg/L	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.0030	0.03
Phosphorous Total	mg/L	0.027	0.027	0.027	0.025	0.022	0.022	0.022	0.027	0.027	0.027	0.027	0.027	Variable

Doris Overflow B/G - 75th Percentile														
Parameter	**Units**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Minimum Guideline**
TSS	mg/L	6	6	6	4	4.8	4.8	4.8	4.9	6	6	6	6	Variable
TDS	mg/L	170	170	170	200	160	160	160	170	170	170	170	170	-
Fluoride	mg/L	0.057	0.057	0.057	0.065	0.054	0.054	0.054	0.057	0.057	0.057	0.057	0.057	0.12
Chloride	mg/L	65	65	65	81	63	63	63	64	65	65	65	65	110
Free Cyanide	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	-
Total Cyanide	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.005
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	0.005	0.005	0.005	0.016	0.005	0.005	0.005	0.0057	0.005	0.005	0.005	0.005	1.54
Nitrate	mg/L as N	0.005	0.005	0.005	0.034	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	3
Nitrite	mg/L as N	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	60
Sulphate	mg/L	2.8	2.8	2.8	3.5	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	1000
Alkalinity	mg/L	31	31	31	38	29	29	29	30	31	31	31	31	-
Hardness	mg/L	50	50	50	61	49	49	49	49	50	50	50	50	-
Aluminum Dissolved	mg/L	0.06	0.06	0.06	0.015	0.079	0.079	0.079	0.06	0.06	0.06	0.06	0.06	0.1
Antimony Dissolved	mg/L	0.00003	0.00003	0.00003	0.000036	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	-
Arsenic Dissolved	mg/L	0.00039	0.00039	0.00039	0.00034	0.0003	0.0003	0.0003	0.00039	0.00039	0.00039	0.00039	0.00039	0.005
Barium Dissolved	mg/L	0.0034	0.0034	0.0034	0.0035	0.0039	0.0039	0.0039	0.0035	0.0034	0.0034	0.0034	0.0034	-
Beryllium Dissolved	mg/L	0.00001	0.00001	0.00001	0.000005	0.000005	0.000005	0.000005	0.000005	0.00001	0.00001	0.00001	0.00001	0.1
Boron Dissolved	mg/L	0.04	0.04	0.04	0.034	0.034	0.034	0.034	0.032	0.04	0.04	0.04	0.04	0.5
Cadmium Dissolved	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.00012
Calcium Dissolved	mg/L	9.1	9.1	9.1	11	9	9	9	8.9	9.1	9.1	9.1	9.1	-
Chromium Dissolved	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001
Cobalt Dissolved	mg/L	0.00005	0.00005	0.00005	0.00005	0.000057	0.000057	0.000057	0.00005	0.00005	0.00005	0.00005	0.00005	0.05
Copper Dissolved	mg/L	0.0018	0.0018	0.0018	0.0018	0.0015	0.0015	0.0015	0.0016	0.0018	0.0018	0.0018	0.0018	0.002
Iron Dissolved	mg/L	0.11	0.11	0.11	0.032	0.2	0.2	0.2	0.15	0.11	0.11	0.11	0.11	0.3
Lead Dissolved	mg/L	0.000086	0.000086	0.000086	0.00005	0.000067	0.000067	0.000067	0.00005	0.000086	0.000086	0.000086	0.000086	0.001
Lithium Dissolved	mg/L	0.004	0.004	0.004	0.0046	0.004	0.004	0.004	0.0037	0.004	0.004	0.004	0.004	2.5
Magnesium Dissolved	mg/L	6.7	6.7	6.7	8.3	6.6	6.6	6.6	6.6	6.7	6.7	6.7	6.7	-
Manganese Dissolved	mg/L	0.025	0.025	0.025	0.0084	0.027	0.027	0.027	0.034	0.025	0.025	0.025	0.025	0.2
Mercury Dissolved	mg/L	0.00000062	0.00000062	0.00000062	**0.0005**	0.0000009	0.0000009	0.0000009	0.00000093	0.00000062	0.00000062	0.00000062	0.00000062	0.000016
Molybdenum Dissolved	mg/L	0.00022	0.00022	0.00022	0.00024	0.00017	0.00017	0.00017	0.00021	0.00022	0.00022	0.00022	0.00022	0.01
Nickel Dissolved	mg/L	0.00066	0.00066	0.00066	0.00069	0.00067	0.00067	0.00067	0.00064	0.00066	0.00066	0.00066	0.00066	0.025
Selenium Dissolved	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.001
Silver Dissolved	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.00025
Sodium Dissolved	mg/L	32	32	32	41	34	34	34	33	32	32	32	32	-
Thallium Dissolved	mg/L	0.000002	0.000002	0.000002	0.000002	0.0000023	0.0000023	0.0000023	0.000002	0.000002	0.000002	0.000002	0.000002	0.0008
Uranium Dissolved	mg/L	0.00004	0.00004	0.00004	0.000045	0.000037	0.000037	0.000037	0.000041	0.00004	0.00004	0.00004	0.00004	0.0008
Vanadium Dissolved	mg/L	0.00019	0.00019	0.00019	0.000099	0.00023	0.00023	0.00023	0.00019	0.00019	0.00019	0.00019	0.00019	0.1
Zinc Dissolved	mg/L	0.003	0.003	0.003	0.0032	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.03
Phosphorous Dissolved	mg/L	0.028	0.028	0.028	0.027	0.025	0.025	0.025	0.028	0.028	0.028	0.028	0.028	Variable
Aluminum Total	mg/L	0.06	0.06	0.06	0.015	0.079	0.079	0.079	0.06	0.06	0.06	0.06	0.06	0.1
Antimony Total	mg/L	0.00003	0.00003	0.00003	0.000036	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	0.00003	-
Arsenic Total	mg/L	0.00039	0.00039	0.00039	0.00034	0.0003	0.0003	0.0003	0.00039	0.00039	0.00039	0.00039	0.00039	0.005
Barium Total	mg/L	0.0034	0.0034	0.0034	0.0035	0.0039	0.0039	0.0039	0.0035	0.0034	0.0034	0.0034	0.0034	-
Beryllium Total	mg/L	0.00001	0.00001	0.00001	0.000005	0.000005	0.000005	0.000005	0.000005	0.00001	0.00001	0.00001	0.00001	0.1
Boron Total	mg/L	0.04	0.04	0.04	0.034	0.034	0.034	0.034	0.032	0.04	0.04	0.04	0.04	0.5
Cadmium Total	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.00012
Calcium Total	mg/L	9.1	9.1	9.1	11	9	9	9	8.9	9.1	9.1	9.1	9.1	-
Chromium Total	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001
Cobalt Total	mg/L	0.00005	0.00005	0.00005	0.00005	0.000057	0.000057	0.000057	0.00005	0.00005	0.00005	0.00005	0.00005	0.05
Copper Total	mg/L	0.0018	0.0018	0.0018	0.0018	0.0015	0.0015	0.0015	0.0016	0.0018	0.0018	0.0018	0.0018	0.002
Iron Total	mg/L	0.11	0.11	0.11	0.032	0.2	0.2	0.2	0.15	0.11	0.11	0.11	0.11	0.3
Lead Total	mg/L	0.000086	0.000086	0.000086	0.00005	0.000067	0.000067	0.000067	0.00005	0.000086	0.000086	0.000086	0.000086	0.001
Lithium Total	mg/L	0.004	0.004	0.004	0.0046	0.004	0.004	0.004	0.0037	0.004	0.004	0.004	0.004	2.5
Magnesium Total	mg/L	6.7	6.7	6.7	8.3	6.6	6.6	6.6	6.6	6.7	6.7	6.7	6.7	-
Manganese Total	mg/L	0.025	0.025	0.025	0.0084	0.027	0.027	0.027	0.034	0.025	0.025	0.025	0.025	0.2
Mercury Total	mg/L	0.00000062	0.00000062	0.00000062	**0.0005**	0.0000009	0.0000009	0.0000009	0.00000093	0.00000062	0.00000062	0.00000062	0.00000062	0.000016
Molybdenum Total	mg/L	0.00022	0.00022	0.00022	0.00024	0.00017	0.00017	0.00017	0.00021	0.00022	0.00022	0.00022	0.00022	0.01
Nickel Total	mg/L	0.00066	0.00066	0.00066	0.00069	0.00067	0.00067	0.00067	0.00064	0.00066	0.00066	0.00066	0.00066	0.025
Selenium Total	mg/L	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.001
Silver Total	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.00025
Sodium Total	mg/L	32	32	32	41	34	34	34	33	32	32	32	32	-
Thallium Total	mg/L	0.000002	0.000002	0.000002	0.000002	0.0000023	0.0000023	0.0000023	0.000002	0.000002	0.000002	0.000002	0.000002	0.0008
Uranium Total	mg/L	0.00004	0.00004	0.00004	0.000045	0.000037	0.000037	0.000037	0.000041	0.00004	0.00004	0.00004	0.00004	0.0008
Vanadium Total	mg/L	0.00019	0.00019	0.00019	0.000099	0.00023	0.00023	0.00023	0.00019	0.00019	0.00019	0.00019	0.00019	0.1
Zinc Total	mg/L	0.003	0.003	0.003	0.0032	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.03
Phosphorous Total	mg/L	0.028	0.028	0.028	0.027	0.025	0.025	0.025	0.028	0.028	0.028	0.028	0.028	Variable

Boston B/G - Median														
Parameter	Units	January	February	March	April	May	June	July	August	September	October	November	December	Minimum Guideline
TSS	mg/L	2.0	2.0	2.0	2.0	2.0	2.0	1.0	1.0	2.0	2.0	2.0	2.0	Variable
TDS	mg/L	20	20	20	20	21	21	19	19	20	20	20	20	-
Fluoride	mg/L	0.025	0.025	0.025	0.025	0.030	0.030	0.030	0.020	0.025	0.025	0.025	0.025	0.12
Chloride	mg/L	8.3	8.3	8.3	8.3	8.5	8.5	7.8	7.6	8.3	8.3	8.3	8.3	110
Free Cyanide	mg/L													-
Total Cyanide	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.005
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	0.0060	0.0060	0.0060	0.0060	0.014	0.014	0.0080	0.0054	0.0060	0.0060	0.0060	0.0060	1.54
Nitrate	mg/L as N	0.0050	0.0050	0.0050	0.0050	0.015	0.015	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	3
Nitrite	mg/L as N	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	60
Sulphate	mg/L	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	1000
Alkalinity	mg/L	9.4	9.4	9.4	9.4	9.9	9.9	8.7	8.9	9.4	9.4	9.4	9.4	-
Hardness	mg/L	12	12	12	12	13	13	11	11	12	12	12	12	-
Aluminum Dissolved	mg/L	0.064	0.064	0.064	0.064	0.047	0.047	0.032	0.043	0.064	0.064	0.064	0.064	0.1
Antimony Dissolved	mg/L	0.0000052	0.0000052	0.0000052	0.0000052	0.0000085	0.0000085	0.0000055	0.000073	0.0000052	0.0000052	0.0000052	0.0000052	-
Arsenic Dissolved	mg/L	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00014	0.00016	0.00017	0.00017	0.00017	0.00017	0.005
Barium Dissolved	mg/L	0.0021	0.0021	0.0021	0.0021	0.0022	0.0022	0.0019	0.002	0.0021	0.0021	0.0021	0.0021	-
Beryllium Dissolved	mg/L	0.0000048	0.0000048	0.0000048	0.0000048	0.0000050	0.0000050	0.0000050	0.0000055	0.0000048	0.0000048	0.0000048	0.0000048	0.1
Boron Dissolved	mg/L	0.0053	0.0053	0.0053	0.0053	0.0052	0.0052	0.0038	0.0046	0.0053	0.0053	0.0053	0.0053	0.5
Cadmium Dissolved	mg/L	0.0000021	0.0000021	0.0000021	0.0000021	0.0000079	0.0000079	0.0000021	0.0000040	0.0000021	0.0000021	0.0000021	0.0000021	0.00012
Calcium Dissolved	mg/L	2.5	2.5	2.5	2.5	2.7	2.7	2.2	2.3	2.5	2.5	2.5	2.5	-
Chromium Dissolved	mg/L	0.00036	0.00036	0.00036	0.00036	0.00022	0.00022	0.00028	0.00023	0.00036	0.00036	0.00036	0.00036	0.001
Cobalt Dissolved	mg/L	0.000034	0.000034	0.000034	0.000034	0.000062	0.000062	0.000040	0.000030	0.000034	0.000034	0.000034	0.000034	0.05
Copper Dissolved	mg/L	0.00089	0.00089	0.00089	0.00089	0.00096	0.00096	0.00081	0.00091	0.00089	0.00089	0.00089	0.00089	0.002
Iron Dissolved	mg/L	0.077	0.077	0.077	0.077	0.12	0.12	0.083	0.061	0.077	0.077	0.077	0.077	0.3
Lead Dissolved	mg/L	0.000035	0.000035	0.000035	0.000035	0.000033	0.000033	0.000029	0.000045	0.000035	0.000035	0.000035	0.000035	0.001
Lithium Dissolved	mg/L	0.0050	0.0050	0.0050	0.0050	0.0075	0.0075	0.0075	0.0075	0.0050	0.0050	0.0050	0.0050	2.5
Magnesium Dissolved	mg/L	1.6	1.6	1.6	1.6	1.6	1.6	1.4	1.4	1.6	1.6	1.6	1.6	-
Manganese Dissolved	mg/L	0.0072	0.0072	0.0072	0.0072	0.017	0.017	0.013	0.0057	0.0072	0.0072	0.0072	0.0072	0.2
Mercury Dissolved	mg/L	0.0000080	0.0000080	0.0000080	0.0000080	0.00000070	0.00000070	0.00000060	0.00000060	0.0000080	0.0000080	0.0000080	0.0000080	0.000016
Molybdenum Dissolved	mg/L	0.000053	0.000053	0.000053	0.000053	0.000049	0.000049	0.000029	0.000041	0.000053	0.000053	0.000053	0.000053	0.01
Nickel Dissolved	mg/L	0.00041	0.00041	0.00041	0.00041	0.00043	0.00043	0.00035	0.00034	0.00041	0.00041	0.00041	0.00041	0.025
Selenium Dissolved	mg/L	0.00022	0.00022	0.00022	0.00022	0.00020	0.00020	0.00015	0.00020	0.00022	0.00022	0.00022	0.00022	0.001
Silver Dissolved	mg/L	0.0000013	0.0000013	0.0000013	0.0000013	0.0000028	0.0000028	0.00000050	0.0000011	0.0000013	0.0000013	0.0000013	0.0000013	0.00025
Sodium Dissolved	mg/L	4.8	4.8	4.8	4.8	4.9	4.9	4	4.2	4.8	4.8	4.8	4.8	-
Thallium Dissolved	mg/L	0.0000052	0.0000052	0.0000052	0.0000052	0.0000044	0.0000044	0.0000032	0.0000057	0.0000052	0.0000052	0.0000052	0.0000052	0.0008
Uranium Dissolved	mg/L	0.000022	0.000022	0.000022	0.000022	0.000021	0.000021	0.000018	0.000020	0.000022	0.000022	0.000022	0.000022	0.0008
Vanadium Dissolved	mg/L	0.00016	0.00016	0.00016	0.00016	0.00020	0.00020	0.000089	0.00010	0.00016	0.00016	0.00016	0.00016	0.1
Zinc Dissolved	mg/L	0.00088	0.00088	0.00088	0.00088	0.0024	0.0024	0.0022	0.0014	0.00088	0.00088	0.00088	0.00088	0.03
Phosphorous Dissolved	mg/L	0.011	0.011	0.011	0.011	0.012	0.012	0.011	0.01	0.011	0.011	0.011	0.011	Variable
Aluminum Total	mg/L	0.064	0.064	0.064	0.064	0.047	0.047	0.032	0.043	0.064	0.064	0.064	0.064	0.1
Antimony Total	mg/L	0.0000052	0.0000052	0.0000052	0.0000052	0.0000085	0.0000085	0.0000055	0.000073	0.0000052	0.0000052	0.0000052	0.0000052	-
Arsenic Total	mg/L	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00014	0.00016	0.00017	0.00017	0.00017	0.00017	0.005
Barium Total	mg/L	0.0021	0.0021	0.0021	0.0021	0.0022	0.0022	0.0019	0.002	0.0021	0.0021	0.0021	0.0021	-
Beryllium Total	mg/L	0.0000048	0.0000048	0.0000048	0.0000048	0.000005	0.000005	0.000005	0.0000055	0.0000048	0.0000048	0.0000048	0.0000048	0.1
Boron Total	mg/L	0.0053	0.0053	0.0053	0.0053	0.0052	0.0052	0.0038	0.0046	0.0053	0.0053	0.0053	0.0053	0.5
Cadmium Total	mg/L	0.0000021	0.0000021	0.0000021	0.0000021	0.0000079	0.0000079	0.0000021	0.000004	0.0000021	0.0000021	0.0000021	0.0000021	0.00012
Calcium Total	mg/L	2.5	2.5	2.5	2.5	2.7	2.7	2.2	2.3	2.5	2.5	2.5	2.5	-
Chromium Total	mg/L	0.00036	0.00036	0.00036	0.00036	0.00022	0.00022	0.00028	0.00023	0.00036	0.00036	0.00036	0.00036	0.001
Cobalt Total	mg/L	0.000034	0.000034	0.000034	0.000034	0.000062	0.000062	0.00004	0.00003	0.000034	0.000034	0.000034	0.000034	0.05
Copper Total	mg/L	0.00089	0.00089	0.00089	0.00089	0.00096	0.00096	0.00081	0.00091	0.00089	0.00089	0.00089	0.00089	0.002
Iron Total	mg/L	0.077	0.077	0.077	0.077	0.12	0.12	0.083	0.061	0.077	0.077	0.077	0.077	0.3
Lead Total	mg/L	0.000035	0.000035	0.000035	0.000035	0.000033	0.000033	0.000029	0.000045	0.000035	0.000035	0.000035	0.000035	0.001
Lithium Total	mg/L	0.005	0.005	0.005	0.005	0.0075	0.0075	0.0075	0.0075	0.005	0.005	0.005	0.005	2.5
Magnesium Total	mg/L	1.6	1.6	1.6	1.6	1.6	1.6	1.4	1.4	1.6	1.6	1.6	1.6	-
Manganese Total	mg/L	0.0072	0.0072	0.0072	0.0072	0.017	0.017	0.013	0.0057	0.0072	0.0072	0.0072	0.0072	0.2
Mercury Total	mg/L	0.000008	0.000008	0.000008	0.000008	0.0000007	0.0000007	0.0000006	0.0000006	0.000008	0.000008	0.000008	0.000008	0.000016
Molybdenum Total	mg/L	0.000053	0.000053	0.000053	0.000053	0.000049	0.000049	0.000029	0.000041	0.000053	0.000053	0.000053	0.000053	0.01
Nickel Total	mg/L	0.00041	0.00041	0.00041	0.00041	0.00043	0.00043	0.00035	0.00034	0.00041	0.00041	0.00041	0.00041	0.025
Selenium Total	mg/L	0.00022	0.00022	0.00022	0.00022	0.0002	0.0002	0.00015	0.0002	0.00022	0.00022	0.00022	0.00022	0.001
Silver Total	mg/L	0.0000013	0.0000013	0.0000013	0.0000013	0.0000028	0.0000028	0.0000005	0.0000011	0.0000013	0.0000013	0.0000013	0.0000013	0.00025
Sodium Total	mg/L	4.8	4.8	4.8	4.8	4.9	4.9	4	4.2	4.8	4.8	4.8	4.8	-
Thallium Total	mg/L	0.0000052	0.0000052	0.0000052	0.0000052	0.0000044	0.0000044	0.0000032	0.0000057	0.0000052	0.0000052	0.0000052	0.0000052	0.0008
Uranium Total	mg/L	0.000022	0.000022	0.000022	0.000022	0.000021	0.000021	0.000018	0.00002	0.000022	0.000022	0.000022	0.000022	0.0008
Vanadium Total	mg/L	0.00016	0.00016	0.00016	0.00016	0.0002	0.0002	0.000089	0.0001	0.00016	0.00016	0.00016	0.00016	0.1
Zinc Total	mg/L	0.00088	0.00088	0.00088	0.00088	0.0024	0.0024	0.0022	0.0014	0.00088	0.00088	0.00088	0.00088	0.03
Phosphorous Total	mg/L	0.011	0.011	0.011	0.011	0.012	0.012	0.011	0.01	0.011	0.011	0.011	0.011	Variable

Boston B/G - 75th Percentile														
Parameter	Units	January	February	March	April	May	June	July	August	September	October	November	December	Minimum Guideline
TSS	mg/L	6.0	6.0	6.0	6.0	2.0	2.0	1.8	1.5	6.0	6.0	6.0	6.0	Variable
TDS	mg/L	23	23	23	23	23	23	20	19	23	23	23	23	-
Fluoride	mg/L	0.030	0.030	0.030	0.030	0.065	0.065	0.030	0.030	0.030	0.030	0.030	0.030	0.12
Chloride	mg/L	8.4	8.4	8.4	8.4	9.8	9.8	7.8	8.1	8.4	8.4	8.4	8.4	110
Free Cyanide	mg/L													-
Total Cyanide	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.005
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	0.0066	0.0066	0.0066	0.0066	0.017	0.017	0.008	0.013	0.0066	0.0066	0.0066	0.0066	1.54
Nitrate	mg/L as N	0.0080	0.0080	0.0080	0.0080	0.022	0.022	0.0050	0.0050	0.0080	0.0080	0.0080	0.0080	3
Nitrite	mg/L as N	0.0010	0.0010	0.0010	0.0010	0.0040	0.0040	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	60
Sulphate	mg/L	5.0	5.0	5.0	5.0	3.0	3.0	3.8	3.0	5.0	5.0	5.0	5.0	1000
Alkalinity	mg/L	9.9	9.9	9.9	9.9	10	10	9.8	9.2	9.9	9.9	9.9	9.9	-
Hardness	mg/L	13	13	13	13	13	13	12	12	13	13	13	13	-
Aluminum Dissolved	mg/L	0.071	0.071	0.071	0.071	0.081	0.081	0.032	0.045	0.071	0.071	0.071	0.071	0.1
Antimony Dissolved	mg/L	0.0000069	0.0000069	0.0000069	0.0000069	0.000054	0.000054	0.0000055	0.000087	0.0000069	0.0000069	0.0000069	0.0000069	-
Arsenic Dissolved	mg/L	0.00018	0.00018	0.00018	0.00018	0.00017	0.00017	0.00016	0.00016	0.00018	0.00018	0.00018	0.00018	0.005
Barium Dissolved	mg/L	0.0022	0.0022	0.0022	0.0022	0.0031	0.0031	0.0019	0.002	0.0022	0.0022	0.0022	0.0022	-
Beryllium Dissolved	mg/L	0.0000063	0.0000063	0.0000063	0.0000063	0.00010	0.00010	0.0000051	0.00010	0.0000063	0.0000063	0.0000063	0.0000063	0.1
Boron Dissolved	mg/L	0.0060	0.0060	0.0060	0.0060	0.0083	0.0083	0.0048	0.0077	0.0060	0.0060	0.0060	0.0060	0.5
Cadmium Dissolved	mg/L	0.0000026	0.0000026	0.0000026	0.0000026	0.0000090	0.0000090	0.0000087	0.0000072	0.0000026	0.0000026	0.0000026	0.0000026	0.00012
Calcium Dissolved	mg/L	2.5	2.5	2.5	2.5	2.9	2.9	2.4	2.3	2.5	2.5	2.5	2.5	-
Chromium Dissolved	mg/L	0.00046	0.00046	0.00046	0.00046	0.00044	0.00044	0.00030	0.00037	0.00046	0.00046	0.00046	0.00046	0.001
Cobalt Dissolved	mg/L	0.000055	0.000055	0.000055	0.000055	0.00013	0.00013	0.000040	0.000070	0.000055	0.000055	0.000055	0.000055	0.05
Copper Dissolved	mg/L	0.00096	0.00096	0.00096	0.00096	0.0011	0.0011	0.00081	0.00096	0.00096	0.00096	0.00096	0.00096	0.002
Iron Dissolved	mg/L	0.080	0.080	0.080	0.080	0.19	0.19	0.083	0.082	0.080	0.080	0.080	0.080	0.3
Lead Dissolved	mg/L	0.000035	0.000035	0.000035	0.000035	0.000059	0.000059	0.000029	0.000047	0.000035	0.000035	0.000035	0.000035	0.001
Lithium Dissolved	mg/L	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	2.5
Magnesium Dissolved	mg/L	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.7	1.7	1.7	1.7	-
Manganese Dissolved	mg/L	0.0076	0.0076	0.0076	0.0076	0.018	0.018	0.015	0.0068	0.0076	0.0076	0.0076	0.0076	0.2
Mercury Dissolved	mg/L	0.000013	0.000013	0.000013	0.000013	0.0000058	0.0000058	0.0000006	0.0000059	0.000013	0.000013	0.000013	0.000013	0.000016
Molybdenum Dissolved	mg/L	0.000054	0.000054	0.000054	0.000054	0.000050	0.000050	0.000029	0.000048	0.000054	0.000054	0.000054	0.000054	0.01
Nickel Dissolved	mg/L	0.00044	0.00044	0.00044	0.00044	0.00049	0.00049	0.00035	0.00040	0.00044	0.00044	0.00044	0.00044	0.025
Selenium Dissolved	mg/L	0.00026	0.00026	0.00026	0.00026	0.00022	0.00022	0.00018	0.00020	0.00026	0.00026	0.00026	0.00026	0.001
Silver Dissolved	mg/L	0.0000039	0.0000039	0.0000039	0.0000039	0.0000064	0.0000064	0.0000010	0.0000062	0.0000039	0.0000039	0.0000039	0.0000039	0.00025
Sodium Dissolved	mg/L	5.0	5.0	5.0	5.0	5.0	5.0	4.5	4.3	5.0	5.0	5.0	5.0	-
Thallium Dissolved	mg/L	0.0000083	0.0000083	0.0000083	0.0000083	0.0000061	0.0000061	0.000015	0.0000097	0.0000083	0.0000083	0.0000083	0.0000083	0.0008
Uranium Dissolved	mg/L	0.000023	0.000023	0.000023	0.000023	0.000022	0.000022	0.000018	0.000022	0.000023	0.000023	0.000023	0.000023	0.0008
Vanadium Dissolved	mg/L	0.00017	0.00017	0.00017	0.00017	0.00024	0.00024	0.000089	0.00057	0.00017	0.00017	0.00017	0.00017	0.1
Zinc Dissolved	mg/L	0.00094	0.00094	0.00094	0.00094	0.0055	0.0055	0.0023	0.0044	0.00094	0.00094	0.00094	0.00094	0.03
Phosphorous Dissolved	mg/L	0.013	0.013	0.013	0.013	0.013	0.013	0.014	0.013	0.013	0.013	0.013	0.013	Variable
Aluminum Total	mg/L	0.071	0.071	0.071	0.071	0.081	0.081	0.032	0.045	0.071	0.071	0.071	0.071	0.1
Antimony Total	mg/L	0.0000069	0.0000069	0.0000069	0.0000069	0.000054	0.000054	0.0000055	0.000087	0.0000069	0.0000069	0.0000069	0.0000069	-
Arsenic Total	mg/L	0.00018	0.00018	0.00018	0.00018	0.00017	0.00017	0.00016	0.00016	0.00018	0.00018	0.00018	0.00018	0.005
Barium Total	mg/L	0.0022	0.0022	0.0022	0.0022	0.0031	0.0031	0.0019	0.002	0.0022	0.0022	0.0022	0.0022	-
Beryllium Total	mg/L	0.0000063	0.0000063	0.0000063	0.0000063	0.0001	0.0001	0.0000051	0.0001	0.0000063	0.0000063	0.0000063	0.0000063	0.1
Boron Total	mg/L	0.006	0.006	0.006	0.006	0.0083	0.0083	0.0048	0.0077	0.006	0.006	0.006	0.006	0.5
Cadmium Total	mg/L	0.0000026	0.0000026	0.0000026	0.0000026	0.000009	0.000009	0.0000087	0.0000072	0.0000026	0.0000026	0.0000026	0.0000026	0.00012
Calcium Total	mg/L	2.5	2.5	2.5	2.5	2.9	2.9	2.4	2.3	2.5	2.5	2.5	2.5	-
Chromium Total	mg/L	0.00046	0.00046	0.00046	0.00046	0.00044	0.00044	0.0003	0.00037	0.00046	0.00046	0.00046	0.00046	0.001
Cobalt Total	mg/L	0.000055	0.000055	0.000055	0.000055	0.00013	0.00013	0.00004	0.00007	0.000055	0.000055	0.000055	0.000055	0.05
Copper Total	mg/L	0.00096	0.00096	0.00096	0.00096	0.0011	0.0011	0.00081	0.00096	0.00096	0.00096	0.00096	0.00096	0.002
Iron Total	mg/L	0.08	0.08	0.08	0.08	0.19	0.19	0.083	0.082	0.08	0.08	0.08	0.08	0.3
Lead Total	mg/L	0.000035	0.000035	0.000035	0.000035	0.000059	0.000059	0.000029	0.000047	0.000035	0.000035	0.000035	0.000035	0.001
Lithium Total	mg/L	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	2.5
Magnesium Total	mg/L	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.5	1.7	1.7	1.7	1.7	-
Manganese Total	mg/L	0.0076	0.0076	0.0076	0.0076	0.018	0.018	0.015	0.0068	0.0076	0.0076	0.0076	0.0076	0.2
Mercury Total	mg/L	0.000013	0.000013	0.000013	0.000013	0.0000058	0.0000058	0.0000006	0.0000059	0.000013	0.000013	0.000013	0.000013	0.000016
Molybdenum Total	mg/L	0.000054	0.000054	0.000054	0.000054	0.00005	0.00005	0.000029	0.000048	0.000054	0.000054	0.000054	0.000054	0.01
Nickel Total	mg/L	0.00044	0.00044	0.00044	0.00044	0.00049	0.00049	0.00035	0.0004	0.00044	0.00044	0.00044	0.00044	0.025
Selenium Total	mg/L	0.00026	0.00026	0.00026	0.00026	0.00022	0.00022	0.00018	0.0002	0.00026	0.00026	0.00026	0.00026	0.001
Silver Total	mg/L	0.0000039	0.0000039	0.0000039	0.0000039	0.0000064	0.0000064	0.000001	0.0000062	0.0000039	0.0000039	0.0000039	0.0000039	0.00025
Sodium Total	mg/L	5	5	5	5	5	5	4.5	4.3	5	5	5	5	-
Thallium Total	mg/L	0.0000083	0.0000083	0.0000083	0.0000083	0.0000061	0.0000061	0.000015	0.0000097	0.0000083	0.0000083	0.0000083	0.0000083	0.0008
Uranium Total	mg/L	0.000023	0.000023	0.000023	0.000023	0.000022	0.000022	0.000018	0.000022	0.000023	0.000023	0.000023	0.000023	0.0008
Vanadium Total	mg/L	0.00017	0.00017	0.00017	0.00017	0.00024	0.00024	0.000089	0.00057	0.00017	0.00017	0.00017	0.00017	0.1
Zinc Total	mg/L	0.00094	0.00094	0.00094	0.00094	0.0055	0.0055	0.0023	0.0044	0.00094	0.00094	0.00094	0.00094	0.03
Phosphorous Total	mg/L	0.013	0.013	0.013	0.013	0.013	0.013	0.014	0.013	0.013	0.013	0.013	0.013	Variable

TL-1 - Median														
Parameter	Units	January	February	March	April	May	June	July	August	September	October	November	December	Minimum Guideline
TSS	mg/L	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	Variable
TDS	mg/L	140	140	140	140	79	130	130	140	140	140	140	140	-
Fluoride	mg/L	0.063	0.063	0.063	0.063	0.023	0.05	0.054	0.06	0.063	0.063	0.063	0.063	0.12
Chloride	mg/L	40	40	40	40	9.2	37	40	40	40	40	40	40	110
Free Cyanide	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	-
Total Cyanide	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.005
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	0.034	0.034	0.034	0.034	0.050	0.050	0.013	0.050	0.034	0.034	0.034	0.034	1.54
Nitrate	mg/L as N	0.050	0.050	0.050	0.050	0.11	0.050	0.050	0.050	0.050	0.050	0.050	0.050	3
Nitrite	mg/L as N	0.0013	0.0013	0.0013	0.0013	0.050	0.050	0.0019	0.050	0.0013	0.0013	0.0013	0.0013	60
Sulphate	mg/L	2.7	2.7	2.7	2.7	2.7	2.1	2.1	2.8	2.7	2.7	2.7	2.7	1000
Alkalinity	mg/L	35	35	35	35	35	35	35	34	35	35	35	35	-
Hardness	mg/L	39	39	39	39	46	53	33	39	39	39	39	39	-
Aluminum Dissolved	mg/L	0.032	0.032	0.032	0.032	0.048	0.016	0.012	0.019	0.032	0.032	0.032	0.032	0.1
Antimony Dissolved	mg/L	0.00050	0.00050	0.00050	0.00050	0.00040	0.00040	0.00050	0.00040	0.00050	0.00050	0.00050	0.00050	-
Arsenic Dissolved	mg/L	0.00050	0.00050	0.00050	0.00050	0.00040	0.00040	0.00050	0.00040	0.00050	0.00050	0.00050	0.00050	0.005
Barium Dissolved	mg/L	0.020	0.020	0.020	0.020	0.0047	0.0059	0.020	0.0032	0.020	0.020	0.020	0.020	-
Beryllium Dissolved	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.1
Boron Dissolved	mg/L	0.10	0.10	0.10	0.10	0.050	0.050	0.10	0.050	0.10	0.10	0.10	0.10	0.5
Cadmium Dissolved	mg/L	0.000010	0.000010	0.000010	0.000010	0.000013	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.00012
Calcium Dissolved	mg/L	12	12	12	12	12	13	12	12	12	12	12	12	-
Chromium Dissolved	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.001
Cobalt Dissolved	mg/L	0.00030	0.00030	0.00030	0.00030	0.0020	0.0020	0.00030	0.0020	0.00030	0.00030	0.00030	0.00030	0.05
Copper Dissolved	mg/L	0.0014	0.0014	0.0014	0.0014	0.0020	0.0014	0.0012	0.0013	0.0014	0.0014	0.0014	0.0014	0.002
Iron Dissolved	mg/L	0.28	0.28	0.28	0.28	**0.35**	0.23	0.17	0.30	0.28	0.28	0.28	0.28	0.3
Lead Dissolved	mg/L	0.00050	0.00050	0.00050	0.00050	0.00011	0.00010	0.00050	0.00028	0.00050	0.00050	0.00050	0.00050	0.001
Lithium Dissolved	mg/L	0.0050	0.0050	0.0050	0.0050	0.010	0.010	0.0050	0.010	0.0050	0.0050	0.0050	0.0050	2.5
Magnesium Dissolved	mg/L	5.9	5.9	5.9	5.9	3.0	6.0	5.8	5.7	5.9	5.9	5.9	5.9	-
Manganese Dissolved	mg/L	0.023	0.023	0.023	0.023	0.094	0.020	0.023	0.024	0.023	0.023	0.023	0.023	0.2
Mercury Dissolved	mg/L	0.000010	0.000010	0.000010	0.000010	**0.000020**	**0.000020**	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000016
Molybdenum Dissolved	mg/L	0.0010	0.0010	0.0010	0.0010	0.0050	0.0050	0.0010	0.0050	0.0010	0.0010	0.0010	0.0010	0.01
Nickel Dissolved	mg/L	0.0010	0.0010	0.0010	0.0010	0.0020	0.0020	0.0010	0.0020	0.0010	0.0010	0.0010	0.0010	0.025
Selenium Dissolved	mg/L	0.00010	0.00010	0.00010	0.00010	0.00040	0.00040	0.00010	0.00040	0.00010	0.00010	0.00010	0.00010	0.001
Silver Dissolved	mg/L	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.00025
Sodium Dissolved	mg/L	19	19	19	19	6.2	19	19	19	19	19	19	19	-
Thallium Dissolved	mg/L	0.00020	0.00020	0.00020	0.00020	0.00010	0.00010	0.00020	0.00010	0.00020	0.00020	0.00020	0.00020	0.0008
Uranium Dissolved	mg/L	0.00020	0.00020	0.00020	0.00020	0.00010	0.00010	0.00020	0.00010	0.00020	0.00020	0.00020	0.00020	0.0008
Vanadium Dissolved	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.1
Zinc Dissolved	mg/L	0.0050	0.0050	0.0050	0.0050	0.0051	0.0050	0.0050	0.0054	0.0050	0.0050	0.0050	0.0050	0.03
Phosphorous Dissolved	mg/L	0.013	0.013	0.013	0.013	0.016	0.02	0.014	0.013	0.013	0.013	0.013	0.013	Variable
Aluminum Total	mg/L	0.032	0.032	0.032	0.032	0.048	0.016	0.012	0.019	0.032	0.032	0.032	0.032	0.1
Antimony Total	mg/L	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0005	0.0004	0.0005	0.0005	0.0005	0.0005	-
Arsenic Total	mg/L	0.0005	0.0005	0.0005	0.0005	0.0004	0.0004	0.0005	0.0004	0.0005	0.0005	0.0005	0.0005	0.005
Barium Total	mg/L	0.02	0.02	0.02	0.02	0.0047	0.0059	0.02	0.0032	0.02	0.02	0.02	0.02	-
Beryllium Total	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.1
Boron Total	mg/L	0.1	0.1	0.1	0.1	0.05	0.05	0.1	0.05	0.1	0.1	0.1	0.1	0.5
Cadmium Total	mg/L	0.00001	0.00001	0.00001	0.00001	0.000013	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00012
Calcium Total	mg/L	12	12	12	12	12	13	12	12	12	12	12	12	-
Chromium Total	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Total	mg/L	0.0003	0.0003	0.0003	0.0003	0.002	0.002	0.0003	0.002	0.0003	0.0003	0.0003	0.0003	0.05
Copper Total	mg/L	0.0014	0.0014	0.0014	0.0014	0.002	0.0014	0.0012	0.0013	0.0014	0.0014	0.0014	0.0014	0.002
Iron Total	mg/L	0.28	0.28	0.28	0.28	**0.35**	0.23	0.17	0.3	0.28	0.28	0.28	0.28	0.3
Lead Total	mg/L	0.0005	0.0005	0.0005	0.0005	0.00011	0.0001	0.0005	0.00028	0.0005	0.0005	0.0005	0.0005	0.001
Lithium Total	mg/L	0.005	0.005	0.005	0.005	0.01	0.01	0.005	0.01	0.005	0.005	0.005	0.005	2.5
Magnesium Total	mg/L	5.9	5.9	5.9	5.9	3	6	5.8	5.7	5.9	5.9	5.9	5.9	-
Manganese Total	mg/L	0.023	0.023	0.023	0.023	0.094	0.02	0.023	0.024	0.023	0.023	0.023	0.023	0.2
Mercury Total	mg/L	0.00001	0.00001	0.00001	0.00001	**0.00002**	**0.00002**	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.000016
Molybdenum Total	mg/L	0.001	0.001	0.001	0.001	0.005	0.005	0.001	0.005	0.001	0.001	0.001	0.001	0.01
Nickel Total	mg/L	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.002	0.001	0.001	0.001	0.001	0.025
Selenium Total	mg/L	0.0001	0.0001	0.0001	0.0001	0.0004	0.0004	0.0001	0.0004	0.0001	0.0001	0.0001	0.0001	0.001
Silver Total	mg/L	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00025
Sodium Total	mg/L	19	19	19	19	6.2	19	19	19	19	19	19	19	-
Thallium Total	mg/L	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0008
Uranium Total	mg/L	0.0002	0.0002	0.0002	0.0002	0.0001	0.0001	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0008
Vanadium Total	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.1
Zinc Total	mg/L	0.005	0.005	0.005	0.005	0.0051	0.005	0.005	0.0054	0.005	0.005	0.005	0.005	0.03
Phosphorous Total	mg/L	0.013	0.013	0.013	0.013	0.016	0.02	0.014	0.013	0.013	0.013	0.013	0.013	Variable

TL-1 - 75th Percentile														
Parameter	**Units**	**January**	**February**	**March**	**April**	**May**	**June**	**July**	**August**	**September**	**October**	**November**	**December**	**Minimum Guideline**
TSS	mg/L	3.0	3.0	3.0	3.0	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	Variable
TDS	mg/L	170	170	170	170	150	160	130	160	170	170	170	170	-
Fluoride	mg/L	0.072	0.072	0.072	0.072	0.023	0.053	0.059	0.065	0.072	0.072	0.072	0.072	0.12
Chloride	mg/L	51	51	51	51	41	48	41	41	51	51	51	51	110
Free Cyanide	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	-
Total Cyanide	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	**0.0070**	0.0050	0.0050	0.0050	0.0050	0.005
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	0.050	0.050	0.050	0.050	0.054	0.050	0.050	0.050	0.050	0.050	0.050	0.050	1.54
Nitrate	mg/L as N	0.050	0.050	0.050	0.050	0.14	0.053	0.050	0.050	0.050	0.050	0.050	0.050	3
Nitrite	mg/L as N	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	60
Sulphate	mg/L	4.5	4.5	4.5	4.5	2.7	2.8	2.8	4.1	4.5	4.5	4.5	4.5	1000
Alkalinity	mg/L	35	35	35	35	35	36	38	38	35	35	35	35	-
Hardness	mg/L	39	39	39	39	60	53	33	43	39	39	39	39	-
Aluminum Dissolved	mg/L	0.048	0.048	0.048	0.048	**0.18**	0.027	0.019	0.038	0.048	0.048	0.048	0.048	0.1
Antimony Dissolved	mg/L	0.00050	0.00050	0.00050	0.00050	0.00040	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	-
Arsenic Dissolved	mg/L	0.00050	0.00050	0.00050	0.00050	0.00041	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.005
Barium Dissolved	mg/L	0.020	0.020	0.020	0.020	0.0080	0.020	0.020	0.020	0.020	0.020	0.020	0.020	-
Beryllium Dissolved	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.1
Boron Dissolved	mg/L	0.10	0.10	0.10	0.10	0.050	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.5
Cadmium Dissolved	mg/L	0.000010	0.000010	0.000010	0.000010	0.000017	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.00012
Calcium Dissolved	mg/L	15	15	15	15	12	15	12	14	15	15	15	15	-
Chromium Dissolved	mg/L	0.0010	0.0010	0.0010	0.0010	**0.0011**	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.001
Cobalt Dissolved	mg/L	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.05
Copper Dissolved	mg/L	0.0016	0.0016	0.0016	0.0016	**0.0040**	0.0016	0.0016	0.0015	0.0016	0.0016	0.0016	0.0016	0.002
Iron Dissolved	mg/L	**0.32**	**0.32**	**0.32**	**0.32**	**0.86**	0.29	0.25	**0.34**	**0.32**	**0.32**	**0.32**	**0.32**	0.3
Lead Dissolved	mg/L	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.00050	0.001
Lithium Dissolved	mg/L	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	2.5
Magnesium Dissolved	mg/L	6.8	6.8	6.8	6.8	8.0	7.0	6.0	6.2	6.8	6.8	6.8	6.8	-
Manganese Dissolved	mg/L	0.025	0.025	0.025	0.025	0.11	0.031	0.029	0.032	0.025	0.025	0.025	0.025	0.2
Mercury Dissolved	mg/L	0.000010	0.000010	0.000010	0.000010	**0.000020**	**0.000020**	**0.000020**	**0.000020**	0.000010	0.000010	0.000010	0.000010	0.000016
Molybdenum Dissolved	mg/L	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.01
Nickel Dissolved	mg/L	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.0020	0.025
Selenium Dissolved	mg/L	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.00040	0.001
Silver Dissolved	mg/L	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.000020	0.00025
Sodium Dissolved	mg/L	24	24	24	24	24	23	20	20	24	24	24	24	-
Thallium Dissolved	mg/L	0.00020	0.00020	0.00020	0.00020	0.00010	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.0008
Uranium Dissolved	mg/L	0.00020	0.00020	0.00020	0.00020	0.00010	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.00020	0.0008
Vanadium Dissolved	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.1
Zinc Dissolved	mg/L	0.0080	0.0080	0.0080	0.0080	0.010	0.0053	0.0050	0.017	0.0080	0.0080	0.0080	0.0080	0.03
Phosphorous Dissolved	mg/L	0.014	0.014	0.014	0.014	0.021	0.028	0.015	0.013	0.014	0.014	0.014	0.014	Variable
Aluminum Total	mg/L	0.048	0.048	0.048	0.048	**0.18**	0.027	0.019	0.038	0.048	0.048	0.048	0.048	0.1
Antimony Total	mg/L	0.0005	0.0005	0.0005	0.0005	0.0004	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	-
Arsenic Total	mg/L	0.0005	0.0005	0.0005	0.0005	0.00041	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.005
Barium Total	mg/L	0.02	0.02	0.02	0.02	0.008	0.02	0.02	0.02	0.02	0.02	0.02	0.02	-
Beryllium Total	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.1
Boron Total	mg/L	0.1	0.1	0.1	0.1	0.05	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.5
Cadmium Total	mg/L	0.00001	0.00001	0.00001	0.00001	0.000017	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00012
Calcium Total	mg/L	15	15	15	15	12	15	12	14	15	15	15	15	-
Chromium Total	mg/L	0.001	0.001	0.001	0.001	**0.0011**	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Cobalt Total	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.05
Copper Total	mg/L	0.0016	0.0016	0.0016	0.0016	**0.004**	0.0016	0.0016	0.0015	0.0016	0.0016	0.0016	0.0016	0.002
Iron Total	mg/L	**0.32**	**0.32**	**0.32**	**0.32**	**0.86**	0.29	0.25	**0.34**	**0.32**	**0.32**	**0.32**	**0.32**	0.3
Lead Total	mg/L	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.001
Lithium Total	mg/L	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	2.5
Magnesium Total	mg/L	6.8	6.8	6.8	6.8	8	7	6	6.2	6.8	6.8	6.8	6.8	-
Manganese Total	mg/L	0.025	0.025	0.025	0.025	0.11	0.031	0.029	0.032	0.025	0.025	0.025	0.025	0.2
Mercury Total	mg/L	0.00001	0.00001	0.00001	0.00001	**0.00002**	**0.00002**	**0.00002**	**0.00002**	0.00001	0.00001	0.00001	0.00001	0.000016
Molybdenum Total	mg/L	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01
Nickel Total	mg/L	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.025
Selenium Total	mg/L	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.001
Silver Total	mg/L	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00025
Sodium Total	mg/L	24	24	24	24	24	23	20	20	24	24	24	24	-
Thallium Total	mg/L	0.0002	0.0002	0.0002	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0008
Uranium Total	mg/L	0.0002	0.0002	0.0002	0.0002	0.0001	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0002	0.0008
Vanadium Total	mg/L	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.1
Zinc Total	mg/L	0.008	0.008	0.008	0.008	0.01	0.0053	0.005	0.017	0.008	0.008	0.008	0.008	0.03
Phosphorous Total	mg/L	0.014	0.014	0.014	0.014	0.021	0.028	0.015	0.013	0.014	0.014	0.014	0.014	Variable

Stickleback Lake B/G - Median														
Parameter	Units	January	February	March	April	May	June	July	August	September	October	November	December	Minimum Guideline
TSS	mg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	Variable
TDS	mg/L	98	98	98	54	54	54	92	91	98	98	98	98	-
Fluoride	mg/L	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.030	0.040	0.040	0.040	0.040	0.12
Chloride	mg/L	55	55	55	36	36	36	51	50	55	55	55	55	110
Free Cyanide	mg/L													-
Total Cyanide	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.005
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	0.011	0.011	0.011	0.020	0.020	0.020	0.019	0.012	0.011	0.011	0.011	0.011	1.54
Nitrate	mg/L as N	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	3
Nitrite	mg/L as N	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0025	0.0010	0.0010	0.0010	0.0010	0.0010	60
Sulphate	mg/L	3.0	3.0	3.0	3.0	3.0	3.0	3.0	0.90	3.0	3.0	3.0	3.0	1000
Alkalinity	mg/L	34	34	34	16	16	16	34	35	34	34	34	34	-
Hardness	mg/L	69	69	69	26	26	26	70	71	69	69	69	69	-
Aluminum Dissolved	mg/L	0.014	0.014	0.014	0.0093	0.0093	0.0093	0.016	0.010	0.014	0.014	0.014	0.014	0.1
Antimony Dissolved	mg/L	0.000012	0.000012	0.000012	0.0000070	0.0000070	0.0000070	0.0000062	0.000035	0.000012	0.000012	0.000012	0.000012	-
Arsenic Dissolved	mg/L	0.00047	0.00047	0.00047	0.00021	0.00021	0.00021	0.00048	0.00047	0.00047	0.00047	0.00047	0.00047	0.005
Barium Dissolved	mg/L	0.0059	0.0059	0.0059	0.0036	0.0036	0.0036	0.0067	0.0061	0.0059	0.0059	0.0059	0.0059	-
Beryllium Dissolved	mg/L	0.0000030	0.0000030	0.0000030	0.0000038	0.0000038	0.0000038	0.0000030	0.0000030	0.0000030	0.0000030	0.0000030	0.0000030	0.1
Boron Dissolved	mg/L	0.017	0.017	0.017	0.0079	0.0079	0.0079	0.017	0.020	0.017	0.017	0.017	0.017	0.5
Cadmium Dissolved	mg/L	0.0000049	0.0000049	0.0000049	0.0000038	0.0000038	0.0000038	0.0000024	0.0000027	0.0000049	0.0000049	0.0000049	0.0000049	0.00012
Calcium Dissolved	mg/L	18	18	18	6.8	6.8	6.8	17	18	18	18	18	18	-
Chromium Dissolved	mg/L	0.00018	0.00018	0.00018	0.00015	0.00015	0.00015	0.00013	0.00018	0.00018	0.00018	0.00018	0.00018	0.001
Cobalt Dissolved	mg/L	0.000067	0.000067	0.000067	0.000096	0.000096	0.000096	0.000066	0.00010	0.000067	0.000067	0.000067	0.000067	0.05
Copper Dissolved	mg/L	0.00039	0.00039	0.00039	0.00031	0.00031	0.00031	0.00051	0.00050	0.00039	0.00039	0.00039	0.00039	0.002
Iron Dissolved	mg/L	0.11	0.11	0.11	0.074	0.074	0.074	0.13	0.11	0.11	0.11	0.11	0.11	0.3
Lead Dissolved	mg/L	0.000041	0.000041	0.000041	0.000042	0.000042	0.000042	0.000043	0.00011	0.000041	0.000041	0.000041	0.000041	0.001
Lithium Dissolved	mg/L	0.0056	0.0056	0.0056	0.0050	0.0050	0.0050	0.0051	0.0051	0.0056	0.0056	0.0056	0.0056	2.5
Magnesium Dissolved	mg/L	6.6	6.6	6.6	2.4	2.4	2.4	6.2	6.5	6.6	6.6	6.6	6.6	-
Manganese Dissolved	mg/L	0.014	0.014	0.014	0.052	0.052	0.052	0.022	0.012	0.014	0.014	0.014	0.014	0.2
Mercury Dissolved	mg/L	0.0000070	0.0000070	0.0000070	0.0000011	0.0000011	0.0000011	0.00000060	0.000010	0.0000070	0.0000070	0.0000070	0.0000070	0.000016
Molybdenum Dissolved	mg/L	0.000042	0.000042	0.000042	0.000025	0.000025	0.000025	0.000034	0.000050	0.000042	0.000042	0.000042	0.000042	0.01
Nickel Dissolved	mg/L	0.00020	0.00020	0.00020	0.000099	0.000099	0.000099	0.000041	0.00031	0.00020	0.00020	0.00020	0.00020	0.025
Selenium Dissolved	mg/L	0.00076	0.00076	0.00076	0.00031	0.00031	0.00031	0.00057	0.00054	0.00076	0.00076	0.00076	0.00076	0.001
Silver Dissolved	mg/L	0.00000060	0.00000060	0.00000060	0.0000011	0.0000011	0.0000011	0.00000090	0.0000061	0.00000060	0.00000060	0.00000060	0.00000060	0.00025
Sodium Dissolved	mg/L	16	16	16	5.8	5.8	5.8	15	16	16	16	16	16	-
Thallium Dissolved	mg/L	0.0000083	0.0000083	0.0000083	0.0000032	0.0000032	0.0000032	0.0000091	0.000012	0.0000083	0.0000083	0.0000083	0.0000083	0.0008
Uranium Dissolved	mg/L	0.0000099	0.0000099	0.0000099	0.0000077	0.0000077	0.0000077	0.0000099	0.000010	0.0000099	0.0000099	0.0000099	0.0000099	0.0008
Vanadium Dissolved	mg/L	0.000058	0.000058	0.000058	0.00013	0.00013	0.00013	0.000058	0.00010	0.000058	0.000058	0.000058	0.000058	0.1
Zinc Dissolved	mg/L	0.0016	0.0016	0.0016	0.0029	0.0029	0.0029	0.0022	0.0011	0.0016	0.0016	0.0016	0.0016	0.03
Phosphorous Dissolved	mg/L	0.009	0.009	0.009	0.0086	0.0086	0.0086	0.0051	0.0089	0.009	0.009	0.009	0.009	Variable
Aluminum Total	mg/L	0.014	0.014	0.014	0.0093	0.0093	0.0093	0.016	0.01	0.014	0.014	0.014	0.014	0.1
Antimony Total	mg/L	0.000012	0.000012	0.000012	0.000007	0.000007	0.000007	0.0000062	0.000035	0.000012	0.000012	0.000012	0.000012	-
Arsenic Total	mg/L	0.00047	0.00047	0.00047	0.00021	0.00021	0.00021	0.00048	0.00047	0.00047	0.00047	0.00047	0.00047	0.005
Barium Total	mg/L	0.0059	0.0059	0.0059	0.0036	0.0036	0.0036	0.0067	0.0061	0.0059	0.0059	0.0059	0.0059	-
Beryllium Total	mg/L	0.000003	0.000003	0.000003	0.0000038	0.0000038	0.0000038	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.1
Boron Total	mg/L	0.017	0.017	0.017	0.0079	0.0079	0.0079	0.017	0.02	0.017	0.017	0.017	0.017	0.5
Cadmium Total	mg/L	0.0000049	0.0000049	0.0000049	0.0000038	0.0000038	0.0000038	0.0000024	0.0000027	0.0000049	0.0000049	0.0000049	0.0000049	0.00012
Calcium Total	mg/L	18	18	18	6.8	6.8	6.8	17	18	18	18	18	18	-
Chromium Total	mg/L	0.00018	0.00018	0.00018	0.00015	0.00015	0.00015	0.00013	0.00018	0.00018	0.00018	0.00018	0.00018	0.001
Cobalt Total	mg/L	0.000067	0.000067	0.000067	0.000096	0.000096	0.000096	0.000066	0.0001	0.000067	0.000067	0.000067	0.000067	0.05
Copper Total	mg/L	0.00039	0.00039	0.00039	0.00031	0.00031	0.00031	0.00051	0.0005	0.00039	0.00039	0.00039	0.00039	0.002
Iron Total	mg/L	0.11	0.11	0.11	0.074	0.074	0.074	0.13	0.11	0.11	0.11	0.11	0.11	0.3
Lead Total	mg/L	0.000041	0.000041	0.000041	0.000042	0.000042	0.000042	0.000043	0.00011	0.000041	0.000041	0.000041	0.000041	0.001
Lithium Total	mg/L	0.0056	0.0056	0.0056	0.005	0.005	0.005	0.0051	0.0051	0.0056	0.0056	0.0056	0.0056	2.5
Magnesium Total	mg/L	6.6	6.6	6.6	2.4	2.4	2.4	6.2	6.5	6.6	6.6	6.6	6.6	-
Manganese Total	mg/L	0.014	0.014	0.014	0.052	0.052	0.052	0.022	0.012	0.014	0.014	0.014	0.014	0.2
Mercury Total	mg/L	0.000007	0.000007	0.000007	0.0000011	0.0000011	0.0000011	0.0000006	0.00001	0.000007	0.000007	0.000007	0.000007	0.000016
Molybdenum Total	mg/L	0.000042	0.000042	0.000042	0.000025	0.000025	0.000025	0.000034	0.00005	0.000042	0.000042	0.000042	0.000042	0.01
Nickel Total	mg/L	0.0002	0.0002	0.0002	0.000099	0.000099	0.000099	0.000041	0.00031	0.0002	0.0002	0.0002	0.0002	0.025
Selenium Total	mg/L	0.00076	0.00076	0.00076	0.00031	0.00031	0.00031	0.00057	0.00054	0.00076	0.00076	0.00076	0.00076	0.001
Silver Total	mg/L	0.0000006	0.0000006	0.0000006	0.0000011	0.0000011	0.0000011	0.0000009	0.0000061	0.0000006	0.0000006	0.0000006	0.0000006	0.00025
Sodium Total	mg/L	16	16	16	5.8	5.8	5.8	15	16	16	16	16	16	-
Thallium Total	mg/L	0.0000083	0.0000083	0.0000083	0.0000032	0.0000032	0.0000032	0.0000091	0.000012	0.0000083	0.0000083	0.0000083	0.0000083	0.0008
Uranium Total	mg/L	0.0000099	0.0000099	0.0000099	0.0000077	0.0000077	0.0000077	0.0000099	0.00001	0.0000099	0.0000099	0.0000099	0.0000099	0.0008
Vanadium Total	mg/L	0.000058	0.000058	0.000058	0.00013	0.00013	0.00013	0.000058	0.0001	0.000058	0.000058	0.000058	0.000058	0.1
Zinc Total	mg/L	0.0016	0.0016	0.0016	0.0029	0.0029	0.0029	0.0022	0.0011	0.0016	0.0016	0.0016	0.0016	0.03
Phosphorous Total	mg/L	0.009	0.009	0.009	0.0086	0.0086	0.0086	0.0051	0.0089	0.009	0.009	0.009	0.009	Variable

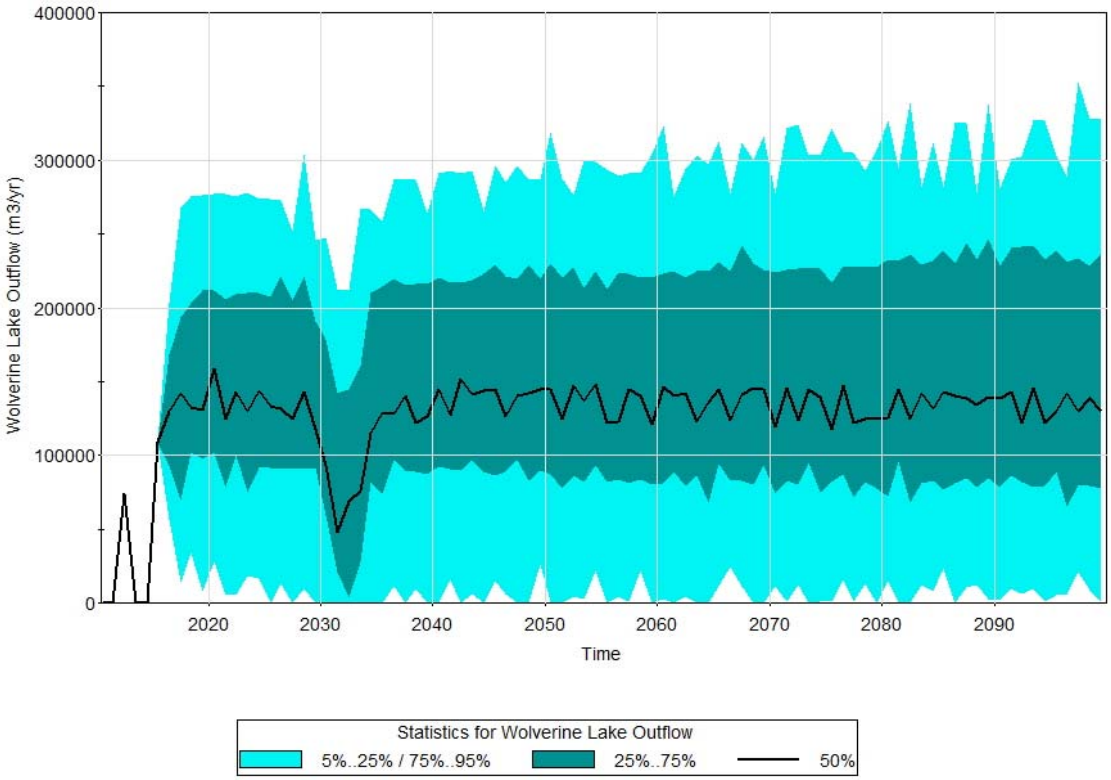
Stickleback Lake B/G - 75th Percentile														
Parameter	Units	January	February	March	April	May	June	July	August	September	October	November	December	Minimum Guideline
TSS	mg/L	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	Variable
TDS	mg/L	98	98	98	54	54	54	91	91	98	98	98	98	-
Fluoride	mg/L	0.040	0.040	0.040	0.040	0.040	0.040	0.035	0.030	0.040	0.040	0.040	0.040	0.12
Chloride	mg/L	55	55	55	36	36	36	51	50	55	55	55	55	110
Free Cyanide	mg/L													-
Total Cyanide	mg/L	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.005
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	0.011	0.011	0.011	0.020	0.020	0.020	0.019	0.012	0.011	0.011	0.011	0.011	1.54
Nitrate	mg/L as N	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	0.0050	3
Nitrite	mg/L as N	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0025	0.0018	0.0010	0.0010	0.0010	0.0010	60
Sulphate	mg/L	3.0	3.0	3.0	3.0	3.0	3.0	2.0	0.90	3.0	3.0	3.0	3.0	1000
Alkalinity	mg/L	34	34	34	16	16	16	34	35	34	34	34	34	-
Hardness	mg/L	69	69	69	26	26	26	70	71	69	69	69	69	-
Aluminum Dissolved	mg/L	0.014	0.014	0.014	0.0093	0.0093	0.0093	0.016	0.010	0.014	0.014	0.014	0.014	0.1
Antimony Dissolved	mg/L	0.000012	0.000012	0.000012	0.0000070	0.0000070	0.0000070	0.0000062	0.000035	0.000012	0.000012	0.000012	0.000012	-
Arsenic Dissolved	mg/L	0.00047	0.00047	0.00047	0.00021	0.00021	0.00021	0.00048	0.00047	0.00047	0.00047	0.00047	0.00047	0.005
Barium Dissolved	mg/L	0.0059	0.0059	0.0059	0.0036	0.0036	0.0036	0.0067	0.0061	0.0059	0.0059	0.0059	0.0059	-
Beryllium Dissolved	mg/L	0.0000030	0.0000030	0.0000030	0.0000038	0.0000038	0.0000038	0.0000030	0.0000030	0.0000030	0.0000030	0.0000030	0.0000030	0.1
Boron Dissolved	mg/L	0.017	0.017	0.017	0.0079	0.0079	0.0079	0.017	0.020	0.017	0.017	0.017	0.017	0.5
Cadmium Dissolved	mg/L	0.0000049	0.0000049	0.0000049	0.0000038	0.0000038	0.0000038	0.0000024	0.0000027	0.0000049	0.0000049	0.0000049	0.0000049	0.00012
Calcium Dissolved	mg/L	18	18	18	6.8	6.8	6.8	17	18	18	18	18	18	-
Chromium Dissolved	mg/L	0.00018	0.00018	0.00018	0.00015	0.00015	0.00015	0.00013	0.00018	0.00018	0.00018	0.00018	0.00018	0.001
Cobalt Dissolved	mg/L	0.000067	0.000067	0.000067	0.000096	0.000096	0.000096	0.000066	0.00010	0.000067	0.000067	0.000067	0.000067	0.05
Copper Dissolved	mg/L	0.00039	0.00039	0.00039	0.00031	0.00031	0.00031	0.00051	0.00050	0.00039	0.00039	0.00039	0.00039	0.002
Iron Dissolved	mg/L	0.11	0.11	0.11	0.074	0.074	0.074	0.13	0.11	0.11	0.11	0.11	0.11	0.3
Lead Dissolved	mg/L	0.000041	0.000041	0.000041	0.000042	0.000042	0.000042	0.000043	0.00011	0.000041	0.000041	0.000041	0.000041	0.001
Lithium Dissolved	mg/L	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0051	0.0056	0.0056	0.0056	0.0056	2.5
Magnesium Dissolved	mg/L	6.6	6.6	6.6	2.4	2.4	2.4	6.2	6.5	6.6	6.6	6.6	6.6	-
Manganese Dissolved	mg/L	0.014	0.014	0.014	0.052	0.052	0.052	0.022	0.012	0.014	0.014	0.014	0.014	0.2
Mercury Dissolved	mg/L	0.0000070	0.0000070	0.0000070	0.0000011	0.0000011	0.0000011	0.00000060	0.000010	0.0000070	0.0000070	0.0000070	0.0000070	0.000016
Molybdenum Dissolved	mg/L	0.000042	0.000042	0.000042	0.000025	0.000025	0.000025	0.000034	0.000050	0.000042	0.000042	0.000042	0.000042	0.01
Nickel Dissolved	mg/L	0.00020	0.00020	0.00020	0.000099	0.000099	0.000099	0.000041	0.00031	0.00020	0.00020	0.00020	0.00020	0.025
Selenium Dissolved	mg/L	0.00076	0.00076	0.00076	0.00031	0.00031	0.00031	0.00057	0.00054	0.00076	0.00076	0.00076	0.00076	0.001
Silver Dissolved	mg/L	0.00000060	0.00000060	0.00000060	0.0000011	0.0000011	0.0000011	0.00000090	0.0000061	0.00000060	0.00000060	0.00000060	0.0000006	0.00025
Sodium Dissolved	mg/L	16	16	16	5.8	5.8	5.8	15	16	16	16	16	16	-
Thallium Dissolved	mg/L	0.0000083	0.0000083	0.0000083	0.0000032	0.0000032	0.0000032	0.0000091	0.000012	0.0000083	0.0000083	0.0000083	0.0000083	0.0008
Uranium Dissolved	mg/L	0.0000099	0.0000099	0.0000099	0.0000077	0.0000077	0.0000077	0.0000099	0.000010	0.0000099	0.0000099	0.0000099	0.0000099	0.0008
Vanadium Dissolved	mg/L	0.000058	0.000058	0.000058	0.00013	0.00013	0.00013	0.000058	0.00010	0.000058	0.000058	0.000058	0.000058	0.1
Zinc Dissolved	mg/L	0.0016	0.0016	0.0016	0.0029	0.0029	0.0029	0.0022	0.0011	0.0016	0.0016	0.0016	0.0016	0.03
Phosphorous Dissolved	mg/L	0.009	0.009	0.009	0.0086	0.0086	0.0086	0.0051	0.0089	0.009	0.009	0.009	0.009	Variable
Aluminum Total	mg/L	0.014	0.014	0.014	0.0093	0.0093	0.0093	0.016	0.01	0.014	0.014	0.014	0.014	0.1
Antimony Total	mg/L	0.000012	0.000012	0.000012	0.000007	0.000007	0.000007	0.0000062	0.000035	0.000012	0.000012	0.000012	0.000012	-
Arsenic Total	mg/L	0.00047	0.00047	0.00047	0.00021	0.00021	0.00021	0.00048	0.00047	0.00047	0.00047	0.00047	0.00047	0.005
Barium Total	mg/L	0.0059	0.0059	0.0059	0.0036	0.0036	0.0036	0.0067	0.0061	0.0059	0.0059	0.0059	0.0059	-
Beryllium Total	mg/L	0.000003	0.000003	0.000003	0.0000038	0.0000038	0.0000038	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.1
Boron Total	mg/L	0.017	0.017	0.017	0.0079	0.0079	0.0079	0.017	0.02	0.017	0.017	0.017	0.017	0.5
Cadmium Total	mg/L	0.0000049	0.0000049	0.0000049	0.0000038	0.0000038	0.0000038	0.0000024	0.0000027	0.0000049	0.0000049	0.0000049	0.0000049	0.00012
Calcium Total	mg/L	18	18	18	6.8	6.8	6.8	17	18	18	18	18	18	-
Chromium Total	mg/L	0.00018	0.00018	0.00018	0.00015	0.00015	0.00015	0.00013	0.00018	0.00018	0.00018	0.00018	0.00018	0.001
Cobalt Total	mg/L	0.000067	0.000067	0.000067	0.000096	0.000096	0.000096	0.000066	0.0001	0.000067	0.000067	0.000067	0.000067	0.05
Copper Total	mg/L	0.00039	0.00039	0.00039	0.00031	0.00031	0.00031	0.00051	0.0005	0.00039	0.00039	0.00039	0.00039	0.002
Iron Total	mg/L	0.11	0.11	0.11	0.074	0.074	0.074	0.13	0.11	0.11	0.11	0.11	0.11	0.3
Lead Total	mg/L	0.000041	0.000041	0.000041	0.000042	0.000042	0.000042	0.000043	0.00011	0.000041	0.000041	0.000041	0.000041	0.001
Lithium Total	mg/L	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0056	0.0051	0.0056	0.0056	0.0056	0.0056	2.5
Magnesium Total	mg/L	6.6	6.6	6.6	2.4	2.4	2.4	6.2	6.5	6.6	6.6	6.6	6.6	-
Manganese Total	mg/L	0.014	0.014	0.014	0.052	0.052	0.052	0.022	0.012	0.014	0.014	0.014	0.014	0.2
Mercury Total	mg/L	0.000007	0.000007	0.000007	0.0000011	0.0000011	0.0000011	0.0000006	0.00001	0.000007	0.000007	0.000007	0.000007	0.000016
Molybdenum Total	mg/L	0.000042	0.000042	0.000042	0.000025	0.000025	0.000025	0.000034	0.00005	0.000042	0.000042	0.000042	0.000042	0.01
Nickel Total	mg/L	0.0002	0.0002	0.0002	0.000099	0.000099	0.000099	0.000041	0.00031	0.0002	0.0002	0.0002	0.0002	0.025
Selenium Total	mg/L	0.00076	0.00076	0.00076	0.00031	0.00031	0.00031	0.00057	0.00054	0.00076	0.00076	0.00076	0.00076	0.001
Silver Total	mg/L	0.0000006	0.0000006	0.0000006	0.0000011	0.0000011	0.0000011	0.0000009	0.0000061	0.0000006	0.0000006	0.0000006	0.0000006	0.00025
Sodium Total	mg/L	16	16	16	5.8	5.8	5.8	15	16	16	16	16	16	-
Thallium Total	mg/L	0.0000083	0.0000083	0.0000083	0.0000032	0.0000032	0.0000032	0.0000091	0.000012	0.0000083	0.0000083	0.0000083	0.0000083	0.0008
Uranium Total	mg/L	0.0000099	0.0000099	0.0000099	0.0000077	0.0000077	0.0000077	0.0000099	0.00001	0.0000099	0.0000099	0.0000099	0.0000099	0.0008
Vanadium Total	mg/L	0.000058	0.000058	0.000058	0.00013	0.00013	0.00013	0.000058	0.0001	0.000058	0.000058	0.000058	0.000058	0.1
Zinc Total	mg/L	0.0016	0.0016	0.0016	0.0029	0.0029	0.0029	0.0022	0.0011	0.0016	0.0016	0.0016	0.0016	0.03
Phosphorous Total	mg/L	0.009	0.009	0.009	0.0086	0.0086	0.0086	0.0051	0.0089	0.009	0.009	0.009	0.009	Variable

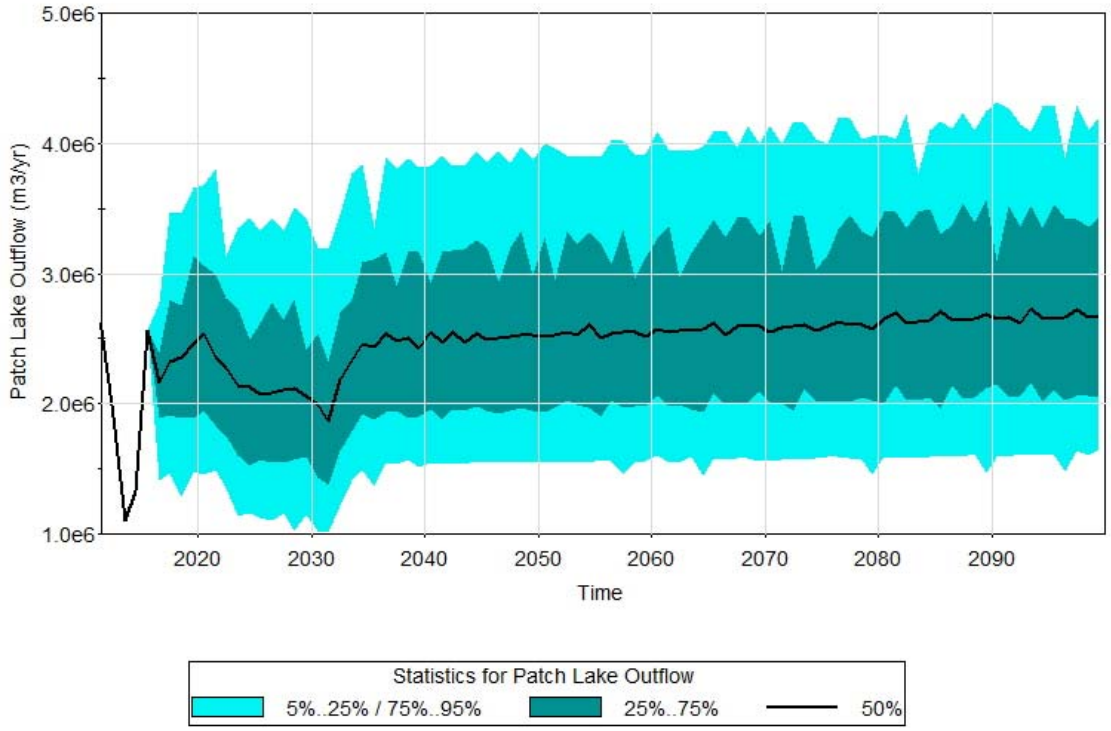
Intercepted Groundwater (without backfill loading)					
Parameter	Units	Madird North	Madrid South	Doris	Minimum Guideline
TSS	mg/L	5.6	5.2	4.1	Variable
TDS	mg/L	4,200	18,000	32,000	-
Fluoride	mg/L	0.14	0.42	0.73	0.12
Chloride	mg/L	2,400	10,000	18,000	110
Free Cyanide	mg/L	0.00098	0.00091	0.00071	-
Total Cyanide	mg/L	0.00098	0.00091	0.00071	0.005
WAD Cyanide	mg/L	-	-	-	-
Cyanate	mg/L	-	-	-	-
Thiocyanate	mg/L	-	-	-	-
Ammonia	mg/L as N	0.44	1.9	3.4	1.54
Nitrate	mg/L as N	0.12	0.51	0.93	3
Nitrite	mg/L as N	0.013	0.054	0.097	60
Sulphate	mg/L	250	1,100	1,900	1000
Alkalinity	mg/L	38	64	92	-
Hardness	mg/L	1,500	6,200	11,000	-
Aluminum Dissolved	mg/L	0.051	0.048	0.038	0.1
Antimony Dissolved	mg/L	0.00014	0.00053	0.00094	-
Arsenic Dissolved	mg/L	0.00061	0.0015	0.0024	0.005
Barium Dissolved	mg/L	0.018	0.068	0.12	-
Beryllium Dissolved	mg/L	0.000066	0.00027	0.00048	0.1
Boron Dissolved	mg/L	0.39	1.6	2.8	0.5
Cadmium Dissolved	mg/L	0.000019	0.000066	0.00012	0.00012
Calcium Dissolved	mg/L	260	1,100	2,000	-
Chromium Dissolved	mg/L	0.00050	0.00050	0.00050	0.001
Cobalt Dissolved	mg/L	0.000067	0.00012	0.00018	0.05
Copper Dissolved	mg/L	0.0013	0.0013	0.0011	0.002
Iron Dissolved	mg/L	0.67	2.6	4.7	0.3
Lead Dissolved	mg/L	0.000081	0.00018	0.00029	0.001
Lithium Dissolved	mg/L	0.047	0.19	0.34	2.5
Magnesium Dissolved	mg/L	170	730	1,300	-
Manganese Dissolved	mg/L	0.23	0.94	1.7	0.2
Mercury Dissolved	mg/L	0.0000066	0.000027	0.000048	0.000016
Molybdenum Dissolved	mg/L	0.0025	0.010	0.018	0.01
Nickel Dissolved	mg/L	0.00065	0.0010	0.0014	0.025
Selenium Dissolved	mg/L	0.00042	0.0012	0.0019	0.001
Silver Dissolved	mg/L	0.000017	0.000056	0.000097	0.00025
Sodium Dissolved	mg/L	1,100	4,800	8,700	-
Thallium Dissolved	mg/L	0.0000079	0.000028	0.000048	0.0008
Uranium Dissolved	mg/L	0.000039	0.000050	0.000062	0.0008
Vanadium Dissolved	mg/L	0.00021	0.00035	0.00049	0.1
Zinc Dissolved	mg/L	0.022	0.085	0.15	0.03
Phosphorous Dissolved	mg/L	0.15	0.55	0.97	Variable
Aluminum Total	mg/L	0.051	0.048	0.038	0.1
Antimony Total	mg/L	0.00014	0.00053	0.00094	-
Arsenic Total	mg/L	0.00061	0.0015	0.0024	0.005
Barium Total	mg/L	0.018	0.068	0.12	-
Beryllium Total	mg/L	0.000066	0.00027	0.00048	0.1
Boron Total	mg/L	0.39	1.6	2.8	0.5
Cadmium Total	mg/L	0.000019	0.000066	0.00012	0.00012
Calcium Total	mg/L	260	1,100	2,000	-
Chromium Total	mg/L	0.00050	0.00050	0.00050	0.001
Cobalt Total	mg/L	0.000067	0.00012	0.00018	0.05
Copper Total	mg/L	0.0013	0.0013	0.0011	0.002
Iron Total	mg/L	0.67	2.6	4.7	0.3
Lead Total	mg/L	0.000081	0.00018	0.00029	0.001
Lithium Total	mg/L	0.047	0.19	0.34	2.5
Magnesium Total	mg/L	170	730	1,300	-
Manganese Total	mg/L	0.23	0.94	1.7	0.2
Mercury Total	mg/L	0.0000066	0.000027	0.000048	0.000016
Molybdenum Total	mg/L	0.0025	0.010	0.018	0.01
Nickel Total	mg/L	0.00065	0.0010	0.0014	0.025
Selenium Total	mg/L	0.00042	0.0012	0.0019	0.001
Silver Total	mg/L	0.000017	0.000056	0.000097	0.00025
Sodium Total	mg/L	1,100	4,800	8,700	-
Thallium Total	mg/L	0.0000079	0.000028	0.000048	0.0008
Uranium Total	mg/L	0.000039	0.000050	0.000062	0.0008
Vanadium Total	mg/L	0.00021	0.00035	0.00049	0.1
Zinc Total	mg/L	0.022	0.085	0.15	0.03
Phosphorous Total	mg/L	0.15	0.55	0.97	Variable

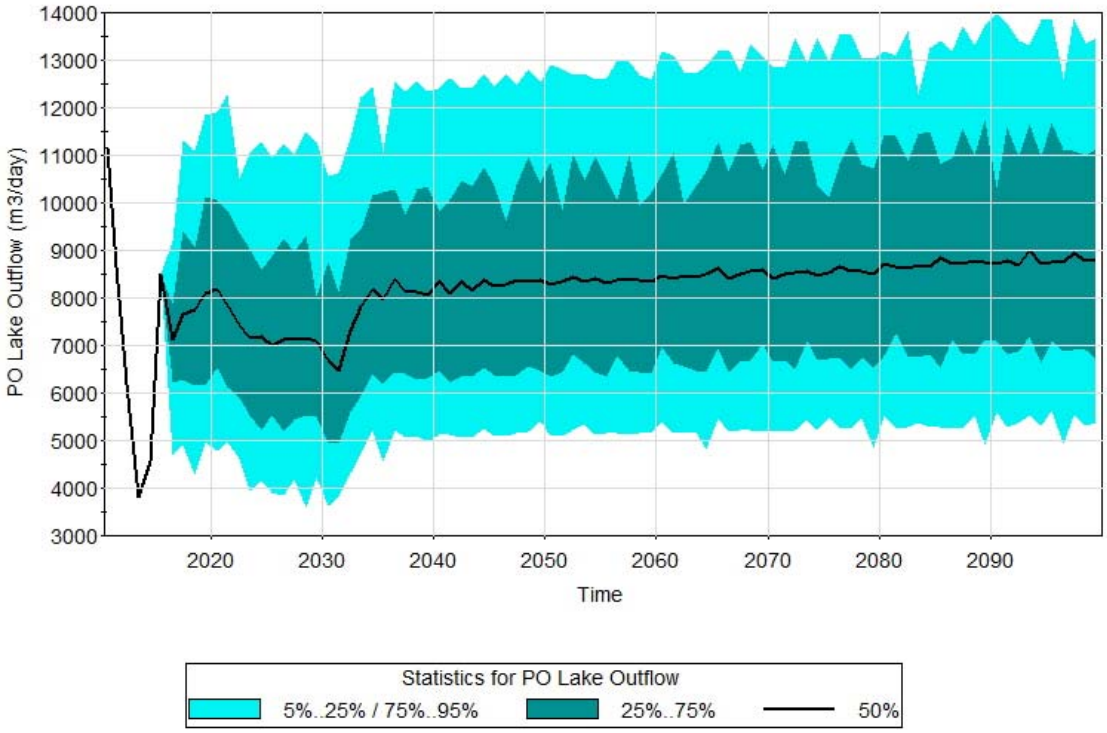
Appendix B: Water Balance Results

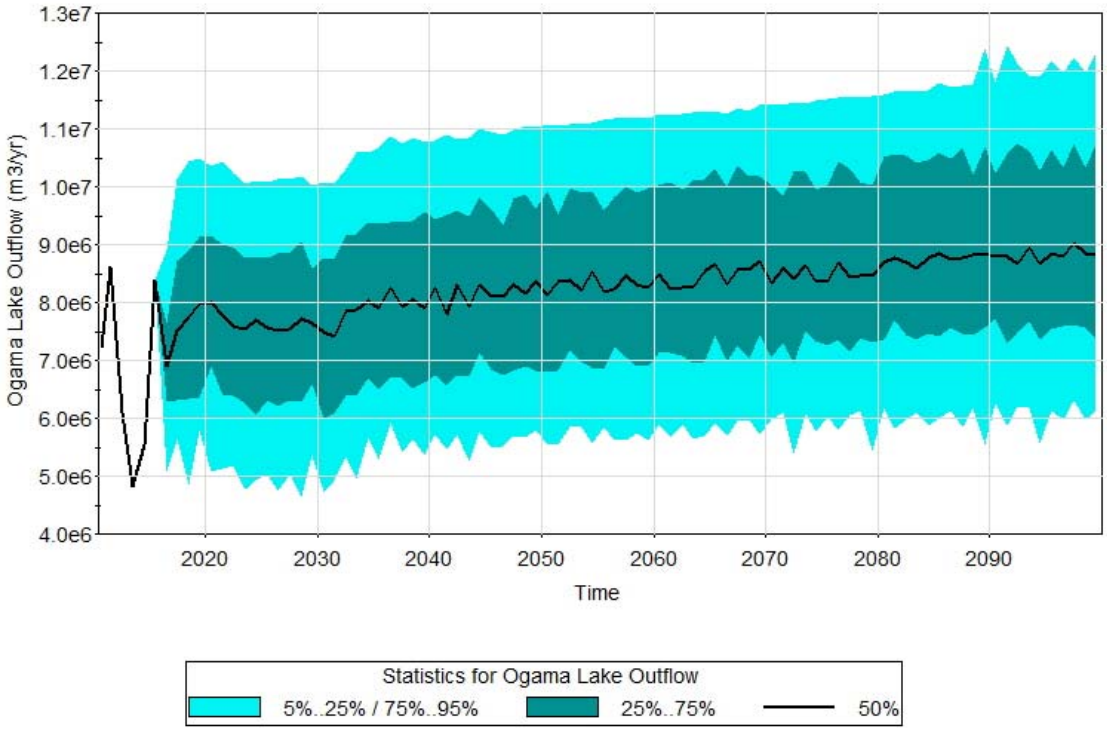
Appendix B1: Stream Flows

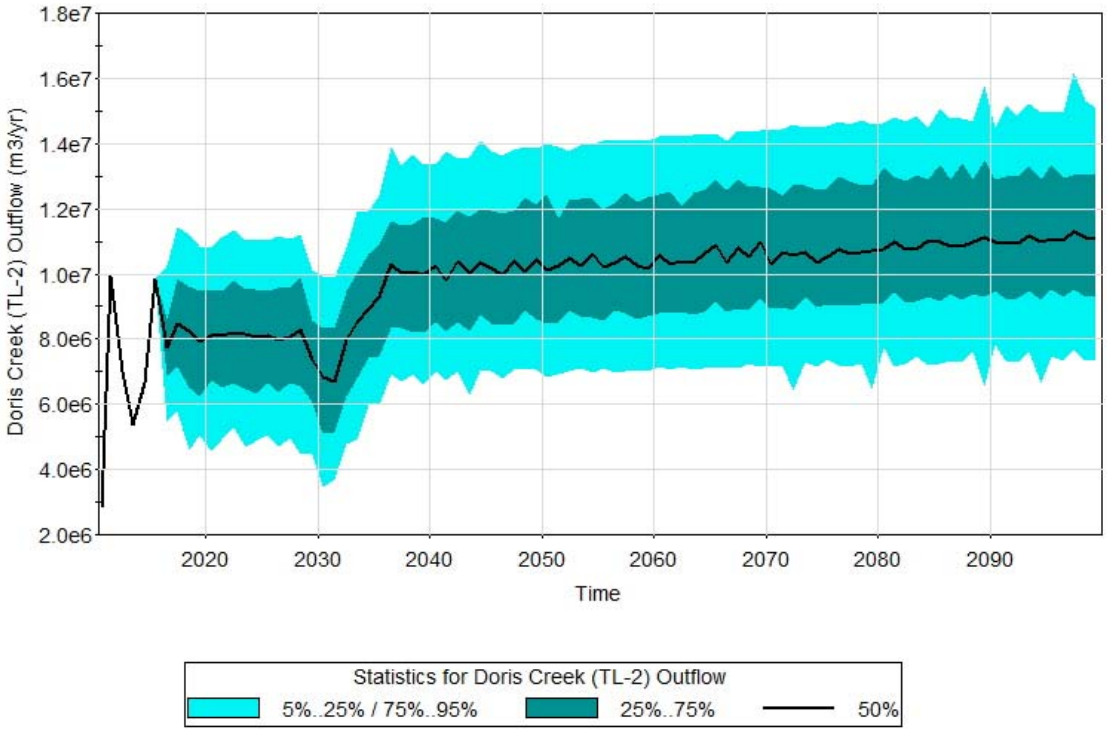
Doris Watershed

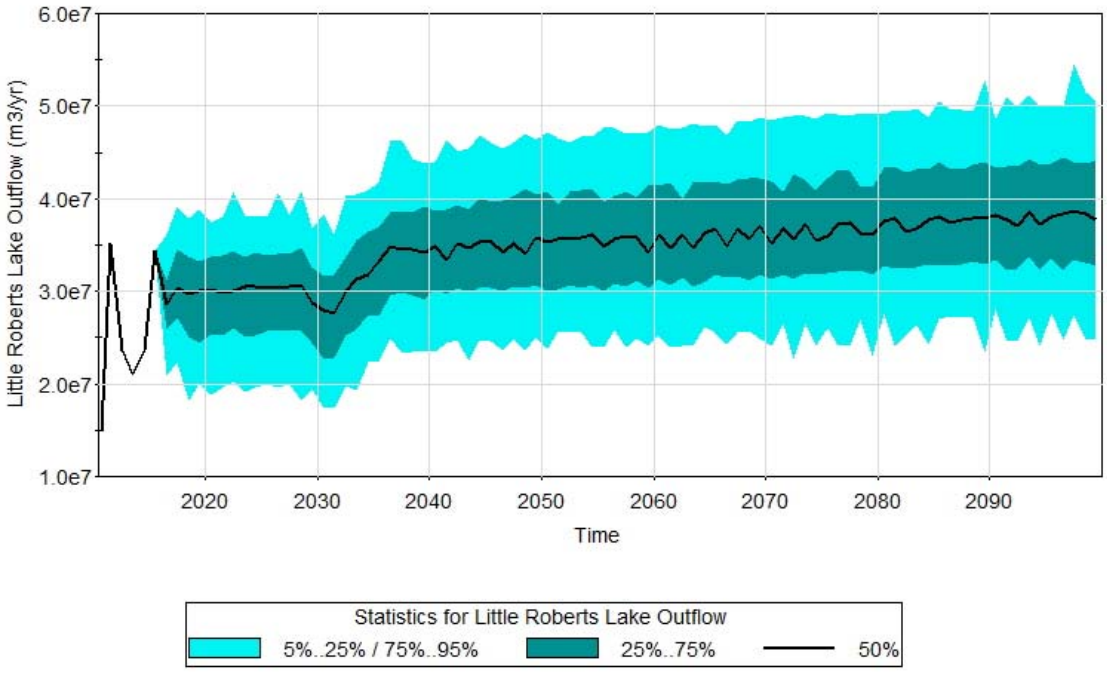


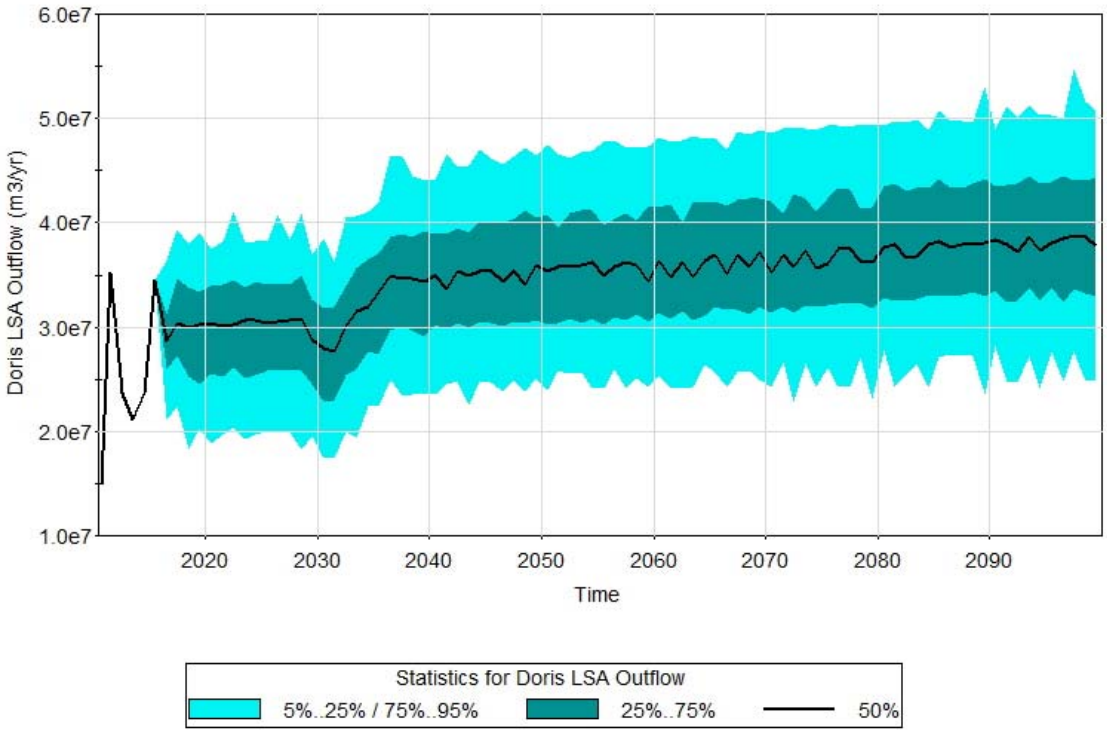



PO Lake Outflow (m3/day)
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for PO Lake Outflow
5%..25% / 75%..95%
25%..75%
50%

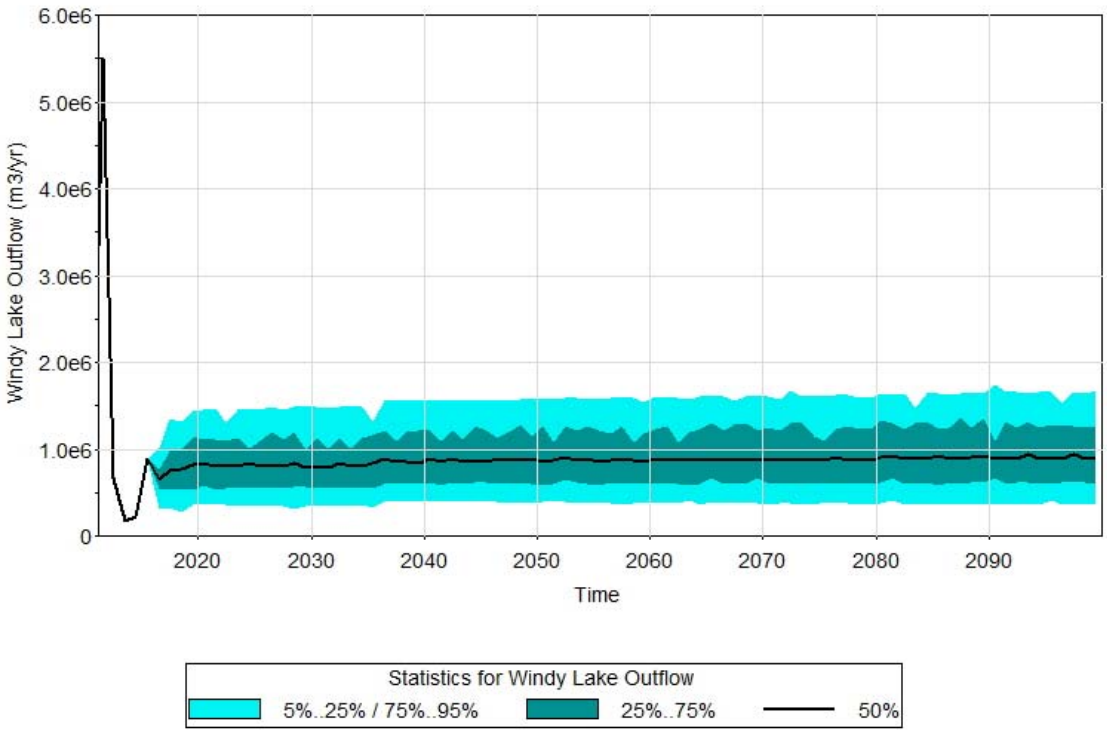

Ogama Lake Outflow (m3/yr)
1.3e7
1.2e7
1.1e7
1.0e7
9.0e6
8.0e6
7.0e6
6.0e6
5.0e6
4.0e6
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Ogama Lake Outflow
5%..25% / 75%..95%
25%..75%
50%

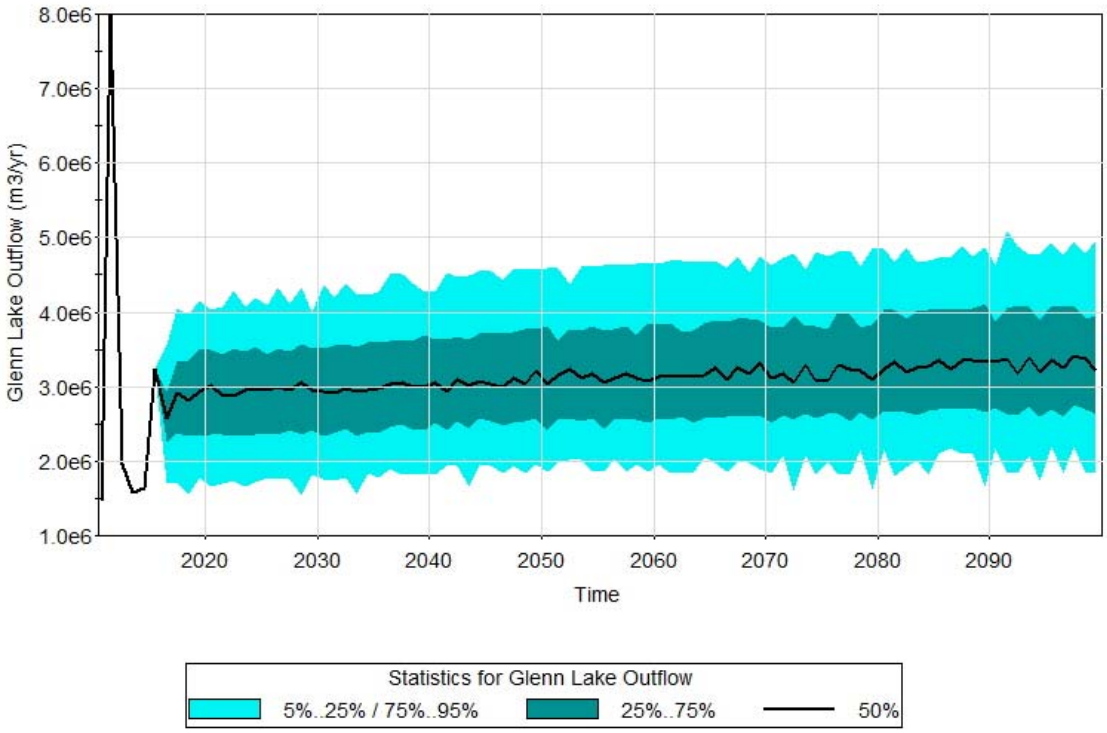

1.8e7
1.6e7
1.4e7
1.2e7
1.0e7
8.0e6
6.0e6
4.0e6
2.0e6
Doris Creek (TL-2) Outflow (m3/yr)
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Doris Creek (TL-2) Outflow
5%..25% / 75%..95%
25%..75%
50%

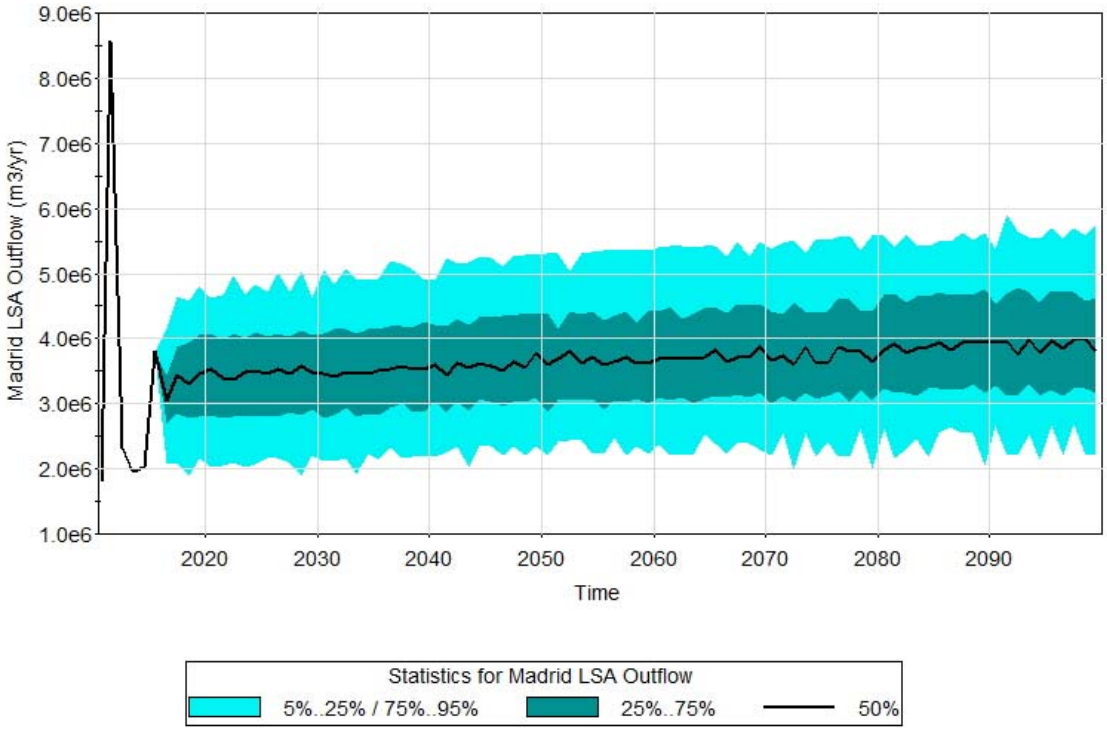

6.0e7
5.0e7
4.0e7
3.0e7
2.0e7
1.0e7
Little Roberts Lake Outflow (m3/yr)
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Little Roberts Lake Outflow
5%..25% / 75%..95%
25%..75%
50%



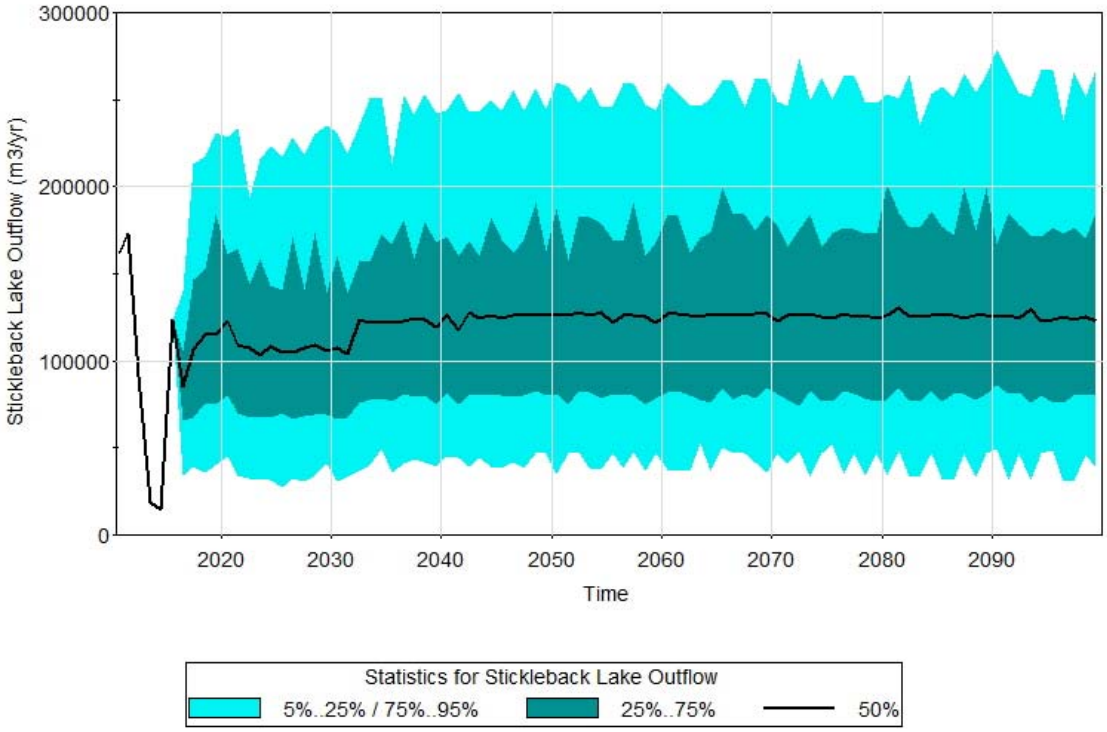
Windy Watershed

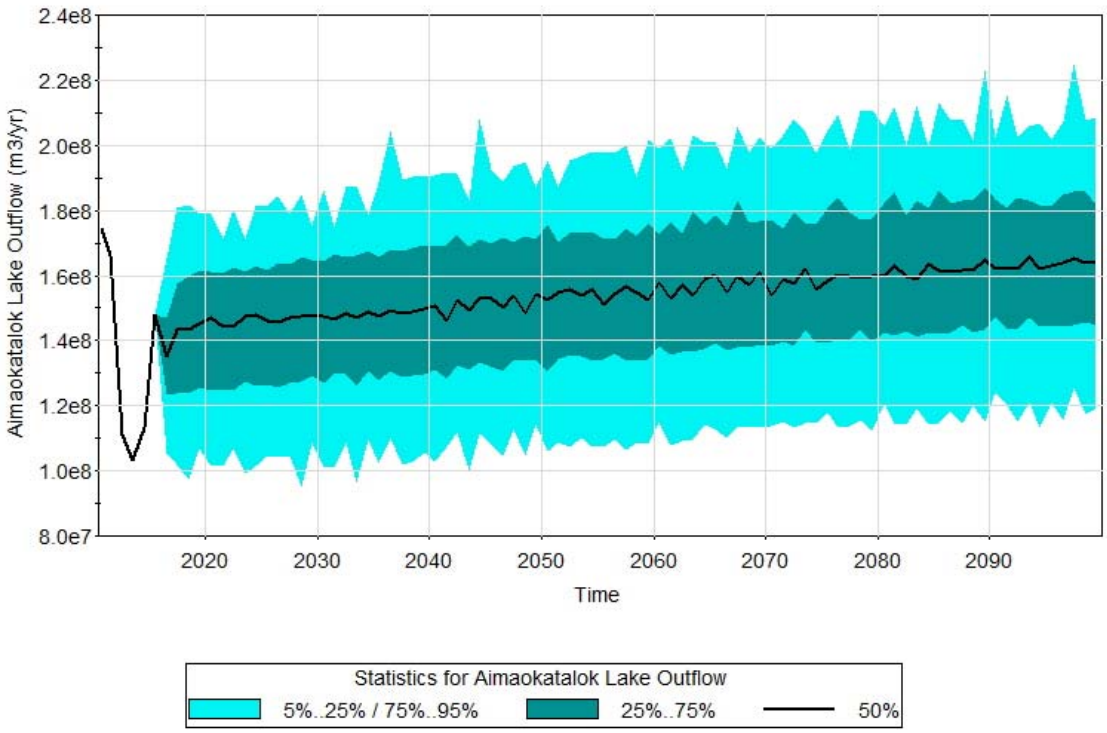


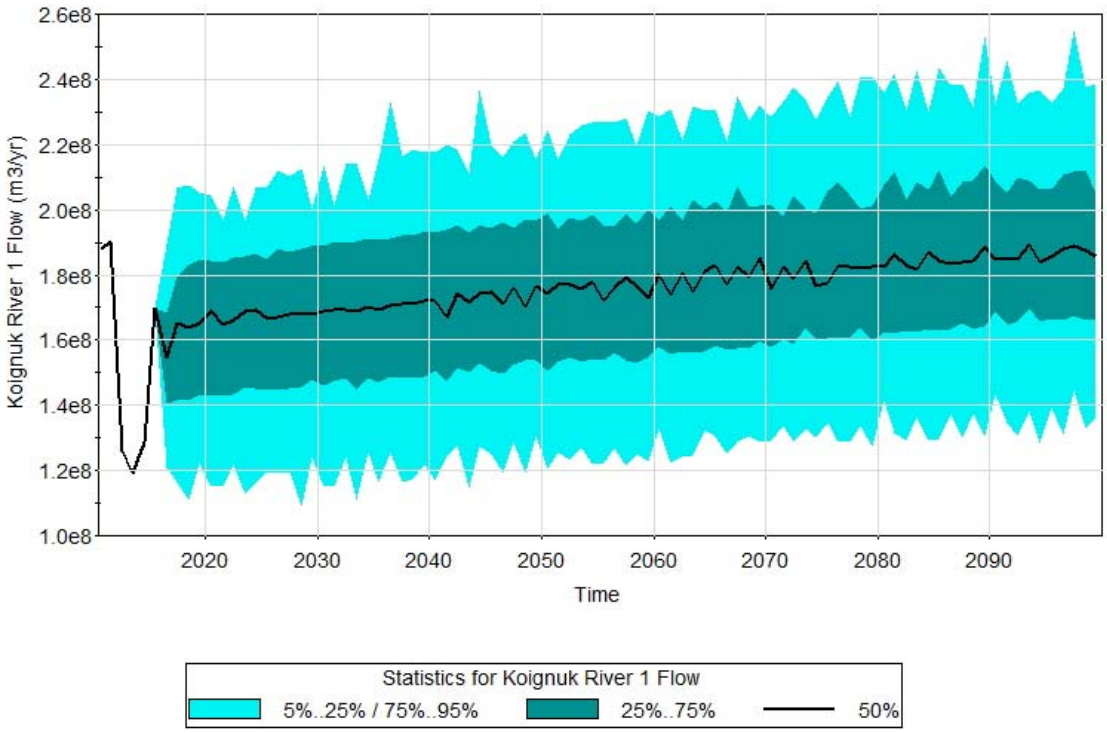

8.0e6
7.0e6
6.0e6
5.0e6
4.0e6
3.0e6
2.0e6
1.0e6
Glenn Lake Outflow (m3/yr)
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Glenn Lake Outflow
5%..25% / 75%..95%
25%..75%
50%

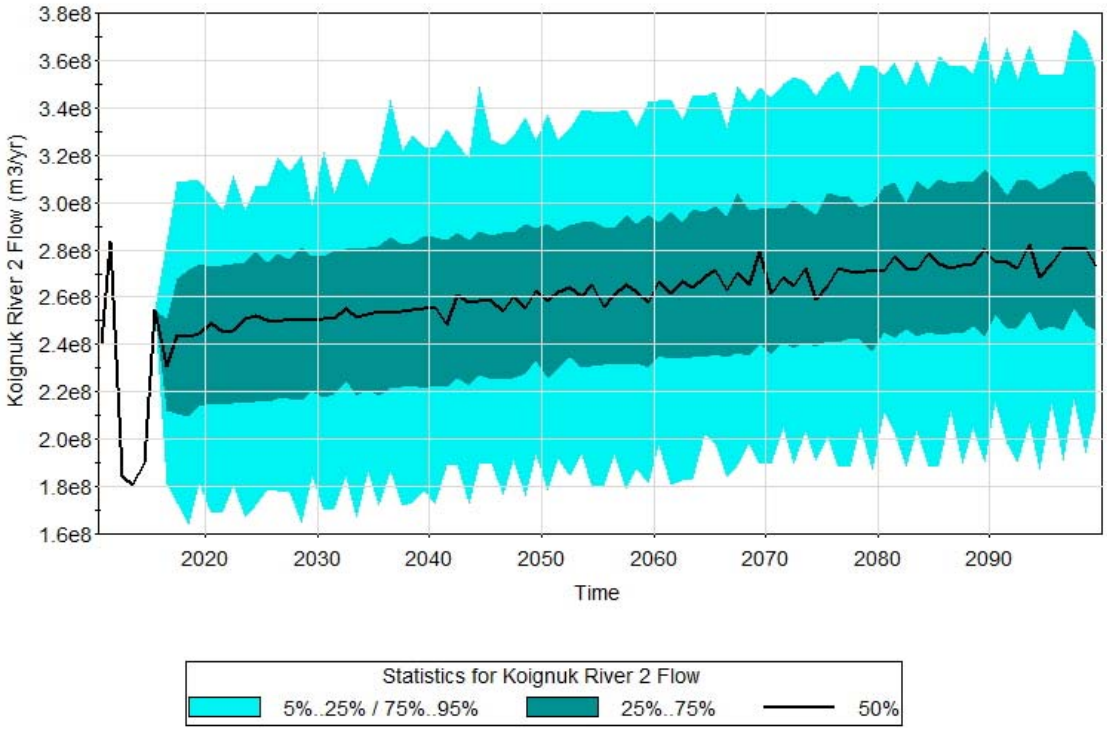

9.0e6
8.0e6
7.0e6
6.0e6
5.0e6
4.0e6
3.0e6
2.0e6
1.0e6
Madrid LSA Outflow (m3/yr)
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Madrid LSA Outflow
5%..25% / 75%..95%
25%..75%
50%

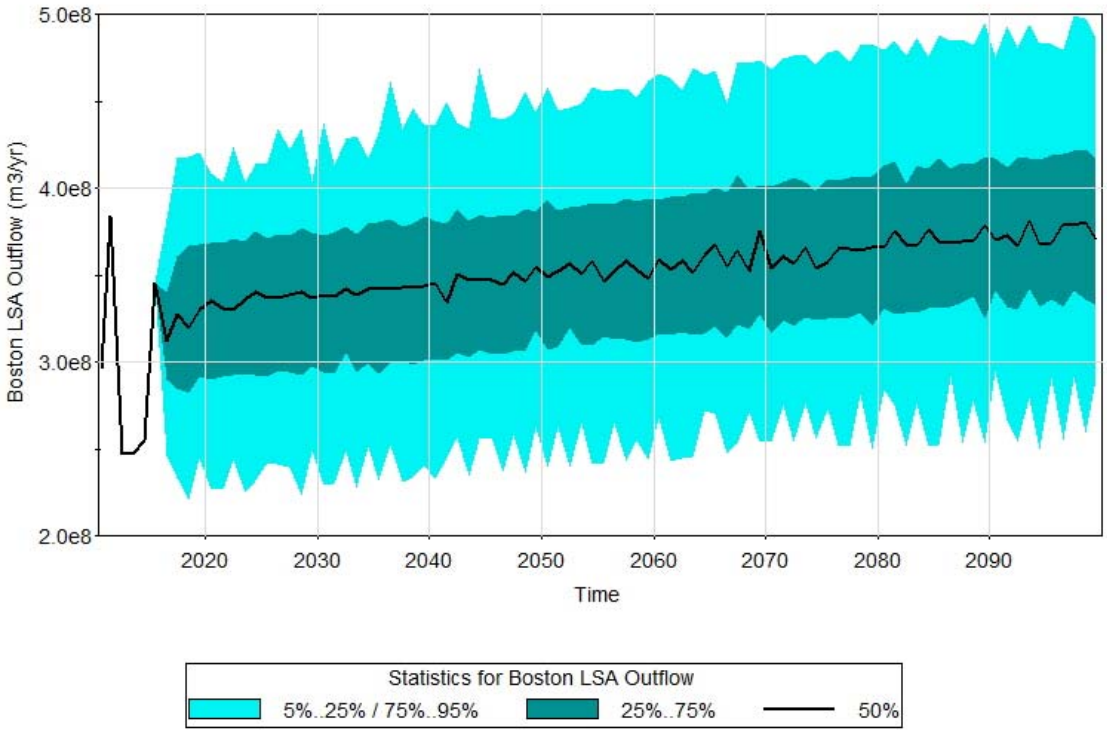
Boston Watershed



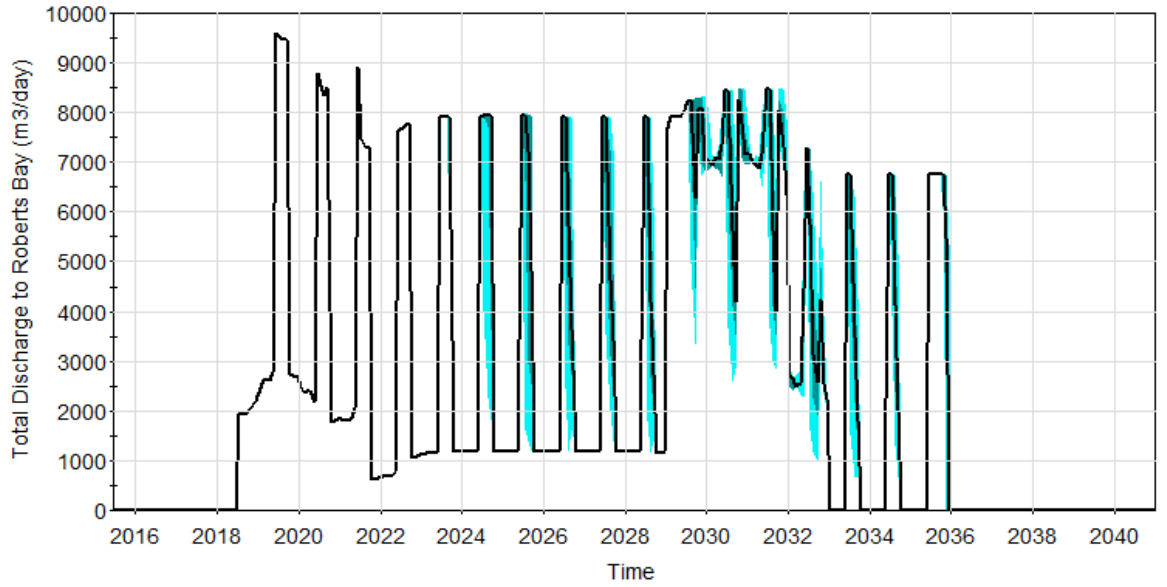


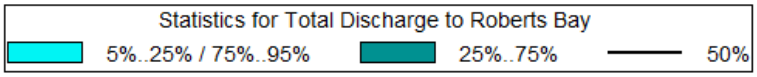

2.6e8
2.4e8
2.2e8
2.0e8
1.8e8
1.6e8
1.4e8
1.2e8
1.0e8
Koignuk River 1 Flow (m3/yr)
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Koignuk River 1 Flow
5%..25% / 75%..95%
25%..75%
50%

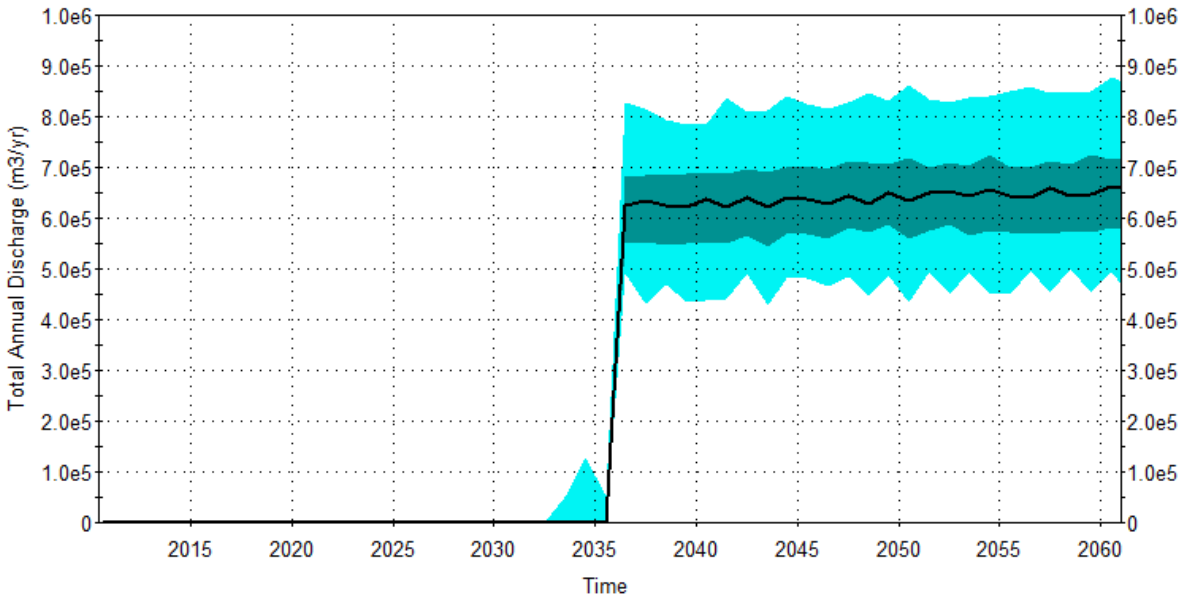

3.8e8
3.6e8
3.4e8
3.2e8
3.0e8
2.8e8
2.6e8
2.4e8
2.2e8
2.0e8
1.8e8
1.6e8
Koignuk River 2 Flow (m3/yr)
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Koignuk River 2 Flow
5%..25% / 75%..95%
25%..75%
50%

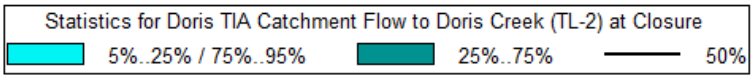

5.0e8
4.0e8
3.0e8
2.0e8
Boston LSA Outflow (m3/yr)
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Boston LSA Outflow
5%..25% / 75%..95%
25%..75%
50%

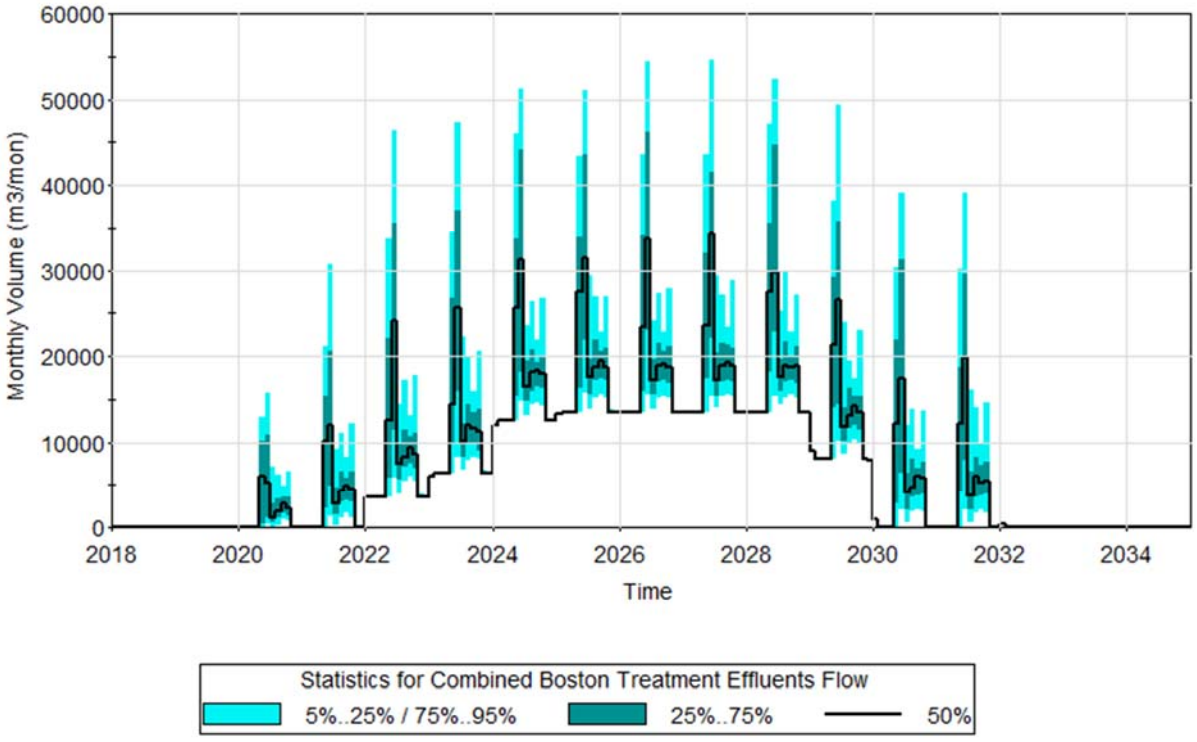
Mine Effluents

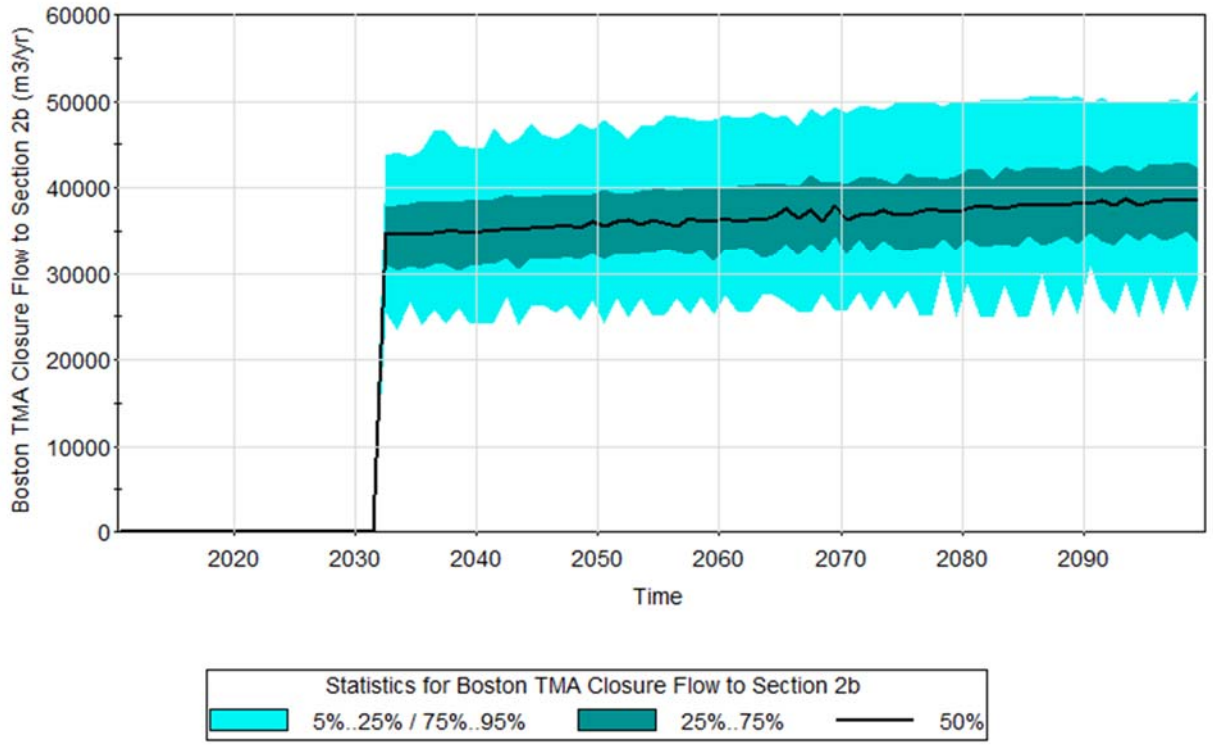






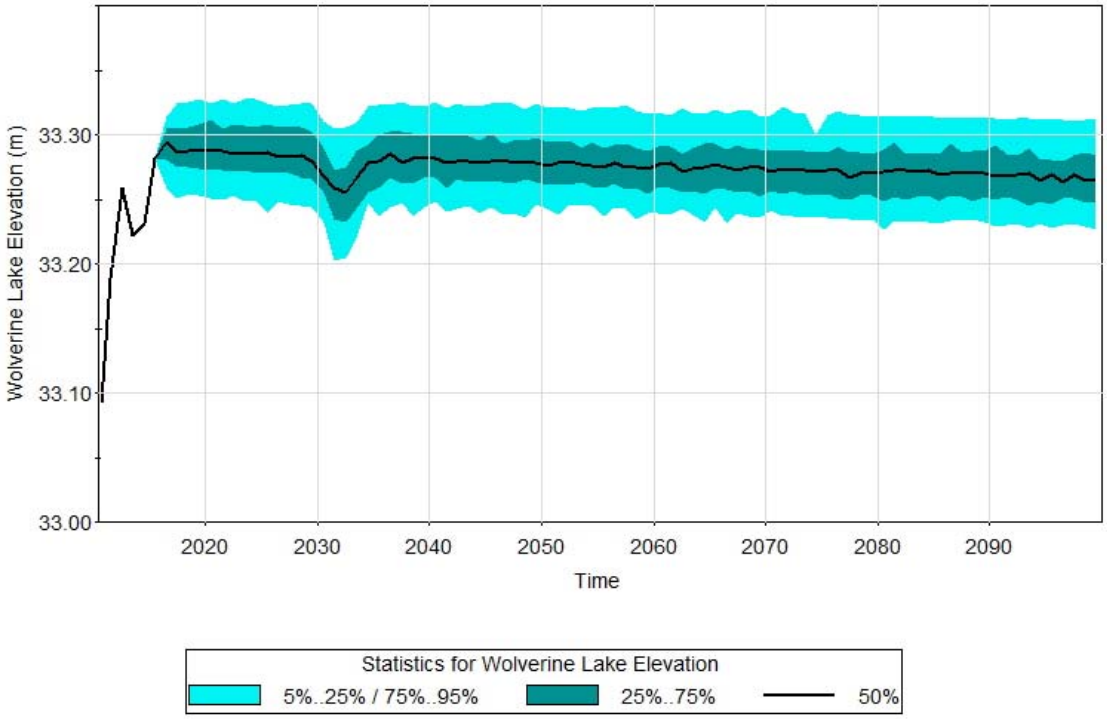


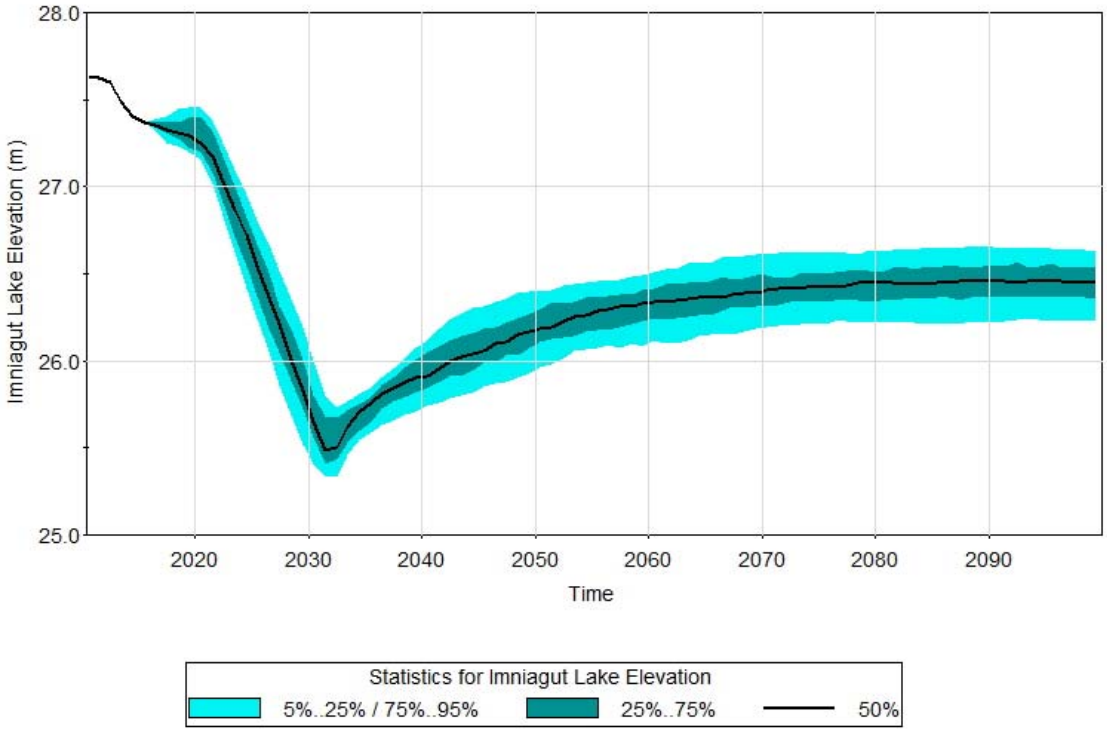

60000
50000
40000
30000
20000
10000
0
Monthly Volume (m3/mon)
2018
2020
2022
2024
2026
2028
2030
2032
2034
Time
Statistics for Combined Boston Treatment Effluents Flow
5%..25% / 75%..95%
25%..75%
50%

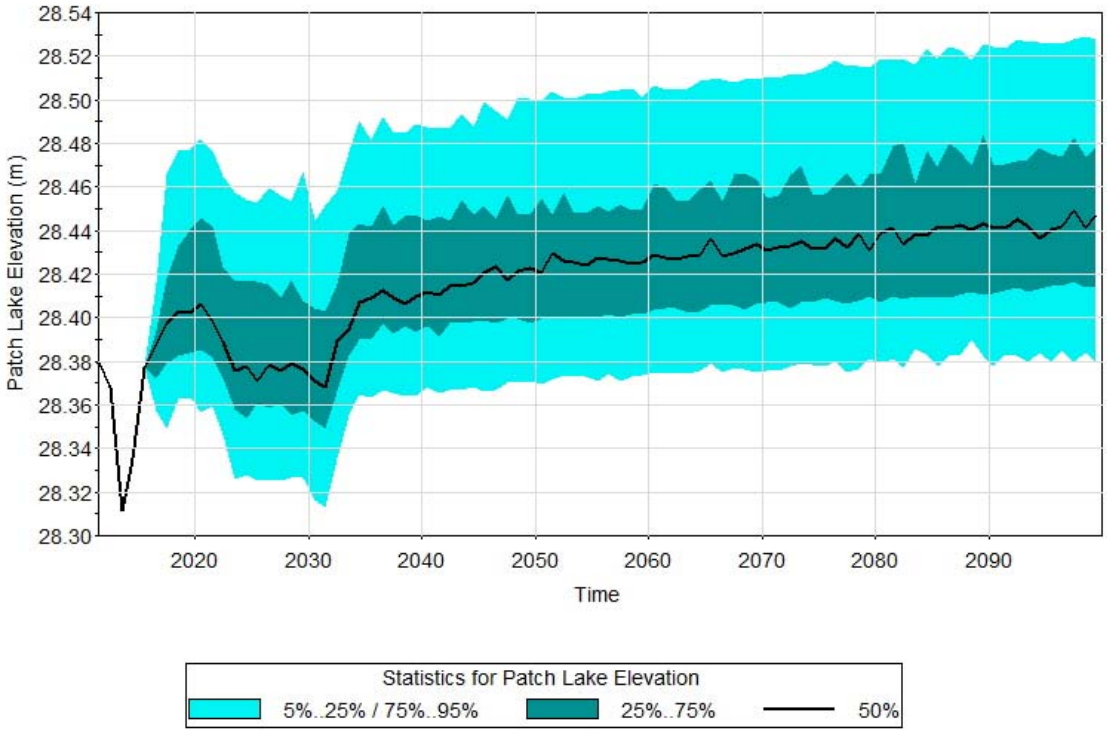

60000
50000
40000
30000
20000
10000
0
Boston TMA Closure Flow to Section 2b (m3/yr)
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Boston TMA Closure Flow to Section 2b
5%..25% / 75%..95%
25%..75%
50%

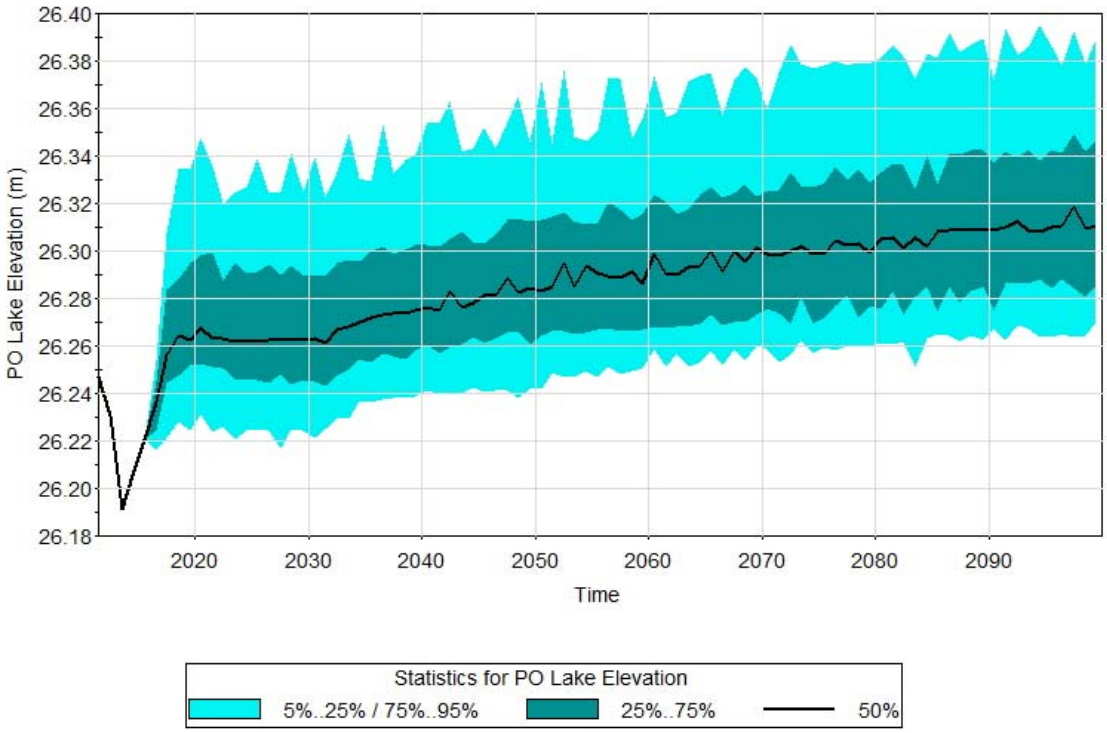
Appendix B2: Lake Elevations

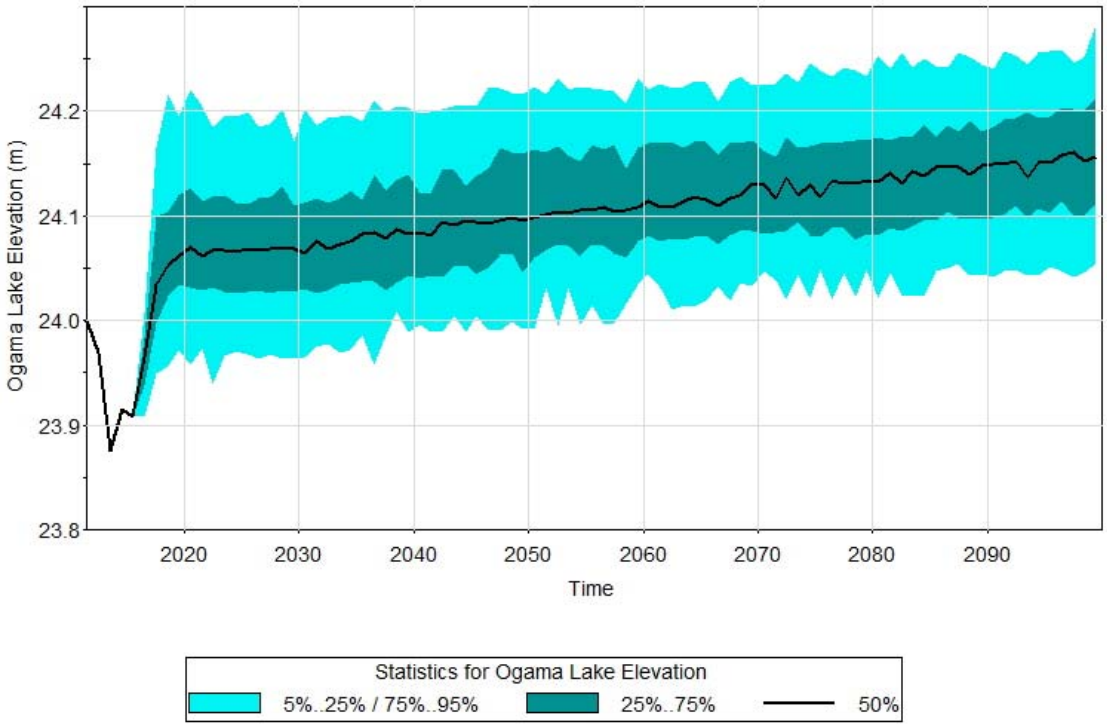
Doris Watershed

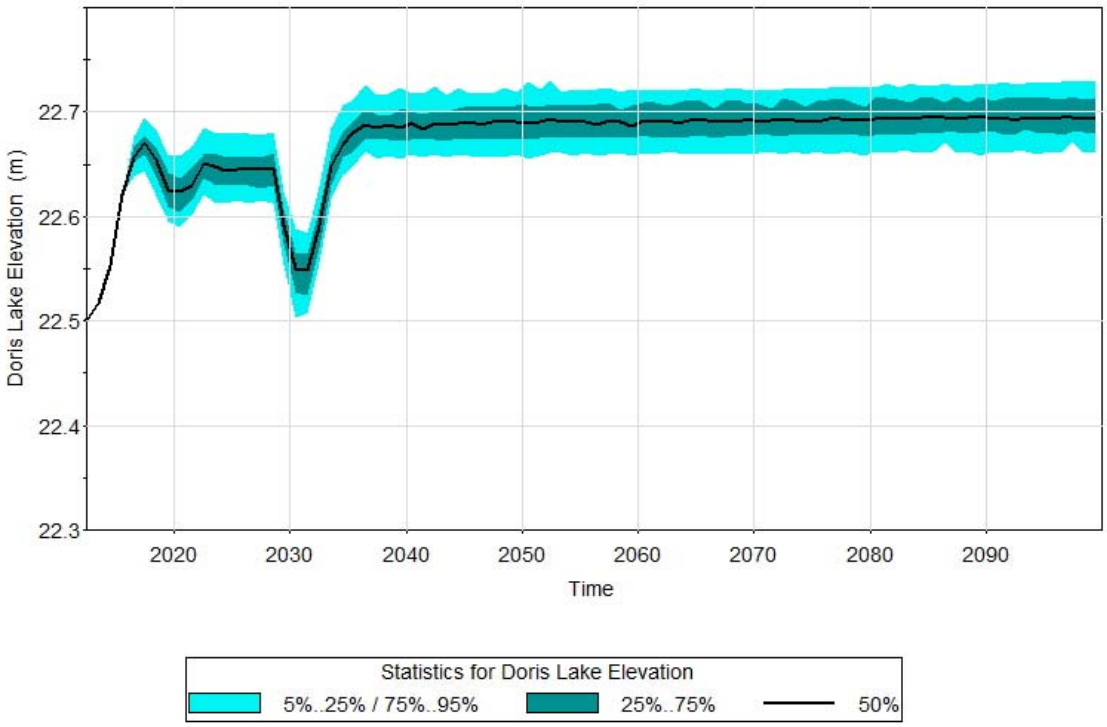


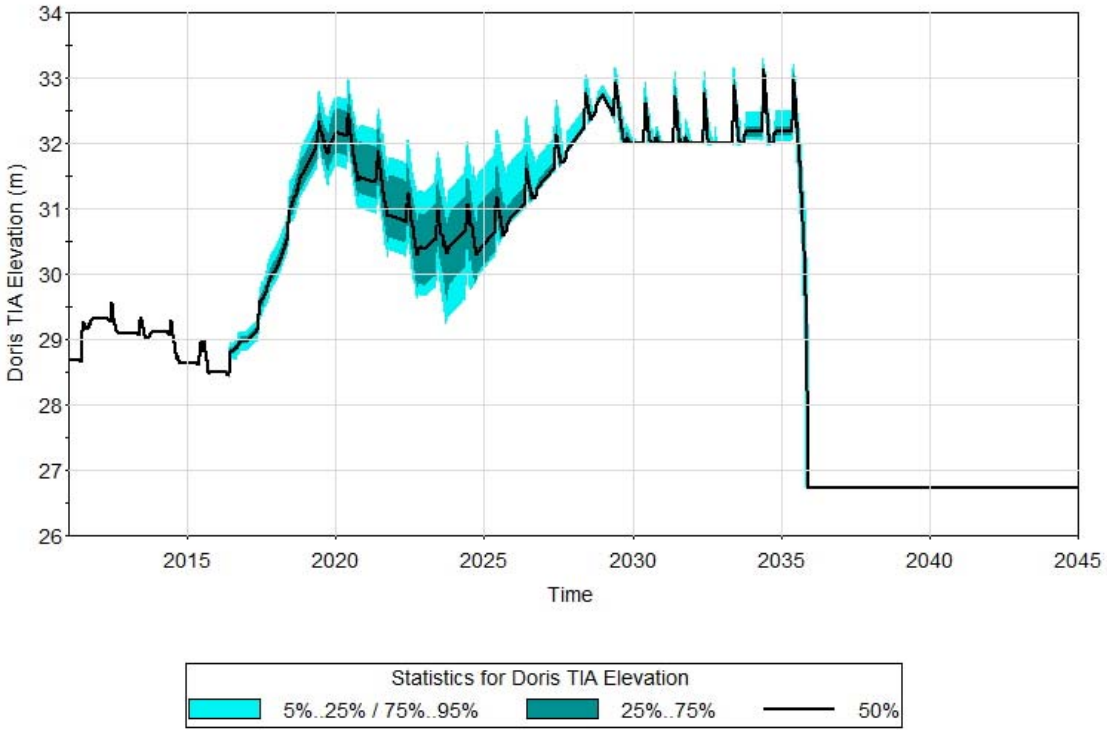



Patch Lake Elevation (m)
28.54
28.52
28.50
28.48
28.46
28.44
28.42
28.40
28.38
28.36
28.34
28.32
28.30
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Patch Lake Elevation
5%..25% / 75%..95%
25%..75%
50%

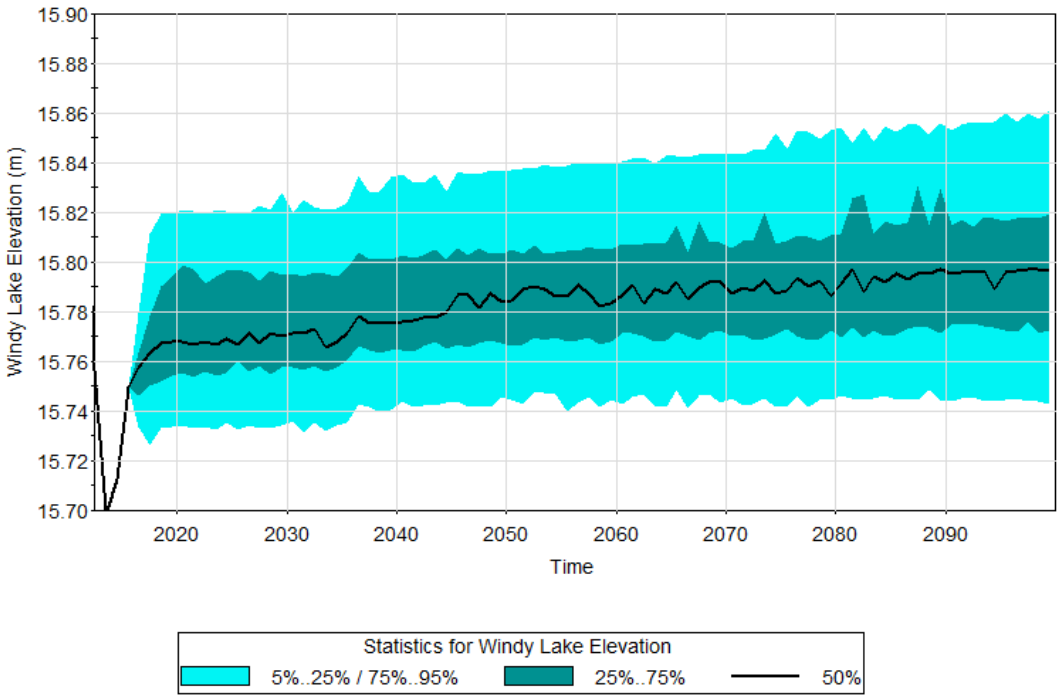

PO Lake Elevation (m)
26.40
26.38
26.36
26.34
26.32
26.30
26.28
26.26
26.24
26.22
26.20
26.18
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for PO Lake Elevation
5%..25% / 75%..95%
25%..75%
50%


Ogama Lake Elevation (m)
24.2
24.1
24.0
23.9
23.8
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Ogama Lake Elevation
5%..25% / 75%..95%
25%..75%
50%

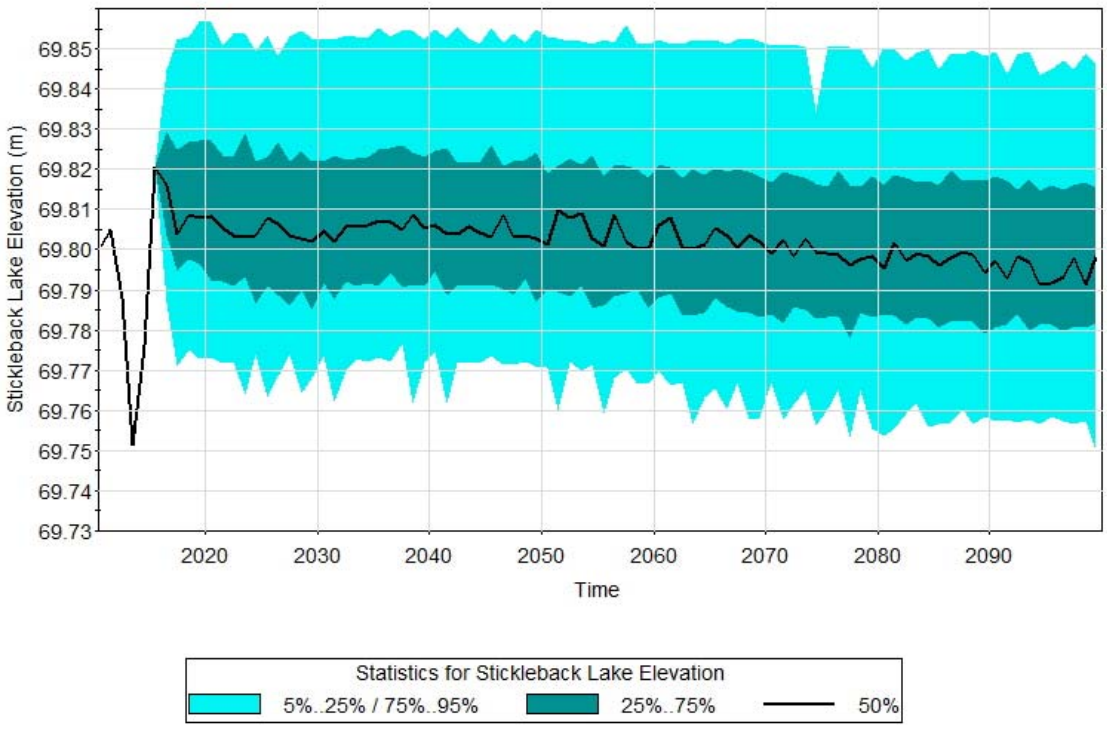

Doris Lake Elevation (m)
22.7
22.6
22.5
22.4
22.3
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Doris Lake Elevation
5%..25% / 75%..95%
25%..75%
50%

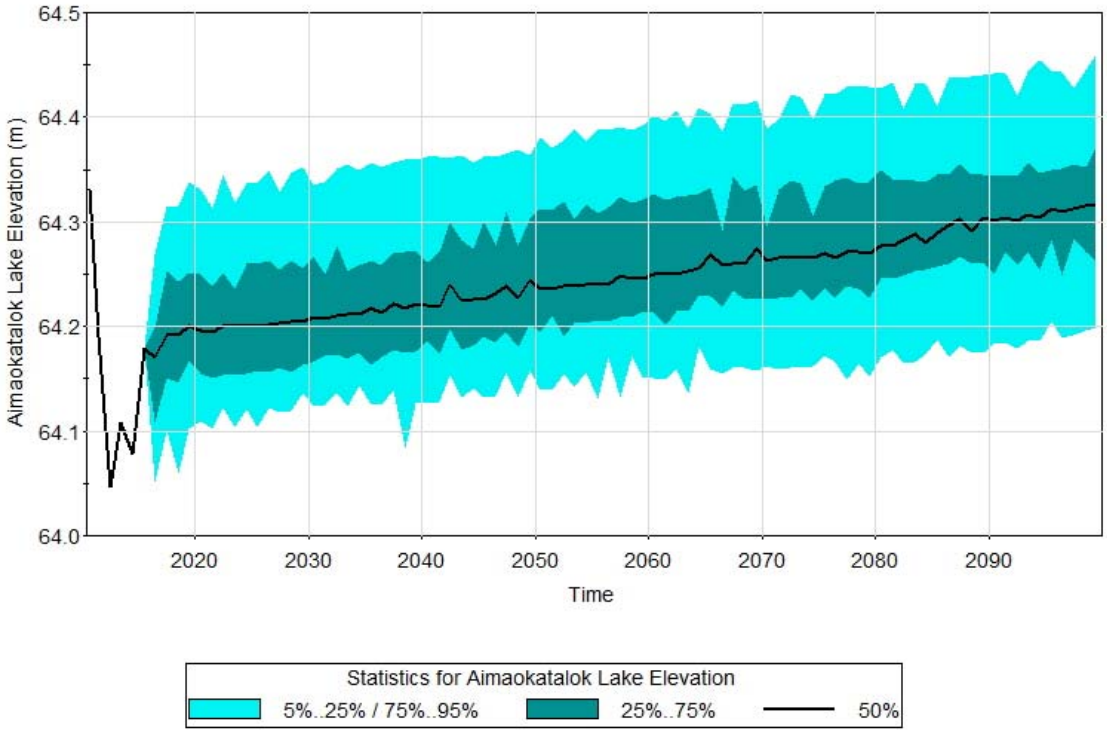

Doris TIA Elevation (m)
34
33
32
31
30
29
28
27
26
2015
2020
2025
2030
2035
2040
2045
Time
Statistics for Doris TIA Elevation
5%..25% / 75%..95%
25%..75%
50%

Madrid Watershed



Boston Watershed




64.5
64.4
64.3
64.2
64.1
64.0
Aimaokatalok Lake Elevation (m)
2020
2030
2040
2050
2060
2070
2080
2090
Time
Statistics for Aimaokatalok Lake Elevation
5%..25% / 75%..95%
25%..75%
50%

Appendix B3: Results Time Series for Prediction Nodes

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2010	Jun	0	0	920,814	1,280,000	1,530,000	0	0	219,768	221,798	0	219,385	86,546	94,927	0	0	1,659	81,770	61,210,000	61,570,000	62,960,000	64,440,000
2010	Jul	0	0	529,461	590,682	1,258,000	0	24	1,961,000	1,979,000	0	62,384	284,851	359,001	0	0	15,573	20,195	20,110,000	22,860,000	33,600,000	45,070,000
2010	Aug	0	0	390,025	428,833	897,611	0	330,565	1,853,000	1,864,000	0	35,635	137,948	182,933	0	0	9,493	7,974	15,030,000	16,700,000	23,210,000	30,170,000
2010	Sep	0	0	313,126	368,018	810,631	0	792,971	2,788,000	2,799,000	0	33,362	217,769	263,004	0	0	11,007	6,068	12,510,000	14,350,000	21,510,000	29,170,000
2010	Oct	0	0	0	0	1	0	399,573	1,331,000	1,335,000	0	0	113,517	133,318	0	0	5,778	0	2,679,000	3,597,000	7,181,000	11,010,000
2010	Nov	0	0	0	0	0	0	70,547	141,094	141,094	0	0	0	0	0	0	0	0	4,913,000	4,913,000	4,913,000	4,913,000
2010	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2011	Jun	0	0	819,388	1,194,000	4,717,000	0	4,287,000	19,530,000	19,630,000	0	4,217,000	6,198,000	6,611,000	0	0	107,959	71,285	84,330,000	101,800,000	170,200,000	243,300,000
2011	Jul	0	1,247	1,068,000	1,188,000	2,313,000	0	3,297,000	7,807,000	7,819,000	0	997,714	1,031,000	1,077,000	0	0	9,273	81,411	47,960,000	49,670,000	56,330,000	63,440,000
2011	Aug	0	0	347,735	371,060	601,412	0	707,330	2,178,000	2,185,000	0	178,195	201,025	229,909	0	0	5,719	8,728	7,544,000	8,615,000	12,800,000	17,270,000
2011	Sep	0	0	323,753	396,379	998,583	0	1,023,000	3,580,000	3,594,000	0	150,519	449,465	507,177	0	0	14,559	10,611	15,590,000	17,930,000	27,080,000	36,840,000
2011	Oct	0	0	0	0	12,073	0	555,357	1,986,000	1,993,000	0	0	180,817	213,654	0	0	9,476	0	7,163,000	8,685,000	14,630,000	20,980,000
2011	Nov	0	0	0	0	0	0	48,631	97,263	97,263	0	0	0	0	0	0	0	0	3,848,000	3,848,000	3,848,000	3,848,000
2011	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2012	May	0	0	0	0	1,837	0	3,106	2,329	2,329	0	0	0	0	0	0	0	0	74,437	74,437	74,437	74,437
2012	Jun	75,334	0	904,667	1,192,000	4,108,000	0	3,693,000	14,940,000	15,010,000	0	421,419	1,609,000	1,882,000	0	0	71,186	66,851	71,340,000	82,940,000	128,200,000	176,600,000
2012	Jul	0	0	523,698	564,676	976,446	0	1,330,000	4,306,000	4,318,000	0	172,049	227,197	275,504	0	0	9,389	21,430	19,120,000	20,910,000	27,910,000	35,380,000
2012	Aug	0	0	277,101	296,011	610,995	0	785,627	2,537,000	2,544,000	0	51,184	76,837	107,822	0	0	6,130	2,960	10,360,000	11,510,000	16,000,000	20,790,000
2012	Sep	0	0	195,167	215,759	454,845	0	546,167	1,446,000	1,449,000	0	26,119	47,886	59,609	0	0	2,662	478	7,228,000	7,703,000	9,561,000	11,540,000
2012	Oct	0	0	0	0	0	0	225,688	517,979	518,585	0	0	10,426	12,928	0	0	703	0	3,188,000	3,304,000	3,757,000	4,241,000
2012	Nov	0	0	0	0	0	0	24,883	49,767	49,767	0	0	0	0	0	0	0	0	376,463	376,463	376,463	376,463
2012	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2013	May	0	0	0	0	0	0	2,411	2,502,000	2,525,000	0	0	403,800	496,140	0	0	22,470	0	364,839	4,033,000	18,360,000	33,670,000
2013	Jun	0	0	494,905	672,507	2,733,000	0	2,242,000	8,343,000	8,377,000	0	131,457	632,477	774,362	0	0	35,879	17,164	54,990,000	61,010,000	84,560,000	109,700,000
2013	Jul	0	0	265,916	307,008	824,894	0	951,243	3,623,000	3,636,000	0	31,239	127,478	181,604	0	0	11,188	1,513	17,360,000	19,360,000	27,200,000	35,580,000
2013	Aug	0	0	151,541	168,844	470,409	0	548,201	2,077,000	2,085,000	0	2,175	55,121	88,710	0	0	6,853	0	9,244,000	10,490,000	15,350,000	20,550,000
2013	Sep	0	0	187,201	251,005	824,166	0	796,299	3,063,000	3,076,000	0	11,999	289,183	344,239	0	0	13,899	1	15,780,000	18,020,000	26,740,000	36,050,000
2013	Oct	0	0	0	0	0	0	492,189	1,307,000	1,310,000	0	0	67,807	79,861	0	0	3,503	0	2,972,000	3,531,000	5,713,000	8,044,000
2013	Nov	0	0	0	0	0	0	62,336	124,671	124,671	0	0	0	0	0	0	0	0	3,209,000	3,209,000	3,209,000	3,209,000
2013	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2014	May	0	0	0	0	42,351	0	20,572	1,463,000	1,476,000	0	0	176,896	229,567	0	0	12,568	0	1,913,000	4,006,000	12,180,000	20,910,000
2014	Jun	0	0	437,354	623,059	2,699,000	0	2,000,000	8,564,000	8,604,000	0	87,014	754,429	919,144	0	0	42,320	8,679	51,970,000	58,970,000	86,300,000	115,500,000
2014	Jul	0	0	336,959	392,435	1,077,000	0	1,359,000	5,461,000	5,481,000	0	48,685	292,245	376,608	0	0	18,082	2,431	23,100,000	26,230,000	38,450,000	51,500,000
2014	Aug	0	0	263,834	295,295	747,809	0	1,049,000	3,292,000	3,300,000	0	29,782	73,799	104,503	0	0	6,187	614	14,830,000	15,960,000	20,410,000	25,160,000
2014	Sep	0	0	286,325	356,877	975,304	0	1,083,000	3,895,000	3,908,000	0	56,921	335,994	391,959	0	0	14,182	2,689	17,510,000	19,780,000	28,650,000	38,120,000
2014	Oct	0	0	0	0	0	0	435,168	870,336	870,336	0	0	0	0	0	0	0	0	3,940,000	3,940,000	3,940,000	3,940,000
2014	Nov	0	0	0	0	0	0	14,911	29,823	29,823	0	0	0	0	0	0	0	0	129,780	129,780	129,780	129,780
2014	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	May	0	0	0	0	39,652	0	163	2,384,000	2,405,000	0	0	400,614	488,708	0	0	21,528	0	2,551,000	6,051,000	19,720,000	34,320,000
2015	Jun	0	0	709,482	956,310	3,427,000	0	2,951,000	10,840,000	10,890,000	0	240,526	1,019,000	1,206,000	0	0	48,328	36,274	63,940,000	71,890,000	102,900,000	136,100,000
2015	Jul	106,532	0	716,668	910,279	2,794,000	0	2,663,000	11,080,000	11,120,000	0	249,061	1,169,000	1,368,000	0	0	45,356	35,170	44,390,000	51,780,000	80,640,000	111,500,000
2015	Aug	0	0	712,388	782,392	1,363,000	0	2,226,000	6,298,000	6,310,000	0	259,081	414,821	467,164	0	0	11,099	35,203	26,350,000	28,290,000	35,870,000	43,970,000
2015	Sep	0	0	411,975	447,583	732,814	0	979,275	2,864,000	2,869,000	0	134,997	217,814	239,368	0	0	5,158	16,389	9,819,000	10,690,000	14,110,000	17,750,000

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2015	Oct	0	0	0	0	0	0	350,410	700,821	700,821	0	0	0	0	0	0	0	0	508,320	508,320	508,320	508,320
2015	Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2015	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	Jun	111,829	0	882,528	1,156,000	3,972,000	0	3,700,000	15,470,000	15,540,000	0	323,694	1,631,000	1,935,000	0	0	78,342	52,527	77,810,000	90,720,000	141,100,000	195,000,000
2016	Jul	0	0	606,743	659,934	1,240,000	0	1,686,000	4,711,000	4,723,000	0	187,384	261,429	312,034	0	0	10,350	23,151	23,130,000	25,010,000	32,340,000	40,160,000
2016	Aug	0	0	315,231	355,251	801,334	0	839,020	2,877,000	2,888,000	0	60,029	171,197	216,438	0	0	9,532	3,307	12,290,000	13,970,000	20,520,000	27,520,000
2016	Sep	0	0	257,418	308,230	714,747	0	783,258	2,739,000	2,749,000	0	51,480	270,570	314,675	0	0	11,056	2,607	11,500,000	13,290,000	20,280,000	27,740,000
2016	Oct	0	0	0	0	6	0	424,716	1,368,000	1,373,000	0	0	106,937	126,428	0	0	5,655	0	4,476,000	5,379,000	8,908,000	12,680,000
2016	Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2016	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2017	Jun	125,819	0	1,050,000	1,363,000	4,459,000	0	4,387,000	16,970,000	17,040,000	0	413,265	1,803,000	2,111,000	0	0	80,015	68,316	84,620,000	97,690,000	148,800,000	203,300,000
2017	Jul	0	0	596,944	651,544	1,250,000	0	1,596,000	4,599,000	4,612,000	0	189,626	276,033	329,230	0	0	10,950	27,120	22,780,000	24,750,000	32,440,000	40,650,000
2017	Aug	0	0	319,214	362,196	831,562	0	864,772	2,990,000	3,001,000	0	64,314	192,122	239,680	0	0	10,103	5,168	12,840,000	14,600,000	21,470,000	28,820,000
2017	Sep	0	0	267,118	320,983	750,121	0	818,511	2,869,000	2,881,000	0	58,283	290,222	336,586	0	0	11,616	4,684	12,110,000	13,980,000	21,310,000	29,140,000
2017	Oct	0	0	0	0	1,279	0	454,841	1,497,000	1,502,000	0	0	120,941	142,984	0	0	6,382	0	5,485,000	6,504,000	10,490,000	14,740,000
2017	Nov	0	0	0	0	0	0	11,751	23,501	23,501	0	0	0	0	0	0	0	0	1,167,000	1,167,000	1,167,000	1,167,000
2017	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2018	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2018	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2018	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2018	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2018	May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2018	Jun	136,292	0	1,107,000	1,430,000	4,603,000	0	4,318,000	16,950,000	17,020,000	0	442,698	1,855,000	2,168,000	0	0	81,134	77,409	84,890,000	98,140,000	149,900,000	205,200,000
2018	Jul	0	0	614,895	670,751	1,274,000	0	1,571,000	4,552,000	4,565,000	58,896	199,054	285,260	338,552	0	0	10,973	29,866	22,850,000	24,820,000	32,520,000	40,750,000
2018	Aug	0	0	325,608	369,025	840,650	0	817,408	2,897,000	2,909,000	58,724	67,352	195,384	243,028	0	0	10,124	5,914	12,870,000	14,630,000	21,520,000	28,880,000
2018	Sep	0	0	270,828	325,021	755,453	0	761,357	2,757,000	2,769,000	59,604	60,197	292,507	338,955	0	0	11,641	5,222	12,130,000	14,010,000	21,360,000	29,200,000
2018	Oct	0	0	0	0	1,327	0	404,358	1,397,000	1,402,000	61,639	0	121,159	143,242	0	0	6,395	0	5,506,000	6,528,000	10,520,000	14,780,000
2018	Nov	0	0	0	0	0	0	8,883	17,766	17,766	64,361	0	0	0	0	0	0	0	1,168,000	1,168,000	1,168,000	1,168,000
2018	Dec	0	0	0	0	0	0	0	0	0	67,512	0	0	0	0	0	0	0	0	0	0	0
2019	Jan	0	0	0	0	0	0	0	0	0	74,465	0	0	0	0	0	0	0	0	0	0	0
2019	Feb	0	0	0	0	0	0	0	0	0	79,747	0	0	0	0	0	0	0	0	0	0	0
2019	Mar	0	0	0	0	0	0	0	0	0	79,885	0	0	0	0	0	0	0	0	0	0	0
2019	Apr	0	0	0	0	0	0	0	0	0	79,668	0	0	0	0	0	0	0	0	0	0	0
2019	May	0	0	0	0	0	0	0	0	0	84,166	0	0	0	0	0	0	0	0	0	0	0
2019	Jun	136,159	0	1,116,000	1,439,000	4,618,000	0	4,008,000	16,340,000	16,420,000	292,514	446,187	1,861,000	2,174,000	0	0	81,306	80,946	85,700,000	98,990,000	150,900,000	206,300,000
2019	Jul	0	0	615,970	671,897	1,276,000	0	1,546,000	4,505,000	4,518,000	289,230	199,280	285,435	338,824	0	0	10,996	28,742	22,320,000	24,300,000	32,020,000	40,270,000
2019	Aug	0	0	325,804	369,251	841,633	0	799,772	2,864,000	2,876,000	288,320	67,200	195,307	243,037	0	0	10,145	5,532	12,850,000	14,610,000	21,520,000	28,890,000
2019	Sep	0	0	270,966	325,227	756,375	0	745,215	2,727,000	2,739,000	288,341	60,034	292,716	339,248	0	0	11,665	4,896	12,150,000	14,040,000	21,400,000	29,260,000
2019	Oct	0	0	0	0	1,893	0	393,758	1,382,000	1,388,000	83,309	0	122,562	144,902	0	0	6,409	0	5,526,000	6,550,000	10,550,000	14,820,000
2019	Nov	0	0	0	0	0	0	8,361	16,723	16,723	82,577	0	0	0	0	0	0	0	1,169,000	1,169,000	1,169,000	1,169,000
2019	Dec	0	0	0	0	0	0	0	0	0	81,313	0	0	0	0	0	0	0	0	0	0	0
2020	Jan	0	0	0	0	0	0	0	0	0	75,990	0	0	0	0	0	0	0	0	0	0	0
2020	Feb	0	0	0	0	0	0	0	0	0	71,701	0	0	0	0	0	0	0	0	0	0	0
2020	Mar	0	0	0	0	0	0	0	0	0	73,092	0	0	0	0	0	0	0	0	0	0	0
2020	Apr	0	0	0	0	0	0	0	0	0	72,789	0	0	0	0	0	0	0	0	0	0	0
2020	May	0	0	0	0	0	0	0	0	0	65,960	0	0	0	0	0	0	0	0	0	0	0
2020	Jun	136,255	0	1,120,000	1,444,000	4,631,000	0	3,957,000	16,250,000	16,330,000	266,958	447,869	1,865,000	2,179,000	13,756	0	81,536	79,174	85,890,000	99,220,000	151,300,000	206,800,000
2020	Jul	0	0	616,046	671,974	1,277,000	0	1,547,000	4,508,000	4,521,000	260,087	199,049	285,160	338,645	1,170	0	11,019	27,936	22,310,000	24,290,000	32,030,000	40,290,000
2020	Aug	0	0	325,625	369,082	842,135	0	806,213	2,880,000	2,891,000	253,721	66,932	195,109	242,925	1,103	0	10,166	5,209	12,840,000	14,610,000	21,530,000	28,920,000
2020	Sep	0	0	270,869	325,187	757,023	0	755,758	2,751,000	2,762,000	258,822	59,825	292,880	339,496	2,575	0	11,689	4,586	12,150,000	14,030,000	21,410,000	29,290,000
2020	Oct	0	0	0	0	1,920	0	403,093	1,402,000	1,407,000	54,274	0	122,784	145,164	1,661	0	6,422	0	5,522,000	6,548,000	10,560,000	14,840,000
2020	Nov	0	0	0	0	0	0	8,840	17,679	17,679	55,136	0	0	0	0	0	0	0	1,168,000	1,168,000	1,168,000	1,168,000
2020	Dec	0	0	0	0	0	0	0	0	0	55,729	0	0	0	0	0	0	0	0	0	0	0
2021	Jan	0	0	0	0	0	0	0	0	0	55,643	0	0	0	0	0	0	0	0	0	0	0

Average Outflow (m3/month)																					
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2021	Feb	0	0	0	0	0	0	0	0	0	55,427	0	0	0	0	0	0	0	0	0	0	0
2021	Mar	0	0	0	0	0	0	0	0	0	55,307	0	0	0	0	0	0	0	0	0	0	0
2021	Apr	0	0	0	0	0	0	0	0	0	57,348	0	0	0	0	0	0	0	0	0	0	0
2021	May	0	0	0	0	0	0	0	0	0	62,218	0	0	0	0	0	0	0	0	0	0	0
2021	Jun	135,896	0	1,115,000	1,440,000	4,632,000	0	4,070,000	16,490,000	16,570,000	271,128	448,505	1,867,000	2,181,000	25,632	0	81,646	76,605	86,000,000	99,340,000	151,400,000	207,100,000
2021	Jul	0	0	608,543	664,602	1,270,000	0	1,569,000	4,556,000	4,569,000	227,725	198,402	284,478	338,060	2,859	0	11,041	26,787	22,310,000	24,300,000	32,050,000	40,330,000
2021	Aug	0	0	318,390	362,135	836,037	0	837,372	2,944,000	2,956,000	222,285	66,492	194,733	242,636	2,297	0	10,187	4,754	12,860,000	14,640,000	21,570,000	28,970,000
2021	Sep	0	0	262,445	317,013	749,897	0	785,280	2,812,000	2,823,000	223,184	59,475	292,904	339,604	4,730	0	11,714	4,132	12,170,000	14,060,000	21,450,000	29,350,000
2021	Oct	0	0	0	0	1,856	0	428,351	1,454,000	1,459,000	18,598	0	123,006	145,426	3,039	0	6,436	0	5,543,000	6,572,000	10,590,000	14,880,000
2021	Nov	0	0	0	0	0	0	10,281	20,563	20,563	19,363	0	0	0	0	0	0	0	1,169,000	1,169,000	1,169,000	1,169,000
2021	Dec	0	0	0	0	0	0	0	0	0	19,958	0	0	0	0	0	0	0	0	0	0	0
2022	Jan	0	0	0	0	0	0	0	0	0	20,388	0	0	0	3,601	0	0	0	0	0	0	0
2022	Feb	0	0	0	0	0	0	0	0	0	20,721	0	0	0	3,630	0	0	0	0	0	0	0
2022	Mar	0	0	0	0	0	0	0	0	0	20,969	0	0	0	3,630	0	0	0	0	0	0	0
2022	Apr	0	0	0	0	0	0	0	0	0	21,091	0	0	0	3,630	0	0	0	0	0	0	0
2022	May	0	0	0	0	0	0	0	0	0	23,540	0	0	0	3,630	0	0	0	0	0	0	0
2022	Jun	135,484	0	1,022,000	1,351,000	4,558,000	0	4,284,000	16,930,000	17,010,000	232,538	448,735	1,869,000	2,184,000	39,136	0	81,815	73,984	86,200,000	99,570,000	151,800,000	207,600,000
2022	Jul	0	0	574,468	628,874	1,231,000	0	1,536,000	4,493,000	4,506,000	234,330	197,642	283,687	337,366	7,597	0	11,064	25,733	22,330,000	24,310,000	32,080,000	40,380,000
2022	Aug	0	0	301,397	344,771	817,097	0	813,166	2,898,000	2,910,000	235,733	66,002	194,305	242,294	6,541	0	10,208	4,386	12,880,000	14,660,000	21,610,000	29,020,000
2022	Sep	0	0	248,685	303,042	735,989	0	767,912	2,779,000	2,791,000	236,967	59,082	292,886	339,670	9,148	0	11,738	3,814	12,190,000	14,090,000	21,500,000	29,400,000
2022	Oct	0	0	0	0	1,740	0	421,701	1,441,000	1,447,000	32,553	0	123,228	145,689	7,069	0	6,512	0	5,604,000	6,644,000	10,710,000	15,050,000
2022	Nov	0	0	0	0	0	0	14,813	29,626	29,626	33,348	0	0	0	3,630	0	0	0	1,175,000	1,175,000	1,175,000	1,175,000
2022	Dec	0	0	0	0	0	0	0	0	0	33,974	0	0	0	3,630	0	0	0	0	0	0	0
2023	Jan	0	0	0	0	0	0	0	0	0	34,449	0	0	0	6,015	0	0	0	0	0	0	0
2023	Feb	0	0	0	0	0	0	0	0	0	34,755	0	0	0	6,301	0	0	0	0	0	0	0
2023	Mar	0	0	0	0	0	0	0	0	0	35,029	0	0	0	6,301	0	0	0	0	0	0	0
2023	Apr	0	0	0	0	0	0	0	0	0	35,274	0	0	0	6,301	0	0	0	0	0	0	0
2023	May	0	0	0	0	0	0	0	0	0	35,427	0	0	0	6,301	0	0	0	0	0	0	0
2023	Jun	134,384	0	937,180	1,269,000	4,489,000	0	4,194,000	16,770,000	16,840,000	240,973	449,132	1,872,000	2,187,000	41,850	0	81,924	73,399	86,370,000	99,750,000	152,000,000	207,900,000
2023	Jul	0	0	541,830	594,596	1,193,000	0	1,486,000	4,394,000	4,407,000	241,078	196,963	282,976	336,752	10,276	0	11,086	25,466	22,330,000	24,320,000	32,110,000	40,420,000
2023	Aug	0	0	286,129	328,955	799,450	0	786,741	2,848,000	2,859,000	241,171	65,561	193,929	242,006	9,218	0	10,228	4,292	12,900,000	14,680,000	21,640,000	29,080,000
2023	Sep	0	0	237,702	291,663	724,376	0	749,242	2,744,000	2,756,000	241,216	58,739	292,920	339,789	11,830	0	11,762	3,743	12,220,000	14,120,000	21,540,000	29,460,000
2023	Oct	0	0	0	0	1,656	0	413,402	1,426,000	1,431,000	35,809	0	123,451	145,952	9,747	0	6,525	0	5,624,000	6,666,000	10,740,000	15,090,000
2023	Nov	0	0	0	0	0	0	14,363	28,726	28,726	35,854	0	0	0	6,301	0	0	0	1,176,000	1,176,000	1,176,000	1,176,000
2023	Dec	0	0	0	0	0	0	0	0	0	35,856	0	0	0	6,301	0	0	0	0	0	0	0
2024	Jan	0	0	0	0	0	0	0	0	0	35,854	0	0	0	11,902	0	0	0	0	0	0	0
2024	Feb	0	0	0	0	0	0	0	0	0	35,871	0	0	0	12,534	0	0	0	0	0	0	0
2024	Mar	0	0	0	0	0	0	0	0	0	35,855	0	0	0	12,534	0	0	0	0	0	0	0
2024	Apr	0	0	0	0	0	0	0	0	0	35,855	0	0	0	12,534	0	0	0	0	0	0	0
2024	May	0	0	0	0	0	0	0	0	0	35,855	0	0	0	12,534	0	0	0	0	0	0	0
2024	Jun	133,311	0	912,638	1,245,000	4,475,000	0	4,158,000	16,720,000	16,790,000	241,309	450,294	1,877,000	2,193,000	48,184	0	82,152	73,603	86,620,000	100,000,000	152,500,000	208,500,000
2024	Jul	0	0	532,123	584,287	1,182,000	0	1,467,000	4,359,000	4,372,000	241,323	196,585	282,562	336,435	16,517	0	11,108	25,431	22,340,000	24,340,000	32,140,000	40,470,000
2024	Aug	0	0	281,999	324,607	794,911	0	779,344	2,835,000	2,847,000	241,339	65,235	193,675	241,838	15,457	0	10,249	4,261	12,920,000	14,710,000	21,680,000	29,130,000
2024	Sep	0	0	235,085	288,945	722,027	0	745,156	2,738,000	2,750,000	241,324	58,484	293,041	339,995	18,074	0	11,786	3,718	12,240,000	14,140,000	21,580,000	29,520,000
2024	Oct	0	0	0	0	1,656	0	412,175	1,424,000	1,430,000	35,841	0	123,674	146,216	15,987	0	6,539	0	5,642,000	6,686,000	10,770,000	15,120,000
2024	Nov	0	0	0	0	0	0	14,311	28,621	28,621	35,796	0	0	0	12,534	0	0	0	1,177,000	1,177,000	1,177,000	1,177,000
2024	Dec	0	0	0	0	0	0	0	0	0	35,764	0	0	0	12,534	0	0	0	0	0	0	0
2025	Jan	0	0	0	0	0	0	0	0	0	35,749	0	0	0	13,264	0	0	0	0	0	0	0
2025	Feb	0	0	0	0	0	0	0	0	0	35,719	0	0	0	13,424	0	0	0	0	0	0	0
2025	Mar	0	0	0	0	0	0	0	0	0	35,703	0	0	0	13,424	0	0	0	0	0	0	0
2025	Apr	0	0	0	0	0	0	0	0	0	35,688	0	0	0	13,424	0	0	0	0	0	0	0
2025	May	0	0	0	0	0	0	0	0	0	35,673	0	0	0	13,424	0	0	0	0	0	0	0
2025	Jun	131,778	0	909,540	1,242,000	4,476,000	0	4,163,000	16,740,000	16,810,000	244,882	450,742	1,878,000	2,194,000	49,117	0	82,258	73,730	86,750,000	100,200,000	152,700,000	208,800,000
2025	Jul	0	0	529,705	581,713	1,179,000	0	1,462,000	4,352,000	4,365,000	241,895	195,914	281,860	335,830	17,415	0	11,130	25,358	22,350,000	24,350,000	32,160,000	40,510,000
2025	Aug	0	0	280,840	323,399	794,158	0	777,949	2,835,000	2,846,000	95,964	64,808	193,316	241,566	16,353	0	10,269	4,220	12,940,000	14,730,000	21,720,000	29,180,000
2025	Sep	0	0	234,380	288,254	721,948	0	744,848	2,740,000	2,751,000	84,388	58,159	293,095	340,134	18,975	0	11,810	3,686	12,260,000	14,170,000	21,620,000	29,580,000
2025	Oct	0	0	0	0	1,675	0	412,396	1,426,000	1,431,000	35,642	0	123,898	146,480	16,885	0	6,552	0	5,662,000	6,709,000	10,800,000	15,160,000
2025	Nov	0	0	0	0	0	0	14,319	28,638	28,638	35,642	0	0	0	13,424	0	0	0	1,178,000	1,178,000	1,178,000	1,178,000
2025	Dec	0	0	0	0	0	0	0	0	0	35,628	0	0	0	13,424	0	0	0	0	0	0	0
2026	Jan	0	0	0	0	0	0	0	0	0	35,612	0	0	0	13,424	0	0	0	0	0	0	0
2026	Feb	0	0	0	0	0	0	0	0	0	35,612	0	0	0	13,424	0	0	0	0	0	0	0
2026	Mar	0	0	0	0	0	0	0	0	0	35,612	0	0	0	13,424	0	0	0	0	0	0	0
2026	Apr	0	0	0	0	0	0	0	0	0	35,612	0	0	0	13,424	0	0	0	0	0	0	0
2026	May	0	0	0	0	0	0	0	0	0	35,612	0	0	0	13,424	0	0	0	0	0	0	0

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2026	Jun	130,486	0	917,913	1,252,000	4,493,000	0	4,188,000	16,800,000	16,880,000	220,520	454,596	1,884,000	2,201,000	49,188	0	82,424	73,931	86,960,000	100,400,000	153,000,000	209,200,000
2026	Jul	0	0	525,472	577,200	1,175,000	0	1,453,000	4,336,000	4,349,000	241,065	194,157	280,091	334,160	17,422	0	11,152	25,314	22,350,000	24,360,000	32,190,000	40,560,000
2026	Aug	0	0	279,010	321,470	792,510	0	775,366	2,832,000	2,843,000	88,617	64,011	192,570	240,907	16,358	0	10,290	4,187	12,960,000	14,760,000	21,760,000	29,240,000
2026	Sep	0	0	233,284	287,141	721,384	0	743,932	2,740,000	2,752,000	97,217	57,587	292,902	340,026	18,986	0	11,834	3,659	12,280,000	14,200,000	21,660,000	29,640,000
2026	Oct	0	0	0	0	1,690	0	412,451	1,427,000	1,433,000	35,581	0	124,122	146,745	16,892	0	6,565	0	5,683,000	6,732,000	10,830,000	15,200,000
2026	Nov	0	0	0	0	0	0	14,324	28,649	28,649	35,581	0	0	0	13,424	0	0	0	1,706,000	1,706,000	1,706,000	1,706,000
2026	Dec	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2027	Jan	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2027	Feb	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2027	Mar	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2027	Apr	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2027	May	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2027	Jun	129,178	0	918,507	1,253,000	4,500,000	0	4,198,000	16,840,000	16,910,000	234,186	455,022	1,887,000	2,204,000	49,255	0	82,590	74,145	86,650,000	100,100,000	152,900,000	209,200,000
2027	Jul	0	0	524,481	576,141	1,174,000	0	1,451,000	4,335,000	4,348,000	241,035	193,541	279,447	333,613	17,430	0	11,174	25,273	22,350,000	24,360,000	32,210,000	40,590,000
2027	Aug	0	0	278,432	320,875	792,501	0	774,913	2,833,000	2,845,000	101,857	63,606	192,236	240,661	16,364	0	10,310	4,154	12,980,000	14,780,000	21,800,000	29,290,000
2027	Sep	0	0	232,954	286,848	721,752	0	744,157	2,743,000	2,755,000	97,217	57,285	292,980	340,189	18,997	0	11,857	3,633	12,310,000	14,220,000	21,710,000	29,700,000
2027	Oct	0	0	0	0	1,713	0	412,828	1,429,000	1,435,000	35,581	0	124,346	147,011	16,899	0	6,578	0	5,704,000	6,755,000	10,860,000	15,240,000
2027	Nov	0	0	0	0	0	0	14,336	28,672	28,672	35,581	0	0	0	13,424	0	0	0	1,707,000	1,707,000	1,707,000	1,707,000
2027	Dec	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2028	Jan	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2028	Feb	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2028	Mar	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2028	Apr	0	0	0	0	0	0	0	0	0	35,581	0	0	0	13,424	0	0	0	0	0	0	0
2028	May	0	0	0	0	1,268	0	0	102,378	103,342	35,581	0	0	3,983	13,424	0	0	0	0	0	0	0
2028	Jun	128,364	0	924,585	1,261,000	4,521,000	0	4,225,000	16,820,000	16,900,000	220,489	458,281	1,896,000	2,211,000	49,355	0	82,815	74,456	86,920,000	100,500,000	153,300,000	209,800,000
2028	Jul	0	0	523,959	575,583	1,175,000	0	1,449,000	4,333,000	4,346,000	241,035	193,124	278,999	333,263	17,437	0	11,196	25,266	22,360,000	24,380,000	32,240,000	40,640,000
2028	Aug	0	0	278,043	320,482	792,739	0	774,725	2,835,000	2,847,000	88,557	63,280	191,985	240,498	16,369	0	10,330	4,131	13,010,000	14,810,000	21,840,000	29,350,000
2028	Sep	0	0	232,732	286,672	722,259	0	744,551	2,746,000	2,758,000	90,278	57,037	293,114	340,408	19,008	0	11,881	3,614	12,330,000	14,250,000	21,750,000	29,750,000
2028	Oct	0	0	0	0	2,264	0	413,987	1,438,000	1,444,000	35,490	0	125,776	148,701	16,905	0	6,592	0	5,724,000	6,777,000	10,890,000	15,280,000
2028	Nov	0	0	0	0	0	0	18,800	37,601	37,601	35,490	0	0	0	13,424	0	0	0	1,709,000	1,709,000	1,709,000	1,709,000
2028	Dec	0	0	0	0	0	0	0	0	0	35,560	0	0	0	13,424	0	0	0	0	0	0	0
2029	Jan	0	0	0	0	0	0	0	0	0	234,460	0	0	0	8,982	0	0	0	0	0	0	0
2029	Feb	0	0	0	0	0	0	0	0	0	241,088	0	0	0	8,009	0	0	0	0	0	0	0
2029	Mar	0	0	0	0	0	0	0	0	0	241,088	0	0	0	8,009	0	0	0	0	0	0	0
2029	Apr	0	0	0	0	0	0	0	0	0	241,088	0	0	0	8,009	0	0	0	0	0	0	0
2029	May	0	0	0	0	1,349	0	0	102,560	103,526	241,515	0	0	3,991	8,009	0	0	0	0	0	0	0
2029	Jun	127,019	0	925,627	1,262,000	4,525,000	0	3,516,000	15,410,000	15,480,000	245,593	458,969	1,897,000	2,212,000	43,980	0	82,918	74,589	87,080,000	100,600,000	153,600,000	210,100,000
2029	Jul	0	0	521,596	573,307	1,173,000	0	1,427,000	4,292,000	4,305,000	249,996	192,518	278,365	332,728	12,029	0	11,218	25,194	22,370,000	24,390,000	32,270,000	40,680,000
2029	Aug	0	0	275,260	317,861	790,939	0	772,316	2,833,000	2,844,000	250,974	62,888	191,666	240,267	10,959	0	10,350	4,090	13,030,000	14,830,000	21,880,000	29,400,000
2029	Sep	0	0	229,247	283,361	719,871	0	742,464	2,744,000	2,756,000	190,175	56,745	293,204	340,584	13,603	0	11,904	3,581	12,360,000	14,280,000	21,790,000	29,820,000
2029	Oct	0	0	0	0	2,251	0	348,513	1,308,000	1,314,000	239,290	0	126,003	148,970	11,497	0	6,605	0	5,747,000	6,803,000	10,920,000	15,330,000
2029	Nov	0	0	0	0	0	0	11,936	23,871	23,871	212,093	0	0	0	8,009	0	0	0	1,711,000	1,711,000	1,711,000	1,711,000
2029	Dec	0	0	0	0	0	0	0	0	0	207,416	0	0	0	7,920	0	0	0	0	0	0	0
2030	Jan	0	0	0	0	0	0	0	0	0	214,667	0	0	0	947	0	0	0	0	0	0	0
2030	Feb	0	0	0	0	0	0	0	0	0	211,221	0	0	0	0	0	0	0	0	0	0	0
2030	Mar	0	0	0	0	0	0	0	0	0	216,311	0	0	0	0	0	0	0	0	0	0	0
2030	Apr	0	0	0	0	0	0	0	0	0	208,687	0	0	0	0	0	0	0	0	0	0	0
2030	May	0	0	0	0	1,338	0	0	102,742	103,710	210,587	0	0	3,998	0	0	0	0	0	0	0	0
2030	Jun	96,226	0	865,999	1,206,000	4,482,000	0	3,123,000	14,640,000	14,710,000	243,497	459,996	1,900,000	2,216,000	36,041	0	83,081	74,783	87,310,000	100,900,000	153,900,000	210,600,000
2030	Jul	0	0	497,979	548,447	1,146,000	0	1,379,000	4,198,000	4,212,000	257,347	192,102	277,921	332,381	4,028	0	11,239	25,146	22,380,000	24,410,000	32,300,000	40,730,000
2030	Aug	0	0	264,516	306,637	778,401	0	756,814	2,804,000	2,816,000	191,194	62,563	191,419	240,108	2,956	0	10,370	4,056	13,050,000	14,860,000	21,920,000	29,460,000
2030	Sep	0	0	221,834	275,625	712,098	0	733,797	2,729,000	2,741,000	134,260	56,498	293,341	340,807	5,605	0	11,928	3,554	12,390,000	14,310,000	21,840,000	29,880,000
2030	Oct	0	0	0	0	2,190	0	346,539	1,306,000	1,311,000	244,291	0	126,232	149,240	3,495	0	6,618	0	5,770,000	6,828,000	10,960,000	15,370,000
2030	Nov	0	0	0	0	0	0	13,296	26,593	26,593	216,501	0	0	0	0	0	0	0	1,714,000	1,714,000	1,714,000	1,714,000
2030	Dec	0	0	0	0	0	0	0	0	0	217,858	0	0	0	0	0	0	0	0	0	0	0
2031	Jan	0	0	0	0	0	0	0	0	0	211,230	0	0	0	0	0	0	0	0	0	0	0
2031	Feb	0	0	0	0	0	0	0	0	0	213,568	0	0	0	0	0	0	0	0	0	0	0
2031	Mar	0	0	0	0	0	0	0	0	0	211,170	0	0	0	0	0	0	0	0	0	0	0
2031	Apr	0	0	0	0	0	0	0	0	0	216,427	0	0	0	0	0	0	0	0	0	0	0
2031	May	0	0	0	0	1,294	0	0	102,925	103,895	204,451	0	0	4,005	0	0	0	0	0	0	0	0
2031	Jun	63,622	0	834,757	1,176,000	4,462,000	0	3,121,000	14,650,000	14,720,000	250,622	461,013	1,903,000	2,220,000	35,884	0	83,244	75,401	87,610,000	101,200,000	154,300,000	211,100,000
2031	Jul	0	0	485,384	535,062	1,131,000	0	1,362,000	4,167,000	4,180,000	257,486	191,666	277,457	332,017	4,035	0	11,261	24,928	22,310,000	24,340,000	32,250,000	40,700,000
2031	Aug	0	0	259,230	301,039	772,303	0	751,464	2,796,000	2,807,000	191,226	62,223	191,157	239,934	2,961	0	10,390	3,977	13,070,000	14,880,000	21,950,000	29,510,000
2031	Sep	0	0	218,524	272,148	708,886	0	732,814	2,730,000	2,741,000	127,352	56,232	293,459	341,011	5,615	0	11,951	3,492	12,410,000	14,340,000	21,880,000	29,930,000

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2031	Oct	0	0	0	0	2,181	0	348,215	1,310,000	1,316,000	244,200	0	126,460	149,510	3,502	0	6,631	0	5,791,000	6,850,000	10,990,000	15,410,000
2031	Nov	0	0	0	0	0	0	14,954	29,908	29,908	209,502	0	0	0	0	0	0	0	1,715,000	1,715,000	1,715,000	1,715,000
2031	Dec	0	0	0	0	0	0	0	0	0	193,874	0	0	0	0	0	0	0	0	0	0	0
2032	Jan	0	0	0	0	0	0	0	0	0	76,205	0	0	0	295	0	0	0	0	0	0	0
2032	Feb	0	0	0	0	0	0	0	0	0	80,320	0	0	0	0	0	0	0	0	0	0	0
2032	Mar	0	0	0	0	0	0	0	0	0	76,161	0	0	0	0	0	0	0	0	0	0	0
2032	Apr	0	0	0	0	0	0	0	0	0	78,118	0	0	0	0	0	0	0	0	0	0	0
2032	May	0	0	0	0	1,286	0	0	103,108	104,080	69,487	0	0	4,012	0	0	0	0	0	0	0	0
2032	Jun	59,588	0	943,279	1,279,000	4,558,000	0	3,707,000	15,840,000	15,920,000	215,057	463,949	1,910,000	2,227,000	0	22,416	83,467	80,984	87,960,000	101,600,000	154,900,000	211,800,000
2032	Jul	0	0	533,496	584,351	1,185,000	0	1,453,000	4,352,000	4,365,000	221,875	192,012	277,761	332,420	0	3,352	11,282	27,213	22,360,000	24,390,000	32,310,000	40,780,000
2032	Aug	0	0	288,921	330,778	805,099	0	801,929	2,899,000	2,911,000	115,819	62,283	191,312	240,177	0	2,995	10,410	4,855	13,120,000	14,940,000	22,020,000	29,590,000
2032	Sep	0	0	246,528	300,361	738,081	0	777,266	2,821,000	2,832,000	84,890	56,362	293,975	341,613	0	3,194	11,974	4,431	12,460,000	14,400,000	21,950,000	30,020,000
2032	Oct	0	0	0	0	2,600	0	406,553	1,428,000	1,433,000	109,191	0	126,689	149,781	0	1,753	6,644	0	5,837,000	6,898,000	11,040,000	15,470,000
2032	Nov	0	0	0	0	0	0	28,450	56,901	56,901	78,040	0	0	0	0	0	0	0	1,721,000	1,721,000	1,721,000	1,721,000
2032	Dec	0	0	0	0	0	0	0	0	0	68,113	0	0	0	0	0	0	0	0	0	0	0
2033	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2033	May	0	0	0	0	1,562	0	0	103,291	104,265	0	0	0	4,020	0	264	457	0	361,663	521,574	1,146,000	1,813,000
2033	Jun	91,724	0	1,099,000	1,432,000	4,704,000	0	4,431,000	17,300,000	17,380,000	191,756	465,925	1,913,000	2,230,000	0	22,301	83,179	84,781	87,910,000	101,400,000	154,200,000	210,500,000
2033	Jul	0	0	583,479	637,093	1,246,000	0	1,559,000	4,567,000	4,580,000	205,453	191,808	277,528	332,285	0	3,358	11,303	27,946	22,320,000	24,360,000	32,300,000	40,780,000
2033	Aug	0	0	311,125	353,888	832,834	0	846,009	2,989,000	3,001,000	106,040	62,034	191,146	240,100	0	3,001	10,430	5,031	13,140,000	14,960,000	22,060,000	29,640,000
2033	Sep	0	0	262,801	317,317	757,078	0	809,454	2,887,000	2,899,000	68,484	56,167	294,166	341,891	0	3,201	11,997	4,559	12,490,000	14,420,000	21,990,000	30,080,000
2033	Oct	0	0	0	0	2,871	0	451,582	1,519,000	1,525,000	0	0	126,919	150,053	0	1,773	6,721	0	5,896,000	6,970,000	11,160,000	15,640,000
2033	Nov	0	0	0	0	0	0	40,391	80,782	80,782	0	0	0	0	0	0	0	0	2,227,000	2,227,000	2,227,000	2,227,000
2033	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2034	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2034	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2034	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2034	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2034	May	0	0	0	0	1,740	0	47	103,556	104,532	0	0	0	4,027	0	265	457	0	297,510	457,728	1,084,000	1,752,000
2034	Jun	126,295	0	1,164,000	1,498,000	4,773,000	0	4,670,000	17,790,000	17,870,000	205,453	467,150	1,917,000	2,234,000	0	22,328	83,277	85,398	87,660,000	101,200,000	154,000,000	210,400,000
2034	Jul	0	0	600,804	655,606	1,268,000	0	1,589,000	4,628,000	4,642,000	205,453	191,427	277,122	331,979	0	3,365	11,324	27,995	22,320,000	24,360,000	32,310,000	40,810,000
2034	Aug	0	0	317,348	360,538	841,730	0	856,952	3,014,000	3,025,000	132,550	61,724	190,919	239,961	0	3,006	10,450	5,021	13,160,000	14,980,000	22,090,000	29,690,000
2034	Sep	0	0	266,465	321,309	762,373	0	815,712	2,902,000	2,914,000	61,636	55,930	294,318	342,129	0	3,207	12,020	4,550	12,510,000	14,450,000	22,040,000	30,140,000
2034	Oct	0	0	0	0	2,964	0	453,607	1,524,000	1,530,000	0	0	127,149	150,325	0	1,776	6,734	0	5,916,000	6,992,000	11,190,000	15,680,000
2034	Nov	0	0	0	0	0	0	44,712	89,424	89,424	0	0	0	0	0	0	0	0	2,229,000	2,229,000	2,229,000	2,229,000
2034	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2035	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2035	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2035	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2035	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2035	May	0	0	0	0	1,799	0	3,751	111,037	112,014	0	0	0	4,034	0	265	458	0	298,344	458,868	1,086,000	1,756,000
2035	Jun	130,970	0	1,176,000	1,511,000	4,792,000	0	4,873,000	18,210,000	18,290,000	205,453	485,452	1,937,000	2,256,000	0	22,371	83,436	85,665	87,850,000	101,400,000	154,300,000	210,800,000
2035	Jul	0	0	603,078	658,020	1,272,000	0	1,642,000	4,737,000	4,750,000	205,453	198,451	283,968	338,924	0	3,371	11,345	27,965	22,330,000	24,370,000	32,350,000	40,860,000
2035	Aug	0	0	318,075	361,320	843,390	0	909,747	3,121,000	3,133,000	205,453	65,510	194,942	244,073	0	3,012	10,469	4,990	13,180,000	15,010,000	22,130,000	29,740,000
2035	Sep	0	0	266,989	321,921	763,764	0	869,797	3,013,000	3,024,000	205,453	59,933	298,709	346,607	0	3,213	12,043	4,524	12,530,000	14,480,000	22,080,000	30,190,000
2035	Oct	0	0	0	0	3,013	0	496,752	1,612,000	1,617,000	205,453	0	127,380	150,597	0	1,780	6,747	0	5,936,000	7,014,000	11,220,000	15,720,000
2035	Nov	0	0	0	0	0	0	53,648	107,296	107,296	122,136	0	0	0	0	0	0	0	3,126,000	3,126,000	3,126,000	3,126,000
2035	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2036	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2036	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2036	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2036	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2036	May	0	0	0	0	1,828	4,809	8,940	131,217	132,196	0	0	0	4,042	0	266	459	0	188,642	349,471	977,676	1,649,000
2036	Jun	134,724	0	1,184,000	1,519,000	4,809,000	379,849	4,949,000	19,150,000	19,220,000	0	502,838	1,958,000	2,277,000	0	22,429	83,656	86,001	87,350,000	100,900,000	154,000,000	210,700,000
2036	Jul	0	0	604,037	659,044	1,274,000	65,542	1,645,000	4,877,000	4,890,000	0	202,661	288,081	343,137	0	3,378	11,366	27,959	22,330,000	24,380,000	32,360,000	40,890,000
2036	Aug	0	0	318,243	361,519	844,367	58,595	910,596	3,243,000	3,255,000	0	66,786	196,376	245,597	0	3,018	10,489	4,965	13,200,000	15,030,000	22,170,000	29,800,000
2036	Sep	0	0	267,120	322,123	764,711	57,149	870,743	3,131,000	3,143,000	0	60,769	299,935	347,919	0	3,219	12,066	4,504	12,550,000	14,500,000	22,120,000	30,250,000
2036	Oct	0	0	0	0	3,772	27,947	498,227	1,677,000	1,683,000	0	0	128,832	152,315	0	1,783	6,759	0	5,956,000	7,036,000	11,250,000	15,760,000
2036	Nov	0	0	0	0	0	0	53,947	107,894	107,894	0	0	0	0	0	0	0	0	3,534,000	3,534,000	3,534,000	3,534,000
2036	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2037	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Average Outflow (m3/month)																					
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2037	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2037	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2037	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2037	May	0	0	0	0	1,926	4,818	8,979	131,497	132,478	0	0	0	4,049	0	266	459	0	146,025	307,158	936,548	1,609,000
2037	Jun	134,394	0	1,186,000	1,522,000	4,816,000	379,990	4,958,000	19,170,000	19,240,000	0	505,271	1,961,000	2,280,000	0	22,456	83,752	86,129	87,130,000	100,700,000	153,800,000	210,600,000
2037	Jul	0	0	603,184	658,128	1,274,000	65,661	1,642,000	4,874,000	4,887,000	0	202,465	287,861	343,017	0	3,384	11,387	27,886	22,330,000	24,380,000	32,380,000	40,930,000
2037	Aug	0	0	317,748	361,012	844,480	58,701	910,281	3,245,000	3,257,000	0	66,536	196,215	245,525	0	3,024	10,508	4,922	13,220,000	15,050,000	22,210,000	29,850,000
2037	Sep	0	0	266,867	321,913	765,187	57,252	871,112	3,134,000	3,146,000	0	60,576	300,133	348,205	0	3,225	12,088	4,469	12,580,000	14,530,000	22,160,000	30,310,000
2037	Oct	0	0	0	0	3,818	27,997	498,676	1,680,000	1,685,000	0	0	129,066	152,591	0	1,787	6,772	0	5,976,000	7,058,000	11,280,000	15,800,000
2037	Nov	0	0	0	0	0	0	53,983	107,967	107,967	0	0	0	0	0	0	0	0	3,916,000	3,916,000	3,916,000	3,916,000
2037	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2038	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2038	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2038	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2038	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2038	May	0	0	0	0	1,948	5,348	8,957	144,569	145,658	0	0	0	4,494	0	267	460	0	110,136	271,571	902,141	1,576,000
2038	Jun	134,333	0	1,190,000	1,527,000	4,827,000	380,217	4,973,000	19,200,000	19,280,000	0	506,788	1,965,000	2,284,000	0	22,498	83,909	86,333	86,990,000	100,600,000	153,800,000	210,700,000
2038	Jul	0	0	602,691	657,598	1,274,000	65,780	1,640,000	4,873,000	4,886,000	0	202,046	287,422	342,678	0	3,390	11,408	27,838	22,330,000	24,380,000	32,400,000	40,960,000
2038	Aug	0	0	317,385	360,646	844,767	58,808	910,192	3,247,000	3,259,000	0	66,211	195,975	245,374	0	3,029	10,527	4,885	13,240,000	15,080,000	22,240,000	29,900,000
2038	Sep	0	0	266,692	321,786	765,759	57,356	871,599	3,138,000	3,150,000	0	60,332	300,282	348,440	0	3,231	12,111	4,440	12,600,000	14,560,000	22,200,000	30,360,000
2038	Oct	0	0	0	0	3,866	28,048	499,159	1,682,000	1,688,000	0	0	129,300	152,868	0	1,790	6,785	0	5,996,000	7,080,000	11,310,000	15,840,000
2038	Nov	0	0	0	0	0	0	54,022	108,043	108,043	0	0	0	0	0	0	0	0	3,920,000	3,920,000	3,920,000	3,920,000
2038	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2039	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2039	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2039	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2039	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2039	May	0	0	0	0	1,972	6,277	8,936	167,531	168,809	0	0	0	5,275	0	267	460	0	110,561	272,296	904,042	1,579,000
2039	Jun	134,297	0	1,194,000	1,531,000	4,839,000	380,092	4,988,000	19,230,000	19,310,000	0	508,261	1,969,000	2,288,000	0	22,540	84,065	86,547	87,180,000	100,800,000	154,100,000	211,100,000
2039	Jul	0	0	602,387	657,270	1,274,000	65,899	1,639,000	4,874,000	4,888,000	0	201,642	287,000	342,356	0	3,397	11,428	27,793	22,340,000	24,400,000	32,430,000	41,010,000
2039	Aug	0	0	317,092	360,355	845,148	58,915	910,249	3,250,000	3,262,000	0	65,891	195,743	245,231	0	3,035	10,546	4,850	13,260,000	15,100,000	22,280,000	29,950,000
2039	Sep	0	0	266,557	321,704	766,384	57,460	872,152	3,142,000	3,153,000	0	60,093	300,435	348,681	0	3,237	12,133	4,411	12,620,000	14,580,000	22,240,000	30,420,000
2039	Oct	0	0	0	0	3,915	28,099	499,659	1,684,000	1,690,000	0	0	129,535	153,145	0	1,793	6,797	0	6,015,000	7,101,000	11,340,000	15,870,000
2039	Nov	0	0	0	0	0	0	59,012	118,024	118,024	0	0	0	0	0	0	0	0	3,923,000	3,923,000	3,923,000	3,923,000
2039	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2040	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2040	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2040	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2040	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2040	May	0	0	0	0	1,996	7,208	8,437	189,566	191,033	0	0	0	6,056	0	268	461	0	110,983	273,018	905,933	1,582,000
2040	Jun	134,501	0	1,199,000	1,537,000	4,854,000	380,243	5,002,000	19,260,000	19,340,000	0	510,210	1,975,000	2,295,000	0	22,598	84,282	86,870	87,440,000	101,100,000	154,600,000	211,700,000
2040	Jul	0	0	602,604	657,501	1,275,000	66,019	1,640,000	4,878,000	4,892,000	0	201,509	286,845	342,301	0	3,403	11,449	27,782	22,360,000	24,420,000	32,470,000	41,060,000
2040	Aug	0	0	316,990	360,268	845,781	59,022	910,632	3,253,000	3,265,000	0	65,665	195,609	245,188	0	3,040	10,565	4,823	13,280,000	15,120,000	22,320,000	30,000,000
2040	Sep	0	0	266,534	321,741	767,149	57,565	872,875	3,146,000	3,157,000	0	59,916	300,653	348,987	0	3,243	12,155	4,389	12,650,000	14,610,000	22,280,000	30,470,000
2040	Oct	0	0	0	0	3,967	28,150	500,205	1,686,000	1,692,000	0	0	129,770	153,423	0	1,797	6,810	0	6,035,000	7,123,000	11,370,000	15,910,000
2040	Nov	0	0	0	0	0	0	59,057	118,114	118,114	0	0	0	0	0	0	0	0	4,284,000	4,284,000	4,284,000	4,284,000
2040	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2041	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2041	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2041	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2041	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2041	May	0	0	0	0	2,021	8,140	8,413	212,579	214,235	0	0	0	6,839	0	268	462	0	80,980	243,314	877,393	1,555,000
2041	Jun	134,233	0	1,201,000	1,540,000	4,863,000	379,843	5,004,000	19,250,000	19,330,000	0	511,059	1,978,000	2,297,000	0	22,623	84,375	86,989	87,240,000	100,900,000	154,500,000	211,600,000
2041	Jul	0	0	602,055	656,912	1,275,000	66,139	1,646,000	4,893,000	4,907,000	0	201,008	286,328	341,885	0	3,409	11,469	27,704	22,360,000	24,420,000	32,480,000	41,090,000
2041	Aug	0	0	316,609	359,883	846,050	59,129	910,693	3,256,000	3,268,000	0	65,314	195,345	245,013	0	3,046	10,584	4,779	13,300,000	15,150,000	22,350,000	30,050,000
2041	Sep	0	0	266,348	321,605	767,716	57,669	873,365	3,149,000	3,161,000	0	59,655	300,787	349,208	0	3,249	12,178	4,353	12,670,000	14,640,000	22,320,000	30,530,000
2041	Oct	0	0	0	0	4,016	28,201	500,689	1,689,000	1,694,000	0	0	130,006	153,702	0	1,800	6,823	0	6,054,000	7,144,000	11,400,000	15,950,000
2041	Nov	0	0	0	0	0	0	59,098	118,197	118,197	0	0	0	0	0	0	0	0	4,288,000	4,288,000	4,288,000	4,288,000
2041	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2042	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2042	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2042	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2042	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2042	May	0	0	0	0	2,045	9,072	8,392	235,622	237,468	0	0	0	7,622	0	269	462	0	81,325	243,955	879,194	1,558,000

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2042	Jun	134,205	0	1,205,000	1,545,000	4,874,000	379,720	5,019,000	19,280,000	19,360,000	0	512,375	1,982,000	2,301,000	0	22,665	84,529	87,183	87,430,000	101,200,000	154,800,000	212,000,000
2042	Jul	0	0	601,854	656,694	1,276,000	66,259	1,645,000	4,896,000	4,909,000	0	200,671	285,975	341,633	0	3,415	11,489	27,652	22,370,000	24,430,000	32,510,000	41,140,000
2042	Aug	0	0	316,356	359,635	846,488	59,236	910,822	3,259,000	3,271,000	0	65,019	195,141	244,900	0	3,052	10,603	4,742	13,320,000	15,170,000	22,390,000	30,100,000
2042	Sep	0	0	266,238	321,549	768,376	57,774	873,961	3,153,000	3,165,000	0	59,433	300,961	349,470	0	3,255	12,200	4,323	12,690,000	14,660,000	22,360,000	30,580,000
2042	Oct	0	0	0	0	4,067	28,252	501,204	1,691,000	1,697,000	0	0	130,242	153,981	0	1,803	6,835	0	6,074,000	7,166,000	11,430,000	15,990,000
2042	Nov	0	0	0	0	0	0	59,142	118,283	118,283	0	0	0	0	0	0	0	0	4,292,000	4,292,000	4,292,000	4,292,000
2042	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2043	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2043	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2043	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2043	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2043	May	0	0	0	0	2,070	10,006	8,372	258,688	260,725	0	0	0	8,407	0	269	463	0	81,668	244,593	880,987	1,561,000
2043	Jun	134,181	0	1,209,000	1,549,000	4,886,000	379,597	5,033,000	19,310,000	19,380,000	0	513,790	1,986,000	2,305,000	0	22,706	84,682	87,389	87,620,000	101,400,000	155,100,000	212,400,000
2043	Jul	0	0	601,647	656,471	1,277,000	66,379	1,645,000	4,897,000	4,911,000	0	200,337	285,626	341,385	0	3,422	11,509	27,602	22,380,000	24,450,000	32,540,000	41,180,000
2043	Aug	0	0	316,101	359,385	846,926	59,344	910,948	3,262,000	3,274,000	0	64,726	194,941	244,790	0	3,057	10,622	4,705	13,340,000	15,190,000	22,430,000	30,150,000
2043	Sep	0	0	266,127	321,493	769,038	57,879	874,559	3,157,000	3,168,000	0	59,211	301,137	349,734	0	3,261	12,222	4,293	12,710,000	14,690,000	22,400,000	30,640,000
2043	Oct	0	0	0	0	4,119	28,304	501,720	1,693,000	1,699,000	0	0	130,478	154,261	0	1,824	6,913	0	6,132,000	7,236,000	11,550,000	16,160,000
2043	Nov	0	0	0	0	0	0	59,185	118,370	118,370	0	0	0	0	0	0	0	0	4,314,000	4,314,000	4,314,000	4,314,000
2043	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2044	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2044	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2044	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2044	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2044	May	0	0	0	0	2,095	10,940	8,355	281,783	284,009	0	0	0	9,191	0	270	463	0	83,671	246,891	884,433	1,565,000
2044	Jun	134,403	0	1,214,000	1,556,000	4,902,000	379,752	5,053,000	19,350,000	19,430,000	0	515,974	1,993,000	2,312,000	0	22,747	84,835	87,724	87,820,000	101,600,000	155,400,000	212,900,000
2044	Jul	0	0	601,696	656,523	1,277,000	66,500	1,645,000	4,900,000	4,914,000	0	200,135	285,407	341,268	0	3,428	11,529	27,582	22,390,000	24,460,000	32,570,000	41,220,000
2044	Aug	0	0	315,940	359,236	847,490	59,451	911,233	3,265,000	3,277,000	0	64,479	194,789	244,729	0	3,063	10,641	4,676	13,360,000	15,220,000	22,460,000	30,200,000
2044	Sep	0	0	266,071	321,496	769,771	57,984	875,242	3,160,000	3,172,000	0	59,021	301,345	350,031	0	3,267	12,244	4,268	12,730,000	14,710,000	22,440,000	30,690,000
2044	Oct	0	0	0	0	4,981	40,815	526,129	2,047,000	2,055,000	0	0	188,153	222,448	0	1,827	6,925	0	6,151,000	7,257,000	11,580,000	16,190,000
2044	Nov	0	0	0	0	0	0	67,435	134,869	134,869	0	0	0	0	0	0	0	0	4,317,000	4,317,000	4,317,000	4,317,000
2044	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2045	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2045	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2045	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2045	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2045	May	0	0	0	0	11,827	11,876	10,390	309,000	311,417	0	0	0	9,977	0	270	464	0	84,014	247,526	886,212	1,568,000
2045	Jun	134,097	0	1,223,000	1,565,000	4,907,000	366,478	5,046,000	19,010,000	19,090,000	0	519,922	1,939,000	2,247,000	0	22,772	84,924	87,831	87,940,000	101,700,000	155,600,000	213,100,000
2045	Jul	0	0	598,057	652,631	1,274,000	66,621	1,631,000	4,876,000	4,890,000	0	198,233	283,517	339,479	0	3,434	11,549	27,499	22,390,000	24,470,000	32,590,000	41,260,000
2045	Aug	0	0	314,431	357,649	846,289	59,559	909,104	3,263,000	3,275,000	0	63,649	194,028	244,059	0	3,068	10,659	4,631	13,380,000	15,240,000	22,500,000	30,250,000
2045	Sep	0	0	265,229	320,656	769,537	58,089	874,741	3,162,000	3,174,000	0	58,435	301,158	349,932	0	3,273	12,265	4,231	12,760,000	14,740,000	22,480,000	30,750,000
2045	Oct	0	0	0	0	5,027	40,889	526,407	2,049,000	2,058,000	0	0	188,495	222,852	0	1,830	6,938	0	6,170,000	7,279,000	11,610,000	16,230,000
2045	Nov	0	0	0	0	0	0	72,863	145,726	145,726	0	0	0	0	0	0	0	0	4,321,000	4,321,000	4,321,000	4,321,000
2045	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2046	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2046	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2046	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2046	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2046	May	0	0	0	0	11,904	12,811	9,806	330,994	333,601	0	0	0	10,763	0	277	474	0	84,354	252,558	909,572	1,611,000
2046	Jun	135,103	0	1,227,000	1,570,000	4,919,000	366,334	5,050,000	19,020,000	19,090,000	0	520,992	1,943,000	2,251,000	0	22,806	85,068	88,026	88,130,000	101,900,000	155,900,000	213,500,000
2046	Jul	0	0	597,560	652,099	1,274,000	66,742	1,636,000	4,888,000	4,901,000	0	197,640	282,916	338,980	0	3,440	11,569	27,439	22,400,000	24,480,000	32,620,000	41,300,000
2046	Aug	0	0	314,072	357,289	846,596	59,668	909,175	3,266,000	3,278,000	0	63,270	193,740	243,861	0	3,074	10,678	4,592	13,400,000	15,260,000	22,530,000	30,300,000
2046	Sep	0	0	265,058	320,536	770,131	58,195	875,263	3,166,000	3,177,000	0	58,154	301,278	350,141	0	3,278	12,287	4,199	12,780,000	14,760,000	22,520,000	30,800,000
2046	Oct	0	0	0	0	5,088	40,963	526,961	2,052,000	2,061,000	0	0	188,837	223,257	0	1,834	6,950	0	6,189,000	7,300,000	11,640,000	16,270,000
2046	Nov	0	0	0	0	0	0	72,925	145,851	145,851	0	0	0	0	0	0	0	0	4,325,000	4,325,000	4,325,000	4,325,000
2046	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2047	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2047	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2047	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2047	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2047	May	0	0	0	0	12,001	13,748	9,789	354,139	356,936	0	0	0	11,549	0	316	620	0	84,692	276,201	1,024,000	1,823,000
2047	Jun	136,111	0	1,232,000	1,576,000	4,932,000	366,191	5,067,000	19,040,000	19,120,000	0	522,570	1,947,000	2,255,000	0	22,811	85,080	88,268	88,340,000	102,200,000	156,100,000	213,700,000
2047	Jul	0	0	597,331	651,854	1,274,000	66,863	1,635,000	4,888,000	4,902,000	0	197,175	282,443	338,608	0	3,446	11,589	27,372	22,400,000	24,490,000	32,640,000	41,340,000
2047	Aug	0	0	313,811	357,034	847,035	59,776	909,285	3,269,000	3,281,000	0	62,935	193,500	243,712	0	3,079	10,696	4,550	13,420,000	15,280,000	22,570,000	30,350,000
2047	Sep	0	0	264,945	320,479	770,799	58,301	875,867	3,169,000	3,181,000	0	57,904	301,429	350,381	0	3,284	12,309	4,165	12,800,000	14,790,000	22,560,000	30,850,000

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2047	Oct	0	0	0	0	5,151	41,038	527,540	2,055,000	2,063,000	0	0	189,181	223,662	0	1,837	6,963	0	6,208,000	7,321,000	11,670,000	16,310,000
2047	Nov	0	0	0	0	0	0	72,989	145,979	145,979	0	0	0	0	0	0	0	0	4,667,000	4,667,000	4,667,000	4,667,000
2047	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2048	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2048	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2048	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2048	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2048	May	0	0	0	0	12,100	14,685	9,776	377,305	380,293	0	0	0	12,336	0	354	767	0	59,461	274,308	1,114,000	2,010,000
2048	Jun	134,920	0	1,236,000	1,581,000	4,947,000	366,328	5,085,000	19,090,000	19,160,000	0	524,653	1,953,000	2,261,000	0	22,831	85,153	88,613	88,300,000	102,100,000	156,100,000	213,800,000
2048	Jul	0	0	597,243	651,759	1,275,000	66,985	1,635,000	4,891,000	4,905,000	0	196,994	282,249	338,517	0	3,452	11,608	27,340	22,400,000	24,490,000	32,660,000	41,370,000
2048	Aug	0	0	313,603	356,835	847,545	59,885	909,507	3,272,000	3,284,000	0	62,698	193,363	243,667	0	3,085	10,714	4,519	13,440,000	15,310,000	22,600,000	30,400,000
2048	Sep	0	0	264,864	320,455	771,508	58,407	876,521	3,173,000	3,185,000	0	57,721	301,649	350,690	0	3,290	12,330	4,138	12,820,000	14,810,000	22,600,000	30,910,000
2048	Oct	0	0	0	0	5,216	41,112	528,133	2,058,000	2,067,000	0	0	189,524	224,069	0	1,840	6,975	0	6,227,000	7,342,000	11,690,000	16,340,000
2048	Nov	0	0	0	0	0	0	73,054	146,109	146,109	0	0	0	0	0	0	0	0	4,671,000	4,671,000	4,671,000	4,671,000
2048	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2049	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2049	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2049	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2049	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2049	May	0	0	0	0	12,201	15,622	9,756	400,467	403,646	0	0	0	13,124	0	393	914	0	59,732	297,957	1,228,000	2,222,000
2049	Jun	134,262	0	1,238,000	1,584,000	4,955,000	365,907	5,095,000	19,090,000	19,170,000	0	525,593	1,956,000	2,263,000	0	22,819	85,100	88,726	88,430,000	102,200,000	156,200,000	213,900,000
2049	Jul	0	0	596,573	651,043	1,275,000	67,106	1,633,000	4,892,000	4,905,000	0	196,456	281,707	338,077	0	3,458	11,628	27,251	22,410,000	24,500,000	32,680,000	41,420,000
2049	Aug	0	0	313,183	356,410	847,777	59,994	909,370	3,274,000	3,286,000	0	62,340	193,100	243,495	0	3,090	10,732	4,472	13,460,000	15,330,000	22,640,000	30,450,000
2049	Sep	0	0	264,658	320,298	772,065	58,513	876,992	3,177,000	3,189,000	0	57,455	301,787	350,916	0	3,296	12,352	4,100	12,840,000	14,840,000	22,630,000	30,960,000
2049	Oct	0	0	0	0	5,278	41,187	528,677	2,061,000	2,069,000	0	0	189,869	224,476	0	1,843	6,987	0	6,246,000	7,363,000	11,720,000	16,380,000
2049	Nov	0	0	0	0	0	0	73,116	146,233	146,233	0	0	0	0	0	0	0	0	4,675,000	4,675,000	4,675,000	4,675,000
2049	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2050	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2050	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2050	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2050	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2050	May	0	0	0	0	12,299	16,560	9,739	423,645	427,015	0	0	0	13,912	0	432	1,061	0	60,004	321,655	1,344,000	2,435,000
2050	Jun	134,243	0	1,242,000	1,588,000	4,967,000	365,766	5,110,000	19,120,000	19,190,000	0	527,020	1,960,000	2,267,000	0	22,823	85,109	88,916	88,620,000	102,400,000	156,400,000	214,100,000
2050	Jul	0	0	596,322	650,774	1,276,000	67,228	1,633,000	4,894,000	4,908,000	0	196,081	281,324	337,797	0	3,464	11,647	27,193	22,420,000	24,520,000	32,710,000	41,460,000
2050	Aug	0	0	312,916	356,148	848,214	60,103	909,498	3,277,000	3,289,000	0	62,038	192,897	243,383	0	3,095	10,751	4,433	13,480,000	15,350,000	22,680,000	30,500,000
2050	Sep	0	0	264,543	320,239	772,736	58,619	877,600	3,181,000	3,193,000	0	57,227	301,964	351,183	0	3,302	12,373	4,068	12,860,000	14,860,000	22,670,000	31,010,000
2050	Oct	0	0	0	0	5,342	41,262	529,261	2,064,000	2,072,000	0	0	190,214	224,885	0	1,846	6,999	0	6,265,000	7,383,000	11,750,000	16,420,000
2050	Nov	0	0	0	0	0	0	73,181	146,362	146,362	0	0	0	0	0	0	0	0	4,679,000	4,679,000	4,679,000	4,679,000
2050	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2051	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2051	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2051	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2051	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2051	May	0	0	0	0	12,400	17,498	9,723	446,831	450,392	0	0	0	14,699	0	470	1,208	0	60,275	345,410	1,459,000	2,649,000
2051	Jun	134,228	0	1,246,000	1,593,000	4,979,000	365,627	5,124,000	19,150,000	19,220,000	0	528,522	1,964,000	2,272,000	0	22,826	85,117	89,110	88,810,000	102,600,000	156,600,000	214,300,000
2051	Jul	0	0	596,093	650,530	1,276,000	67,351	1,633,000	4,896,000	4,910,000	0	195,718	280,956	337,531	0	3,470	11,667	27,146	22,430,000	24,530,000	32,740,000	41,510,000
2051	Aug	0	0	312,658	355,897	848,663	60,212	909,641	3,280,000	3,292,000	0	61,741	192,700	243,279	0	3,101	10,769	4,398	13,500,000	15,370,000	22,710,000	30,550,000
2051	Sep	0	0	264,433	320,185	773,416	58,726	878,220	3,184,000	3,196,000	0	57,003	302,145	351,454	0	3,307	12,394	4,038	12,890,000	14,890,000	22,710,000	31,070,000
2051	Oct	0	0	0	0	9,163	47,238	542,611	2,236,000	2,246,000	0	0	217,763	257,455	0	1,850	7,011	0	6,284,000	7,404,000	11,780,000	16,450,000
2051	Nov	0	0	0	0	0	0	83,849	167,698	167,698	0	0	0	0	0	0	0	0	4,683,000	4,683,000	4,683,000	4,683,000
2051	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2052	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2052	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2052	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2052	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2052	May	0	0	0	0	20,345	18,437	10,381	471,372	475,124	0	0	0	15,488	0	509	1,356	0	60,544	369,228	1,575,000	2,863,000
2052	Jun	134,423	0	1,254,000	1,602,000	4,986,000	359,673	5,126,000	19,000,000	19,080,000	0	531,949	1,944,000	2,246,000	0	22,846	85,187	89,424	89,070,000	102,900,000	156,900,000	214,700,000
2052	Jul	0	0	595,018	649,381	1,276,000	67,473	1,629,000	4,891,000	4,905,000	0	194,972	280,211	336,890	0	3,476	11,686	27,133	22,450,000	24,550,000	32,770,000	41,550,000
2052	Aug	0	0	312,091	355,316	848,710	60,322	909,217	3,282,000	3,294,000	0	61,314	192,368	243,038	0	3,106	10,786	4,371	13,520,000	15,400,000	22,750,000	30,600,000
2052	Sep	0	0	264,142	319,938	773,875	58,833	878,568	3,188,000	3,200,000	0	56,689	302,239	351,637	0	3,313	12,415	4,014	12,910,000	14,910,000	22,750,000	31,120,000
2052	Oct	0	0	0	0	9,255	47,324	543,167	2,240,000	2,249,000	0	0	218,159	257,923	0	1,853	7,023	0	6,302,000	7,424,000	11,810,000	16,490,000
2052	Nov	0	0	0	0	0	0	83,928	167,855	167,855	0	0	0	0	0	0	0	0	4,687,000	4,687,000	4,687,000	4,687,000
2052	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2053	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Average Outflow (m3/month)																					
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2053	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2053	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2053	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2053	May	0	0	0	0	20,486	19,375	10,363	494,563	498,506	0	0	0	16,276	0	548	1,505	0	60,811	393,118	1,691,000	3,077,000
2053	Jun	134,171	0	1,256,000	1,605,000	4,994,000	359,243	5,136,000	19,010,000	19,080,000	0	532,640	1,946,000	2,248,000	0	22,832	85,129	89,523	89,190,000	103,000,000	157,000,000	214,700,000
2053	Jul	0	0	594,369	648,687	1,276,000	67,596	1,627,000	4,891,000	4,905,000	0	194,407	279,645	336,427	0	3,482	11,705	27,056	22,460,000	24,560,000	32,800,000	41,590,000
2053	Aug	0	0	311,680	354,901	848,963	60,431	909,100	3,284,000	3,296,000	0	60,949	192,102	242,865	0	3,111	10,804	4,327	13,530,000	15,420,000	22,780,000	30,640,000
2053	Sep	0	0	263,944	319,790	774,450	58,940	879,059	3,191,000	3,203,000	0	56,418	302,376	351,864	0	3,319	12,436	3,978	12,930,000	14,940,000	22,790,000	31,170,000
2053	Oct	0	0	0	0	9,351	47,410	543,763	2,243,000	2,253,000	0	0	218,556	258,392	0	1,856	7,035	0	6,321,000	7,445,000	11,840,000	16,520,000
2053	Nov	0	0	0	0	0	0	84,009	168,018	168,018	0	0	0	0	0	0	0	0	4,691,000	4,691,000	4,691,000	4,691,000
2053	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2054	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2054	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2054	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2054	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2054	May	0	0	0	0	21,235	20,742	10,530	528,727	532,947	0	0	0	17,424	0	587	1,654	0	61,076	417,087	1,808,000	3,293,000
2054	Jun	134,189	0	1,260,000	1,610,000	5,006,000	358,717	5,151,000	19,030,000	19,100,000	0	534,127	1,951,000	2,252,000	0	22,835	85,133	89,728	89,380,000	103,200,000	157,200,000	214,900,000
2054	Jul	0	0	594,172	648,477	1,276,000	67,719	1,627,000	4,893,000	4,907,000	0	194,075	279,311	336,196	0	3,488	11,724	26,993	22,460,000	24,570,000	32,820,000	41,630,000
2054	Aug	0	0	311,436	354,665	849,437	60,541	909,266	3,287,000	3,300,000	0	60,665	191,922	242,777	0	3,117	10,822	4,288	13,550,000	15,440,000	22,820,000	30,690,000
2054	Sep	0	0	263,843	319,747	775,147	59,047	879,699	3,195,000	3,207,000	0	56,203	302,570	352,148	0	3,324	12,457	3,944	12,950,000	14,960,000	22,830,000	31,220,000
2054	Oct	0	0	0	0	15,486	50,021	551,694	2,322,000	2,333,000	0	0	230,596	272,626	0	2,676	10,144	0	8,141,000	9,762,000	16,090,000	22,850,000
2054	Nov	0	0	0	0	0	0	87,530	175,060	175,060	0	0	0	0	0	0	0	0	5,653,000	5,653,000	5,653,000	5,653,000
2054	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2055	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2055	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2055	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2055	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2055	May	0	0	0	0	26,093	22,606	11,639	577,091	581,691	0	0	8,783	27,772	0	627	1,803	0	137,776	517,581	2,001,000	3,586,000
2055	Jun	134,227	0	1,266,000	1,617,000	5,011,000	355,143	5,160,000	18,960,000	19,030,000	0	536,418	1,935,000	2,234,000	0	22,063	82,197	90,709	87,170,000	100,500,000	152,700,000	208,500,000
2055	Jul	0	0	593,464	647,722	1,276,000	67,842	1,624,000	4,890,000	4,904,000	0	193,522	278,759	335,747	0	3,494	11,743	26,781	22,290,000	24,410,000	32,670,000	41,500,000
2055	Aug	0	0	311,005	354,230	849,668	60,651	909,084	3,289,000	3,302,000	0	60,305	191,664	242,611	0	3,122	10,840	4,210	13,560,000	15,450,000	22,840,000	30,720,000
2055	Sep	0	0	263,634	319,587	775,712	59,154	880,176	3,199,000	3,211,000	0	55,936	302,712	352,381	0	3,330	12,478	3,881	12,970,000	14,990,000	22,860,000	31,270,000
2055	Oct	0	0	0	0	15,629	50,112	552,323	2,326,000	2,336,000	0	0	231,015	273,123	0	2,681	10,161	0	8,163,000	9,786,000	16,130,000	22,900,000
2055	Nov	0	0	0	0	0	0	93,160	186,319	186,319	0	0	0	0	0	0	0	0	5,659,000	5,659,000	5,659,000	5,659,000
2055	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2056	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2056	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2056	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2056	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2056	May	0	0	0	0	27,787	24,469	11,435	622,825	627,804	0	0	17,595	38,150	0	666	1,953	0	138,233	541,930	2,119,000	3,803,000
2056	Jun	134,948	0	1,272,000	1,624,000	5,027,000	354,458	5,177,000	18,980,000	19,050,000	0	538,760	1,933,000	2,231,000	0	22,081	82,257	90,966	87,440,000	100,800,000	153,000,000	208,800,000
2056	Jul	0	0	593,683	647,957	1,277,000	67,966	1,624,000	4,893,000	4,907,000	0	193,361	278,595	335,687	0	3,500	11,762	26,730	22,300,000	24,420,000	32,700,000	41,540,000
2056	Aug	0	0	310,915	354,157	850,346	60,762	909,510	3,293,000	3,305,000	0	60,081	191,548	242,588	0	3,127	10,857	4,173	13,580,000	15,470,000	22,870,000	30,770,000
2056	Sep	0	0	263,624	319,642	776,525	59,262	880,957	3,203,000	3,215,000	0	55,762	302,950	352,709	0	3,335	12,499	3,850	12,990,000	15,010,000	22,900,000	31,320,000
2056	Oct	0	0	0	0	22,792	50,478	556,573	2,343,000	2,354,000	0	0	232,703	275,118	0	2,685	10,178	0	8,185,000	9,811,000	16,160,000	22,940,000
2056	Nov	0	0	0	0	0	0	95,270	190,540	190,540	0	0	0	0	0	0	0	0	6,039,000	6,039,000	6,039,000	6,039,000
2056	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2057	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2057	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2057	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2057	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2057	May	0	0	0	0	28,536	26,333	12,099	670,284	675,643	0	0	26,405	48,525	0	706	2,104	0	103,613	531,309	2,202,000	3,986,000
2057	Jun	136,546	0	1,277,000	1,629,000	5,031,000	352,923	5,185,000	18,950,000	19,030,000	0	540,079	1,926,000	2,223,000	0	22,064	82,189	91,073	87,230,000	100,600,000	152,800,000	208,500,000
2057	Jul	0	0	593,374	647,628	1,278,000	68,089	1,622,000	4,893,000	4,907,000	0	192,813	278,051	335,247	0	3,506	11,780	26,629	22,290,000	24,420,000	32,710,000	41,560,000
2057	Aug	0	0	310,631	353,880	850,774	60,872	909,599	3,296,000	3,308,000	0	59,725	191,296	242,429	0	3,132	10,875	4,124	13,590,000	15,490,000	22,900,000	30,820,000
2057	Sep	0	0	263,502	319,576	777,201	59,370	881,570	3,207,000	3,219,000	0	55,497	303,097	352,947	0	3,341	12,519	3,809	13,010,000	15,030,000	22,940,000	31,380,000
2057	Oct	0	0	0	0	22,992	50,570	557,267	2,347,000	2,357,000	0	0	233,126	275,618	0	2,690	10,195	0	8,206,000	9,835,000	16,200,000	22,990,000
2057	Nov	0	0	0	0	0	0	95,387	190,774	190,774	0	0	0	0	0	0	0	0	6,044,000	6,044,000	6,044,000	6,044,000
2057	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2058	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2058	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2058	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2058	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2058	May	0	0	0	0	30,331	28,195	12,531	717,266	723,003	0	0	35,213	58,897	0	746	2,255	0	103,992	555,801	2,321,000	4,205,000

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2058	Jun	136,169	0	1,281,000	1,634,000	5,042,000	351,958	5,202,000	18,960,000	19,040,000	0	541,787	1,922,000	2,218,000	0	22,064	82,183	91,270	87,420,000	100,800,000	153,000,000	208,700,000
2058	Jul	0	0	593,133	647,372	1,278,000	68,213	1,621,000	4,894,000	4,908,000	0	192,463	277,703	335,003	0	3,511	11,799	26,554	22,300,000	24,420,000	32,730,000	41,590,000
2058	Aug	0	0	310,374	353,629	851,237	60,983	909,746	3,299,000	3,311,000	0	59,437	191,116	242,342	0	3,137	10,892	4,082	13,610,000	15,510,000	22,940,000	30,860,000
2058	Sep	0	0	263,395	319,528	777,898	59,478	882,210	3,211,000	3,223,000	0	55,280	303,293	353,233	0	3,346	12,540	3,773	13,030,000	15,060,000	22,970,000	31,430,000
2058	Oct	0	0	0	0	23,194	50,662	557,971	2,351,000	2,361,000	0	0	233,551	276,120	0	2,694	10,212	0	8,228,000	9,859,000	16,230,000	23,040,000
2058	Nov	0	0	0	0	0	0	95,505	191,009	191,009	0	0	0	0	0	0	0	0	6,050,000	6,050,000	6,050,000	6,050,000
2058	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2059	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2059	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2059	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2059	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2059	May	0	0	0	0	32,198	30,057	12,975	764,255	770,371	0	0	44,017	69,265	0	786	2,408	0	104,369	580,413	2,440,000	4,426,000
2059	Jun	134,741	0	1,284,000	1,639,000	5,053,000	350,994	5,217,000	18,970,000	19,040,000	0	543,416	1,918,000	2,213,000	0	22,064	82,176	91,481	87,610,000	101,000,000	153,200,000	208,900,000
2059	Jul	0	0	592,886	647,110	1,279,000	68,338	1,621,000	4,898,000	4,911,000	0	192,205	277,446	334,850	0	3,517	11,817	26,480	22,300,000	24,430,000	32,750,000	41,630,000
2059	Aug	0	0	310,114	353,377	851,700	61,094	909,912	3,302,000	3,314,000	0	59,181	190,970	242,290	0	3,143	10,909	4,040	13,630,000	15,530,000	22,970,000	30,910,000
2059	Sep	0	0	263,288	319,478	778,597	59,586	882,853	3,215,000	3,227,000	0	55,084	303,512	353,543	0	3,352	12,560	3,738	13,050,000	15,080,000	23,010,000	31,480,000
2059	Oct	0	0	0	0	30,298	51,031	561,903	2,367,000	2,378,000	0	0	235,250	278,129	0	2,698	10,228	0	8,250,000	9,884,000	16,270,000	23,080,000
2059	Nov	0	0	0	0	0	0	97,737	195,474	195,474	0	0	0	0	0	0	0	0	6,055,000	6,055,000	6,055,000	6,055,000
2059	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2060	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2060	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2060	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2060	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2060	May	0	0	0	0	33,056	31,919	13,711	811,806	818,300	0	0	52,816	79,628	0	826	2,561	0	104,743	605,155	2,560,000	4,647,000
2060	Jun	135,053	0	1,290,000	1,646,000	5,063,000	350,034	5,232,000	18,970,000	19,050,000	0	545,784	1,914,000	2,209,000	0	22,080	82,232	91,809	87,870,000	101,200,000	153,500,000	209,200,000
2060	Jul	0	0	593,226	647,474	1,280,000	68,462	1,622,000	4,903,000	4,917,000	0	192,126	277,367	334,876	0	3,523	11,836	26,440	22,300,000	24,440,000	32,770,000	41,670,000
2060	Aug	0	0	310,071	353,356	852,448	61,205	910,443	3,306,000	3,318,000	0	58,987	190,890	242,303	0	3,148	10,926	4,007	13,650,000	15,550,000	23,000,000	30,960,000
2060	Sep	0	0	263,308	319,566	779,454	59,695	883,688	3,219,000	3,231,000	0	54,931	303,774	353,897	0	3,357	12,580	3,708	13,070,000	15,110,000	23,050,000	31,530,000
2060	Oct	0	0	0	0	44,017	53,708	570,828	2,450,000	2,461,000	0	0	247,590	292,718	0	2,703	10,245	0	8,271,000	9,908,000	16,300,000	23,130,000
2060	Nov	0	0	0	0	0	0	104,745	209,490	209,490	0	0	0	0	0	0	0	0	6,061,000	6,061,000	6,061,000	6,061,000
2060	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2061	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2061	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2061	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2061	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2061	May	0	0	0	0	37,451	33,779	15,404	861,245	868,118	0	0	61,611	89,985	0	866	2,715	0	105,114	630,032	2,680,000	4,870,000
2061	Jun	134,870	0	1,294,000	1,650,000	5,056,000	346,118	5,229,000	18,870,000	18,940,000	0	547,369	1,897,000	2,187,000	0	22,062	82,157	91,903	87,990,000	101,300,000	153,500,000	209,300,000
2061	Jul	0	0	592,441	646,637	1,280,000	68,587	1,620,000	4,901,000	4,915,000	0	191,489	276,740	334,353	0	3,529	11,854	26,340	22,310,000	24,440,000	32,790,000	41,700,000
2061	Aug	0	0	309,615	352,895	852,658	61,317	910,257	3,308,000	3,320,000	0	58,604	190,613	242,120	0	3,153	10,943	3,958	13,670,000	15,580,000	23,030,000	31,000,000
2061	Sep	0	0	263,086	319,394	780,016	59,803	884,163	3,223,000	3,235,000	0	54,648	303,907	354,121	0	3,363	12,600	3,667	13,090,000	15,130,000	23,080,000	31,580,000
2061	Oct	0	0	0	0	51,629	54,083	574,027	2,466,000	2,477,000	0	0	249,319	294,763	0	2,707	10,262	0	8,292,000	9,932,000	16,340,000	23,170,000
2061	Nov	0	0	0	0	0	0	113,646	227,292	227,292	0	0	0	0	0	0	0	0	6,066,000	6,066,000	6,066,000	6,066,000
2061	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2062	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2062	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2062	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2062	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2062	May	0	0	0	0	38,276	35,638	15,495	907,452	914,704	0	0	70,400	100,335	0	907	2,870	0	105,483	655,055	2,802,000	5,094,000
2062	Jun	134,944	0	1,298,000	1,655,000	5,061,000	344,869	5,234,000	18,850,000	18,920,000	0	548,978	1,891,000	2,181,000	0	22,060	82,146	92,070	88,170,000	101,500,000	153,700,000	209,400,000
2062	Jul	0	0	592,330	646,521	1,281,000	68,712	1,620,000	4,904,000	4,918,000	0	191,166	276,423	334,141	0	3,534	11,872	26,271	22,320,000	24,460,000	32,820,000	41,740,000
2062	Aug	0	0	309,408	352,699	853,195	61,429	910,507	3,311,000	3,324,000	0	58,328	190,450	242,050	0	3,158	10,960	3,918	13,680,000	15,600,000	23,070,000	31,050,000
2062	Sep	0	0	263,011	319,379	780,759	59,912	884,859	3,227,000	3,239,000	0	54,438	304,115	354,420	0	3,368	12,621	3,632	13,110,000	15,150,000	23,120,000	31,630,000
2062	Oct	0	0	0	0	52,020	54,181	574,836	2,470,000	2,481,000	0	0	249,773	295,299	0	2,712	10,278	0	8,314,000	9,956,000	16,370,000	23,220,000
2062	Nov	0	0	0	0	0	0	113,837	227,673	227,673	0	0	0	0	0	0	0	0	6,072,000	6,072,000	6,072,000	6,072,000
2062	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2063	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2063	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2063	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2063	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2063	May	0	0	0	0	40,398	37,495	16,012	954,477	962,107	0	0	79,183	110,678	0	948	3,026	0	105,850	680,232	2,924,000	5,320,000
2063	Jun	135,022	0	1,303,000	1,661,000	5,072,000	343,909	5,249,000	18,860,000	18,930,000	0	550,676	1,887,000	2,176,000	0	22,058	82,132	92,254	88,350,000	101,700,000	153,900,000	209,600,000
2063	Jul	0	0	592,306	646,497	1,281,000	68,837	1,620,000	4,908,000	4,922,000	0	190,893	276,157	333,980	0	3,540	11,890	26,204	22,330,000	24,470,000	32,840,000	41,780,000
2063	Aug	0	0	309,232	352,537	853,776	61,541	910,820	3,315,000	3,327,000	0	58,070	190,306	242,001	0	3,163	10,977	3,878	13,700,000	15,620,000	23,100,000	31,090,000
2063	Sep	0	0	262,955	319,386	781,529	60,021	885,588	3,231,000	3,243,000	0	54,242	304,337	354,734	0	3,374	12,641	3,598	13,130,000	15,180,000	23,160,000	31,680,000

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2063	Oct	0	0	0	0	59,506	54,559	577,734	2,485,000	2,496,000	0	0	251,512	297,354	0	3,104	11,764	0	9,172,000	11,050,000	18,390,000	26,230,000
2063	Nov	0	0	0	0	0	0	117,009	234,017	234,017	0	0	0	0	0	0	0	0	52,857	52,857	52,857	52,857
2063	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2064	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2064	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2064	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2064	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2064	May	0	0	0	0	41,324	39,352	16,908	1,002,000	1,010,000	0	0	87,958	121,013	0	989	3,183	0	1,270,000	1,870,000	4,211,000	6,711,000
2064	Jun	135,350	0	1,308,000	1,668,000	5,082,000	342,952	5,265,000	18,870,000	18,940,000	0	553,107	1,884,000	2,172,000	0	21,705	80,787	92,911	92,640,000	105,800,000	157,100,000	212,000,000
2064	Jul	0	0	592,622	646,838	1,283,000	68,962	1,621,000	4,912,000	4,926,000	0	190,796	276,064	333,993	0	3,546	11,908	26,099	22,400,000	24,540,000	32,930,000	41,880,000
2064	Aug	0	0	309,183	352,510	854,523	61,653	911,345	3,318,000	3,331,000	0	57,872	190,226	242,015	0	3,168	10,994	3,829	13,720,000	15,640,000	23,140,000	31,140,000
2064	Sep	0	0	262,973	319,472	782,392	60,131	886,429	3,235,000	3,247,000	0	54,087	304,602	355,091	0	3,379	12,660	3,556	13,150,000	15,200,000	23,190,000	31,730,000
2064	Oct	0	0	0	0	59,953	54,658	578,604	2,489,000	2,500,000	0	0	251,970	297,896	0	3,109	11,783	0	9,195,000	11,080,000	18,430,000	26,280,000
2064	Nov	0	0	0	0	0	0	117,223	234,445	234,445	0	0	0	0	0	0	0	0	54,110	54,110	54,110	54,110
2064	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2065	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2065	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2065	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2065	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2065	May	0	0	0	0	43,542	41,206	17,452	1,049,000	1,058,000	0	0	96,726	131,337	0	1,031	3,341	0	1,272,000	1,897,000	4,336,000	6,942,000
2065	Jun	135,186	0	1,312,000	1,672,000	5,090,000	341,708	5,276,000	18,860,000	18,930,000	0	554,278	1,878,000	2,165,000	0	21,685	80,703	92,956	92,750,000	105,900,000	157,200,000	212,000,000
2065	Jul	0	0	592,222	646,414	1,283,000	69,088	1,621,000	4,914,000	4,928,000	0	190,344	275,624	333,658	0	3,551	11,926	25,990	22,400,000	24,550,000	32,950,000	41,920,000
2065	Aug	0	0	308,871	352,203	854,930	61,765	911,427	3,321,000	3,334,000	0	57,555	190,022	241,905	0	3,173	11,011	3,779	13,740,000	15,660,000	23,170,000	31,190,000
2065	Sep	0	0	262,837	319,394	783,067	60,240	887,044	3,239,000	3,251,000	0	53,849	304,785	355,365	0	3,384	12,680	3,513	13,170,000	15,220,000	23,230,000	31,780,000
2065	Oct	0	0	0	0	60,387	54,757	579,408	2,493,000	2,504,000	0	0	252,429	298,439	0	3,113	11,802	0	9,217,000	11,100,000	18,470,000	26,330,000
2065	Nov	0	0	0	0	0	0	117,429	234,859	234,859	0	0	0	0	0	0	0	0	55,372	55,372	55,372	55,372
2065	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2066	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2066	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2066	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2066	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2066	May	0	0	0	0	45,823	43,059	18,012	1,096,000	1,105,000	0	0	105,484	141,652	0	1,073	3,500	0	1,275,000	1,924,000	4,463,000	7,174,000
2066	Jun	135,270	0	1,316,000	1,677,000	5,101,000	340,756	5,292,000	18,860,000	18,930,000	0	555,961	1,874,000	2,160,000	0	21,681	80,683	93,118	92,930,000	106,100,000	157,300,000	212,100,000
2066	Jul	0	0	592,154	646,344	1,284,000	69,214	1,621,000	4,917,000	4,931,000	0	190,050	275,340	333,480	0	3,557	11,943	25,912	22,410,000	24,560,000	32,970,000	41,960,000
2066	Aug	0	0	308,681	352,027	855,498	61,877	911,719	3,324,000	3,337,000	0	57,291	189,875	241,853	0	3,178	11,027	3,736	13,760,000	15,690,000	23,200,000	31,240,000
2066	Sep	0	0	262,774	319,393	783,834	60,350	887,768	3,243,000	3,255,000	0	53,648	305,006	355,679	0	3,390	12,700	3,476	13,190,000	15,250,000	23,260,000	31,830,000
2066	Oct	0	0	0	0	60,831	54,857	580,248	2,497,000	2,509,000	0	0	252,889	298,983	0	3,118	11,820	0	9,239,000	11,130,000	18,500,000	26,380,000
2066	Nov	0	0	0	0	0	0	117,641	235,281	235,281	0	0	0	0	0	0	0	0	56,638	56,638	56,638	56,638
2066	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2067	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2067	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2067	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2067	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2067	May	0	0	0	0	48,176	44,910	18,586	1,143,000	1,152,000	0	0	114,233	151,956	0	1,129	3,714	0	1,289,000	1,973,000	4,644,000	7,497,000
2067	Jun	135,351	0	1,321,000	1,683,000	5,112,000	339,807	5,308,000	18,870,000	18,940,000	0	557,721	1,870,000	2,155,000	0	21,663	80,609	93,308	93,110,000	106,200,000	157,500,000	212,200,000
2067	Jul	0	0	592,101	646,290	1,285,000	69,340	1,621,000	4,920,000	4,935,000	0	189,768	275,069	333,315	0	3,562	11,961	25,836	22,420,000	24,570,000	33,000,000	41,990,000
2067	Aug	0	0	308,498	351,857	856,076	61,990	912,022	3,328,000	3,340,000	0	57,032	189,735	241,808	0	3,183	11,044	3,695	13,780,000	15,710,000	23,240,000	31,280,000
2067	Sep	0	0	262,715	319,397	784,608	60,460	888,502	3,247,000	3,259,000	0	53,452	305,232	355,997	0	3,395	12,719	3,440	13,210,000	15,270,000	23,300,000	31,880,000
2067	Oct	0	0	0	0	68,266	59,288	586,082	2,617,000	2,629,000	0	0	273,313	323,130	0	3,289	12,468	0	9,601,000	11,590,000	19,370,000	27,680,000
2067	Nov	0	0	0	0	0	0	133,402	266,805	266,805	0	0	0	0	0	0	0	0	113,235	113,235	113,235	113,235
2067	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2068	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2068	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2068	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2068	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2068	May	0	0	0	0	60,663	46,758	20,318	1,192,000	1,202,000	0	0	122,972	162,247	0	1,213	4,037	0	1,412,000	2,147,000	5,018,000	8,084,000
2068	Jun	135,671	0	1,328,000	1,691,000	5,112,000	334,676	5,311,000	18,750,000	18,820,000	0	561,014	1,848,000	2,129,000	0	21,478	79,899	93,783	92,950,000	106,000,000	156,800,000	211,000,000
2068	Jul	0	0	591,628	645,788	1,285,000	69,466	1,618,000	4,919,000	4,933,000	0	189,298	274,614	332,966	0	3,568	11,979	25,776	22,400,000	24,560,000	32,990,000	42,000,000
2068	Aug	0	0	308,161	351,525	856,455	62,103	912,034	3,331,000	3,343,000	0	56,711	189,530	241,697	0	3,188	11,060	3,657	13,790,000	15,720,000	23,270,000	31,320,000
2068	Sep	0	0	262,566	319,305	785,273	60,570	889,101	3,251,000	3,263,000	0	53,211	305,415	356,273	0	3,400	12,739	3,407	13,230,000	15,290,000	23,330,000	31,920,000
2068	Oct	0	0	0	0	68,744	59,396	586,909	2,621,000	2,633,000	0	0	273,811	323,719	0	3,294	12,487	0	9,623,000	11,620,000	19,410,000	27,730,000
2068	Nov	0	0	0	0	0	0	133,651	267,302	267,302	0	0	0	0	0	0	0	0	114,957	114,957	114,957	114,957
2068	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2069	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Average Outflow (m3/month)																					
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2069	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2069	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2069	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2069	May	33,091	0	824	0	653,202	145,971	266,519	4,139,000	4,168,000	0	0	602,244	724,853	0	1,298	4,362	0	1,454,000	2,240,000	5,312,000	8,592,000
2069	Jun	110,340	0	1,413,000	1,791,000	4,727,000	247,170	5,342,000	16,650,000	16,700,000	0	598,053	1,445,000	1,653,000	0	21,416	79,654	93,876	93,030,000	106,000,000	156,700,000	210,800,000
2069	Jul	0	0	586,618	640,437	1,279,000	69,593	1,594,000	4,873,000	4,887,000	0	185,483	270,868	329,327	0	3,573	11,996	25,675	22,390,000	24,560,000	33,010,000	42,030,000
2069	Aug	0	0	306,160	349,418	854,656	62,216	908,927	3,327,000	3,340,000	0	55,257	188,141	240,403	0	3,193	11,077	3,610	13,810,000	15,740,000	23,300,000	31,370,000
2069	Sep	0	0	261,433	318,156	784,732	60,681	888,220	3,252,000	3,264,000	0	52,174	304,803	355,753	0	3,405	12,758	3,366	13,250,000	15,310,000	23,370,000	31,970,000
2069	Oct	0	0	0	0	69,115	59,504	587,299	2,625,000	2,637,000	0	0	274,310	324,309	0	3,317	12,575	0	9,680,000	11,690,000	19,540,000	27,920,000
2069	Nov	0	0	0	0	0	0	133,844	267,688	267,688	0	0	0	0	0	0	0	0	133,431	133,431	133,431	133,431
2069	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2070	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2070	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2070	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2070	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2070	May	31,762	0	865	0	667,705	148,765	274,323	4,223,000	4,254,000	0	0	615,578	740,533	0	1,384	4,689	0	1,503,000	2,341,000	5,616,000	9,113,000
2070	Jun	108,055	0	1,414,000	1,793,000	4,724,000	245,381	5,350,000	16,620,000	16,670,000	0	598,565	1,436,000	1,642,000	0	21,352	79,405	94,084	93,140,000	106,100,000	156,600,000	210,500,000
2070	Jul	0	0	585,662	639,420	1,279,000	69,720	1,592,000	4,873,000	4,887,000	0	184,867	270,272	328,837	0	3,579	12,013	25,596	22,390,000	24,560,000	33,020,000	42,060,000
2070	Aug	0	0	305,646	348,897	854,807	62,330	908,677	3,329,000	3,342,000	0	54,889	187,888	240,246	0	3,198	11,093	3,568	13,830,000	15,760,000	23,330,000	31,410,000
2070	Sep	0	0	261,179	317,952	785,273	60,791	888,671	3,256,000	3,268,000	0	51,898	304,954	355,997	0	3,411	12,778	3,329	13,270,000	15,340,000	23,400,000	32,020,000
2070	Oct	0	0	0	0	78,615	70,075	596,553	2,901,000	2,915,000	0	0	323,043	381,924	0	3,323	12,594	0	9,703,000	11,710,000	19,570,000	27,970,000
2070	Nov	0	0	0	0	0	0	162,794	325,588	325,588	0	0	0	0	0	0	0	0	135,330	135,330	135,330	135,330
2070	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2071	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2071	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2071	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2071	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2071	May	43,044	0	1,361	0	758,472	151,555	316,854	4,377,000	4,408,000	0	0	628,892	756,191	0	1,470	5,020	0	1,544,000	2,435,000	5,913,000	9,629,000
2071	Jun	98,030	0	1,424,000	1,805,000	4,643,000	232,785	5,295,000	16,210,000	16,250,000	0	602,593	1,380,000	1,576,000	0	21,305	79,217	94,289	93,300,000	106,200,000	156,600,000	210,400,000
2071	Jul	0	0	583,625	637,247	1,277,000	69,847	1,589,000	4,868,000	4,882,000	0	183,623	269,059	327,731	0	3,584	12,031	25,521	22,390,000	24,560,000	33,040,000	42,090,000
2071	Aug	0	0	304,735	347,953	854,440	62,443	907,756	3,330,000	3,343,000	0	54,308	187,415	239,868	0	3,203	11,109	3,527	13,840,000	15,780,000	23,360,000	31,450,000
2071	Sep	0	0	260,689	317,494	785,526	60,902	888,775	3,258,000	3,271,000	0	51,472	304,955	356,091	0	3,416	12,797	3,292	13,290,000	15,360,000	23,440,000	32,070,000
2071	Oct	0	0	0	0	79,107	70,203	597,267	2,905,000	2,920,000	0	0	323,631	382,620	0	3,328	12,614	0	9,725,000	11,740,000	19,610,000	28,020,000
2071	Nov	0	0	0	0	0	0	163,097	326,194	326,194	0	0	0	0	0	0	0	0	137,228	137,228	137,228	137,228
2071	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2072	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2072	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2072	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2072	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2072	May	43,979	0	1,438	0	773,607	154,341	325,655	4,464,000	4,495,000	0	0	642,187	771,826	0	1,557	5,353	0	1,582,000	2,526,000	6,211,000	10,150,000
2072	Jun	97,524	0	1,430,000	1,812,000	4,647,000	231,278	5,310,000	16,200,000	16,240,000	0	604,814	1,374,000	1,568,000	0	21,274	79,092	94,620	93,530,000	106,400,000	156,700,000	210,500,000
2072	Jul	0	0	583,879	637,523	1,279,000	69,974	1,589,000	4,872,000	4,887,000	0	183,482	268,932	327,711	0	3,590	12,048	25,478	22,400,000	24,570,000	33,060,000	42,130,000
2072	Aug	0	0	304,668	347,909	855,180	62,557	908,266	3,334,000	3,347,000	0	54,102	187,334	239,883	0	3,207	11,125	3,494	13,860,000	15,800,000	23,390,000	31,500,000
2072	Sep	0	0	260,701	317,575	786,397	61,013	889,626	3,263,000	3,275,000	0	51,312	305,222	356,452	0	3,421	12,816	3,262	13,310,000	15,380,000	23,470,000	32,120,000
2072	Oct	0	0	0	0	79,662	70,331	598,209	2,910,000	2,925,000	0	0	324,221	383,317	0	3,333	12,633	0	9,747,000	11,770,000	19,650,000	28,070,000
2072	Nov	0	0	0	0	0	0	163,433	326,867	326,867	0	0	0	0	0	0	0	0	139,124	139,124	139,124	139,124
2072	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2073	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2073	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2073	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2073	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2073	May	45,280	0	1,537	0	790,819	157,460	335,499	4,561,000	4,593,000	0	0	657,102	789,361	0	1,645	5,689	0	1,620,000	2,617,000	6,510,000	10,670,000
2073	Jun	95,083	0	1,433,000	1,816,000	4,640,000	228,892	5,313,000	16,140,000	16,190,000	0	606,103	1,362,000	1,555,000	0	21,207	78,832	94,723	93,620,000	106,500,000	156,600,000	210,200,000
2073	Jul	0	0	583,548	637,173	1,279,000	70,102	1,589,000	4,875,000	4,889,000	0	183,152	268,621	327,507	0	3,595	12,065	25,371	22,390,000	24,570,000	33,070,000	42,150,000
2073	Aug	0	0	304,387	347,635	855,641	62,671	908,421	3,337,000	3,350,000	0	53,832	187,189	239,833	0	3,212	11,141	3,445	13,880,000	15,820,000	23,420,000	31,540,000
2073	Sep	0	0	260,586	317,520	787,114	61,124	890,291	3,267,000	3,279,000	0	51,106	305,446	356,769	0	3,426	12,835	3,220	13,330,000	15,400,000	23,510,000	32,160,000
2073	Oct	0	0	0	0	80,205	70,459	599,097	2,915,000	2,930,000	0	0	324,812	384,016	0	3,338	12,652	0	9,769,000	11,790,000	19,690,000	28,120,000
2073	Nov	0	0	0	0	0	0	163,763	327,525	327,525	0	0	0	0	0	0	0	0	141,018	141,018	141,018	141,018
2073	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2074	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2074	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2074	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2074	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2074	May	48,218	0	1,667	0	811,623	161,222	347,139	4,677,000	4,710,000	0	0	675,142	810,560	0	1,734	6,029	0	1,659,000	2,709,000	6,812,000	11,190,000

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2074	Jun	91,848	0	1,438,000	1,823,000	4,636,000	226,231	5,321,000	16,090,000	16,140,000	0	608,179	1,350,000	1,540,000	0	21,157	78,634	94,894	93,780,000	106,600,000	156,600,000	210,100,000
2074	Jul	0	0	583,634	637,269	1,280,000	70,229	1,590,000	4,880,000	4,894,000	0	182,989	268,475	327,468	0	3,600	12,082	25,295	22,400,000	24,580,000	33,090,000	42,190,000
2074	Aug	0	0	304,259	347,527	856,307	62,786	908,844	3,341,000	3,353,000	0	53,619	187,103	239,844	0	3,217	11,157	3,404	13,890,000	15,840,000	23,450,000	31,580,000
2074	Sep	0	0	260,563	317,564	787,946	61,236	891,095	3,271,000	3,284,000	0	50,941	305,711	357,128	0	3,431	12,854	3,184	13,350,000	15,430,000	23,540,000	32,210,000
2074	Oct	0	0	0	0	96,740	70,872	602,181	2,931,000	2,946,000	0	0	326,714	386,264	0	3,361	12,739	0	9,823,000	11,860,000	19,810,000	28,300,000
2074	Nov	0	0	0	0	0	0	172,808	345,616	345,616	0	0	0	0	0	0	0	0	151,742	151,742	151,742	151,742
2074	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2075	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2075	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2075	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2075	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2075	May	52,596	0	1,837	1	821,934	165,801	366,404	4,829,000	4,863,000	0	0	697,160	836,424	0	1,824	6,371	0	1,708,000	2,812,000	7,127,000	11,740,000
2075	Jun	87,560	0	1,444,000	1,830,000	4,628,000	222,554	5,313,000	15,990,000	16,030,000	0	610,660	1,333,000	1,520,000	0	21,089	78,367	95,085	93,890,000	106,700,000	156,500,000	209,800,000
2075	Jul	0	0	583,724	637,370	1,281,000	70,357	1,590,000	4,883,000	4,897,000	0	182,805	268,310	327,410	0	3,606	12,099	25,224	22,410,000	24,590,000	33,120,000	42,220,000
2075	Aug	0	0	304,134	347,421	856,976	62,900	909,262	3,344,000	3,357,000	0	53,400	187,013	239,849	0	3,222	11,173	3,365	13,910,000	15,860,000	23,480,000	31,620,000
2075	Sep	0	0	260,541	317,610	788,782	61,347	891,904	3,276,000	3,288,000	0	50,772	305,973	357,483	0	3,436	12,873	3,148	13,370,000	15,450,000	23,580,000	32,260,000
2075	Oct	0	0	0	0	97,379	71,001	603,131	2,937,000	2,951,000	0	0	327,310	386,968	0	3,536	13,403	0	10,100,000	12,240,000	20,600,000	29,540,000
2075	Nov	0	0	0	0	0	0	173,192	346,385	346,385	0	0	0	0	0	0	0	0	258,306	258,306	258,306	258,306
2075	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2076	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2076	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2076	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2076	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2076	May	57,314	0	2,018	23	847,378	170,962	386,553	4,997,000	5,032,000	0	0	722,009	865,607	0	1,914	6,717	0	1,842,000	3,002,000	7,531,000	12,370,000
2076	Jun	83,210	0	1,452,000	1,840,000	4,626,000	218,949	5,321,000	15,910,000	15,960,000	0	614,002	1,317,000	1,501,000	0	20,893	77,615	95,531	93,730,000	106,400,000	155,800,000	208,600,000
2076	Jul	0	0	584,175	637,857	1,283,000	70,486	1,591,000	4,889,000	4,903,000	0	182,801	268,323	327,531	0	3,611	12,115	25,164	22,390,000	24,580,000	33,120,000	42,240,000
2076	Aug	0	0	304,142	347,457	857,823	63,015	909,914	3,348,000	3,361,000	0	53,242	186,987	239,920	0	3,226	11,188	3,328	13,920,000	15,880,000	23,510,000	31,670,000
2076	Sep	0	0	260,600	317,741	789,718	61,459	892,834	3,280,000	3,293,000	0	50,646	306,280	357,884	0	3,441	12,892	3,115	13,380,000	15,470,000	23,610,000	32,300,000
2076	Oct	0	0	0	0	98,032	71,130	604,120	2,942,000	2,956,000	0	0	327,906	387,674	0	3,559	13,492	0	10,140,000	12,300,000	20,720,000	29,710,000
2076	Nov	0	0	0	0	0	0	173,584	347,167	347,167	0	0	0	0	0	0	0	0	271,998	271,998	271,998	271,998
2076	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2077	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2077	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2077	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2077	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2077	May	62,332	0	2,226	102	874,536	176,423	396,794	5,153,000	5,189,000	0	0	748,319	896,504	0	2,006	7,067	0	1,895,000	3,110,000	7,855,000	12,920,000
2077	Jun	78,060	0	1,458,000	1,847,000	4,615,000	214,491	5,331,000	15,820,000	15,870,000	0	616,152	1,296,000	1,476,000	0	20,805	77,273	95,608	93,770,000	106,400,000	155,600,000	208,100,000
2077	Jul	0	0	583,904	637,572	1,283,000	70,614	1,591,000	4,891,000	4,906,000	0	182,441	267,985	327,302	0	3,616	12,132	25,059	22,400,000	24,590,000	33,140,000	42,270,000
2077	Aug	0	0	303,885	347,211	858,324	63,130	910,118	3,352,000	3,364,000	0	52,965	186,837	239,866	0	3,231	11,204	3,281	13,940,000	15,900,000	23,540,000	31,710,000
2077	Sep	0	0	260,501	317,704	790,463	61,571	893,533	3,284,000	3,297,000	0	50,435	306,503	358,201	0	3,446	12,910	3,073	13,400,000	15,490,000	23,640,000	32,350,000
2077	Oct	0	0	0	0	98,668	71,260	605,041	2,947,000	2,961,000	0	0	328,504	388,381	0	3,565	13,512	0	10,170,000	12,320,000	20,760,000	29,760,000
2077	Nov	0	0	0	0	0	0	180,950	361,900	361,900	0	0	0	0	0	0	0	0	274,230	274,230	274,230	274,230
2077	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2078	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2078	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2078	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2078	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2078	May	91,121	0	4,866	4,281	1,135,000	208,273	593,689	6,331,000	6,373,000	0	0	898,134	1,073,000	0	2,098	7,420	0	1,938,000	3,209,000	8,172,000	13,470,000
2078	Jun	50,087	0	1,484,000	1,876,000	4,426,000	186,950	5,222,000	14,930,000	14,960,000	0	627,602	1,172,000	1,330,000	0	20,751	77,059	95,768	93,910,000	106,500,000	155,600,000	208,000,000
2078	Jul	0	0	582,692	636,283	1,282,000	70,743	1,582,000	4,877,000	4,891,000	0	181,761	267,335	326,760	0	3,622	12,148	24,980	22,400,000	24,600,000	33,160,000	42,310,000
2078	Aug	0	0	303,282	346,596	858,374	63,245	909,587	3,353,000	3,366,000	0	52,580	186,576	239,702	0	3,236	11,220	3,240	13,960,000	15,920,000	23,570,000	31,750,000
2078	Sep	0	0	260,197	317,447	790,958	61,684	893,920	3,288,000	3,300,000	0	50,148	306,650	358,442	0	3,451	12,929	3,037	13,420,000	15,510,000	23,680,000	32,400,000
2078	Oct	0	0	0	0	99,279	71,390	605,873	2,951,000	2,966,000	0	0	329,103	389,089	0	3,588	13,601	0	10,210,000	12,380,000	20,870,000	29,930,000
2078	Nov	0	0	0	0	0	0	181,329	362,658	362,658	0	0	0	0	0	0	0	0	288,955	288,955	288,955	288,955
2078	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2079	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2079	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2079	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2079	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2079	May	97,039	0	5,344	5,576	1,171,000	214,633	607,383	6,516,000	6,559,000	0	0	928,810	1,109,000	0	2,191	7,776	0	1,993,000	3,321,000	8,505,000	14,040,000
2079	Jun	44,317	0	1,491,000	1,884,000	4,411,000	181,992	5,235,000	14,830,000	14,870,000	0	630,292	1,149,000	1,302,000	0	20,678	76,774	95,961	94,020,000	106,500,000	155,500,000	207,700,000
2079	Jul	0	0	582,658	636,252	1,283,000	70,872	1,582,000	4,880,000	4,894,000	0	181,569	267,167	326,700	0	3,627	12,165	24,901	22,410,000	24,600,000	33,180,000	42,340,000
2079	Aug	0	0	303,113	346,444	858,994	63,360	909,936	3,357,000	3,370,000	0	52,361	186,489	239,712	0	3,241	11,235	3,199	13,970,000	15,940,000	23,600,000	31,790,000
2079	Sep	0	0	260,151	317,468	791,772	61,796	894,703	3,292,000	3,305,000	0	49,979	306,916	358,803	0	3,456	12,947	3,000	13,440,000	15,530,000	23,710,000	32,440,000

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2079	Oct	0	0	0	0	99,927	71,520	606,825	2,957,000	2,971,000	0	0	329,704	389,799	0	3,593	13,621	0	10,230,000	12,410,000	20,910,000	29,980,000
2079	Nov	0	0	0	0	0	0	181,729	363,457	363,457	0	0	0	0	0	0	0	0	291,226	291,226	291,226	291,226
2079	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2080	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2080	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2080	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2080	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2080	May	102,943	0	5,863	7,076	1,208,000	220,980	621,359	6,701,000	6,746,000	0	0	959,418	1,145,000	0	2,285	8,137	0	2,038,000	3,422,000	8,829,000	14,600,000
2080	Jun	38,817	0	1,500,000	1,894,000	4,400,000	177,345	5,254,000	14,750,000	14,790,000	0	633,926	1,128,000	1,277,000	0	20,639	76,617	96,264	94,240,000	106,700,000	155,600,000	207,700,000
2080	Jul	0	0	583,029	636,654	1,285,000	71,001	1,583,000	4,884,000	4,899,000	0	181,599	267,217	326,859	0	3,632	12,181	24,854	22,420,000	24,620,000	33,210,000	42,380,000
2080	Aug	0	0	303,095	346,453	859,813	63,476	910,543	3,361,000	3,374,000	0	52,217	186,482	239,802	0	3,245	11,250	3,166	13,990,000	15,960,000	23,630,000	31,840,000
2080	Sep	0	0	260,195	317,585	792,699	61,909	895,621	3,297,000	3,309,000	0	49,863	307,238	359,219	0	3,461	12,965	2,969	13,460,000	15,560,000	23,740,000	32,490,000
2080	Oct	0	0	0	0	100,591	71,651	607,821	2,962,000	2,976,000	0	0	330,305	390,509	0	3,598	13,640	0	10,250,000	12,430,000	20,940,000	30,030,000
2080	Nov	0	0	0	0	0	0	182,136	364,272	364,272	0	0	0	0	0	0	0	0	293,491	293,491	293,491	293,491
2080	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2081	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2081	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2081	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2081	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2081	May	108,834	0	6,419	8,779	1,246,000	227,311	635,530	6,886,000	6,932,000	0	0	989,956	1,181,000	0	2,381	8,501	0	2,083,000	3,525,000	9,158,000	15,170,000
2081	Jun	32,821	0	1,506,000	1,900,000	4,380,000	172,118	5,262,000	14,640,000	14,670,000	0	636,250	1,103,000	1,248,000	0	20,564	76,324	96,334	94,310,000	106,800,000	155,400,000	207,400,000
2081	Jul	0	0	582,700	636,308	1,285,000	71,131	1,582,000	4,885,000	4,900,000	0	181,289	266,935	326,686	0	3,637	12,197	24,745	22,420,000	24,620,000	33,220,000	42,410,000
2081	Aug	0	0	302,819	346,187	860,297	63,591	910,707	3,364,000	3,377,000	0	51,959	186,357	239,774	0	3,250	11,266	3,119	14,010,000	15,970,000	23,660,000	31,880,000
2081	Sep	0	0	260,087	317,539	793,440	62,022	896,314	3,301,000	3,313,000	0	49,667	307,479	359,555	0	3,466	12,984	2,927	13,480,000	15,580,000	23,780,000	32,530,000
2081	Oct	0	0	0	0	101,237	71,781	608,751	2,967,000	2,981,000	0	0	330,907	391,222	0	3,604	13,660	0	10,270,000	12,460,000	20,980,000	30,080,000
2081	Nov	0	0	0	0	0	0	182,533	365,067	365,067	0	0	0	0	0	0	0	0	314,475	314,475	314,475	314,475
2081	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2082	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2082	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2082	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2082	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2082	May	114,711	0	7,003	10,676	1,284,000	233,628	649,939	7,071,000	7,119,000	0	0	1,020,000	1,217,000	0	2,477	8,869	0	2,125,000	3,625,000	9,485,000	15,740,000
2082	Jun	27,096	0	1,513,000	1,907,000	4,364,000	167,203	5,275,000	14,540,000	14,580,000	0	639,141	1,081,000	1,221,000	0	20,506	76,093	96,494	94,440,000	106,900,000	155,400,000	207,200,000
2082	Jul	0	0	582,656	636,268	1,286,000	71,260	1,581,000	4,888,000	4,902,000	0	181,120	266,793	326,652	0	3,642	12,214	24,658	22,420,000	24,630,000	33,240,000	42,440,000
2082	Aug	0	0	302,648	346,034	860,922	63,707	911,055	3,367,000	3,380,000	0	51,749	186,283	239,798	0	3,255	11,281	3,076	14,020,000	15,990,000	23,690,000	31,920,000
2082	Sep	0	0	260,042	317,561	794,261	62,135	897,104	3,305,000	3,318,000	0	49,504	307,755	359,926	0	3,471	13,002	2,888	13,500,000	15,600,000	23,810,000	32,580,000
2082	Oct	0	0	0	0	117,201	76,363	611,893	3,085,000	3,100,000	0	0	352,027	416,191	0	3,893	14,757	0	10,550,000	12,910,000	22,120,000	31,950,000
2082	Nov	0	0	0	0	0	0	201,501	403,001	403,001	0	0	0	0	0	0	0	0	563,604	563,604	563,604	563,604
2082	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2083	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2083	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2083	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2083	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2083	May	119,955	0	8,301	14,966	1,347,000	239,916	684,196	7,287,000	7,336,000	0	0	1,043,000	1,244,000	0	2,574	9,241	0	2,363,000	3,922,000	10,010,000	16,520,000
2083	Jun	24,115	0	1,522,000	1,915,000	4,309,000	157,717	5,252,000	14,270,000	14,300,000	0	642,441	1,045,000	1,178,000	0	20,176	74,834	96,919	94,010,000	106,200,000	154,000,000	204,900,000
2083	Jul	0	0	582,380	635,979	1,287,000	71,390	1,578,000	4,885,000	4,900,000	0	180,819	266,521	326,489	0	3,648	12,230	24,527	22,390,000	24,600,000	33,220,000	42,440,000
2083	Aug	0	0	302,393	345,791	861,437	63,824	911,216	3,371,000	3,384,000	0	51,496	186,164	239,776	0	3,259	11,296	3,024	14,030,000	16,010,000	23,720,000	31,960,000
2083	Sep	0	0	259,947	317,529	795,022	62,248	897,819	3,309,000	3,322,000	0	49,311	308,002	360,268	0	3,476	13,020	2,842	13,510,000	15,620,000	23,840,000	32,620,000
2083	Oct	0	0	0	0	117,926	76,502	612,845	3,090,000	3,106,000	0	0	352,669	416,950	0	3,899	14,778	0	10,570,000	12,930,000	22,160,000	32,010,000
2083	Nov	0	0	0	0	0	0	201,971	403,942	403,942	0	0	0	0	0	0	0	0	566,878	566,878	566,878	566,878
2083	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2084	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2084	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2084	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2084	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2084	May	120,381	0	8,953	17,442	1,386,000	246,191	699,257	7,466,000	7,516,000	0	0	1,066,000	1,273,000	0	8,038	30,188	0	11,050,000	15,920,000	34,930,000	55,240,000
2084	Jun	22,336	0	1,528,000	1,921,000	4,294,000	153,134	5,267,000	14,190,000	14,220,000	0	645,619	1,031,000	1,160,000	0	15,050	55,110	102,194	87,930,000	97,050,000	132,600,000	170,700,000
2084	Jul	0	0	582,844	636,480	1,288,000	71,521	1,580,000	4,891,000	4,905,000	0	181,023	266,748	326,826	0	3,653	12,246	23,491	21,790,000	24,000,000	32,640,000	41,860,000
2084	Aug	0	0	302,410	345,838	862,311	63,940	911,903	3,375,000	3,388,000	0	51,412	186,224	239,934	0	3,264	11,311	2,760	14,000,000	15,980,000	23,700,000	31,950,000
2084	Sep	0	0	260,014	317,672	795,985	62,362	898,782	3,314,000	3,327,000	0	49,239	308,371	360,733	0	3,481	13,038	2,628	13,530,000	15,630,000	23,870,000	32,660,000
2084	Oct	0	0	0	0	118,676	76,641	613,876	3,095,000	3,111,000	0	0	353,313	417,711	0	3,904	14,799	0	10,600,000	12,960,000	22,190,000	32,060,000
2084	Nov	0	0	0	0	0	0	209,753	419,505	419,505	0	0	0	0	0	0	0	0	570,092	570,092	570,092	570,092
2084	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2085	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Average Outflow (m3/month)																					
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2085	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2085	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2085	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2085	May	122,406	0	9,688	20,129	1,425,000	252,448	709,782	7,635,000	7,686,000	0	0	1,090,000	1,302,000	0	8,188	30,765	0	11,230,000	16,190,000	35,560,000	56,250,000
2085	Jun	20,339	0	1,533,000	1,925,000	4,272,000	147,970	5,270,000	14,080,000	14,110,000	0	647,559	1,013,000	1,138,000	0	14,922	54,610	101,651	87,880,000	96,920,000	132,200,000	169,900,000
2085	Jul	0	0	582,936	636,585	1,289,000	71,651	1,580,000	4,894,000	4,909,000	0	180,937	266,690	326,877	0	3,658	12,261	23,255	21,790,000	24,000,000	32,650,000	41,890,000
2085	Aug	0	0	302,292	345,741	863,009	64,057	912,354	3,379,000	3,392,000	0	51,231	186,183	239,991	0	3,268	11,326	2,685	14,010,000	15,990,000	23,730,000	31,990,000
2085	Sep	0	0	260,001	317,729	796,851	62,475	899,627	3,318,000	3,331,000	0	49,098	308,672	361,129	0	3,486	13,056	2,563	13,540,000	15,650,000	23,900,000	32,710,000
2085	Oct	0	0	0	0	119,419	76,781	614,873	3,101,000	3,116,000	0	0	353,957	418,473	0	4,596	17,420	0	11,130,000	13,920,000	24,790,000	36,400,000
2085	Nov	0	0	0	0	0	0	210,246	420,491	420,491	0	0	0	0	0	0	0	0	1,460,000	1,460,000	1,460,000	1,460,000
2085	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2086	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2086	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2086	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2086	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2086	May	124,567	0	10,459	23,001	1,464,000	258,688	725,239	7,813,000	7,866,000	0	0	1,113,000	1,330,000	0	8,341	31,348	0	12,190,000	17,240,000	36,970,000	58,040,000
2086	Jun	18,460	0	1,540,000	1,931,000	4,253,000	143,120	5,280,000	13,980,000	14,010,000	0	650,105	997,512	1,118,000	0	14,159	51,701	102,380	86,060,000	94,640,000	128,100,000	163,900,000
2086	Jul	0	0	583,326	637,008	1,290,000	71,782	1,581,000	4,899,000	4,914,000	0	180,990	266,770	327,068	0	3,663	12,277	23,028	21,680,000	23,890,000	32,560,000	41,810,000
2086	Aug	0	0	302,283	345,760	863,852	64,173	912,996	3,383,000	3,396,000	0	51,097	186,193	240,099	0	3,273	11,341	2,612	14,020,000	16,000,000	23,750,000	32,020,000
2086	Sep	0	0	260,055	317,857	797,801	62,589	900,573	3,323,000	3,336,000	0	48,991	309,008	361,561	0	3,491	13,074	2,499	13,560,000	15,670,000	23,930,000	32,750,000
2086	Oct	0	0	0	0	120,174	76,921	615,903	3,106,000	3,122,000	0	0	354,603	419,236	0	4,602	17,444	0	11,160,000	13,940,000	24,830,000	36,460,000
2086	Nov	0	0	0	0	0	0	210,746	421,492	421,492	0	0	0	0	0	0	0	0	1,465,000	1,465,000	1,465,000	1,465,000
2086	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2087	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2087	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2087	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2087	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2087	May	126,723	0	11,272	26,063	1,504,000	264,910	740,925	7,992,000	8,046,000	0	0	1,136,000	1,359,000	0	8,495	31,939	0	12,380,000	17,520,000	37,620,000	59,080,000
2087	Jun	16,588	0	1,546,000	1,936,000	4,234,000	138,288	5,290,000	13,890,000	13,920,000	0	652,721	981,715	1,098,000	0	14,043	51,250	102,490	86,070,000	94,580,000	127,800,000	163,300,000
2087	Jul	0	0	583,721	637,437	1,292,000	71,913	1,582,000	4,904,000	4,919,000	0	181,056	266,864	327,272	0	3,668	12,293	22,916	21,680,000	23,900,000	32,570,000	41,830,000
2087	Aug	0	0	302,276	345,783	864,701	64,291	913,644	3,387,000	3,400,000	0	50,968	186,209	240,213	0	3,277	11,355	2,566	14,040,000	16,020,000	23,780,000	32,060,000
2087	Sep	0	0	260,110	317,987	798,754	62,704	901,524	3,328,000	3,341,000	0	48,888	309,349	361,998	0	3,496	13,091	2,458	13,580,000	15,690,000	23,960,000	32,790,000
2087	Oct	0	0	0	0	120,933	77,062	616,937	3,112,000	3,128,000	0	0	355,250	420,001	0	4,608	17,468	0	11,180,000	13,970,000	24,870,000	36,510,000
2087	Nov	0	0	0	0	0	0	211,248	422,496	422,496	0	0	0	0	0	0	0	0	1,471,000	1,471,000	1,471,000	1,471,000
2087	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2088	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2088	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2088	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2088	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2088	May	129,016	0	12,125	29,306	1,544,000	271,115	756,855	8,171,000	8,226,000	0	0	1,160,000	1,388,000	0	8,666	32,592	0	12,590,000	17,840,000	38,340,000	60,230,000
2088	Jun	14,834	0	1,554,000	1,944,000	4,220,000	133,774	5,305,000	13,810,000	13,840,000	0	656,091	967,854	1,080,000	0	13,930	50,806	102,808	86,140,000	94,580,000	127,500,000	162,700,000
2088	Jul	0	0	584,437	638,209	1,294,000	72,044	1,583,000	4,911,000	4,925,000	0	181,291	267,127	327,644	0	3,673	12,308	22,853	21,680,000	23,900,000	32,590,000	41,860,000
2088	Aug	0	0	302,388	345,932	865,707	64,408	914,497	3,391,000	3,404,000	0	50,896	186,285	240,388	0	3,282	11,370	2,532	14,050,000	16,040,000	23,800,000	32,100,000
2088	Sep	0	0	260,236	318,194	799,797	62,818	902,582	3,333,000	3,345,000	0	48,826	309,732	362,477	0	3,500	13,109	2,425	13,600,000	15,710,000	23,990,000	32,840,000
2088	Oct	0	0	0	0	121,705	77,202	618,008	3,117,000	3,133,000	0	0	355,898	420,767	0	4,615	17,492	0	11,200,000	14,000,000	24,910,000	36,570,000
2088	Nov	0	0	0	0	0	0	211,757	423,514	423,514	0	0	0	0	0	0	0	0	1,477,000	1,477,000	1,477,000	1,477,000
2088	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2089	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2089	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2089	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2089	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2089	May	131,020	0	13,024	32,729	1,585,000	277,299	772,960	8,349,000	8,406,000	0	0	1,183,000	1,416,000	0	8,877	33,403	0	12,860,000	18,240,000	39,230,000	61,660,000
2089	Jun	12,862	0	1,559,000	1,947,000	4,196,000	128,677	5,310,000	13,700,000	13,730,000	0	658,052	950,419	1,059,000	0	13,742	50,079	102,900	86,020,000	94,340,000	126,800,000	161,600,000
2089	Jul	0	0	584,494	638,277	1,295,000	72,175	1,583,000	4,914,000	4,929,000	0	181,202	267,071	327,699	0	3,678	12,324	22,744	21,670,000	23,900,000	32,600,000	41,880,000
2089	Aug	0	0	302,259	345,824	866,399	64,525	914,935	3,395,000	3,408,000	0	50,716	186,249	240,451	0	3,286	11,385	2,487	14,070,000	16,060,000	23,830,000	32,140,000
2089	Sep	0	0	260,218	318,247	800,666	62,933	903,430	3,337,000	3,350,000	0	48,686	310,039	362,880	0	3,505	13,127	2,384	13,610,000	15,740,000	24,030,000	32,880,000
2089	Oct	0	0	0	0	122,460	77,343	619,016	3,123,000	3,139,000	0	0	356,547	421,535	0	4,640	17,586	0	11,240,000	14,050,000	25,020,000	36,740,000
2089	Nov	0	0	0	0	0	0	212,256	424,512	424,512	0	0	0	0	0	0	0	0	1,511,000	1,511,000	1,511,000	1,511,000
2089	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2090	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2090	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2090	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2090	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2090	May	133,160	0	13,955	36,311	1,625,000	283,465	789,292	8,528,000	8,585,000	0	0	1,206,000	1,444,000	0	9,141	34,415	0	13,180,000	18,710,000	40,340,000	63,430,000

Average Outflow (m3/month)																					
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2090	Jun	11,009	0	1,565,000	1,952,000	4,176,000	123,899	5,315,000	13,600,000	13,630,000	0	660,610	934,766	1,039,000	0	13,504	49,159	103,134	85,910,000	94,090,000	126,000,000	160,100,000
2090	Jul	0	0	584,831	638,645	1,296,000	72,307	1,588,000	4,927,000	4,941,000	0	181,250	267,151	327,889	0	3,683	12,339	22,654	21,670,000	23,900,000	32,610,000	41,910,000
2090	Aug	0	0	302,232	345,826	867,227	64,643	915,644	3,399,000	3,412,000	0	50,582	186,263	240,564	0	3,291	11,399	2,447	14,080,000	16,070,000	23,860,000	32,170,000
2090	Sep	0	0	260,263	318,367	801,613	63,047	904,378	3,342,000	3,355,000	0	48,580	310,380	363,317	0	3,510	13,144	2,347	13,630,000	15,760,000	24,060,000	32,920,000
2090	Oct	0	0	0	0	123,227	77,484	620,057	3,128,000	3,144,000	0	0	357,197	422,304	0	4,646	17,610	0	11,260,000	14,070,000	25,060,000	36,800,000
2090	Nov	0	0	0	0	0	0	212,761	425,523	425,523	0	0	0	0	0	0	0	0	1,516,000	1,516,000	1,516,000	1,516,000
2090	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2091	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2091	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2091	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2091	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2091	May	135,294	0	14,802	39,619	1,665,000	289,611	805,002	8,705,000	8,764,000	0	0	1,229,000	1,472,000	0	9,444	35,577	0	13,510,000	19,230,000	41,570,000	65,430,000
2091	Jun	10,215	0	1,572,000	1,958,000	4,158,000	119,139	5,326,000	13,510,000	13,530,000	0	663,242	919,256	1,019,000	0	13,247	48,163	103,401	85,830,000	93,850,000	125,200,000	158,600,000
2091	Jul	0	0	585,352	639,209	1,298,000	72,439	1,589,000	4,932,000	4,946,000	0	181,311	267,245	328,094	0	3,688	12,355	22,561	21,660,000	23,900,000	32,620,000	41,930,000
2091	Aug	0	0	302,273	345,900	868,147	64,761	916,379	3,404,000	3,417,000	0	50,453	186,283	240,683	0	3,295	11,414	2,407	14,090,000	16,090,000	23,890,000	32,210,000
2091	Sep	0	0	260,349	318,531	802,612	63,162	905,383	3,347,000	3,359,000	0	48,477	310,726	363,759	0	3,515	13,161	2,309	13,650,000	15,780,000	24,090,000	32,970,000
2091	Oct	0	0	1	0	142,347	83,061	621,119	3,266,000	3,283,000	0	0	382,906	452,698	0	4,652	17,634	0	11,280,000	14,100,000	25,100,000	36,850,000
2091	Nov	0	0	0	0	0	0	246,687	493,374	493,374	0	0	0	0	0	0	0	0	1,596,000	1,596,000	1,596,000	1,596,000
2091	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2092	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2092	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2092	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2092	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2092	May	145,400	0	21,191	62,457	1,901,000	313,841	989,422	9,641,000	9,705,000	0	0	1,315,000	1,578,000	0	9,768	36,818	0	13,840,000	19,750,000	42,860,000	67,540,000
2092	Jun	2,794	0	1,589,000	1,961,000	3,960,000	93,051	5,184,000	12,610,000	12,630,000	0	670,971	829,647	907,857	0	12,987	47,158	103,817	85,770,000	93,630,000	124,400,000	157,200,000
2092	Jul	0	0	586,227	640,152	1,300,000	72,571	1,586,000	4,928,000	4,943,000	0	181,922	267,881	328,841	0	3,693	12,370	22,493	21,660,000	23,900,000	32,630,000	41,950,000
2092	Aug	0	0	302,445	346,113	869,238	64,879	917,227	3,408,000	3,421,000	0	50,506	186,494	240,993	0	3,299	11,428	2,372	14,110,000	16,110,000	23,910,000	32,250,000
2092	Sep	0	0	260,513	318,779	803,708	63,278	906,499	3,352,000	3,365,000	0	48,506	311,204	364,335	0	3,519	13,179	2,276	13,660,000	15,800,000	24,120,000	33,010,000
2092	Oct	0	0	1	0	143,219	83,212	622,219	3,272,000	3,289,000	0	0	383,604	453,524	0	4,658	17,657	0	11,300,000	14,120,000	25,140,000	36,910,000
2092	Nov	0	0	0	0	0	0	247,317	494,634	494,634	0	0	0	0	0	0	0	0	1,602,000	1,602,000	1,602,000	1,602,000
2092	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2093	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2093	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2093	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2093	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2093	May	145,563	0	22,176	66,593	1,948,000	320,808	1,012,000	9,850,000	9,916,000	0	0	1,340,000	1,610,000	0	11,574	43,712	0	19,980,000	26,990,000	54,360,000	83,600,000
2093	Jun	569	0	1,592,000	1,963,000	3,930,000	87,254	5,182,000	12,470,000	12,490,000	0	673,104	809,784	883,116	0	11,289	40,648	105,191	80,450,000	87,290,000	114,000,000	142,500,000
2093	Jul	0	0	586,280	640,217	1,301,000	72,703	1,586,000	4,932,000	4,947,000	0	181,981	267,976	329,047	0	3,698	12,385	22,184	21,410,000	23,650,000	32,390,000	41,730,000
2093	Aug	0	0	302,316	346,006	869,939	64,997	917,684	3,412,000	3,425,000	0	50,377	186,516	241,114	0	3,304	11,442	2,284	14,100,000	16,100,000	23,920,000	32,270,000
2093	Sep	0	0	260,498	318,835	804,588	63,393	907,361	3,356,000	3,369,000	0	48,404	311,552	364,780	0	3,524	13,196	2,199	13,680,000	15,810,000	24,150,000	33,050,000
2093	Oct	0	0	1	0	144,066	83,364	623,242	3,278,000	3,295,000	0	0	384,304	454,351	0	4,664	17,681	0	11,330,000	14,150,000	25,180,000	36,970,000
2093	Nov	0	0	0	0	0	0	247,932	495,864	495,864	0	0	0	0	0	0	0	0	1,608,000	1,608,000	1,608,000	1,608,000
2093	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2094	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2094	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2094	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2094	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2094	May	147,998	0	23,279	70,888	1,995,000	327,750	1,035,000	10,060,000	10,130,000	0	0	1,366,000	1,642,000	0	11,962	45,199	0	20,490,000	27,730,000	56,030,000	86,250,000
2094	Jun	0	0	1,599,000	1,968,000	3,906,000	81,782	5,186,000	12,350,000	12,370,000	0	675,747	791,642	860,369	0	10,951	39,342	105,320	80,230,000	86,860,000	112,800,000	140,400,000
2094	Jul	0	0	587,089	641,089	1,303,000	72,836	1,588,000	4,939,000	4,954,000	0	182,152	268,181	329,364	0	3,702	12,400	22,063	21,390,000	23,630,000	32,390,000	41,740,000
2094	Aug	0	0	302,464	346,195	871,004	65,116	918,614	3,417,000	3,430,000	0	50,285	186,577	241,275	0	3,308	11,456	2,238	14,120,000	16,120,000	23,950,000	32,310,000
2094	Sep	0	0	260,649	319,070	805,673	63,509	908,470	3,361,000	3,374,000	0	48,329	311,929	365,253	0	3,528	13,213	2,157	13,700,000	15,830,000	24,180,000	33,090,000
2094	Oct	0	0	1	0	144,943	83,516	624,344	3,284,000	3,301,000	0	0	385,005	455,180	0	4,670	17,704	0	11,350,000	14,180,000	25,220,000	37,020,000
2094	Nov	0	0	0	0	0	0	248,564	497,129	497,129	0	0	0	0	0	0	0	0	1,614,000	1,614,000	1,614,000	1,614,000
2094	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2095	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2095	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2095	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2095	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2095	May	149,049	0	24,372	75,272	2,042,000	334,668	1,058,000	10,270,000	10,340,000	0	0	1,392,000	1,673,000	0	12,354	46,705	0	21,020,000	28,500,000	57,720,000	88,930,000
2095	Jun	0	0	1,606,000	1,973,000	3,881,000	76,334	5,190,000	12,230,000	12,240,000	0	678,444	773,642	837,784	0	10,608	38,017	105,589	80,000,000	86,430,000	111,500,000	138,300,000
2095	Jul	0	0	587,832	641,892	1,304,000	72,969	1,590,000	4,946,000	4,961,000	0	182,332	268,397	329,691	0	3,707	12,415	21,966	21,370,000	23,620,000	32,380,000	41,740,000
2095	Aug	0	0	302,588	346,358	872,039	65,235	919,506	3,421,000	3,435,000	0	50,196	186,643	241,441	0	3,312	11,470	2,198	14,130,000	16,130,000	23,970,000	32,340,000
2095	Sep	0	0	260,786	319,289	806,743	63,625	909,561	3,366,000	3,379,000	0	48,257	312,309	365,731	0	3,533	13,230	2,119	13,710,000	15,850,000	24,210,000	33,140,000

Average Outflow (m3/month)																				
Year	Month	Doris Watershed									Robert's Bay Outfall	Madrid			Boston							
		Wolverine Outflow	Imniagut Outflow	Patch Outflow	PO Outflow	Ogama Outflow	Doris TIA Closure Flow	Doris Outflow	Little Roberts Outflow	Doris LSA Outflow	Marine Mixing Box	Windy Lake	Glenn Lake	Madrid LSA	Combined WTP Effluent	TMA Runoff	Trout Outflow	Stickleback Outflow	Aimaokatalok Lake Outflow	koine River 1 Outflow	koine River 2 Outflow	Boston LSA Outflow
2095	Oct	0	0	1	0	145,821	83,669	625,444	3,290,000	3,307,000	0	0	385,708	456,010	0	4,677	17,727	0	11,370,000	14,200,000	25,260,000	37,080,000
2095	Nov	0	0	0	0	0	0	249,197	498,394	498,394	0	0	0	0	0	0	0	0	1,620,000	1,620,000	1,620,000	1,620,000
2095	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2096	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2096	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2096	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2096	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2096	May	148,321	0	25,497	79,796	2,089,000	337,776	1,081,000	10,390,000	10,460,000	0	0	1,404,000	1,688,000	0	12,752	48,229	0	21,550,000	29,280,000	59,440,000	91,650,000
2096	Jun	0	0	1,611,000	1,976,000	3,852,000	74,567	5,189,000	12,190,000	12,200,000	0	681,046	769,214	831,868	0	10,278	36,741	106,017	79,840,000	86,060,000	110,400,000	136,300,000
2096	Jul	0	0	588,419	642,527	1,306,000	73,102	1,591,000	4,953,000	4,967,000	0	182,578	268,678	330,085	0	3,712	12,430	21,897	21,350,000	23,600,000	32,380,000	41,750,000
2096	Aug	0	0	302,655	346,461	873,002	65,354	920,310	3,426,000	3,439,000	0	50,129	186,733	241,631	0	3,317	11,484	2,164	14,140,000	16,150,000	24,000,000	32,380,000
2096	Sep	0	0	260,889	319,474	807,773	63,741	910,605	3,371,000	3,384,000	0	48,200	312,706	366,225	0	3,538	13,247	2,087	13,730,000	15,870,000	24,240,000	33,180,000
2096	Oct	0	0	1	0	146,697	83,821	626,531	3,296,000	3,313,000	0	0	386,411	456,842	0	4,683	17,750	0	11,390,000	14,230,000	25,300,000	37,130,000
2096	Nov	0	0	0	0	0	0	249,828	499,657	499,657	0	0	0	0	0	0	0	0	1,625,000	1,625,000	1,625,000	1,625,000
2096	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2097	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2097	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2097	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2097	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2097	May	147,480	0	26,654	84,282	2,136,000	338,046	1,104,000	10,440,000	10,510,000	0	0	1,405,000	1,689,000	0	13,154	49,773	0	22,100,000	30,070,000	61,180,000	94,410,000
2097	Jun	0	0	1,611,000	1,973,000	3,809,000	74,703	5,172,000	12,150,000	12,170,000	0	681,479	769,685	832,454	0	9,908	35,311	106,201	79,510,000	85,510,000	109,000,000	134,000,000
2097	Jul	0	0	588,275	642,382	1,307,000	73,235	1,592,000	4,956,000	4,971,000	0	182,425	268,569	330,087	0	3,717	12,444	21,774	21,330,000	23,580,000	32,370,000	41,750,000
2097	Aug	0	0	302,457	346,280	873,619	65,473	920,664	3,429,000	3,443,000	0	49,932	186,688	241,686	0	3,321	11,498	2,119	14,150,000	16,170,000	24,020,000	32,420,000
2097	Sep	0	0	260,835	319,488	808,613	63,857	911,418	3,376,000	3,389,000	0	48,049	313,010	366,627	0	3,542	13,263	2,045	13,750,000	15,890,000	24,270,000	33,220,000
2097	Oct	0	0	1	0	147,552	83,974	627,550	3,302,000	3,319,000	0	0	387,116	457,676	0	4,979	18,873	0	11,500,000	14,510,000	26,290,000	38,870,000
2097	Nov	0	0	0	0	0	0	257,890	515,780	515,780	0	0	0	0	0	0	0	0	2,147,000	2,147,000	2,147,000	2,147,000
2097	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2098	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2098	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2098	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2098	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2098	May	147,552	0	27,840	88,827	2,183,000	338,663	1,122,000	10,490,000	10,560,000	0	0	1,408,000	1,692,000	0	13,562	51,257	0	23,190,000	31,410,000	63,490,000	97,750,000
2098	Jun	0	0	1,613,000	1,973,000	3,771,000	74,839	5,159,000	12,130,000	12,150,000	0	682,586	770,832	833,716	0	9,276	32,968	106,598	78,270,000	83,880,000	105,800,000	129,300,000
2098	Jul	0	0	588,508	642,640	1,308,000	73,369	1,593,000	4,962,000	4,977,000	0	182,411	268,597	330,227	0	3,722	12,459	21,684	21,260,000	23,510,000	32,310,000	41,710,000
2098	Aug	0	0	302,396	346,247	874,419	65,592	921,256	3,434,000	3,447,000	0	49,780	186,691	241,789	0	3,325	11,512	2,081	14,160,000	16,180,000	24,040,000	32,450,000
2098	Sep	0	0	260,863	319,592	809,555	63,973	912,356	3,380,000	3,393,000	0	47,932	313,348	367,063	0	3,547	13,280	2,008	13,760,000	15,910,000	24,300,000	33,260,000
2098	Oct	0	0	1	0	148,423	84,127	628,610	3,307,000	3,324,000	0	0	387,822	458,510	0	4,985	18,897	0	11,520,000	14,540,000	26,330,000	38,920,000
2098	Nov	0	0	0	0	0	0	258,531	517,062	517,062	0	0	0	0	0	0	0	0	2,247,000	2,247,000	2,247,000	2,247,000
2098	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2099	Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2099	Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2099	Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2099	Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2099	May	147,627	0	29,016	93,361	2,230,000	339,281	1,145,000	10,550,000	10,620,000	0	0	1,410,000	1,695,000	0	13,975	52,783	0	23,700,000	32,160,000	65,220,000	100,500,000
2099	Jun	0	0	1,616,000	1,973,000	3,734,000	74,975	5,148,000	12,110,000	12,130,000	0	683,768	772,054	835,052	0	8,913	31,624	106,791	77,960,000	83,350,000	104,400,000	127,000,000
2099	Jul	0	0	588,769	642,929	1,309,000	73,503	1,594,000	4,967,000	4,982,000	0	182,412	268,641	330,384	0	3,726	12,473	21,625	21,250,000	23,500,000	32,310,000	41,720,000
2099	Aug	0	0	302,346	346,225	875,234	65,712	921,869	3,438,000	3,451,000	0	49,634	186,701	241,900	0	3,330	11,526	2,050	14,170,000	16,190,000	24,070,000	32,480,000
2099	Sep	0	0	260,898	319,703	810,508	64,090	913,306	3,385,000	3,398,000	0	47,818	313,692	367,504	0	3,551	13,297	1,978	13,780,000	15,930,000	24,330,000	33,300,000
2099	Oct	0	0	2	0	149,299	84,281	629,677	3,313,000	3,330,000	0	0	388,530	459,347	0	4,992	18,921	0	11,540,000	14,560,000	26,370,000	38,980,000
2099	Nov	0	0	0	0	0	0	259,175	518,349	518,349	0	0	0	0	0	0	0	0	2,255,000	2,255,000	2,255,000	2,255,000
2099	Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2010	Jun	33.12	27.70	28.52	26.29	23.98	21.88	16.70	69.81	64.42
2010	Jul	33.09	27.64	28.41	26.24	23.94	22.14	16.64	69.73	64.33
2010	Aug	33.07	27.61	28.35	26.22	23.90	22.48	16.63	69.70	64.11
2010	Sep	33.08	27.60	28.32	26.21	23.89	22.56	16.62	69.69	64.15
2010	Oct	33.09	27.61	28.32	26.23	23.93	22.50	16.64	69.71	64.37
2010	Nov	33.10	27.61	28.33	26.24	23.97	22.44	16.64	69.71	64.11
2010	Dec	33.10	27.61	28.33	26.24	23.97	22.43	16.64	69.71	64.11
2011	Jan	33.10	27.61	28.33	26.24	23.97	22.43	16.64	69.71	64.11
2011	Feb	33.10	27.61	28.33	26.24	23.97	22.43	16.64	69.71	64.11
2011	Mar	33.10	27.61	28.33	26.24	23.97	22.42	16.64	69.71	64.11
2011	Apr	33.10	27.61	28.33	26.24	23.97	22.42	16.64	69.71	64.11
2011	May	33.08	27.60	28.32	26.22	23.96	22.40	16.63	69.70	64.08
2011	Jun	33.17	27.64	28.45	26.28	24.15	22.75	16.23	69.78	65.98
2011	Jul	33.29	27.68	28.53	26.29	24.02	22.78	15.93	69.80	64.25
2011	Aug	33.23	27.61	28.37	26.21	23.86	22.55	15.78	69.70	64.2
2011	Sep	33.24	27.61	28.36	26.21	23.92	22.60	15.77	69.71	64.27
2011	Oct	33.27	27.63	28.39	26.25	24.03	22.53	15.79	69.73	64.48
2011	Nov	33.28	27.64	28.40	26.27	24.09	22.46	15.80	69.74	64.28
2011	Dec	33.28	27.64	28.40	26.27	24.09	22.45	15.80	69.74	64.28
2012	Jan	33.28	27.64	28.40	26.27	24.09	22.45	15.80	69.74	64.28
2012	Feb	33.28	27.64	28.40	26.27	24.09	22.44	15.79	69.74	64.28
2012	Mar	33.28	27.64	28.40	26.27	24.09	22.44	15.79	69.74	64.28
2012	Apr	33.28	27.64	28.40	26.27	24.09	22.44	15.79	69.74	64.28
2012	May	33.26	27.62	28.38	26.25	24.07	22.41	15.77	69.73	64.24
2012	Jun	33.31	27.65	28.50	26.30	24.16	22.78	15.84	69.79	64.8
2012	Jul	33.28	27.61	28.42	26.24	23.91	22.63	15.77	69.73	64.42
2012	Aug	33.24	27.56	28.34	26.20	23.86	22.56	15.72	69.68	64.25
2012	Sep	33.22	27.54	28.30	26.18	23.83	22.53	15.70	69.66	64.03
2012	Oct	33.22	27.54	28.29	26.18	23.81	22.47	15.70	69.66	63.9
2012	Nov	33.22	27.54	28.29	26.18	23.81	22.43	15.70	69.66	63.88
2012	Dec	33.22	27.54	28.29	26.18	23.81	22.42	15.70	69.66	63.88
2013	Jan	33.22	27.54	28.29	26.18	23.81	22.42	15.70	69.66	63.88
2013	Feb	33.22	27.54	28.29	26.18	23.81	22.42	15.69	69.66	63.88
2013	Mar	33.22	27.54	28.29	26.18	23.81	22.41	15.69	69.66	63.88
2013	Apr	33.22	27.54	28.29	26.18	23.81	22.41	15.69	69.66	63.88
2013	May	33.20	27.51	28.27	26.15	23.79	22.38	15.67	69.64	65.17
2013	Jun	33.28	27.54	28.41	26.24	24.02	22.80	15.76	69.72	64.58
2013	Jul	33.23	27.48	28.34	26.20	23.90	22.65	15.71	69.67	64.34
2013	Aug	33.19	27.43	28.28	26.17	23.83	22.58	15.66	69.62	64.28
2013	Sep	33.21	27.43	28.30	26.19	23.90	22.62	15.69	69.64	64.3
2013	Oct	33.22	27.44	28.32	26.20	23.92	22.56	15.71	69.66	64.35
2013	Nov	33.23	27.45	28.33	26.21	23.95	22.48	15.71	69.66	64.19
2013	Dec	33.23	27.45	28.33	26.21	23.95	22.48	15.71	69.66	64.19

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2014	Jan	33.23	27.45	28.33	26.21	23.95	22.47	15.71	69.66	64.19
2014	Feb	33.23	27.45	28.33	26.21	23.95	22.47	15.71	69.66	64.19
2014	Mar	33.23	27.45	28.33	26.21	23.95	22.47	15.71	69.66	64.19
2014	Apr	33.23	27.45	28.33	26.21	23.95	22.46	15.71	69.66	64.19
2014	May	33.21	27.42	28.31	26.19	23.96	22.44	15.68	69.64	64.83
2014	Jun	33.25	27.43	28.39	26.24	24.07	22.76	15.74	69.70	64.7
2014	Jul	33.23	27.39	28.36	26.21	23.92	22.71	15.72	69.68	64.6
2014	Aug	33.22	27.36	28.34	26.20	23.88	22.66	15.70	69.66	64.19
2014	Sep	33.24	27.36	28.35	26.21	23.91	22.67	15.72	69.68	64.13
2014	Oct	33.24	27.36	28.33	26.19	23.82	22.55	15.72	69.67	63.91
2014	Nov	33.24	27.36	28.33	26.19	23.82	22.48	15.72	69.67	63.9
2014	Dec	33.24	27.36	28.33	26.19	23.82	22.48	15.72	69.67	63.9
2015	Jan	33.24	27.36	28.33	26.19	23.82	22.48	15.72	69.67	63.9
2015	Feb	33.24	27.36	28.33	26.19	23.82	22.47	15.72	69.67	63.9
2015	Mar	33.24	27.36	28.33	26.19	23.82	22.47	15.71	69.67	63.9
2015	Apr	33.24	27.36	28.33	26.19	23.82	22.47	15.71	69.67	63.9
2015	May	33.22	27.34	28.31	26.18	23.85	22.45	15.70	69.66	65.05
2015	Jun	33.32	27.39	28.47	26.28	24.12	22.87	15.80	69.76	64.69
2015	Jul	33.32	27.38	28.46	26.27	24.06	22.86	15.80	69.75	65.06
2015	Aug	33.31	27.39	28.47	26.26	23.97	22.83	15.80	69.76	64.44
2015	Sep	33.30	27.38	28.39	26.22	23.88	22.72	15.76	69.72	64.24
2015	Oct	33.31	27.38	28.37	26.22	23.91	22.64	15.76	69.72	64.21
2015	Nov	33.31	27.38	28.37	26.22	23.91	22.60	15.76	69.72	64.21
2015	Dec	33.31	27.38	28.37	26.22	23.91	22.59	15.76	69.72	64.21
2016	Jan	33.31	27.38	28.37	26.22	23.91	22.59	15.76	69.72	64.21
2016	Feb	33.31	27.38	28.37	26.22	23.91	22.59	15.76	69.72	64.21
2016	Mar	33.31	27.38	28.37	26.22	23.91	22.58	15.76	69.72	64.21
2016	Apr	33.31	27.38	28.37	26.22	23.91	22.58	15.75	69.72	64.21
2016	May	33.28	27.35	28.35	26.20	23.88	22.55	15.73	69.69	64.15
2016	Jun	33.31	27.39	28.49	26.29	24.12	22.91	15.81	69.77	64.86
2016	Jul	33.30	27.37	28.44	26.25	23.95	22.78	15.78	69.73	64.3
2016	Aug	33.26	27.32	28.36	26.21	23.89	22.71	15.73	69.68	64.24
2016	Sep	33.26	27.31	28.33	26.20	23.88	22.70	15.72	69.68	64.31
2016	Oct	33.29	27.33	28.36	26.23	23.99	22.65	15.75	69.70	64.42
2016	Nov	33.29	27.33	28.37	26.24	24.03	22.61	15.75	69.71	64.42
2016	Dec	33.29	27.33	28.37	26.24	24.03	22.61	15.75	69.71	64.42
2017	Jan	33.29	27.33	28.37	26.24	24.03	22.60	15.75	69.71	64.42
2017	Feb	33.29	27.33	28.37	26.24	24.03	22.59	15.75	69.71	64.42
2017	Mar	33.29	27.33	28.37	26.24	24.03	22.59	15.75	69.71	64.42
2017	Apr	33.29	27.33	28.37	26.24	24.03	22.58	15.75	69.71	64.42
2017	May	33.27	27.31	28.35	26.22	24.01	22.56	15.73	69.69	64.39
2017	Jun	33.32	27.38	28.52	26.31	24.16	22.98	15.84	69.79	64.82
2017	Jul	33.29	27.35	28.44	26.25	23.95	22.78	15.78	69.74	64.31

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2017	Aug	33.26	27.30	28.36	26.21	23.90	22.71	15.73	69.69	64.25
2017	Sep	33.26	27.29	28.34	26.20	23.89	22.71	15.73	69.69	64.33
2017	Oct	33.29	27.31	28.37	26.24	24.01	22.66	15.75	69.72	64.43
2017	Nov	33.30	27.32	28.37	26.25	24.05	22.60	15.76	69.72	64.37
2017	Dec	33.30	27.32	28.37	26.25	24.05	22.60	15.76	69.72	64.37
2018	Jan	33.30	27.32	28.37	26.25	24.05	22.59	15.76	69.72	64.37
2018	Feb	33.30	27.32	28.37	26.25	24.05	22.58	15.75	69.72	64.37
2018	Mar	33.30	27.32	28.37	26.25	24.05	22.56	15.75	69.72	64.37
2018	Apr	33.30	27.32	28.37	26.25	24.05	22.55	15.75	69.72	64.37
2018	May	33.28	27.30	28.36	26.23	24.03	22.51	15.73	69.71	64.34
2018	Jun	33.32	27.36	28.53	26.31	24.17	22.96	15.84	69.80	64.82
2018	Jul	33.29	27.33	28.44	26.25	23.95	22.78	15.78	69.74	64.31
2018	Aug	33.26	27.29	28.36	26.21	23.90	22.71	15.73	69.69	64.25
2018	Sep	33.26	27.28	28.34	26.20	23.89	22.70	15.73	69.69	64.33
2018	Oct	33.29	27.30	28.37	26.24	24.01	22.65	15.75	69.72	64.43
2018	Nov	33.30	27.30	28.38	26.25	24.05	22.58	15.76	69.72	64.37
2018	Dec	33.30	27.30	28.38	26.25	24.05	22.56	15.76	69.72	64.37
2019	Jan	33.30	27.30	28.38	26.25	24.05	22.54	15.76	69.72	64.37
2019	Feb	33.30	27.30	28.38	26.25	24.05	22.52	15.76	69.72	64.37
2019	Mar	33.30	27.30	28.38	26.25	24.05	22.50	15.75	69.72	64.37
2019	Apr	33.30	27.30	28.38	26.25	24.05	22.47	15.75	69.72	64.37
2019	May	33.28	27.28	28.36	26.23	24.03	22.43	15.74	69.71	64.34
2019	Jun	33.32	27.35	28.53	26.31	24.17	22.93	15.84	69.80	64.79
2019	Jul	33.29	27.32	28.44	26.25	23.95	22.77	15.78	69.74	64.31
2019	Aug	33.26	27.28	28.36	26.21	23.90	22.71	15.73	69.69	64.25
2019	Sep	33.26	27.27	28.34	26.20	23.89	22.70	15.73	69.69	64.33
2019	Oct	33.29	27.28	28.37	26.24	24.01	22.65	15.75	69.72	64.43
2019	Nov	33.30	27.29	28.38	26.25	24.05	22.58	15.76	69.72	64.37
2019	Dec	33.30	27.29	28.38	26.25	24.05	22.56	15.76	69.72	64.37
2020	Jan	33.30	27.29	28.38	26.25	24.05	22.53	15.76	69.72	64.37
2020	Feb	33.30	27.29	28.38	26.25	24.05	22.50	15.76	69.72	64.37
2020	Mar	33.30	27.29	28.38	26.25	24.05	22.48	15.76	69.72	64.37
2020	Apr	33.30	27.29	28.38	26.25	24.05	22.45	15.75	69.72	64.37
2020	May	33.28	27.27	28.36	26.23	24.04	22.41	15.74	69.71	64.33
2020	Jun	33.32	27.33	28.53	26.31	24.17	22.92	15.84	69.80	64.79
2020	Jul	33.29	27.30	28.44	26.25	23.95	22.77	15.78	69.74	64.31
2020	Aug	33.26	27.25	28.36	26.21	23.90	22.71	15.73	69.69	64.25
2020	Sep	33.26	27.23	28.34	26.20	23.89	22.70	15.73	69.69	64.33
2020	Oct	33.29	27.25	28.37	26.24	24.01	22.65	15.75	69.71	64.43
2020	Nov	33.30	27.24	28.38	26.25	24.05	22.58	15.76	69.72	64.37
2020	Dec	33.30	27.23	28.38	26.25	24.05	22.56	15.76	69.72	64.37
2021	Jan	33.30	27.22	28.38	26.25	24.05	22.54	15.76	69.72	64.37
2021	Feb	33.30	27.21	28.38	26.25	24.05	22.52	15.76	69.72	64.37

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2021	Mar	33.30	27.20	28.38	26.25	24.05	22.50	15.76	69.72	64.37
2021	Apr	33.30	27.19	28.38	26.25	24.05	22.48	15.75	69.72	64.36
2021	May	33.28	27.16	28.36	26.23	24.04	22.44	15.74	69.70	64.33
2021	Jun	33.32	27.22	28.53	26.31	24.17	22.93	15.84	69.80	64.79
2021	Jul	33.29	27.18	28.44	26.25	23.95	22.78	15.78	69.74	64.31
2021	Aug	33.26	27.12	28.36	26.21	23.90	22.71	15.73	69.69	64.25
2021	Sep	33.26	27.10	28.34	26.20	23.89	22.70	15.73	69.69	64.33
2021	Oct	33.29	27.11	28.36	26.24	24.01	22.65	15.75	69.71	64.43
2021	Nov	33.30	27.10	28.37	26.25	24.05	22.59	15.76	69.72	64.37
2021	Dec	33.30	27.09	28.37	26.25	24.05	22.58	15.76	69.72	64.37
2022	Jan	33.30	27.08	28.36	26.25	24.05	22.57	15.76	69.72	64.37
2022	Feb	33.30	27.07	28.36	26.25	24.05	22.56	15.76	69.72	64.37
2022	Mar	33.30	27.05	28.36	26.25	24.05	22.55	15.75	69.72	64.37
2022	Apr	33.30	27.04	28.36	26.25	24.05	22.53	15.75	69.72	64.37
2022	May	33.28	27.01	28.33	26.23	24.03	22.50	15.74	69.70	64.33
2022	Jun	33.32	27.06	28.52	26.31	24.16	22.96	15.84	69.80	64.79
2022	Jul	33.29	27.02	28.43	26.24	23.95	22.77	15.78	69.74	64.31
2022	Aug	33.26	26.97	28.35	26.21	23.89	22.71	15.73	69.69	64.25
2022	Sep	33.26	26.94	28.33	26.20	23.88	22.70	15.73	69.68	64.33
2022	Oct	33.29	26.95	28.36	26.23	24.01	22.65	15.75	69.71	64.43
2022	Nov	33.29	26.94	28.36	26.25	24.05	22.59	15.76	69.72	64.37
2022	Dec	33.29	26.93	28.36	26.25	24.05	22.58	15.76	69.72	64.37
2023	Jan	33.29	26.91	28.35	26.25	24.05	22.57	15.76	69.72	64.37
2023	Feb	33.29	26.90	28.35	26.25	24.05	22.55	15.76	69.72	64.37
2023	Mar	33.29	26.88	28.34	26.25	24.05	22.54	15.75	69.72	64.37
2023	Apr	33.29	26.87	28.34	26.25	24.05	22.53	15.75	69.72	64.37
2023	May	33.28	26.84	28.31	26.23	24.03	22.49	15.73	69.70	64.33
2023	Jun	33.32	26.90	28.50	26.30	24.16	22.95	15.84	69.80	64.79
2023	Jul	33.29	26.85	28.42	26.24	23.94	22.77	15.78	69.74	64.31
2023	Aug	33.26	26.80	28.35	26.20	23.89	22.70	15.73	69.69	64.26
2023	Sep	33.26	26.77	28.33	26.20	23.88	22.70	15.73	69.68	64.33
2023	Oct	33.29	26.78	28.35	26.23	24.01	22.65	15.75	69.71	64.43
2023	Nov	33.29	26.77	28.35	26.24	24.05	22.59	15.76	69.72	64.37
2023	Dec	33.29	26.75	28.35	26.24	24.05	22.58	15.76	69.72	64.37
2024	Jan	33.29	26.74	28.34	26.24	24.05	22.56	15.76	69.72	64.37
2024	Feb	33.29	26.73	28.34	26.24	24.05	22.55	15.76	69.72	64.37
2024	Mar	33.29	26.71	28.33	26.24	24.05	22.53	15.75	69.72	64.37
2024	Apr	33.29	26.70	28.33	26.24	24.05	22.52	15.75	69.72	64.37
2024	May	33.28	26.66	28.30	26.23	24.03	22.49	15.73	69.70	64.33
2024	Jun	33.32	26.72	28.50	26.30	24.15	22.95	15.84	69.80	64.79
2024	Jul	33.29	26.68	28.42	26.24	23.94	22.77	15.78	69.74	64.31
2024	Aug	33.26	26.62	28.34	26.20	23.89	22.70	15.73	69.69	64.26
2024	Sep	33.26	26.60	28.32	26.20	23.88	22.70	15.73	69.68	64.33

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2024	Oct	33.29	26.61	28.35	26.23	24.01	22.65	15.75	69.71	64.43
2024	Nov	33.29	26.60	28.35	26.24	24.05	22.59	15.76	69.72	64.37
2024	Dec	33.29	26.58	28.35	26.24	24.05	22.58	15.76	69.72	64.37
2025	Jan	33.29	26.57	28.34	26.24	24.05	22.56	15.76	69.72	64.37
2025	Feb	33.29	26.55	28.34	26.24	24.05	22.55	15.76	69.72	64.37
2025	Mar	33.29	26.54	28.33	26.24	24.05	22.53	15.75	69.72	64.37
2025	Apr	33.29	26.52	28.33	26.24	24.05	22.52	15.75	69.72	64.37
2025	May	33.28	26.49	28.30	26.23	24.03	22.49	15.73	69.70	64.33
2025	Jun	33.32	26.55	28.49	26.30	24.15	22.95	15.84	69.80	64.79
2025	Jul	33.29	26.51	28.42	26.24	23.94	22.77	15.78	69.74	64.31
2025	Aug	33.26	26.45	28.34	26.20	23.89	22.70	15.73	69.69	64.26
2025	Sep	33.26	26.43	28.32	26.20	23.88	22.70	15.73	69.68	64.33
2025	Oct	33.29	26.43	28.35	26.23	24.01	22.65	15.75	69.71	64.43
2025	Nov	33.29	26.42	28.35	26.24	24.05	22.59	15.76	69.72	64.37
2025	Dec	33.29	26.41	28.35	26.24	24.05	22.58	15.76	69.72	64.37
2026	Jan	33.29	26.39	28.34	26.24	24.05	22.56	15.76	69.72	64.37
2026	Feb	33.29	26.38	28.34	26.24	24.05	22.55	15.75	69.72	64.37
2026	Mar	33.29	26.36	28.33	26.24	24.05	22.53	15.75	69.72	64.37
2026	Apr	33.29	26.35	28.33	26.24	24.05	22.52	15.75	69.72	64.37
2026	May	33.27	26.31	28.30	26.23	24.03	22.49	15.73	69.70	64.33
2026	Jun	33.32	26.38	28.49	26.30	24.15	22.96	15.84	69.80	64.79
2026	Jul	33.29	26.34	28.42	26.24	23.94	22.77	15.78	69.74	64.31
2026	Aug	33.26	26.28	28.34	26.20	23.89	22.70	15.73	69.69	64.26
2026	Sep	33.26	26.26	28.32	26.20	23.88	22.70	15.73	69.68	64.33
2026	Oct	33.29	26.26	28.35	26.23	24.01	22.65	15.75	69.71	64.43
2026	Nov	33.29	26.25	28.35	26.24	24.05	22.59	15.76	69.72	64.34
2026	Dec	33.29	26.23	28.35	26.24	24.05	22.58	15.76	69.72	64.34
2027	Jan	33.29	26.22	28.34	26.24	24.05	22.56	15.76	69.72	64.34
2027	Feb	33.29	26.20	28.34	26.24	24.05	22.55	15.75	69.72	64.34
2027	Mar	33.29	26.19	28.33	26.24	24.05	22.53	15.75	69.72	64.34
2027	Apr	33.29	26.17	28.33	26.24	24.05	22.52	15.75	69.72	64.34
2027	May	33.27	26.13	28.30	26.22	24.03	22.49	15.73	69.70	64.3
2027	Jun	33.32	26.20	28.50	26.30	24.15	22.96	15.84	69.80	64.79
2027	Jul	33.29	26.16	28.42	26.24	23.94	22.77	15.78	69.74	64.31
2027	Aug	33.26	26.10	28.34	26.20	23.89	22.70	15.73	69.69	64.26
2027	Sep	33.26	26.08	28.32	26.20	23.88	22.70	15.73	69.68	64.33
2027	Oct	33.29	26.09	28.35	26.23	24.01	22.65	15.75	69.71	64.43
2027	Nov	33.29	26.07	28.35	26.24	24.05	22.59	15.76	69.72	64.34
2027	Dec	33.29	26.06	28.35	26.24	24.05	22.58	15.76	69.72	64.34
2028	Jan	33.29	26.04	28.34	26.24	24.05	22.56	15.76	69.72	64.34
2028	Feb	33.29	26.03	28.34	26.24	24.05	22.55	15.75	69.72	64.34
2028	Mar	33.29	26.01	28.33	26.24	24.05	22.53	15.75	69.72	64.34
2028	Apr	33.29	25.99	28.33	26.24	24.05	22.52	15.75	69.72	64.34

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2028	May	33.27	25.96	28.30	26.23	24.03	22.49	15.73	69.70	64.31
2028	Jun	33.32	26.03	28.50	26.30	24.15	22.96	15.85	69.80	64.79
2028	Jul	33.29	25.99	28.42	26.24	23.94	22.77	15.78	69.74	64.31
2028	Aug	33.26	25.93	28.34	26.20	23.89	22.70	15.73	69.69	64.26
2028	Sep	33.26	25.91	28.32	26.20	23.88	22.70	15.73	69.68	64.33
2028	Oct	33.29	25.91	28.35	26.23	24.01	22.65	15.75	69.71	64.44
2028	Nov	33.29	25.90	28.35	26.24	24.05	22.59	15.76	69.72	64.35
2028	Dec	33.29	25.88	28.35	26.24	24.05	22.57	15.76	69.72	64.34
2029	Jan	33.29	25.87	28.34	26.24	24.05	22.54	15.76	69.72	64.34
2029	Feb	33.29	25.85	28.34	26.24	24.05	22.49	15.75	69.72	64.34
2029	Mar	33.29	25.83	28.33	26.24	24.05	22.43	15.75	69.72	64.34
2029	Apr	33.29	25.82	28.33	26.24	24.05	22.37	15.75	69.72	64.34
2029	May	33.27	25.78	28.30	26.23	24.04	22.30	15.73	69.70	64.31
2029	Jun	33.32	25.86	28.50	26.30	24.15	22.87	15.85	69.80	64.79
2029	Jul	33.29	25.82	28.42	26.24	23.94	22.76	15.78	69.74	64.31
2029	Aug	33.25	25.76	28.34	26.20	23.89	22.70	15.73	69.69	64.26
2029	Sep	33.25	25.74	28.32	26.20	23.88	22.70	15.73	69.68	64.33
2029	Oct	33.28	25.75	28.35	26.23	24.01	22.64	15.75	69.71	64.44
2029	Nov	33.29	25.73	28.35	26.24	24.05	22.55	15.76	69.72	64.35
2029	Dec	33.28	25.71	28.34	26.24	24.05	22.49	15.76	69.72	64.34
2030	Jan	33.28	25.69	28.34	26.24	24.05	22.43	15.76	69.72	64.34
2030	Feb	33.28	25.68	28.33	26.24	24.05	22.38	15.75	69.72	64.34
2030	Mar	33.28	25.66	28.32	26.24	24.05	22.32	15.75	69.72	64.34
2030	Apr	33.27	25.64	28.32	26.24	24.05	22.26	15.75	69.72	64.34
2030	May	33.25	25.60	28.29	26.23	24.04	22.19	15.73	69.70	64.31
2030	Jun	33.31	25.69	28.49	26.29	24.15	22.82	15.85	69.80	64.79
2030	Jul	33.29	25.65	28.41	26.24	23.94	22.76	15.78	69.74	64.31
2030	Aug	33.25	25.59	28.34	26.20	23.89	22.70	15.73	69.69	64.26
2030	Sep	33.25	25.57	28.32	26.20	23.88	22.70	15.72	69.68	64.33
2030	Oct	33.27	25.58	28.34	26.23	24.01	22.64	15.75	69.71	64.44
2030	Nov	33.27	25.56	28.35	26.24	24.05	22.55	15.76	69.72	64.35
2030	Dec	33.27	25.54	28.34	26.24	24.05	22.49	15.76	69.72	64.35
2031	Jan	33.26	25.52	28.33	26.24	24.05	22.43	15.76	69.72	64.34
2031	Feb	33.26	25.50	28.33	26.24	24.05	22.38	15.75	69.72	64.34
2031	Mar	33.25	25.49	28.32	26.24	24.05	22.32	15.75	69.72	64.34
2031	Apr	33.25	25.46	28.31	26.24	24.05	22.27	15.75	69.72	64.34
2031	May	33.23	25.42	28.29	26.22	24.04	22.19	15.73	69.70	64.31
2031	Jun	33.31	25.52	28.48	26.29	24.14	22.82	15.85	69.80	64.78
2031	Jul	33.29	25.49	28.41	26.23	23.94	22.76	15.78	69.74	64.31
2031	Aug	33.25	25.43	28.33	26.20	23.89	22.70	15.73	69.69	64.26
2031	Sep	33.24	25.41	28.32	26.19	23.88	22.70	15.72	69.68	64.34
2031	Oct	33.27	25.42	28.34	26.23	24.01	22.64	15.75	69.71	64.44
2031	Nov	33.27	25.40	28.34	26.24	24.05	22.55	15.76	69.72	64.35

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2031	Dec	33.26	25.37	28.34	26.24	24.05	22.49	15.76	69.72	64.35
2032	Jan	33.26	25.37	28.34	26.24	24.05	22.45	15.76	69.72	64.35
2032	Feb	33.26	25.37	28.33	26.24	24.05	22.42	15.75	69.72	64.35
2032	Mar	33.25	25.37	28.33	26.24	24.05	22.40	15.75	69.72	64.35
2032	Apr	33.25	25.37	28.33	26.24	24.05	22.37	15.75	69.72	64.35
2032	May	33.22	25.35	28.31	26.22	24.03	22.32	15.73	69.70	64.31
2032	Jun	33.31	25.49	28.50	26.30	24.15	22.90	15.85	69.80	64.78
2032	Jul	33.29	25.49	28.42	26.24	23.94	22.77	15.78	69.74	64.31
2032	Aug	33.25	25.46	28.35	26.20	23.89	22.71	15.73	69.69	64.26
2032	Sep	33.24	25.46	28.33	26.20	23.88	22.70	15.72	69.69	64.34
2032	Oct	33.27	25.49	28.36	26.23	24.01	22.65	15.75	69.72	64.44
2032	Nov	33.27	25.49	28.37	26.25	24.06	22.58	15.76	69.72	64.35
2032	Dec	33.26	25.49	28.36	26.25	24.06	22.55	15.76	69.72	64.35
2033	Jan	33.26	25.49	28.36	26.25	24.06	22.53	15.76	69.72	64.35
2033	Feb	33.26	25.49	28.36	26.25	24.06	22.52	15.75	69.72	64.35
2033	Mar	33.26	25.49	28.36	26.25	24.06	22.52	15.75	69.72	64.35
2033	Apr	33.26	25.49	28.36	26.25	24.06	22.51	15.75	69.72	64.35
2033	May	33.25	25.48	28.35	26.23	24.04	22.49	15.73	69.71	64.36
2033	Jun	33.31	25.58	28.53	26.31	24.16	22.98	15.85	69.81	64.78
2033	Jul	33.29	25.57	28.44	26.25	23.95	22.78	15.78	69.74	64.31
2033	Aug	33.25	25.54	28.36	26.21	23.90	22.71	15.73	69.69	64.26
2033	Sep	33.26	25.54	28.34	26.20	23.89	22.71	15.72	69.69	64.34
2033	Oct	33.28	25.56	28.37	26.24	24.01	22.66	15.75	69.72	64.44
2033	Nov	33.29	25.57	28.37	26.25	24.06	22.59	15.76	69.72	64.32
2033	Dec	33.29	25.57	28.37	26.25	24.06	22.59	15.76	69.72	64.32
2034	Jan	33.29	25.57	28.37	26.25	24.06	22.58	15.76	69.72	64.32
2034	Feb	33.29	25.57	28.37	26.25	24.06	22.58	15.75	69.72	64.32
2034	Mar	33.29	25.57	28.37	26.25	24.06	22.57	15.75	69.72	64.32
2034	Apr	33.29	25.57	28.37	26.25	24.06	22.56	15.75	69.72	64.32
2034	May	33.27	25.55	28.36	26.23	24.04	22.54	15.73	69.71	64.34
2034	Jun	33.32	25.66	28.54	26.32	24.16	23.00	15.85	69.81	64.78
2034	Jul	33.29	25.64	28.44	26.25	23.95	22.78	15.78	69.74	64.31
2034	Aug	33.25	25.60	28.36	26.21	23.90	22.71	15.73	69.69	64.26
2034	Sep	33.26	25.60	28.34	26.20	23.89	22.71	15.72	69.69	64.34
2034	Oct	33.28	25.63	28.37	26.24	24.02	22.66	15.75	69.72	64.44
2034	Nov	33.29	25.63	28.38	26.25	24.06	22.59	15.76	69.72	64.32
2034	Dec	33.29	25.63	28.38	26.25	24.06	22.59	15.76	69.72	64.32
2035	Jan	33.29	25.63	28.38	26.25	24.06	22.58	15.76	69.72	64.32
2035	Feb	33.29	25.63	28.38	26.25	24.06	22.58	15.76	69.72	64.32
2035	Mar	33.29	25.63	28.38	26.25	24.06	22.58	15.76	69.72	64.32
2035	Apr	33.29	25.63	28.38	26.25	24.06	22.58	15.76	69.72	64.32
2035	May	33.27	25.61	28.36	26.23	24.04	22.57	15.74	69.71	64.34
2035	Jun	33.32	25.72	28.54	26.32	24.16	23.02	15.85	69.81	64.78

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2035	Jul	33.29	25.70	28.44	26.25	23.95	22.78	15.78	69.74	64.31
2035	Aug	33.25	25.66	28.36	26.21	23.90	22.72	15.73	69.69	64.26
2035	Sep	33.26	25.65	28.34	26.20	23.89	22.71	15.73	69.69	64.34
2035	Oct	33.29	25.68	28.37	26.24	24.02	22.66	15.75	69.72	64.44
2035	Nov	33.29	25.68	28.38	26.25	24.06	22.60	15.76	69.72	64.28
2035	Dec	33.29	25.68	28.38	26.25	24.06	22.60	15.76	69.72	64.28
2036	Jan	33.29	25.68	28.38	26.25	24.06	22.60	15.76	69.72	64.28
2036	Feb	33.29	25.68	28.38	26.25	24.06	22.60	15.76	69.72	64.28
2036	Mar	33.29	25.68	28.38	26.25	24.06	22.60	15.76	69.72	64.28
2036	Apr	33.29	25.68	28.38	26.25	24.06	22.60	15.76	69.72	64.28
2036	May	33.27	25.67	28.36	26.23	24.04	22.58	15.74	69.71	64.3
2036	Jun	33.32	25.77	28.54	26.32	24.16	23.02	15.85	69.81	64.78
2036	Jul	33.29	25.75	28.44	26.25	23.95	22.78	15.78	69.74	64.31
2036	Aug	33.25	25.70	28.36	26.21	23.90	22.72	15.73	69.69	64.26
2036	Sep	33.26	25.70	28.34	26.20	23.89	22.71	15.73	69.69	64.34
2036	Oct	33.29	25.73	28.37	26.24	24.02	22.66	15.76	69.72	64.44
2036	Nov	33.29	25.73	28.38	26.25	24.06	22.60	15.76	69.72	64.26
2036	Dec	33.29	25.73	28.38	26.25	24.06	22.60	15.76	69.72	64.26
2037	Jan	33.29	25.73	28.38	26.25	24.06	22.60	15.76	69.72	64.26
2037	Feb	33.29	25.73	28.38	26.25	24.06	22.60	15.76	69.72	64.26
2037	Mar	33.29	25.73	28.38	26.25	24.06	22.60	15.76	69.72	64.26
2037	Apr	33.29	25.73	28.38	26.25	24.06	22.60	15.76	69.72	64.26
2037	May	33.27	25.71	28.36	26.23	24.05	22.58	15.74	69.71	64.28
2037	Jun	33.32	25.81	28.54	26.32	24.16	23.02	15.86	69.81	64.78
2037	Jul	33.29	25.79	28.44	26.25	23.95	22.78	15.78	69.74	64.31
2037	Aug	33.25	25.75	28.36	26.21	23.90	22.72	15.73	69.69	64.26
2037	Sep	33.26	25.74	28.34	26.20	23.89	22.71	15.73	69.69	64.34
2037	Oct	33.29	25.77	28.37	26.24	24.02	22.66	15.76	69.72	64.44
2037	Nov	33.29	25.77	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2037	Dec	33.29	25.77	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2038	Jan	33.29	25.77	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2038	Feb	33.29	25.77	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2038	Mar	33.29	25.77	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2038	Apr	33.29	25.77	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2038	May	33.27	25.75	28.36	26.23	24.05	22.58	15.74	69.71	64.26
2038	Jun	33.32	25.85	28.54	26.32	24.16	23.03	15.86	69.81	64.78
2038	Jul	33.29	25.82	28.44	26.25	23.95	22.78	15.78	69.74	64.31
2038	Aug	33.25	25.78	28.36	26.21	23.90	22.72	15.73	69.69	64.26
2038	Sep	33.26	25.78	28.34	26.20	23.89	22.71	15.73	69.69	64.34
2038	Oct	33.29	25.80	28.37	26.24	24.02	22.66	15.76	69.72	64.44
2038	Nov	33.29	25.80	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2038	Dec	33.29	25.80	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2039	Jan	33.29	25.80	28.38	26.25	24.06	22.60	15.76	69.72	64.24

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2039	Feb	33.29	25.80	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2039	Mar	33.29	25.80	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2039	Apr	33.29	25.80	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2039	May	33.27	25.79	28.36	26.23	24.05	22.58	15.74	69.71	64.26
2039	Jun	33.32	25.88	28.54	26.32	24.16	23.03	15.86	69.81	64.78
2039	Jul	33.29	25.86	28.44	26.25	23.95	22.78	15.78	69.74	64.31
2039	Aug	33.25	25.81	28.36	26.21	23.90	22.72	15.73	69.69	64.26
2039	Sep	33.26	25.81	28.34	26.20	23.89	22.71	15.73	69.69	64.34
2039	Oct	33.29	25.83	28.37	26.24	24.02	22.66	15.76	69.72	64.44
2039	Nov	33.29	25.84	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2039	Dec	33.29	25.84	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2040	Jan	33.29	25.84	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2040	Feb	33.29	25.84	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2040	Mar	33.29	25.84	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2040	Apr	33.29	25.84	28.38	26.25	24.06	22.60	15.76	69.72	64.24
2040	May	33.27	25.82	28.36	26.23	24.05	22.58	15.74	69.71	64.26
2040	Jun	33.32	25.91	28.54	26.32	24.17	23.03	15.86	69.81	64.78
2040	Jul	33.29	25.89	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2040	Aug	33.25	25.84	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2040	Sep	33.26	25.84	28.34	26.20	23.89	22.71	15.73	69.69	64.34
2040	Oct	33.28	25.86	28.37	26.24	24.02	22.66	15.76	69.72	64.44
2040	Nov	33.29	25.87	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2040	Dec	33.29	25.87	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2041	Jan	33.29	25.87	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2041	Feb	33.29	25.87	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2041	Mar	33.29	25.87	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2041	Apr	33.29	25.87	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2041	May	33.27	25.85	28.36	26.23	24.05	22.58	15.74	69.71	64.24
2041	Jun	33.32	25.94	28.54	26.32	24.17	23.03	15.86	69.81	64.78
2041	Jul	33.29	25.92	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2041	Aug	33.25	25.87	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2041	Sep	33.26	25.87	28.34	26.20	23.89	22.71	15.73	69.69	64.34
2041	Oct	33.28	25.89	28.37	26.24	24.02	22.66	15.75	69.72	64.44
2041	Nov	33.29	25.90	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2041	Dec	33.29	25.90	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2042	Jan	33.29	25.90	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2042	Feb	33.29	25.90	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2042	Mar	33.29	25.90	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2042	Apr	33.29	25.90	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2042	May	33.27	25.88	28.36	26.23	24.05	22.58	15.74	69.71	64.24
2042	Jun	33.32	25.97	28.55	26.32	24.17	23.03	15.86	69.81	64.78
2042	Jul	33.29	25.94	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2042	Aug	33.25	25.90	28.36	26.21	23.90	22.72	15.73	69.69	64.27

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2042	Sep	33.25	25.89	28.34	26.20	23.89	22.71	15.73	69.69	64.34
2042	Oct	33.28	25.92	28.37	26.24	24.02	22.66	15.75	69.72	64.44
2042	Nov	33.29	25.92	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2042	Dec	33.29	25.92	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2043	Jan	33.29	25.92	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2043	Feb	33.29	25.92	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2043	Mar	33.29	25.92	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2043	Apr	33.29	25.92	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2043	May	33.27	25.90	28.36	26.23	24.05	22.58	15.74	69.71	64.25
2043	Jun	33.32	26.00	28.55	26.32	24.17	23.03	15.86	69.81	64.78
2043	Jul	33.29	25.97	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2043	Aug	33.25	25.92	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2043	Sep	33.25	25.92	28.34	26.20	23.89	22.71	15.73	69.69	64.34
2043	Oct	33.28	25.94	28.37	26.24	24.02	22.66	15.75	69.72	64.45
2043	Nov	33.29	25.95	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2043	Dec	33.29	25.95	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2044	Jan	33.29	25.95	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2044	Feb	33.29	25.95	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2044	Mar	33.29	25.95	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2044	Apr	33.29	25.95	28.38	26.25	24.06	22.60	15.76	69.72	64.22
2044	May	33.27	25.93	28.36	26.23	24.05	22.58	15.74	69.71	64.25
2044	Jun	33.32	26.02	28.55	26.32	24.17	23.03	15.86	69.81	64.78
2044	Jul	33.29	25.99	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2044	Aug	33.25	25.95	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2044	Sep	33.25	25.94	28.34	26.20	23.89	22.71	15.73	69.69	64.35
2044	Oct	33.29	25.97	28.37	26.25	24.05	22.67	15.76	69.72	64.45
2044	Nov	33.30	25.98	28.39	26.27	24.13	22.61	15.77	69.72	64.22
2044	Dec	33.30	25.98	28.39	26.27	24.13	22.60	15.77	69.72	64.22
2045	Jan	33.30	25.98	28.39	26.27	24.13	22.60	15.77	69.72	64.22
2045	Feb	33.30	25.98	28.39	26.27	24.13	22.60	15.77	69.72	64.22
2045	Mar	33.30	25.98	28.39	26.27	24.13	22.61	15.77	69.72	64.22
2045	Apr	33.30	25.98	28.39	26.27	24.13	22.61	15.77	69.72	64.22
2045	May	33.28	25.96	28.37	26.25	24.12	22.59	15.75	69.71	64.25
2045	Jun	33.32	26.04	28.55	26.32	24.17	23.03	15.86	69.81	64.77
2045	Jul	33.29	26.01	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2045	Aug	33.25	25.97	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2045	Sep	33.25	25.96	28.34	26.20	23.89	22.71	15.73	69.69	64.35
2045	Oct	33.29	25.99	28.37	26.25	24.05	22.67	15.76	69.72	64.45
2045	Nov	33.30	26.00	28.39	26.27	24.14	22.61	15.77	69.72	64.22
2045	Dec	33.30	26.00	28.39	26.27	24.14	22.60	15.77	69.72	64.22
2046	Jan	33.30	26.00	28.39	26.27	24.14	22.60	15.77	69.72	64.22
2046	Feb	33.30	26.00	28.39	26.27	24.14	22.60	15.77	69.72	64.22
2046	Mar	33.30	26.00	28.39	26.27	24.14	22.60	15.77	69.72	64.22

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2046	Apr	33.30	26.00	28.39	26.27	24.14	22.60	15.77	69.72	64.22
2046	May	33.28	25.98	28.37	26.25	24.12	22.59	15.75	69.71	64.25
2046	Jun	33.32	26.06	28.55	26.32	24.17	23.03	15.86	69.81	64.77
2046	Jul	33.29	26.03	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2046	Aug	33.25	25.99	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2046	Sep	33.25	25.98	28.34	26.20	23.89	22.71	15.73	69.69	64.35
2046	Oct	33.29	26.01	28.37	26.25	24.05	22.67	15.76	69.72	64.45
2046	Nov	33.30	26.02	28.39	26.27	24.14	22.61	15.77	69.72	64.22
2046	Dec	33.30	26.02	28.39	26.27	24.14	22.60	15.77	69.72	64.22
2047	Jan	33.30	26.02	28.39	26.27	24.14	22.60	15.77	69.72	64.22
2047	Feb	33.30	26.02	28.39	26.27	24.14	22.60	15.77	69.72	64.22
2047	Mar	33.30	26.02	28.39	26.27	24.14	22.60	15.77	69.72	64.22
2047	Apr	33.30	26.02	28.39	26.27	24.14	22.60	15.77	69.72	64.22
2047	May	33.28	26.00	28.37	26.25	24.12	22.59	15.75	69.71	64.26
2047	Jun	33.32	26.08	28.55	26.32	24.17	23.04	15.86	69.81	64.77
2047	Jul	33.29	26.05	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2047	Aug	33.25	26.01	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2047	Sep	33.25	26.00	28.34	26.20	23.89	22.71	15.73	69.69	64.35
2047	Oct	33.28	26.03	28.37	26.25	24.05	22.67	15.76	69.72	64.45
2047	Nov	33.29	26.03	28.39	26.27	24.14	22.61	15.77	69.72	64.21
2047	Dec	33.29	26.03	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2048	Jan	33.29	26.03	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2048	Feb	33.29	26.03	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2048	Mar	33.29	26.03	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2048	Apr	33.29	26.03	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2048	May	33.28	26.01	28.37	26.25	24.12	22.59	15.75	69.70	64.25
2048	Jun	33.32	26.10	28.55	26.32	24.17	23.04	15.86	69.81	64.77
2048	Jul	33.29	26.07	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2048	Aug	33.25	26.02	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2048	Sep	33.25	26.02	28.34	26.20	23.89	22.71	15.73	69.69	64.35
2048	Oct	33.28	26.04	28.37	26.25	24.05	22.67	15.76	69.72	64.45
2048	Nov	33.29	26.05	28.39	26.27	24.14	22.61	15.77	69.72	64.21
2048	Dec	33.29	26.05	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2049	Jan	33.29	26.05	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2049	Feb	33.29	26.05	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2049	Mar	33.29	26.05	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2049	Apr	33.29	26.05	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2049	May	33.27	26.03	28.37	26.25	24.12	22.59	15.75	69.70	64.26
2049	Jun	33.32	26.12	28.55	26.32	24.17	23.04	15.86	69.81	64.77
2049	Jul	33.29	26.09	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2049	Aug	33.25	26.04	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2049	Sep	33.25	26.03	28.34	26.20	23.89	22.71	15.73	69.69	64.35
2049	Oct	33.28	26.06	28.37	26.25	24.05	22.67	15.76	69.72	64.45

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2049	Nov	33.29	26.07	28.39	26.27	24.14	22.61	15.77	69.72	64.21
2049	Dec	33.29	26.07	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2050	Jan	33.29	26.07	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2050	Feb	33.29	26.07	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2050	Mar	33.29	26.07	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2050	Apr	33.29	26.07	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2050	May	33.27	26.05	28.37	26.25	24.12	22.59	15.75	69.70	64.27
2050	Jun	33.32	26.14	28.55	26.32	24.17	23.04	15.86	69.81	64.77
2050	Jul	33.29	26.10	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2050	Aug	33.25	26.06	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2050	Sep	33.25	26.05	28.34	26.20	23.89	22.71	15.73	69.69	64.35
2050	Oct	33.28	26.07	28.37	26.25	24.05	22.67	15.76	69.72	64.45
2050	Nov	33.29	26.08	28.39	26.27	24.14	22.61	15.77	69.72	64.21
2050	Dec	33.29	26.08	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2051	Jan	33.29	26.08	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2051	Feb	33.29	26.08	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2051	Mar	33.29	26.08	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2051	Apr	33.29	26.08	28.39	26.27	24.14	22.60	15.77	69.72	64.21
2051	May	33.27	26.06	28.37	26.25	24.12	22.59	15.75	69.70	64.28
2051	Jun	33.32	26.15	28.55	26.32	24.17	23.04	15.86	69.81	64.77
2051	Jul	33.29	26.12	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2051	Aug	33.25	26.07	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2051	Sep	33.25	26.06	28.34	26.20	23.89	22.71	15.73	69.69	64.35
2051	Oct	33.28	26.09	28.38	26.25	24.06	22.67	15.76	69.71	64.45
2051	Nov	33.30	26.10	28.40	26.28	24.17	22.61	15.77	69.72	64.21
2051	Dec	33.30	26.10	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2052	Jan	33.30	26.10	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2052	Feb	33.30	26.10	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2052	Mar	33.30	26.10	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2052	Apr	33.30	26.10	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2052	May	33.28	26.08	28.38	26.26	24.15	22.59	15.76	69.70	64.29
2052	Jun	33.32	26.17	28.55	26.32	24.17	23.04	15.86	69.81	64.77
2052	Jul	33.29	26.13	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2052	Aug	33.25	26.08	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2052	Sep	33.25	26.08	28.34	26.20	23.89	22.71	15.73	69.69	64.35
2052	Oct	33.28	26.10	28.38	26.25	24.06	22.67	15.76	69.71	64.45
2052	Nov	33.30	26.11	28.40	26.28	24.17	22.61	15.77	69.72	64.21
2052	Dec	33.30	26.11	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2053	Jan	33.30	26.11	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2053	Feb	33.30	26.11	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2053	Mar	33.30	26.11	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2053	Apr	33.30	26.11	28.40	26.28	24.17	22.61	15.77	69.72	64.21
2053	May	33.28	26.09	28.38	26.26	24.15	22.59	15.76	69.70	64.3

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2053	Jun	33.32	26.18	28.56	26.32	24.17	23.04	15.86	69.81	64.77
2053	Jul	33.29	26.14	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2053	Aug	33.25	26.10	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2053	Sep	33.25	26.09	28.34	26.20	23.89	22.71	15.72	69.68	64.35
2053	Oct	33.28	26.12	28.38	26.25	24.06	22.67	15.76	69.71	64.45
2053	Nov	33.30	26.13	28.40	26.28	24.17	22.61	15.77	69.72	64.21
2053	Dec	33.30	26.13	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2054	Jan	33.30	26.13	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2054	Feb	33.30	26.13	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2054	Mar	33.30	26.13	28.40	26.28	24.17	22.60	15.77	69.72	64.21
2054	Apr	33.30	26.13	28.40	26.28	24.17	22.61	15.77	69.72	64.21
2054	May	33.28	26.11	28.38	26.26	24.15	22.59	15.76	69.70	64.31
2054	Jun	33.32	26.19	28.56	26.32	24.17	23.04	15.86	69.81	64.77
2054	Jul	33.29	26.16	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2054	Aug	33.25	26.11	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2054	Sep	33.25	26.10	28.34	26.20	23.89	22.71	15.72	69.68	64.35
2054	Oct	33.28	26.13	28.38	26.25	24.07	22.67	15.76	69.72	64.55
2054	Nov	33.30	26.14	28.40	26.29	24.18	22.61	15.78	69.73	64.25
2054	Dec	33.30	26.14	28.40	26.29	24.18	22.61	15.78	69.73	64.25
2055	Jan	33.30	26.14	28.40	26.29	24.18	22.61	15.78	69.73	64.25
2055	Feb	33.30	26.14	28.40	26.29	24.18	22.61	15.78	69.73	64.25
2055	Mar	33.30	26.14	28.40	26.29	24.18	22.61	15.78	69.73	64.25
2055	Apr	33.30	26.14	28.40	26.29	24.18	22.61	15.78	69.73	64.25
2055	May	33.28	26.12	28.38	26.27	24.16	22.59	15.76	69.71	64.36
2055	Jun	33.32	26.21	28.56	26.33	24.17	23.04	15.86	69.81	64.76
2055	Jul	33.29	26.17	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2055	Aug	33.25	26.12	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2055	Sep	33.25	26.11	28.34	26.20	23.89	22.71	15.72	69.68	64.35
2055	Oct	33.28	26.14	28.38	26.25	24.07	22.67	15.76	69.72	64.55
2055	Nov	33.30	26.15	28.40	26.29	24.18	22.61	15.78	69.73	64.25
2055	Dec	33.30	26.15	28.40	26.29	24.18	22.60	15.78	69.73	64.25
2056	Jan	33.30	26.15	28.40	26.29	24.18	22.60	15.78	69.73	64.25
2056	Feb	33.30	26.15	28.40	26.29	24.18	22.60	15.78	69.73	64.25
2056	Mar	33.30	26.15	28.40	26.29	24.18	22.60	15.78	69.73	64.25
2056	Apr	33.30	26.15	28.40	26.29	24.18	22.61	15.78	69.73	64.25
2056	May	33.28	26.13	28.38	26.27	24.17	22.59	15.76	69.71	64.37
2056	Jun	33.32	26.22	28.56	26.33	24.17	23.04	15.86	69.81	64.76
2056	Jul	33.28	26.18	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2056	Aug	33.25	26.13	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2056	Sep	33.25	26.12	28.34	26.20	23.89	22.71	15.72	69.68	64.35
2056	Oct	33.28	26.15	28.38	26.25	24.07	22.67	15.76	69.72	64.55
2056	Nov	33.30	26.16	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2056	Dec	33.30	26.16	28.40	26.29	24.18	22.60	15.78	69.73	64.23

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2057	Jan	33.30	26.16	28.40	26.29	24.18	22.60	15.78	69.73	64.23
2057	Feb	33.30	26.16	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2057	Mar	33.30	26.16	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2057	Apr	33.30	26.16	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2057	May	33.28	26.14	28.38	26.27	24.16	22.59	15.76	69.71	64.36
2057	Jun	33.32	26.23	28.56	26.33	24.17	23.04	15.86	69.81	64.76
2057	Jul	33.28	26.19	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2057	Aug	33.24	26.14	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2057	Sep	33.25	26.13	28.34	26.20	23.89	22.71	15.72	69.68	64.35
2057	Oct	33.28	26.16	28.38	26.25	24.07	22.67	15.76	69.72	64.55
2057	Nov	33.30	26.17	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2057	Dec	33.30	26.17	28.40	26.29	24.18	22.60	15.78	69.73	64.23
2058	Jan	33.30	26.17	28.40	26.29	24.18	22.60	15.78	69.73	64.23
2058	Feb	33.30	26.17	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2058	Mar	33.30	26.17	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2058	Apr	33.30	26.17	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2058	May	33.28	26.15	28.38	26.27	24.16	22.59	15.76	69.71	64.37
2058	Jun	33.32	26.24	28.56	26.33	24.17	23.05	15.86	69.81	64.76
2058	Jul	33.28	26.20	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2058	Aug	33.24	26.15	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2058	Sep	33.24	26.14	28.34	26.20	23.89	22.71	15.72	69.68	64.35
2058	Oct	33.28	26.17	28.38	26.25	24.07	22.67	15.76	69.72	64.55
2058	Nov	33.29	26.18	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2058	Dec	33.29	26.18	28.40	26.29	24.18	22.60	15.78	69.73	64.23
2059	Jan	33.29	26.18	28.40	26.29	24.18	22.60	15.78	69.73	64.23
2059	Feb	33.29	26.18	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2059	Mar	33.29	26.18	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2059	Apr	33.29	26.18	28.40	26.29	24.18	22.61	15.78	69.73	64.23
2059	May	33.27	26.16	28.38	26.27	24.17	22.59	15.76	69.71	64.38
2059	Jun	33.32	26.25	28.56	26.33	24.17	23.05	15.87	69.82	64.76
2059	Jul	33.28	26.21	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2059	Aug	33.24	26.16	28.36	26.21	23.90	22.72	15.73	69.69	64.27
2059	Sep	33.24	26.15	28.34	26.20	23.89	22.71	15.72	69.68	64.36
2059	Oct	33.28	26.18	28.38	26.25	24.07	22.67	15.76	69.72	64.55
2059	Nov	33.29	26.19	28.40	26.29	24.18	22.61	15.78	69.73	64.24
2059	Dec	33.29	26.19	28.40	26.29	24.18	22.61	15.78	69.73	64.24
2060	Jan	33.29	26.19	28.40	26.29	24.18	22.61	15.78	69.73	64.24
2060	Feb	33.29	26.19	28.40	26.29	24.18	22.61	15.78	69.73	64.24
2060	Mar	33.29	26.19	28.40	26.29	24.18	22.61	15.78	69.73	64.24
2060	Apr	33.29	26.19	28.40	26.29	24.18	22.61	15.78	69.73	64.24
2060	May	33.27	26.17	28.38	26.27	24.16	22.59	15.76	69.71	64.39
2060	Jun	33.32	26.26	28.56	26.33	24.17	23.05	15.87	69.82	64.76
2060	Jul	33.28	26.22	28.44	26.25	23.95	22.78	15.78	69.74	64.32

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2060	Aug	33.24	26.17	28.36	26.21	23.90	22.72	15.73	69.69	64.28
2060	Sep	33.24	26.16	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2060	Oct	33.28	26.19	28.38	26.25	24.07	22.68	15.76	69.72	64.55
2060	Nov	33.30	26.20	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2060	Dec	33.30	26.20	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2061	Jan	33.30	26.20	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2061	Feb	33.30	26.20	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2061	Mar	33.30	26.20	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2061	Apr	33.30	26.20	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2061	May	33.28	26.18	28.39	26.27	24.17	22.59	15.76	69.71	64.4
2061	Jun	33.32	26.27	28.56	26.33	24.17	23.05	15.87	69.82	64.76
2061	Jul	33.28	26.23	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2061	Aug	33.24	26.18	28.35	26.21	23.90	22.72	15.73	69.68	64.28
2061	Sep	33.24	26.17	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2061	Oct	33.28	26.20	28.38	26.25	24.07	22.68	15.76	69.72	64.55
2061	Nov	33.30	26.21	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2061	Dec	33.30	26.21	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2062	Jan	33.30	26.21	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2062	Feb	33.30	26.21	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2062	Mar	33.30	26.21	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2062	Apr	33.30	26.21	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2062	May	33.28	26.19	28.39	26.27	24.17	22.59	15.76	69.71	64.41
2062	Jun	33.32	26.27	28.56	26.33	24.17	23.05	15.87	69.82	64.76
2062	Jul	33.28	26.23	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2062	Aug	33.24	26.18	28.35	26.21	23.90	22.72	15.73	69.68	64.28
2062	Sep	33.24	26.18	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2062	Oct	33.28	26.21	28.38	26.25	24.07	22.68	15.76	69.72	64.55
2062	Nov	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2062	Dec	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2063	Jan	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2063	Feb	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2063	Mar	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2063	Apr	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.24
2063	May	33.28	26.20	28.39	26.27	24.17	22.59	15.76	69.71	64.42
2063	Jun	33.32	26.28	28.56	26.33	24.17	23.05	15.87	69.82	64.76
2063	Jul	33.28	26.24	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2063	Aug	33.24	26.19	28.35	26.21	23.90	22.72	15.73	69.68	64.28
2063	Sep	33.24	26.18	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2063	Oct	33.28	26.21	28.38	26.26	24.07	22.68	15.76	69.72	64.6
2063	Nov	33.30	26.22	28.41	26.29	24.18	22.62	15.78	69.73	64.6
2063	Dec	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2064	Jan	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2064	Feb	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.6

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2064	Mar	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2064	Apr	33.30	26.22	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2064	May	33.28	26.21	28.39	26.28	24.17	22.59	15.76	69.72	64.71
2064	Jun	33.32	26.29	28.56	26.33	24.17	23.05	15.87	69.82	64.76
2064	Jul	33.28	26.25	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2064	Aug	33.24	26.20	28.35	26.21	23.90	22.72	15.73	69.68	64.28
2064	Sep	33.24	26.19	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2064	Oct	33.28	26.22	28.38	26.26	24.07	22.68	15.76	69.72	64.6
2064	Nov	33.30	26.23	28.41	26.29	24.18	22.62	15.78	69.73	64.6
2064	Dec	33.30	26.23	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2065	Jan	33.30	26.23	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2065	Feb	33.30	26.23	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2065	Mar	33.30	26.23	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2065	Apr	33.30	26.23	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2065	May	33.28	26.21	28.39	26.28	24.17	22.59	15.76	69.72	64.72
2065	Jun	33.32	26.30	28.56	26.33	24.17	23.05	15.87	69.82	64.76
2065	Jul	33.28	26.25	28.44	26.25	23.95	22.78	15.78	69.74	64.32
2065	Aug	33.24	26.21	28.35	26.21	23.90	22.72	15.73	69.68	64.28
2065	Sep	33.24	26.20	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2065	Oct	33.28	26.22	28.38	26.26	24.07	22.68	15.76	69.72	64.6
2065	Nov	33.29	26.24	28.41	26.29	24.18	22.62	15.78	69.73	64.6
2065	Dec	33.29	26.24	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2066	Jan	33.29	26.24	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2066	Feb	33.29	26.24	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2066	Mar	33.29	26.24	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2066	Apr	33.29	26.24	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2066	May	33.28	26.22	28.39	26.28	24.17	22.59	15.76	69.72	64.73
2066	Jun	33.32	26.30	28.57	26.33	24.17	23.05	15.87	69.82	64.76
2066	Jul	33.28	26.26	28.44	26.25	23.96	22.78	15.78	69.74	64.32
2066	Aug	33.24	26.21	28.35	26.21	23.90	22.72	15.73	69.68	64.28
2066	Sep	33.24	26.20	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2066	Oct	33.28	26.23	28.38	26.26	24.07	22.68	15.76	69.72	64.6
2066	Nov	33.29	26.24	28.41	26.29	24.18	22.62	15.78	69.73	64.6
2066	Dec	33.29	26.24	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2067	Jan	33.29	26.24	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2067	Feb	33.29	26.24	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2067	Mar	33.29	26.24	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2067	Apr	33.29	26.24	28.41	26.29	24.18	22.61	15.78	69.73	64.6
2067	May	33.28	26.22	28.39	26.28	24.17	22.59	15.76	69.72	64.74
2067	Jun	33.32	26.31	28.57	26.33	24.17	23.06	15.87	69.82	64.76
2067	Jul	33.28	26.27	28.44	26.25	23.96	22.78	15.78	69.74	64.32
2067	Aug	33.24	26.22	28.35	26.21	23.90	22.72	15.73	69.68	64.28
2067	Sep	33.24	26.21	28.34	26.20	23.89	22.72	15.72	69.68	64.36

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2067	Oct	33.28	26.24	28.38	26.26	24.07	22.68	15.76	69.72	64.62
2067	Nov	33.30	26.25	28.41	26.30	24.20	22.62	15.78	69.74	64.62
2067	Dec	33.30	26.25	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2068	Jan	33.30	26.25	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2068	Feb	33.30	26.25	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2068	Mar	33.30	26.25	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2068	Apr	33.30	26.25	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2068	May	33.28	26.23	28.39	26.28	24.19	22.59	15.76	69.72	64.77
2068	Jun	33.32	26.31	28.57	26.33	24.17	23.06	15.87	69.82	64.76
2068	Jul	33.28	26.27	28.44	26.25	23.96	22.78	15.78	69.74	64.32
2068	Aug	33.24	26.22	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2068	Sep	33.24	26.21	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2068	Oct	33.28	26.24	28.38	26.26	24.07	22.68	15.76	69.72	64.62
2068	Nov	33.30	26.25	28.41	26.30	24.20	22.62	15.78	69.74	64.62
2068	Dec	33.30	26.25	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2069	Jan	33.30	26.25	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2069	Feb	33.30	26.25	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2069	Mar	33.30	26.25	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2069	Apr	33.30	26.25	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2069	May	33.29	26.25	28.41	26.31	24.25	22.62	15.78	69.72	64.78
2069	Jun	33.32	26.33	28.58	26.34	24.16	23.06	15.88	69.82	64.76
2069	Jul	33.28	26.28	28.44	26.25	23.95	22.78	15.78	69.74	64.33
2069	Aug	33.24	26.23	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2069	Sep	33.24	26.22	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2069	Oct	33.27	26.25	28.38	26.26	24.08	22.68	15.76	69.72	64.63
2069	Nov	33.29	26.26	28.41	26.30	24.20	22.62	15.78	69.74	64.62
2069	Dec	33.29	26.26	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2070	Jan	33.29	26.26	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2070	Feb	33.29	26.26	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2070	Mar	33.29	26.26	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2070	Apr	33.29	26.26	28.41	26.30	24.20	22.61	15.78	69.74	64.62
2070	May	33.29	26.25	28.41	26.31	24.25	22.62	15.78	69.72	64.8
2070	Jun	33.32	26.33	28.58	26.34	24.16	23.06	15.88	69.82	64.76
2070	Jul	33.28	26.28	28.44	26.25	23.95	22.78	15.78	69.74	64.33
2070	Aug	33.24	26.23	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2070	Sep	33.24	26.23	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2070	Oct	33.28	26.25	28.38	26.26	24.08	22.68	15.76	69.72	64.63
2070	Nov	33.30	26.27	28.42	26.32	24.26	22.62	15.79	69.74	64.62
2070	Dec	33.30	26.27	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2071	Jan	33.30	26.27	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2071	Feb	33.30	26.27	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2071	Mar	33.30	26.27	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2071	Apr	33.30	26.27	28.42	26.32	24.26	22.61	15.79	69.74	64.62

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2071	May	33.29	26.26	28.43	26.33	24.30	22.63	15.79	69.72	64.81
2071	Jun	33.32	26.34	28.58	26.34	24.15	23.06	15.88	69.82	64.76
2071	Jul	33.27	26.29	28.43	26.25	23.95	22.78	15.78	69.74	64.33
2071	Aug	33.23	26.24	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2071	Sep	33.24	26.23	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2071	Oct	33.27	26.26	28.38	26.26	24.08	22.68	15.76	69.72	64.63
2071	Nov	33.30	26.28	28.42	26.32	24.26	22.62	15.79	69.74	64.62
2071	Dec	33.30	26.28	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2072	Jan	33.30	26.28	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2072	Feb	33.30	26.28	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2072	Mar	33.30	26.28	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2072	Apr	33.30	26.28	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2072	May	33.29	26.27	28.43	26.33	24.30	22.63	15.79	69.72	64.83
2072	Jun	33.32	26.35	28.58	26.34	24.15	23.06	15.88	69.82	64.76
2072	Jul	33.27	26.29	28.43	26.25	23.95	22.78	15.78	69.74	64.33
2072	Aug	33.23	26.24	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2072	Sep	33.23	26.24	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2072	Oct	33.27	26.26	28.38	26.26	24.08	22.68	15.76	69.72	64.63
2072	Nov	33.30	26.28	28.42	26.32	24.26	22.62	15.79	69.74	64.62
2072	Dec	33.30	26.28	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2073	Jan	33.30	26.28	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2073	Feb	33.30	26.28	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2073	Mar	33.30	26.28	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2073	Apr	33.30	26.28	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2073	May	33.29	26.27	28.43	26.33	24.30	22.63	15.79	69.72	64.85
2073	Jun	33.32	26.35	28.58	26.34	24.15	23.06	15.88	69.82	64.76
2073	Jul	33.27	26.30	28.43	26.25	23.95	22.78	15.78	69.74	64.33
2073	Aug	33.23	26.25	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2073	Sep	33.23	26.24	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2073	Oct	33.27	26.27	28.38	26.26	24.08	22.68	15.76	69.72	64.63
2073	Nov	33.30	26.29	28.42	26.32	24.26	22.62	15.79	69.74	64.62
2073	Dec	33.30	26.29	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2074	Jan	33.30	26.29	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2074	Feb	33.30	26.29	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2074	Mar	33.30	26.29	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2074	Apr	33.30	26.29	28.42	26.32	24.26	22.61	15.79	69.74	64.62
2074	May	33.29	26.28	28.43	26.33	24.30	22.63	15.79	69.72	64.86
2074	Jun	33.32	26.36	28.58	26.34	24.15	23.06	15.88	69.82	64.76
2074	Jul	33.27	26.30	28.43	26.25	23.95	22.78	15.78	69.74	64.33
2074	Aug	33.23	26.25	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2074	Sep	33.23	26.25	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2074	Oct	33.27	26.27	28.38	26.26	24.08	22.68	15.76	69.72	64.63
2074	Nov	33.30	26.29	28.42	26.32	24.25	22.63	15.79	69.74	64.62

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2074	Dec	33.30	26.29	28.42	26.32	24.25	22.62	15.79	69.74	64.62
2075	Jan	33.30	26.29	28.42	26.32	24.25	22.62	15.79	69.74	64.62
2075	Feb	33.30	26.29	28.42	26.32	24.25	22.62	15.79	69.74	64.62
2075	Mar	33.30	26.29	28.42	26.32	24.25	22.62	15.79	69.74	64.62
2075	Apr	33.30	26.29	28.42	26.32	24.25	22.62	15.79	69.74	64.62
2075	May	33.29	26.28	28.43	26.33	24.30	22.64	15.79	69.72	64.88
2075	Jun	33.32	26.36	28.58	26.34	24.15	23.06	15.88	69.82	64.76
2075	Jul	33.27	26.31	28.43	26.25	23.95	22.78	15.78	69.74	64.33
2075	Aug	33.23	26.26	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2075	Sep	33.23	26.25	28.34	26.20	23.89	22.72	15.72	69.68	64.36
2075	Oct	33.27	26.28	28.38	26.26	24.08	22.68	15.76	69.72	64.66
2075	Nov	33.30	26.30	28.42	26.32	24.25	22.63	15.79	69.74	64.64
2075	Dec	33.30	26.30	28.42	26.32	24.25	22.62	15.79	69.74	64.64
2076	Jan	33.30	26.30	28.43	26.32	24.25	22.62	15.79	69.74	64.64
2076	Feb	33.30	26.30	28.43	26.32	24.25	22.62	15.79	69.74	64.64
2076	Mar	33.30	26.30	28.43	26.32	24.25	22.62	15.79	69.74	64.64
2076	Apr	33.30	26.30	28.43	26.32	24.25	22.62	15.79	69.74	64.64
2076	May	33.29	26.29	28.43	26.33	24.30	22.64	15.79	69.72	64.91
2076	Jun	33.32	26.37	28.59	26.34	24.15	23.06	15.88	69.82	64.75
2076	Jul	33.27	26.31	28.43	26.25	23.95	22.78	15.78	69.74	64.33
2076	Aug	33.23	26.26	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2076	Sep	33.23	26.25	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2076	Oct	33.27	26.28	28.38	26.26	24.08	22.68	15.76	69.72	64.66
2076	Nov	33.30	26.30	28.43	26.32	24.25	22.63	15.79	69.74	64.65
2076	Dec	33.30	26.30	28.43	26.32	24.25	22.62	15.79	69.74	64.65
2077	Jan	33.30	26.30	28.43	26.32	24.25	22.62	15.79	69.74	64.65
2077	Feb	33.30	26.30	28.43	26.32	24.25	22.62	15.79	69.74	64.65
2077	Mar	33.30	26.30	28.43	26.32	24.25	22.62	15.79	69.74	64.65
2077	Apr	33.30	26.30	28.43	26.32	24.25	22.62	15.79	69.74	64.65
2077	May	33.29	26.29	28.43	26.33	24.30	22.64	15.79	69.72	64.93
2077	Jun	33.32	26.37	28.59	26.34	24.15	23.06	15.88	69.82	64.75
2077	Jul	33.27	26.32	28.43	26.25	23.95	22.78	15.78	69.74	64.33
2077	Aug	33.23	26.26	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2077	Sep	33.23	26.26	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2077	Oct	33.27	26.28	28.38	26.26	24.08	22.68	15.76	69.72	64.66
2077	Nov	33.30	26.30	28.43	26.32	24.25	22.63	15.79	69.74	64.65
2077	Dec	33.30	26.30	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2078	Jan	33.30	26.30	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2078	Feb	33.30	26.30	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2078	Mar	33.30	26.30	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2078	Apr	33.30	26.30	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2078	May	33.29	26.30	28.44	26.34	24.31	22.65	15.79	69.72	64.95
2078	Jun	33.32	26.37	28.59	26.34	24.15	23.05	15.88	69.82	64.75

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2078	Jul	33.27	26.32	28.43	26.25	23.95	22.78	15.78	69.74	64.33
2078	Aug	33.23	26.27	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2078	Sep	33.23	26.26	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2078	Oct	33.27	26.29	28.38	26.26	24.08	22.68	15.76	69.72	64.66
2078	Nov	33.30	26.31	28.43	26.32	24.25	22.63	15.79	69.74	64.65
2078	Dec	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2079	Jan	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2079	Feb	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2079	Mar	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2079	Apr	33.30	26.31	28.43	26.32	24.25	22.62	15.79	69.74	64.65
2079	May	33.29	26.30	28.44	26.34	24.31	22.66	15.80	69.72	64.97
2079	Jun	33.32	26.38	28.59	26.34	24.15	23.05	15.88	69.82	64.75
2079	Jul	33.27	26.32	28.43	26.25	23.95	22.78	15.78	69.74	64.33
2079	Aug	33.23	26.27	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2079	Sep	33.23	26.26	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2079	Oct	33.27	26.29	28.38	26.26	24.08	22.68	15.76	69.72	64.66
2079	Nov	33.30	26.31	28.43	26.32	24.25	22.63	15.79	69.74	64.65
2079	Dec	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2080	Jan	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2080	Feb	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2080	Mar	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2080	Apr	33.30	26.31	28.43	26.32	24.25	22.62	15.79	69.74	64.65
2080	May	33.29	26.31	28.44	26.35	24.31	22.66	15.80	69.72	64.98
2080	Jun	33.32	26.38	28.59	26.34	24.15	23.06	15.88	69.82	64.75
2080	Jul	33.27	26.33	28.43	26.25	23.95	22.78	15.78	69.74	64.33
2080	Aug	33.23	26.28	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2080	Sep	33.23	26.27	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2080	Oct	33.27	26.30	28.38	26.26	24.08	22.68	15.76	69.72	64.66
2080	Nov	33.30	26.31	28.43	26.32	24.25	22.63	15.79	69.74	64.65
2080	Dec	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2081	Jan	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2081	Feb	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2081	Mar	33.30	26.31	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2081	Apr	33.30	26.31	28.43	26.32	24.25	22.62	15.79	69.74	64.65
2081	May	33.29	26.31	28.44	26.35	24.32	22.66	15.80	69.72	65
2081	Jun	33.32	26.39	28.59	26.34	24.14	23.06	15.88	69.82	64.75
2081	Jul	33.27	26.33	28.43	26.25	23.96	22.78	15.78	69.74	64.33
2081	Aug	33.23	26.28	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2081	Sep	33.23	26.27	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2081	Oct	33.27	26.30	28.38	26.26	24.08	22.68	15.76	69.72	64.66
2081	Nov	33.30	26.32	28.43	26.32	24.25	22.63	15.79	69.74	64.65
2081	Dec	33.30	26.32	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2082	Jan	33.30	26.32	28.43	26.32	24.25	22.61	15.79	69.74	64.65

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2082	Feb	33.30	26.32	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2082	Mar	33.30	26.32	28.43	26.32	24.25	22.61	15.79	69.74	64.65
2082	Apr	33.30	26.32	28.43	26.32	24.25	22.62	15.79	69.74	64.65
2082	May	33.29	26.31	28.44	26.35	24.32	22.66	15.80	69.72	65.02
2082	Jun	33.32	26.39	28.59	26.34	24.14	23.06	15.88	69.82	64.75
2082	Jul	33.27	26.33	28.43	26.25	23.96	22.78	15.78	69.74	64.33
2082	Aug	33.23	26.28	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2082	Sep	33.23	26.27	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2082	Oct	33.27	26.30	28.38	26.26	24.09	22.68	15.76	69.72	64.71
2082	Nov	33.30	26.32	28.43	26.33	24.27	22.63	15.79	69.74	64.68
2082	Dec	33.30	26.32	28.43	26.33	24.27	22.62	15.79	69.74	64.68
2083	Jan	33.30	26.32	28.43	26.33	24.27	22.62	15.79	69.74	64.68
2083	Feb	33.30	26.32	28.43	26.33	24.27	22.62	15.79	69.74	64.68
2083	Mar	33.30	26.32	28.43	26.33	24.27	22.62	15.79	69.74	64.68
2083	Apr	33.30	26.32	28.43	26.33	24.27	22.62	15.79	69.74	64.68
2083	May	33.29	26.32	28.45	26.36	24.33	22.67	15.80	69.72	65.06
2083	Jun	33.31	26.39	28.59	26.34	24.14	23.06	15.88	69.82	64.75
2083	Jul	33.27	26.34	28.43	26.25	23.96	22.78	15.78	69.73	64.33
2083	Aug	33.23	26.28	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2083	Sep	33.23	26.28	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2083	Oct	33.27	26.30	28.38	26.26	24.09	22.68	15.76	69.72	64.71
2083	Nov	33.30	26.33	28.43	26.33	24.27	22.63	15.79	69.74	64.68
2083	Dec	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.74	64.68
2084	Jan	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.74	64.68
2084	Feb	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.74	64.68
2084	Mar	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.74	64.68
2084	Apr	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.74	64.68
2084	May	33.29	26.32	28.45	26.36	24.33	22.67	15.80	69.74	65.76
2084	Jun	33.31	26.40	28.59	26.34	24.14	23.06	15.88	69.83	64.72
2084	Jul	33.27	26.34	28.43	26.25	23.96	22.78	15.78	69.73	64.33
2084	Aug	33.23	26.29	28.35	26.21	23.90	22.72	15.72	69.68	64.28
2084	Sep	33.23	26.28	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2084	Oct	33.27	26.31	28.38	26.26	24.09	22.68	15.76	69.72	64.71
2084	Nov	33.30	26.33	28.43	26.33	24.27	22.63	15.79	69.74	64.69
2084	Dec	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.74	64.69
2085	Jan	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.74	64.69
2085	Feb	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.74	64.69
2085	Mar	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.74	64.69
2085	Apr	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.74	64.69
2085	May	33.29	26.33	28.45	26.36	24.33	22.67	15.80	69.74	65.79
2085	Jun	33.31	26.40	28.59	26.34	24.14	23.06	15.88	69.83	64.72
2085	Jul	33.27	26.34	28.43	26.25	23.96	22.78	15.78	69.73	64.33
2085	Aug	33.23	26.29	28.35	26.21	23.90	22.72	15.72	69.68	64.29

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2085	Sep	33.23	26.28	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2085	Oct	33.27	26.31	28.38	26.26	24.09	22.68	15.76	69.72	64.82
2085	Nov	33.30	26.33	28.43	26.33	24.27	22.63	15.79	69.75	64.76
2085	Dec	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2086	Jan	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2086	Feb	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2086	Mar	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2086	Apr	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2086	May	33.29	26.33	28.45	26.36	24.34	22.67	15.80	69.74	65.85
2086	Jun	33.31	26.40	28.59	26.34	24.14	23.06	15.88	69.83	64.71
2086	Jul	33.27	26.34	28.43	26.25	23.96	22.78	15.78	69.73	64.33
2086	Aug	33.23	26.29	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2086	Sep	33.23	26.28	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2086	Oct	33.27	26.31	28.38	26.26	24.09	22.68	15.76	69.72	64.82
2086	Nov	33.30	26.33	28.43	26.33	24.27	22.63	15.79	69.75	64.76
2086	Dec	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2087	Jan	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2087	Feb	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2087	Mar	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2087	Apr	33.30	26.33	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2087	May	33.29	26.33	28.45	26.36	24.34	22.67	15.80	69.74	65.87
2087	Jun	33.31	26.40	28.60	26.34	24.14	23.06	15.89	69.83	64.71
2087	Jul	33.27	26.35	28.43	26.25	23.96	22.78	15.78	69.73	64.33
2087	Aug	33.23	26.29	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2087	Sep	33.23	26.29	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2087	Oct	33.27	26.31	28.38	26.26	24.09	22.68	15.76	69.72	64.82
2087	Nov	33.30	26.34	28.43	26.33	24.27	22.63	15.79	69.75	64.76
2087	Dec	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2088	Jan	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2088	Feb	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2088	Mar	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2088	Apr	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2088	May	33.29	26.33	28.45	26.36	24.34	22.67	15.80	69.74	65.9
2088	Jun	33.31	26.41	28.60	26.34	24.13	23.06	15.89	69.83	64.71
2088	Jul	33.27	26.35	28.43	26.25	23.96	22.78	15.78	69.73	64.33
2088	Aug	33.23	26.30	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2088	Sep	33.23	26.29	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2088	Oct	33.27	26.32	28.38	26.26	24.09	22.68	15.76	69.72	64.83
2088	Nov	33.30	26.34	28.43	26.33	24.27	22.63	15.79	69.75	64.76
2088	Dec	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2089	Jan	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2089	Feb	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2089	Mar	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2089	Apr	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2089	May	33.29	26.34	28.46	26.36	24.34	22.67	15.80	69.74	65.93
2089	Jun	33.31	26.41	28.60	26.34	24.13	23.06	15.89	69.83	64.71
2089	Jul	33.27	26.35	28.43	26.25	23.96	22.78	15.78	69.73	64.33
2089	Aug	33.23	26.30	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2089	Sep	33.23	26.29	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2089	Oct	33.27	26.32	28.38	26.26	24.09	22.68	15.76	69.72	64.83
2089	Nov	33.30	26.34	28.43	26.33	24.27	22.63	15.79	69.75	64.76
2089	Dec	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2090	Jan	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2090	Feb	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2090	Mar	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2090	Apr	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2090	May	33.29	26.34	28.46	26.36	24.34	22.67	15.80	69.74	65.97
2090	Jun	33.31	26.41	28.60	26.34	24.13	23.06	15.89	69.83	64.71
2090	Jul	33.27	26.35	28.44	26.25	23.96	22.78	15.78	69.73	64.33
2090	Aug	33.23	26.30	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2090	Sep	33.23	26.29	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2090	Oct	33.27	26.32	28.38	26.26	24.09	22.68	15.76	69.72	64.83
2090	Nov	33.30	26.34	28.43	26.33	24.27	22.63	15.79	69.75	64.76
2090	Dec	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2091	Jan	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2091	Feb	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2091	Mar	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2091	Apr	33.30	26.34	28.43	26.33	24.27	22.62	15.79	69.75	64.76
2091	May	33.29	26.34	28.46	26.36	24.35	22.68	15.81	69.74	66.01
2091	Jun	33.31	26.41	28.60	26.34	24.13	23.06	15.89	69.83	64.71
2091	Jul	33.27	26.35	28.44	26.25	23.96	22.78	15.78	69.73	64.33
2091	Aug	33.22	26.30	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2091	Sep	33.23	26.29	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2091	Oct	33.27	26.32	28.38	26.26	24.09	22.68	15.76	69.72	64.83
2091	Nov	33.30	26.34	28.44	26.34	24.29	22.64	15.80	69.75	64.76
2091	Dec	33.30	26.34	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2092	Jan	33.30	26.34	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2092	Feb	33.30	26.34	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2092	Mar	33.30	26.34	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2092	Apr	33.30	26.34	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2092	May	33.30	26.35	28.48	26.39	24.38	22.70	15.82	69.74	66.06
2092	Jun	33.31	26.41	28.60	26.34	24.12	23.05	15.89	69.83	64.71
2092	Jul	33.27	26.36	28.44	26.25	23.96	22.78	15.78	69.73	64.33
2092	Aug	33.22	26.30	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2092	Sep	33.22	26.29	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2092	Oct	33.26	26.32	28.38	26.26	24.09	22.68	15.76	69.72	64.83

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2092	Nov	33.30	26.35	28.44	26.34	24.29	22.64	15.80	69.75	64.76
2092	Dec	33.30	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2093	Jan	33.30	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2093	Feb	33.30	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2093	Mar	33.30	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2093	Apr	33.30	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2093	May	33.30	26.35	28.48	26.39	24.39	22.70	15.82	69.75	66.15
2093	Jun	33.31	26.42	28.60	26.34	24.12	23.05	15.89	69.83	64.7
2093	Jul	33.27	26.36	28.44	26.25	23.96	22.78	15.78	69.73	64.33
2093	Aug	33.22	26.30	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2093	Sep	33.22	26.29	28.34	26.20	23.89	22.72	15.72	69.68	64.37
2093	Oct	33.26	26.32	28.38	26.26	24.09	22.68	15.76	69.72	64.83
2093	Nov	33.30	26.35	28.44	26.34	24.29	22.64	15.80	69.75	64.76
2093	Dec	33.30	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2094	Jan	33.30	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2094	Feb	33.30	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2094	Mar	33.30	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2094	Apr	33.30	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2094	May	33.30	26.35	28.48	26.39	24.39	22.70	15.82	69.75	66.2
2094	Jun	33.31	26.42	28.60	26.34	24.12	23.05	15.89	69.83	64.69
2094	Jul	33.26	26.36	28.44	26.25	23.96	22.78	15.78	69.73	64.33
2094	Aug	33.22	26.30	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2094	Sep	33.22	26.30	28.34	26.20	23.89	22.72	15.72	69.67	64.37
2094	Oct	33.26	26.32	28.38	26.26	24.09	22.68	15.76	69.72	64.83
2094	Nov	33.29	26.35	28.44	26.34	24.29	22.64	15.80	69.75	64.76
2094	Dec	33.29	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2095	Jan	33.29	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2095	Feb	33.29	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2095	Mar	33.29	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2095	Apr	33.29	26.35	28.44	26.34	24.29	22.62	15.80	69.75	64.76
2095	May	33.30	26.36	28.48	26.39	24.39	22.71	15.82	69.75	66.25
2095	Jun	33.31	26.42	28.60	26.34	24.12	23.05	15.89	69.83	64.69
2095	Jul	33.26	26.36	28.44	26.25	23.96	22.78	15.78	69.73	64.33
2095	Aug	33.22	26.31	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2095	Sep	33.22	26.30	28.34	26.20	23.90	22.72	15.72	69.67	64.38
2095	Oct	33.26	26.33	28.38	26.26	24.09	22.68	15.76	69.72	64.83
2095	Nov	33.29	26.35	28.44	26.34	24.30	22.64	15.80	69.75	64.76
2095	Dec	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.76
2096	Jan	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.76
2096	Feb	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.76
2096	Mar	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.76
2096	Apr	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.76
2096	May	33.29	26.36	28.48	26.39	24.39	22.71	15.82	69.75	66.31

Average Monthly Surface Elevation (m)										
Year	Month	Doris Watershed						Madrid Watershed	Boston Watershed	
		Wolverine Lake	Imniagut Lake	Patch Lake	PO Lake	Ogama Lake	Doris Lake	Windy Lake	Stickleback Lake	Aimaokatalok Lake
2096	Jun	33.31	26.42	28.60	26.34	24.12	23.05	15.89	69.83	64.69
2096	Jul	33.26	26.36	28.44	26.25	23.96	22.78	15.78	69.73	64.33
2096	Aug	33.22	26.31	28.35	26.21	23.90	22.72	15.72	69.68	64.29
2096	Sep	33.22	26.30	28.34	26.20	23.90	22.72	15.72	69.67	64.38
2096	Oct	33.26	26.33	28.38	26.26	24.09	22.68	15.76	69.72	64.83
2096	Nov	33.29	26.35	28.44	26.34	24.30	22.64	15.80	69.75	64.76
2096	Dec	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.76
2097	Jan	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.76
2097	Feb	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.76
2097	Mar	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.76
2097	Apr	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.76
2097	May	33.29	26.36	28.48	26.39	24.40	22.71	15.82	69.75	66.36
2097	Jun	33.31	26.42	28.60	26.34	24.12	23.05	15.89	69.83	64.69
2097	Jul	33.26	26.36	28.44	26.25	23.96	22.78	15.78	69.73	64.33
2097	Aug	33.22	26.31	28.35	26.21	23.90	22.72	15.72	69.67	64.29
2097	Sep	33.22	26.30	28.34	26.20	23.90	22.72	15.72	69.67	64.38
2097	Oct	33.26	26.33	28.38	26.26	24.09	22.68	15.76	69.72	64.89
2097	Nov	33.29	26.35	28.44	26.34	24.30	22.64	15.80	69.75	64.79
2097	Dec	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79
2098	Jan	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79
2098	Feb	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79
2098	Mar	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79
2098	Apr	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79
2098	May	33.29	26.36	28.49	26.40	24.40	22.71	15.82	69.76	66.42
2098	Jun	33.31	26.42	28.60	26.34	24.12	23.05	15.89	69.83	64.69
2098	Jul	33.26	26.36	28.44	26.25	23.96	22.78	15.78	69.73	64.33
2098	Aug	33.22	26.31	28.35	26.21	23.90	22.72	15.72	69.67	64.29
2098	Sep	33.22	26.30	28.34	26.20	23.90	22.72	15.72	69.67	64.38
2098	Oct	33.26	26.33	28.38	26.26	24.09	22.68	15.76	69.72	64.89
2098	Nov	33.29	26.35	28.44	26.34	24.30	22.64	15.80	69.75	64.79
2098	Dec	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79
2099	Jan	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79
2099	Feb	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79
2099	Mar	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79
2099	Apr	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79
2099	May	33.29	26.36	28.49	26.40	24.40	22.71	15.82	69.76	66.47
2099	Jun	33.31	26.42	28.60	26.34	24.12	23.05	15.89	69.83	64.68
2099	Jul	33.26	26.36	28.44	26.25	23.96	22.78	15.78	69.73	64.33
2099	Aug	33.22	26.31	28.35	26.21	23.90	22.72	15.72	69.67	64.29
2099	Sep	33.22	26.30	28.34	26.20	23.90	22.72	15.72	69.67	64.38
2099	Oct	33.26	26.33	28.38	26.26	24.09	22.68	15.76	69.72	64.89
2099	Nov	33.29	26.35	28.44	26.34	24.30	22.64	15.80	69.75	64.79
2099	Dec	33.29	26.35	28.44	26.34	24.30	22.62	15.80	69.75	64.79

Appendix C: Water Quality Results

Appendix C1: Results Tables for All Prediction Nodes

Wolverine Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline
TSS	mg/L	Variable	5.8	5.8	n/a	15	14	0.9 x	7.4	7.3	1 x	17	17	n/a
TDS	mg/L	-	200	200	n/a	500	490	1 x	250	240	1 x	580	560	1 x
Fluoride	mg/L	0.12	0.069	0.069	n/a	***0.17***	***0.17***	n/a	0.086	0.085	1 x	***0.2***	***0.2***	n/a
Chloride	mg/L	120	81	80	1 x	***200***	***200***	n/a	100	100	n/a	***230***	***230***	n/a
Free Cyanide	mg/L	0.005	0.0013	0.0013	n/a	0.0032	0.0032	n/a	0.0016	0.0016	n/a	0.0038	0.0037	1 x
Total Cyanide	mg/L	0.005	0.0013	0.0013	n/a	0.0032	0.0032	n/a	0.0016	0.0016	n/a	0.0038	0.0037	1 x
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0065	0.0065	n/a	0.016	0.016	n/a	0.0081	0.008	1 x	0.019	0.019	n/a
Nitrate	mg/L as N	3	0.0065	0.0065	n/a	0.016	0.016	n/a	0.0081	0.008	1 x	0.019	0.019	n/a
Nitrite	mg/L as N	10	0.0013	0.0013	n/a	0.0032	0.0032	n/a	0.0016	0.0016	n/a	0.0038	0.0037	1 x
Sulphate	mg/L	1000	3.5	3.5	n/a	8.6	8.7	1 x	4.3	4.9	1.1 x	10	12	1.2 x
Alkalinity	mg/L	-	38	38	n/a	94	94	n/a	47	50	1.1 x	110	120	1.1 x
Hardness	mg/L	-	63	62	1 x	160	150	0.9 x	78	78	n/a	180	180	n/a
Dissolved Aluminum	mg/L	0.1	0.075	0.075	n/a	***0.19***	***0.18***	0.9 x	0.092	0.091	1 x	***0.21***	***0.21***	n/a
Dissolved Antimony	mg/L	-	0.00003	0.00003	n/a	0.000077	0.000077	n/a	0.000039	0.000043	1.1 x	0.000091	0.0001	1.1 x
Dissolved Arsenic	mg/L	0.005	0.00036	0.00036	n/a	0.00091	0.00091	n/a	0.00046	0.00048	1 x	0.0011	0.0011	n/a
Dissolved Barium	mg/L	-	0.0046	0.0046	n/a	0.011	0.011	n/a	0.0056	0.0058	1 x	0.013	0.013	n/a
Dissolved Beryllium	mg/L	0.1	0.0000065	0.0000067	1 x	0.000016	0.000018	1.1 x	0.0000081	0.000014	1.7 x	0.000019	0.000034	1.8 x
Dissolved Boron	mg/L	0.5	0.04	0.04	n/a	0.1	0.1	n/a	0.05	0.05	n/a	0.12	0.12	n/a
Dissolved Cadmium	mg/L	0.00012	0.0000065	0.0000065	n/a	0.000016	0.000016	n/a	0.0000081	0.0000083	1 x	0.000019	0.000019	n/a
Dissolved Calcium	mg/L	-	11	11	n/a	28	28	n/a	14	15	1.1 x	33	35	1.1 x
Dissolved Chromium	mg/L	0.001	0.00065	0.00065	n/a	***0.0016***	***0.0016***	n/a	0.00081	0.00079	1 x	***0.0019***	***0.0018***	0.9 x
Dissolved Cobalt	mg/L	0.05	0.000065	0.000065	n/a	0.00016	0.00016	n/a	0.000081	0.000089	1.1 x	0.00019	0.00021	1.1 x
Dissolved Copper	mg/L	0.002	0.0018	0.0018	n/a	***0.0045***	***0.0046***	1 x	***0.0023***	***0.0027***	1.2 x	***0.0053***	***0.0064***	1.2 x
Dissolved Iron	mg/L	0.3	0.21	0.21	n/a	***0.51***	***0.5***	1 x	0.25	0.24	1 x	***0.57***	***0.56***	1 x
Dissolved Lead	mg/L	0.001	0.000065	0.000065	n/a	0.00016	0.00016	n/a	0.000081	0.00008	1 x	0.00019	0.00019	n/a
Dissolved Lithium	mg/L	2.5	0.0048	0.0048	n/a	0.012	0.012	n/a	0.006	0.0059	1 x	0.014	0.014	n/a
Dissolved Magnesium	mg/L	-	8.3	8.3	n/a	21	21	n/a	10	10	n/a	24	24	n/a
Dissolved Manganese	mg/L	0.2	0.026	0.026	n/a	0.066	0.066	n/a	0.033	0.034	1 x	0.078	0.079	1 x
Dissolved Mercury	mg/L	0.000016	0.0000009	0.00000091	1 x	0.0000022	0.0000024	1.1 x	0.0000011	0.0000016	1.5 x	0.0000026	0.000004	1.5 x
Dissolved Molybdenum	mg/L	0.01	0.00023	0.00023	n/a	0.00057	0.00057	n/a	0.00029	0.00031	1.1 x	0.00068	0.00072	1.1 x
Dissolved Nickel	mg/L	0.025	0.00069	0.00069	n/a	0.0017	0.0017	n/a	0.00086	0.00089	1 x	0.002	0.0021	1.1 x
Dissolved Selenium	mg/L	0.001	0.00026	0.00026	n/a	0.00065	0.00064	1 x	0.00032	0.00032	n/a	0.00075	0.00074	1 x
Dissolved Silver	mg/L	0.00025	0.0000065	0.0000065	n/a	0.000016	0.000016	n/a	0.0000081	0.0000083	1 x	0.000019	0.000019	n/a
Dissolved Sodium	mg/L	-	43	42	1 x	110	100	0.9 x	53	53	n/a	120	120	n/a
Dissolved Thallium	mg/L	0.0008	0.0000026	0.0000026	n/a	0.0000065	0.0000066	1 x	0.0000032	0.0000037	1.2 x	0.0000075	0.0000087	1.2 x
Dissolved Uranium	mg/L	0.01	0.000044	0.000044	n/a	0.00011	0.00011	n/a	0.000055	0.000063	1.1 x	0.00013	0.00015	1.2 x
Dissolved Vanadium	mg/L	0.1	0.00023	0.00023	n/a	0.00058	0.00059	1 x	0.00029	0.00034	1.2 x	0.00067	0.0008	1.2 x
Dissolved Zinc	mg/L	0.03	0.0039	0.0039	n/a	0.0097	0.0096	1 x	0.0048	0.0048	n/a	0.011	0.011	n/a
Dissolved Phosphorous	mg/L	Variable	0.029	0.029	n/a	0.074	0.073	1 x	0.037	0.037	n/a	0.087	0.087	n/a
Total Aluminum	mg/L	0.1	0.075	0.075	n/a	***0.19***	***0.18***	0.9 x	0.092	0.091	1 x	***0.21***	***0.21***	n/a
Total Antimony	mg/L	-	0.00003	0.00003	n/a	0.000077	0.000077	n/a	0.000039	0.000043	1.1 x	0.000091	0.0001	1.1 x
Total Arsenic	mg/L	0.005	0.00036	0.00036	n/a	0.00091	0.00092	1 x	0.00046	0.00051	1.1 x	0.0011	0.0012	1.1 x
Total Barium	mg/L	-	0.0046	0.0046	n/a	0.011	0.011	n/a	0.0056	0.0058	1 x	0.013	0.013	n/a
Total Beryllium	mg/L	0.1	0.0000065	0.0000067	1 x	0.000016	0.000018	1.1 x	0.0000081	0.000014	1.7 x	0.000019	0.000034	1.8 x
Total Boron	mg/L	0.5	0.04	0.04	n/a	0.1	0.1	n/a	0.05	0.05	n/a	0.12	0.12	n/a
Total Cadmium	mg/L	0.00012	0.0000065	0.0000065	n/a	0.000016	0.000016	n/a	0.0000081	0.0000084	1 x	0.000019	0.00002	1.1 x
Total Calcium	mg/L	-	11	11	n/a	28	28	n/a	14	15	1.1 x	33	35	1.1 x
Total Chromium	mg/L	0.001	0.00065	0.00065	n/a	***0.0016***	***0.0016***	n/a	0.00081	0.00082	1 x	***0.0019***	***0.0019***	n/a
Total Cobalt	mg/L	0.05	0.000065	0.000065	n/a	0.00016	0.00016	n/a	0.000081	0.000092	1.1 x	0.00019	0.00022	1.2 x
Total Copper	mg/L	0.002	0.0018	0.0018	n/a	***0.0045***	***0.0046***	1 x	***0.0023***	***0.0027***	1.2 x	***0.0053***	***0.0064***	1.2 x
Total Iron	mg/L	0.3	0.21	0.21	n/a	***0.51***	***0.51***	n/a	0.25	0.25	n/a	***0.57***	***0.59***	1 x
Total Lead	mg/L	0.001	0.000065	0.000065	n/a	0.00016	0.00016	n/a	0.000081	0.000081	n/a	0.00019	0.00019	n/a
Total Lithium	mg/L	2.5	0.0048	0.0048	n/a	0.012	0.012	n/a	0.006	0.0059	1 x	0.014	0.014	n/a
Total Magnesium	mg/L	-	8.3	8.3	n/a	21	21	n/a	10	10	n/a	24	24	n/a
Total Manganese	mg/L	0.2	0.026	0.026	n/a	0.066	0.066	n/a	0.033	0.034	1 x	0.078	0.08	1 x
Total Mercury	mg/L	0.000016	0.0000009	0.0000001	1.1 x	0.0000022	0.0000033	1.5 x	0.0000011	0.0000043	3.9 x	0.0000026	0.000012	4.6 x
Total Molybdenum	mg/L	0.01	0.00023	0.00023	n/a	0.00057	0.00057	n/a	0.00029	0.00031	1.1 x	0.00068	0.00072	1.1 x
Total Nickel	mg/L	0.025	0.00069	0.00069	n/a	0.0017	0.0017	n/a	0.00086	0.0009	1 x	0.002	0.0021	1.1 x
Total Selenium	mg/L	0.001	0.00026	0.00026	n/a	0.00065	0.00064	1 x	0.00032	0.00032	n/a	0.00075	0.00074	1 x
Total Silver	mg/L	0.00025	0.0000065	0.0000065	n/a	0.000016	0.000016	n/a	0.0000081	0.0000084	1 x	0.000019	0.00002	1.1 x
Total Sodium	mg/L	-	43	42	1 x	110	100	0.9 x	53	53	n/a	120	120	n/a
Total Thallium	mg/L	0.0008	0.0000026	0.0000026	n/a	0.0000065	0.0000066	1 x	0.0000032	0.0000037	1.2 x	0.0000075	0.0000088	1.2 x
Total Uranium	mg/L	0.01	0.000044	0.000044	n/a	0.00011	0.00011	n/a	0.000055	0.000063	1.1 x	0.00013	0.00015	1.2 x
Total Vanadium	mg/L	0.1	0.00023	0.00023	n/a	0.00058	0.00059	1 x	0.00029	0.00034	1.2 x	0.00067	0.00081	1.2 x
Total Zinc	mg/L	0.03	0.0039	0.0039	n/a	0.0097	0.0096	1 x	0.0048	0.0048	n/a	0.011	0.011	n/a
Total Phosphorous	mg/L	Variable	0.029	0.029	n/a	0.074	0.073	1 x	0.037	0.037	n/a	0.087	0.087	n/a

[1] ***CCME Exceedance shown in bold italics***

Wolverine Lake Average and Maximum Concentrations During Operations and Post-Closure														
			Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
Parameter	Units	Min CCME[1]	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline
TSS	mg/L	Variable	6.3	6.3	1 x	16	16	0.98 x	8.1	8	1 x	19	19	1 x
TDS	mg/L	-	210	210	1 x	530	520	0.98 x	260	260	0.97 x	610	600	0.97 x
Fluoride	mg/L	0.12	0.07	0.07	1 x	***0.18***	***0.17***	0.98 x	0.088	0.088	0.99 x	***0.21***	***0.2***	1 x
Chloride	mg/L	120	82	82	1 x	***210***	***200***	0.98 x	100	100	1 x	***240***	***240***	1 x
Free Cyanide	mg/L	0.005	0.0013	0.0013	1 x	0.0032	0.0032	0.98 x	0.0016	0.0016	1 x	0.0038	0.0037	1 x
Total Cyanide	mg/L	0.005	0.0013	0.0013	1 x	0.0032	0.0032	0.98 x	0.0016	0.0016	1 x	0.0038	0.0037	1 x
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0065	0.0065	1 x	0.016	0.016	0.99 x	0.0082	0.0081	1 x	0.019	0.019	1 x
Nitrate	mg/L as N	3	0.0065	0.0065	1 x	0.016	0.016	0.99 x	0.0081	0.008	1 x	0.019	0.019	1 x
Nitrite	mg/L as N	10	0.0013	0.0013	1 x	0.0032	0.0032	0.98 x	0.0016	0.0016	1 x	0.0038	0.0037	1 x
Sulphate	mg/L	1000	3.5	3.5	1.01 x	8.7	9.1	1.04 x	4.3	5.8	1.32 x	10	14	1.38 x
Alkalinity	mg/L	-	38	38	1 x	96	96	1 x	48	51	1.06 x	110	120	1.07 x
Hardness	mg/L	-	64	64	1 x	160	160	0.98 x	80	80	1 x	190	190	1 x
Dissolved Aluminum	mg/L	0.1	0.1	0.099	1 x	***0.25***	***0.24***	0.98 x	***0.12***	***0.12***	0.99 x	***0.28***	***0.28***	0.99 x
Dissolved Antimony	mg/L	-	0.000039	0.000039	1 x	0.000097	0.000098	1.01 x	0.000048	0.000054	1.12 x	0.00011	0.00013	1.13 x
Dissolved Arsenic	mg/L	0.005	0.00041	0.00041	1 x	0.001	0.0011	1.02 x	0.00053	0.00062	1.18 x	0.0012	0.0015	1.21 x
Dissolved Barium	mg/L	-	0.005	0.005	1 x	0.012	0.012	0.99 x	0.0062	0.0064	1.03 x	0.014	0.015	1.04 x
Dissolved Beryllium	mg/L	0.1	0.0000069	0.000007	1.02 x	0.000018	0.00002	1.09 x	0.0000093	0.000015	1.59 x	0.000022	0.000037	1.68 x
Dissolved Boron	mg/L	0.5	0.044	0.044	1 x	0.11	0.11	0.99 x	0.056	0.056	1.01 x	0.13	0.13	1.01 x
Dissolved Cadmium	mg/L	0.00012	0.0000065	0.0000065	1 x	0.000016	0.000016	1 x	0.0000081	0.0000088	1.09 x	0.000019	0.000021	1.1 x
Dissolved Calcium	mg/L	-	12	12	1 x	29	29	1 x	15	16	1.09 x	34	37	1.11 x
Dissolved Chromium	mg/L	0.001	0.00065	0.00065	1 x	***0.0016***	***0.0016***	0.98 x	0.00081	0.0008	0.99 x	***0.0019***	***0.0019***	0.99 x
Dissolved Cobalt	mg/L	0.05	0.000072	0.000073	1 x	0.00018	0.00018	1.01 x	0.000089	0.000099	1.12 x	0.00021	0.00023	1.13 x
Dissolved Copper	mg/L	0.002	0.0019	0.0019	1.01 x	***0.0049***	***0.005***	1.04 x	***0.0025***	***0.0032***	1.29 x	***0.0057***	***0.0077***	1.34 x
Dissolved Iron	mg/L	0.3	0.25	0.25	1 x	***0.61***	***0.6***	0.98 x	0.29	0.29	0.99 x	***0.68***	***0.67***	0.99 x
Dissolved Lead	mg/L	0.001	0.000087	0.000087	1 x	0.00022	0.00022	0.99 x	0.00011	0.00011	1.03 x	0.00026	0.00027	1.03 x
Dissolved Lithium	mg/L	2.5	0.0052	0.0052	1 x	0.013	0.013	0.98 x	0.0064	0.0063	0.98 x	0.015	0.015	0.98 x
Dissolved Magnesium	mg/L	-	8.6	8.5	1 x	21	21	0.99 x	11	11	0.99 x	25	25	1 x
Dissolved Manganese	mg/L	0.2	0.036	0.036	1 x	0.089	0.089	0.99 x	0.045	0.047	1.05 x	0.1	0.11	1.05 x
Dissolved Mercury	mg/L	0.000016	0.0000011	0.0000012	1.01 x	0.0000028	0.000003	1.05 x	0.0000014	0.0000019	1.38 x	0.0000032	0.0000046	1.44 x
Dissolved Molybdenum	mg/L	0.01	0.00023	0.00023	1 x	0.00059	0.00059	1.01 x	0.0003	0.00034	1.16 x	0.00069	0.00082	1.18 x
Dissolved Nickel	mg/L	0.025	0.00087	0.00087	1 x	0.0022	0.0022	1 x	0.0011	0.0012	1.09 x	0.0025	0.0028	1.1 x
Dissolved Selenium	mg/L	0.001	0.00026	0.00026	1 x	0.00065	0.00064	0.99 x	0.00032	0.00033	1.01 x	0.00075	0.00076	1.02 x
Dissolved Silver	mg/L	0.00025	0.0000065	0.0000065	1 x	0.000016	0.000016	0.99 x	0.0000081	0.0000083	1.03 x	0.000019	0.000019	1.04 x
Dissolved Sodium	mg/L	-	44	43	1 x	110	110	0.98 x	54	54	1 x	130	130	1 x
Dissolved Thallium	mg/L	0.0008	0.0000029	0.0000029	1 x	0.0000072	0.0000072	1.01 x	0.0000035	0.000004	1.12 x	0.0000082	0.0000094	1.14 x
Dissolved Uranium	mg/L	0.01	0.000049	0.000049	1.01 x	0.00012	0.00013	1.03 x	0.000062	0.000078	1.27 x	0.00014	0.00019	1.32 x
Dissolved Vanadium	mg/L	0.1	0.00029	0.00029	1 x	0.00072	0.00072	1.01 x	0.00035	0.0004	1.14 x	0.00082	0.00095	1.16 x
Dissolved Zinc	mg/L	0.03	0.0039	0.0039	1 x	0.0097	0.0096	0.99 x	0.0048	0.0049	1.02 x	0.011	0.012	1.02 x
Dissolved Phosphorous	mg/L	Variable	0.033	0.033	1 x	0.083	0.081	0.98 x	0.042	0.041	1 x	0.097	0.096	1 x
Total Aluminum	mg/L	0.1	0.1	0.099	1 x	***0.25***	***0.24***	0.99 x	***0.12***	***0.12***	1 x	***0.28***	***0.28***	1 x
Total Antimony	mg/L	-	0.000039	0.000039	1 x	0.000097	0.000098	1.01 x	0.000048	0.000054	1.12 x	0.00011	0.00013	1.14 x
Total Arsenic	mg/L	0.005	0.00041	0.00041	1.01 x	0.001	0.0011	1.03 x	0.00053	0.00065	1.23 x	0.0012	0.0016	1.27 x
Total Barium	mg/L	-	0.005	0.005	1 x	0.012	0.012	0.99 x	0.0062	0.0064	1.03 x	0.014	0.015	1.04 x
Total Beryllium	mg/L	0.1	0.0000069	0.000007	1.02 x	0.000018	0.00002	1.09 x	0.0000093	0.000015	1.59 x	0.000022	0.000037	1.68 x
Total Boron	mg/L	0.5	0.044	0.044	1 x	0.11	0.11	0.99 x	0.056	0.056	1.01 x	0.13	0.13	1.01 x
Total Cadmium	mg/L	0.00012	0.0000065	0.0000065	1 x	0.000016	0.000016	1 x	0.0000081	0.0000089	1.1 x	0.000019	0.000021	1.11 x
Total Calcium	mg/L	-	12	12	1 x	29	29	1 x	15	16	1.09 x	34	38	1.11 x
Total Chromium	mg/L	0.001	0.00065	0.00065	1 x	***0.0016***	***0.0016***	0.99 x	0.00081	0.00083	1.03 x	***0.0019***	***0.0019***	1.03 x
Total Cobalt	mg/L	0.05	0.000072	0.000073	1 x	0.00018	0.00018	1.01 x	0.000089	0.0001	1.16 x	0.00021	0.00024	1.19 x
Total Copper	mg/L	0.002	0.0019	0.0019	1.01 x	***0.0049***	***0.0051***	1.04 x	***0.0025***	***0.0032***	1.3 x	***0.0057***	***0.0077***	1.35 x
Total Iron	mg/L	0.3	0.25	0.25	1 x	***0.61***	***0.6***	0.99 x	0.29	***0.31***	1.04 x	***0.68***	***0.71***	1.04 x
Total Lead	mg/L	0.001	0.000087	0.000087	1 x	0.00022	0.00022	0.99 x	0.00011	0.00011	1.03 x	0.00026	0.00027	1.04 x
Total Lithium	mg/L	2.5	0.0052	0.0052	1 x	0.013	0.013	0.98 x	0.0064	0.0063	0.98 x	0.015	0.015	0.98 x
Total Magnesium	mg/L	-	8.6	8.5	1 x	21	21	0.99 x	11	11	1 x	25	25	1 x
Total Manganese	mg/L	0.2	0.036	0.036	1 x	0.089	0.089	1 x	0.045	0.047	1.06 x	0.1	0.11	1.06 x
Total Mercury	mg/L	0.000016	0.0000011	0.0000013	1.1 x	0.0000028	0.000004	1.41 x	0.0000014	0.0000049	3.51 x	0.0000032	0.000013	3.98 x
Total Molybdenum	mg/L	0.01	0.00023	0.00023	1 x	0.00059	0.00059	1.01 x	0.0003	0.00034	1.16 x	0.00069	0.00082	1.19 x
Total Nickel	mg/L	0.025	0.00087	0.00087	1 x	0.0022	0.0022	1 x	0.0011	0.0012	1.11 x	0.0025	0.0028	1.12 x
Total Selenium	mg/L	0.001	0.00026	0.00026	1 x	0.00065	0.00064	0.99 x	0.00032	0.00033	1.01 x	0.00075	0.00076	1.02 x
Total Silver	mg/L	0.00025	0.0000065	0.0000065	1 x	0.000016	0.000016	0.99 x	0.0000081	0.0000084	1.04 x	0.000019	0.00002	1.04 x
Total Sodium	mg/L	-	44	43	1 x	110	110	0.98 x	54	54	1 x	130	130	1 x
Total Thallium	mg/L	0.0008	0.0000029	0.0000029	1 x	0.0000072	0.0000072	1.01 x	0.0000035	0.000004	1.13 x	0.0000082	0.0000095	1.15 x
Total Uranium	mg/L	0.01	0.000049	0.000049	1.01 x	0.00012	0.00013	1.03 x	0.000062	0.000078	1.27 x	0.00014	0.00019	1.32 x
Total Vanadium	mg/L	0.1	0.00029	0.00029	1 x	0.00072	0.00073	1.01 x	0.00035	0.00041	1.16 x	0.00082	0.00097	1.18 x
Total Zinc	mg/L	0.03	0.0039	0.0039	1 x	0.0097	0.0096	0.99 x	0.0048	0.005	1.02 x	0.011	0.012	1.03 x
Total Phosphorous	mg/L	Variable	0.033	0.033	1 x	0.083	0.081	0.98 x	0.042	0.041	1 x	0.097	0.097	1 x

[1] ***CCME Exceedance shown in bold italics***

Patch Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline
TSS	mg/L	Variable	5	5	n/a	7.8	7.7	1 x	5.6	5.6	n/a	8.5	8.5	n/a
TDS	mg/L	-	170	170	n/a	270	260	1 x	190	190	n/a	290	280	1 x
Fluoride	mg/L	0.12	0.06	0.059	1 x	0.092	0.09	1 x	0.065	0.065	n/a	0.098	0.097	1 x
Chloride	mg/L	120	70	69	1 x	110	110	n/a	76	76	n/a	110	110	n/a
Free Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0017	0.0017	n/a	0.0012	0.0012	n/a	0.0018	0.0018	n/a
Total Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0017	0.0017	n/a	0.0012	0.0012	n/a	0.0018	0.0018	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0056	0.0056	n/a	0.0086	0.0085	1 x	0.0061	0.0061	n/a	0.0092	0.0092	n/a
Nitrate	mg/L as N	3	0.0056	0.0056	n/a	0.0086	0.0085	1 x	0.0061	0.0061	n/a	0.0092	0.0092	n/a
Nitrite	mg/L as N	10	0.0011	0.0011	n/a	0.0017	0.0017	n/a	0.0012	0.0012	n/a	0.0018	0.0018	n/a
Sulphate	mg/L	1000	3	3	n/a	4.6	4.6	n/a	3.3	3.4	1 x	4.9	5.1	1 x
Alkalinity	mg/L	-	33	32	1 x	50	50	n/a	36	36	n/a	54	55	1 x
Hardness	mg/L	-	54	54	n/a	83	82	1 x	59	59	n/a	89	89	n/a
Dissolved Aluminum	mg/L	0.1	0.065	0.064	1 x	0.099	0.097	1 x	0.07	0.069	1 x	0.1	0.1	n/a
Dissolved Antimony	mg/L	-	0.000026	0.000026	n/a	0.000041	0.000042	1 x	0.000029	0.000032	1.1 x	0.000045	0.00005	1.1 x
Dissolved Arsenic	mg/L	0.005	0.00031	0.00032	1 x	0.00049	0.00054	1.1 x	0.00035	0.00071	2 x	0.00053	0.0011	2.1 x
Dissolved Barium	mg/L	-	0.004	0.0039	1 x	0.006	0.006	n/a	0.0043	0.0043	n/a	0.0064	0.0065	1 x
Dissolved Beryllium	mg/L	0.1	0.0000056	0.0000058	1 x	0.0000086	0.0000094	1.1 x	0.0000061	0.0000072	1.2 x	0.0000092	0.000011	1.2 x
Dissolved Boron	mg/L	0.5	0.035	0.035	n/a	0.054	0.053	1 x	0.038	0.038	n/a	0.058	0.058	n/a
Dissolved Cadmium	mg/L	0.00012	0.0000056	0.0000056	n/a	0.0000086	0.0000086	n/a	0.0000061	0.0000062	1 x	0.0000092	0.0000093	1 x
Dissolved Calcium	mg/L	-	9.8	9.7	1 x	15	15	n/a	11	11	n/a	16	16	n/a
Dissolved Chromium	mg/L	0.001	0.00056	0.00056	n/a	0.00086	0.00085	1 x	0.00061	0.00061	n/a	0.00092	0.00091	1 x
Dissolved Cobalt	mg/L	0.05	0.000056	0.000056	n/a	0.000086	0.000087	1 x	0.000061	0.000068	1.1 x	0.000092	0.0001	1.1 x
Dissolved Copper	mg/L	0.002	0.0016	0.0016	n/a	***0.0024***	***0.0024***	n/a	0.0017	0.0018	1.1 x	***0.0026***	***0.0027***	1 x
Dissolved Iron	mg/L	0.3	0.18	0.18	n/a	0.27	0.27	n/a	0.19	0.18	0.9 x	0.27	0.27	n/a
Dissolved Lead	mg/L	0.001	0.000056	0.000056	n/a	0.000086	0.000085	1 x	0.000061	0.000061	n/a	0.000092	0.000092	n/a
Dissolved Lithium	mg/L	2.5	0.0042	0.0041	1 x	0.0064	0.0063	1 x	0.0046	0.0045	1 x	0.0069	0.0068	1 x
Dissolved Magnesium	mg/L	-	7.2	7.2	n/a	11	11	n/a	7.9	7.8	1 x	12	12	n/a
Dissolved Manganese	mg/L	0.2	0.023	0.023	n/a	0.036	0.035	1 x	0.025	0.025	n/a	0.038	0.038	n/a
Dissolved Mercury	mg/L	0.000016	0.00000077	0.0000008	1 x	0.0000012	0.0000013	1.1 x	0.00000083	0.00000094	1.1 x	0.0000012	0.0000014	1.2 x
Dissolved Molybdenum	mg/L	0.01	0.0002	0.0002	n/a	0.00031	0.00031	n/a	0.00022	0.00022	n/a	0.00033	0.00034	1 x
Dissolved Nickel	mg/L	0.025	0.0006	0.00059	1 x	0.00092	0.00091	1 x	0.00065	0.00066	1 x	0.00098	0.00099	1 x
Dissolved Selenium	mg/L	0.001	0.00022	0.00022	n/a	0.00035	0.00034	1 x	0.00024	0.00024	n/a	0.00037	0.00037	n/a
Dissolved Silver	mg/L	0.00025	0.0000056	0.0000056	n/a	0.0000086	0.0000086	n/a	0.0000061	0.0000062	1 x	0.0000092	0.0000093	1 x
Dissolved Sodium	mg/L	-	37	37	n/a	56	56	n/a	40	40	n/a	60	60	n/a
Dissolved Thallium	mg/L	0.0008	0.0000022	0.0000023	1 x	0.0000035	0.0000035	n/a	0.0000024	0.0000025	1 x	0.0000037	0.0000039	1.1 x
Dissolved Uranium	mg/L	0.01	0.000038	0.000038	n/a	0.000059	0.000059	n/a	0.000042	0.000044	1 x	0.000063	0.000066	1 x
Dissolved Vanadium	mg/L	0.1	0.0002	0.0002	n/a	0.00031	0.00031	n/a	0.00022	0.00023	1 x	0.00033	0.00035	1.1 x
Dissolved Zinc	mg/L	0.03	0.0034	0.0033	1 x	0.0052	0.0051	1 x	0.0037	0.0037	n/a	0.0055	0.0055	n/a
Dissolved Phosphorous	mg/L	Variable	0.025	0.025	n/a	0.04	0.039	1 x	0.028	0.028	n/a	0.043	0.043	n/a
Total Aluminum	mg/L	0.1	0.065	0.065	n/a	0.099	0.097	1 x	0.07	0.069	1 x	0.1	0.1	n/a
Total Antimony	mg/L	-	0.000026	0.000026	n/a	0.000041	0.000042	1 x	0.000029	0.000032	1.1 x	0.000045	0.00005	1.1 x
Total Arsenic	mg/L	0.005	0.00031	0.00032	1 x	0.00049	0.00054	1.1 x	0.00035	0.00071	2 x	0.00053	0.0012	2.3 x
Total Barium	mg/L	-	0.004	0.0039	1 x	0.006	0.006	n/a	0.0043	0.0043	n/a	0.0064	0.0065	1 x
Total Beryllium	mg/L	0.1	0.0000056	0.0000058	1 x	0.0000086	0.0000094	1.1 x	0.0000061	0.0000072	1.2 x	0.0000092	0.000011	1.2 x
Total Boron	mg/L	0.5	0.035	0.035	n/a	0.054	0.053	1 x	0.038	0.038	n/a	0.058	0.058	n/a
Total Cadmium	mg/L	0.00012	0.0000056	0.0000056	n/a	0.0000086	0.0000086	n/a	0.0000061	0.0000062	1 x	0.0000092	0.0000093	1 x
Total Calcium	mg/L	-	9.8	9.7	1 x	15	15	n/a	11	11	n/a	16	16	n/a
Total Chromium	mg/L	0.001	0.00056	0.00056	n/a	0.00086	0.00085	1 x	0.00061	0.00061	n/a	0.00092	0.00092	n/a
Total Cobalt	mg/L	0.05	0.000056	0.000056	n/a	0.000086	0.000088	1 x	0.000061	0.000069	1.1 x	0.000092	0.00011	1.2 x
Total Copper	mg/L	0.002	0.0016	0.0016	n/a	***0.0024***	***0.0024***	n/a	0.0017	0.0018	1.1 x	***0.0026***	***0.0027***	1 x
Total Iron	mg/L	0.3	0.18	0.18	n/a	0.27	0.27	n/a	0.19	0.19	n/a	0.27	0.28	1 x
Total Lead	mg/L	0.001	0.000056	0.000056	n/a	0.000086	0.000085	1 x	0.000061	0.000061	n/a	0.000092	0.000092	n/a
Total Lithium	mg/L	2.5	0.0042	0.0041	1 x	0.0064	0.0063	1 x	0.0046	0.0045	1 x	0.0069	0.0068	1 x
Total Magnesium	mg/L	-	7.2	7.2	n/a	11	11	n/a	7.9	7.8	1 x	12	12	n/a
Total Manganese	mg/L	0.2	0.023	0.023	n/a	0.036	0.035	1 x	0.025	0.025	n/a	0.038	0.038	n/a
Total Mercury	mg/L	0.000016	0.00000077	0.00000093	1.2 x	0.0000012	0.0000017	1.4 x	0.00000083	0.0000015	1.8 x	0.0000012	0.0000024	2 x
Total Molybdenum	mg/L	0.01	0.0002	0.0002	n/a	0.00031	0.00031	n/a	0.00022	0.00022	n/a	0.00033	0.00034	1 x
Total Nickel	mg/L	0.025	0.0006	0.00059	1 x	0.00092	0.00091	1 x	0.00065	0.00066	1 x	0.00098	0.001	1 x
Total Selenium	mg/L	0.001	0.00022	0.00022	n/a	0.00035	0.00034	1 x	0.00024	0.00024	n/a	0.00037	0.00037	n/a
Total Silver	mg/L	0.00025	0.0000056	0.0000056	n/a	0.0000086	0.0000086	n/a	0.0000061	0.0000062	1 x	0.0000092	0.0000093	1 x
Total Sodium	mg/L	-	37	37	n/a	56	56	n/a	40	40	n/a	60	60	n/a
Total Thallium	mg/L	0.0008	0.0000022	0.0000023	1 x	0.0000035	0.0000035	n/a	0.0000024	0.0000025	1 x	0.0000037	0.0000039	1.1 x
Total Uranium	mg/L	0.01	0.000038	0.000038	n/a	0.000059	0.000059	n/a	0.000042	0.000044	1 x	0.000063	0.000066	1 x
Total Vanadium	mg/L	0.1	0.0002	0.0002	n/a	0.00031	0.00031	n/a	0.00022	0.00023	1 x	0.00033	0.00035	1.1 x
Total Zinc	mg/L	0.03	0.0034	0.0033	1 x	0.0052	0.0051	1 x	0.0037	0.0037	n/a	0.0055	0.0055	n/a
Total Phosphorous	mg/L	Variable	0.025	0.025	n/a	0.04	0.039	1 x	0.028	0.028	n/a	0.043	0.043	n/a

[1] ***CCME Exceedance shown in bold italics***

Patch Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline
TSS	mg/L	Variable	5.5	5.4	0.99 x	8.5	8.4	0.99 x	6.1	6.1	1 x	9.3	9.3	1 x
TDS	mg/L	-	180	180	0.99 x	280	280	0.98 x	200	200	0.99 x	300	300	0.99 x
Fluoride	mg/L	0.12	0.061	0.061	0.99 x	0.094	0.093	0.99 x	0.067	0.067	1 x	0.1	0.1	n/a
Chloride	mg/L	120	71	71	0.99 x	110	110	0.99 x	78	77	1 x	120	120	n/a
Free Cyanide	mg/L	0.005	0.0011	0.0011	0.99 x	0.0017	0.0017	0.99 x	0.0012	0.0012	1 x	0.0018	0.0018	1 x
Total Cyanide	mg/L	0.005	0.0011	0.0011	0.99 x	0.0017	0.0017	0.99 x	0.0012	0.0012	1 x	0.0018	0.0018	1 x
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0056	0.0056	0.99 x	0.0087	0.0086	0.99 x	0.0062	0.0062	1 x	0.0093	0.0093	1 x
Nitrate	mg/L as N	3	0.0056	0.0056	0.99 x	0.0086	0.0085	0.99 x	0.0061	0.0061	1 x	0.0092	0.0092	1 x
Nitrite	mg/L as N	10	0.0011	0.0011	0.99 x	0.0017	0.0017	0.99 x	0.0012	0.0012	1 x	0.0018	0.0018	1 x
Sulphate	mg/L	1000	3	3.1	1.02 x	4.6	4.8	1.04 x	3.3	3.6	1.09 x	5	5.5	1.11 x
Alkalinity	mg/L	-	33	33	1 x	51	51	1 x	36	37	1.02 x	55	56	1.03 x
Hardness	mg/L	-	55	55	0.99 x	85	84	0.99 x	60	60	1 x	91	91	1 x
Dissolved Aluminum	mg/L	0.1	0.086	0.085	0.99 x	***0.13***	***0.13***	0.99 x	0.09	0.09	1 x	***0.13***	***0.13***	1 x
Dissolved Antimony	mg/L	-	0.000034	0.000034	1 x	0.000052	0.000053	1.02 x	0.000037	0.000042	1.14 x	0.000055	0.000064	1.17 x
Dissolved Arsenic	mg/L	0.005	0.00035	0.00036	1.02 x	0.00056	0.00067	1.21 x	0.0004	0.0011	2.83 x	0.00061	0.0019	3.07 x
Dissolved Barium	mg/L	-	0.0043	0.0043	1 x	0.0066	0.0066	0.99 x	0.0046	0.0047	1.01 x	0.0069	0.007	1.01 x
Dissolved Beryllium	mg/L	0.1	0.000006	0.0000062	1.04 x	0.0000097	0.00001	1.08 x	0.0000071	0.0000083	1.16 x	0.000011	0.000013	1.19 x
Dissolved Boron	mg/L	0.5	0.038	0.038	0.99 x	0.059	0.059	0.99 x	0.042	0.043	1.01 x	0.064	0.065	1.01 x
Dissolved Cadmium	mg/L	0.00012	0.0000056	0.0000056	1 x	0.0000086	0.0000086	1 x	0.0000061	0.0000063	1.03 x	0.0000092	0.0000095	1.04 x
Dissolved Calcium	mg/L	-	10	10	1 x	16	16	1 x	11	11	1.03 x	17	17	1.03 x
Dissolved Chromium	mg/L	0.001	0.00056	0.00056	0.99 x	0.00086	0.00085	0.99 x	0.00061	0.00061	1 x	0.00092	0.00092	1 x
Dissolved Cobalt	mg/L	0.05	0.000062	0.000063	1 x	0.000095	0.000097	1.02 x	0.000067	0.00008	1.19 x	0.0001	0.00012	1.22 x
Dissolved Copper	mg/L	0.002	0.0017	0.0017	1.01 x	***0.0026***	***0.0027***	1.03 x	0.0019	0.002	1.08 x	***0.0028***	***0.0031***	1.1 x
Dissolved Iron	mg/L	0.3	0.21	0.21	0.99 x	***0.32***	***0.32***	0.99 x	0.22	0.22	1 x	***0.32***	***0.32***	1 x
Dissolved Lead	mg/L	0.001	0.000076	0.000075	1 x	0.00012	0.00012	0.99 x	0.000084	0.000085	1.01 x	0.00013	0.00013	1.01 x
Dissolved Lithium	mg/L	2.5	0.0045	0.0045	0.99 x	0.0069	0.0068	0.98 x	0.0049	0.0048	0.99 x	0.0073	0.0073	1 x
Dissolved Magnesium	mg/L	-	7.4	7.4	0.99 x	11	11	0.99 x	8.1	8.1	1 x	12	12	1 x
Dissolved Manganese	mg/L	0.2	0.031	0.031	1 x	0.048	0.047	0.99 x	0.034	0.034	1.01 x	0.05	0.051	1.02 x
Dissolved Mercury	mg/L	0.000016	0.00000098	0.000001	1.02 x	0.0000015	0.0000016	1.05 x	0.000001	0.0000012	1.11 x	0.0000015	0.0000018	1.14 x
Dissolved Molybdenum	mg/L	0.01	0.0002	0.0002	1.01 x	0.00031	0.00032	1.01 x	0.00023	0.00024	1.05 x	0.00034	0.00036	1.06 x
Dissolved Nickel	mg/L	0.025	0.00075	0.00075	1 x	0.0012	0.0012	1 x	0.00081	0.00084	1.03 x	0.0012	0.0013	1.04 x
Dissolved Selenium	mg/L	0.001	0.00022	0.00022	1 x	0.00035	0.00034	0.99 x	0.00024	0.00025	1.01 x	0.00037	0.00037	1.01 x
Dissolved Silver	mg/L	0.00025	0.0000056	0.0000056	1 x	0.0000086	0.0000086	0.99 x	0.0000061	0.0000062	1.01 x	0.0000092	0.0000093	1.02 x
Dissolved Sodium	mg/L	-	38	37	0.99 x	58	57	0.99 x	41	41	1 x	61	61	1 x
Dissolved Thallium	mg/L	0.0008	0.0000025	0.0000025	1 x	0.0000038	0.0000038	1.01 x	0.0000027	0.0000028	1.04 x	0.000004	0.0000042	1.05 x
Dissolved Uranium	mg/L	0.01	0.000042	0.000043	1.01 x	0.000066	0.000067	1.03 x	0.000047	0.00005	1.08 x	0.00007	0.000077	1.1 x
Dissolved Vanadium	mg/L	0.1	0.00025	0.00025	1 x	0.00038	0.00038	1.01 x	0.00027	0.00028	1.04 x	0.0004	0.00042	1.06 x
Dissolved Zinc	mg/L	0.03	0.0034	0.0033	1 x	0.0052	0.0051	0.99 x	0.0037	0.0037	1.01 x	0.0055	0.0056	1.01 x
Dissolved Phosphorous	mg/L	Variable	0.028	0.028	0.99 x	0.044	0.044	0.99 x	0.032	0.031	1 x	0.048	0.048	1 x
Total Aluminum	mg/L	0.1	0.086	0.085	0.99 x	***0.13***	***0.13***	0.99 x	0.09	0.09	1 x	***0.13***	***0.13***	1 x
Total Antimony	mg/L	-	0.000034	0.000034	1 x	0.000052	0.000053	1.02 x	0.000037	0.000042	1.15 x	0.000055	0.000064	1.17 x
Total Arsenic	mg/L	0.005	0.00035	0.00036	1.02 x	0.00056	0.00068	1.22 x	0.0004	0.0011	2.85 x	0.00061	0.0019	3.08 x
Total Barium	mg/L	-	0.0043	0.0043	1 x	0.0066	0.0066	0.99 x	0.0046	0.0047	1.01 x	0.0069	0.007	1.01 x
Total Beryllium	mg/L	0.1	0.000006	0.0000062	1.04 x	0.0000097	0.00001	1.08 x	0.0000071	0.0000083	1.16 x	0.000011	0.000013	1.19 x
Total Boron	mg/L	0.5	0.038	0.038	0.99 x	0.059	0.059	0.99 x	0.042	0.043	1.01 x	0.064	0.065	1.01 x
Total Cadmium	mg/L	0.00012	0.0000056	0.0000056	1 x	0.0000086	0.0000086	1 x	0.0000061	0.0000063	1.03 x	0.0000092	0.0000095	1.04 x
Total Calcium	mg/L	-	10	10	1 x	16	16	1 x	11	11	1.03 x	17	17	1.03 x
Total Chromium	mg/L	0.001	0.00056	0.00056	1 x	0.00086	0.00085	0.99 x	0.00061	0.00061	1.01 x	0.00092	0.00093	1.01 x
Total Cobalt	mg/L	0.05	0.000062	0.000063	1.01 x	0.000095	0.000098	1.03 x	0.000067	0.000081	1.2 x	0.0001	0.00012	1.24 x
Total Copper	mg/L	0.002	0.0017	0.0017	1.02 x	***0.0026***	***0.0027***	1.03 x	0.0019	0.002	1.08 x	***0.0028***	***0.0031***	1.1 x
Total Iron	mg/L	0.3	0.21	0.21	1 x	***0.32***	***0.32***	0.99 x	0.22	0.22	1.01 x	***0.32***	***0.33***	1.01 x
Total Lead	mg/L	0.001	0.000076	0.000075	1 x	0.00012	0.00012	0.99 x	0.000084	0.000085	1.01 x	0.00013	0.00013	1.02 x
Total Lithium	mg/L	2.5	0.0045	0.0045	0.99 x	0.0069	0.0068	0.98 x	0.0049	0.0048	0.99 x	0.0073	0.0073	1 x
Total Magnesium	mg/L	-	7.4	7.4	0.99 x	11	11	0.99 x	8.1	8.1	1 x	12	12	1 x
Total Manganese	mg/L	0.2	0.031	0.031	1 x	0.048	0.047	1 x	0.034	0.034	1.01 x	0.05	0.051	1.02 x
Total Mercury	mg/L	0.000016	0.00000098	0.0000011	1.16 x	0.0000015	0.000002	1.36 x	0.000001	0.0000017	1.68 x	0.0000015	0.0000028	1.83 x
Total Molybdenum	mg/L	0.01	0.0002	0.0002	1.01 x	0.00031	0.00032	1.01 x	0.00023	0.00024	1.05 x	0.00034	0.00036	1.06 x
Total Nickel	mg/L	0.025	0.00075	0.00075	1 x	0.0012	0.0012	1 x	0.00081	0.00084	1.04 x	0.0012	0.0013	1.04 x
Total Selenium	mg/L	0.001	0.00022	0.00022	1 x	0.00035	0.00034	0.99 x	0.00024	0.00025	1.01 x	0.00037	0.00037	1.01 x
Total Silver	mg/L	0.00025	0.0000056	0.0000056	1 x	0.0000086	0.0000086	0.99 x	0.0000061	0.0000062	1.01 x	0.0000092	0.0000093	1.02 x
Total Sodium	mg/L	-	38	37	0.99 x	58	57	0.99 x	41	41	1 x	61	61	1 x
Total Thallium	mg/L	0.0008	0.0000025	0.0000025	1 x	0.0000038	0.0000038	1.01 x	0.0000027	0.0000028	1.04 x	0.000004	0.0000042	1.05 x
Total Uranium	mg/L	0.01	0.000042	0.000043	1.01 x	0.000066	0.000067	1.03 x	0.000047	0.00005	1.08 x	0.00007	0.000077	1.1 x
Total Vanadium	mg/L	0.1	0.00025	0.00025	1.01 x	0.00038	0.00038	1.01 x	0.00027	0.00028	1.05 x	0.0004	0.00042	1.06 x
Total Zinc	mg/L	0.03	0.0034	0.0033	1 x	0.0052	0.0051	0.99 x	0.0037	0.0037	1.01 x	0.0055	0.0056	1.01 x
Total Phosphorous	mg/L	Variable	0.028	0.028	0.99 x	0.044	0.044	0.99 x	0.032	0.031	1 x	0.048	0.048	1 x

[1] ***CCME Exceedance shown in bold italics***

PO Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline
TSS	mg/L	Variable	5.1	5.1	n/a	14	14	n/a	5.6	5.6	n/a	15	15	n/a
TDS	mg/L	-	170	170	n/a	490	480	1 x	190	190	n/a	520	510	1 x
Fluoride	mg/L	0.12	0.06	0.06	n/a	***0.17***	***0.16***	0.9 x	0.065	0.065	n/a	***0.18***	***0.17***	0.9 x
Chloride	mg/L	120	70	70	n/a	***190***	***190***	n/a	76	76	n/a	***200***	***200***	n/a
Free Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0031	0.0031	n/a	0.0012	0.0012	n/a	0.0033	0.0033	n/a
Total Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0031	0.0031	n/a	0.0012	0.0012	n/a	0.0033	0.0033	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0057	0.0056	1 x	0.016	0.015	0.9 x	0.0061	0.0061	n/a	0.016	0.016	n/a
Nitrate	mg/L as N	3	0.0057	0.0056	1 x	0.016	0.015	0.9 x	0.0061	0.0061	n/a	0.016	0.016	n/a
Nitrite	mg/L as N	10	0.0011	0.0011	n/a	0.0031	0.0031	n/a	0.0012	0.0012	n/a	0.0033	0.0033	n/a
Sulphate	mg/L	1000	3	3	n/a	8.4	8.4	n/a	3.3	3.4	1 x	8.8	9.2	1 x
Alkalinity	mg/L	-	33	33	n/a	91	91	n/a	36	36	n/a	97	98	1 x
Hardness	mg/L	-	55	54	1 x	150	150	n/a	59	59	n/a	160	160	n/a
Dissolved Aluminum	mg/L	0.1	0.065	0.065	n/a	***0.18***	***0.18***	n/a	0.07	0.069	1 x	***0.19***	***0.19***	n/a
Dissolved Antimony	mg/L	-	0.000027	0.000027	n/a	0.000075	0.000075	n/a	0.00003	0.000032	1.1 x	0.000081	0.000089	1.1 x
Dissolved Arsenic	mg/L	0.005	0.00032	0.00032	n/a	0.00089	0.00092	1 x	0.00035	0.00066	1.9 x	0.00095	0.0019	2 x
Dissolved Barium	mg/L	-	0.004	0.004	n/a	0.011	0.011	n/a	0.0043	0.0043	n/a	0.011	0.012	1.1 x
Dissolved Beryllium	mg/L	0.1	0.0000057	0.0000058	1 x	0.000016	0.000017	1.1 x	0.0000061	0.0000071	1.2 x	0.000016	0.00002	1.3 x
Dissolved Boron	mg/L	0.5	0.035	0.035	n/a	0.098	0.097	1 x	0.038	0.038	n/a	0.1	0.1	n/a
Dissolved Cadmium	mg/L	0.00012	0.0000057	0.0000056	1 x	0.000016	0.000016	n/a	0.0000061	0.0000062	1 x	0.000016	0.000017	1.1 x
Dissolved Calcium	mg/L	-	9.8	9.8	n/a	27	27	n/a	11	11	n/a	29	29	n/a
Dissolved Chromium	mg/L	0.001	0.00057	0.00056	1 x	***0.0016***	***0.0015***	0.9 x	0.00061	0.00061	n/a	***0.0016***	***0.0016***	n/a
Dissolved Cobalt	mg/L	0.05	0.000057	0.000057	n/a	0.00016	0.00016	n/a	0.000061	0.000067	1.1 x	0.00016	0.00018	1.1 x
Dissolved Copper	mg/L	0.002	0.0016	0.0016	n/a	***0.0044***	***0.0044***	n/a	0.0017	0.0018	1.1 x	***0.0047***	***0.0049***	1 x
Dissolved Iron	mg/L	0.3	0.18	0.18	n/a	***0.48***	***0.48***	n/a	0.19	0.18	0.9 x	***0.48***	***0.48***	n/a
Dissolved Lead	mg/L	0.001	0.000057	0.000056	1 x	0.00016	0.00015	0.9 x	0.000061	0.000061	n/a	0.00016	0.00017	1.1 x
Dissolved Lithium	mg/L	2.5	0.0042	0.0042	n/a	0.012	0.011	0.9 x	0.0046	0.0045	1 x	0.012	0.012	n/a
Dissolved Magnesium	mg/L	-	7.3	7.2	1 x	20	20	n/a	7.9	7.9	n/a	21	21	n/a
Dissolved Manganese	mg/L	0.2	0.023	0.023	n/a	0.065	0.064	1 x	0.025	0.025	n/a	0.069	0.069	n/a
Dissolved Mercury	mg/L	0.000016	0.00000078	0.0000008	1 x	0.0000021	0.0000022	1 x	0.00000083	0.00000093	1.1 x	0.0000022	0.0000025	1.1 x
Dissolved Molybdenum	mg/L	0.01	0.0002	0.0002	n/a	0.00056	0.00056	n/a	0.00022	0.00022	n/a	0.00061	0.00062	1 x
Dissolved Nickel	mg/L	0.025	0.0006	0.0006	n/a	0.0017	0.0017	n/a	0.00065	0.00066	1 x	0.0018	0.0018	n/a
Dissolved Selenium	mg/L	0.001	0.00023	0.00023	n/a	0.00063	0.00062	1 x	0.00024	0.00024	n/a	0.00066	0.00066	n/a
Dissolved Silver	mg/L	0.00025	0.0000057	0.0000056	1 x	0.000016	0.000016	n/a	0.0000061	0.0000062	1 x	0.000016	0.000017	1.1 x
Dissolved Sodium	mg/L	-	37	37	n/a	100	100	n/a	40	40	n/a	110	110	n/a
Dissolved Thallium	mg/L	0.0008	0.0000023	0.0000023	n/a	0.0000063	0.0000063	n/a	0.0000024	0.0000025	1 x	0.0000066	0.0000069	1 x
Dissolved Uranium	mg/L	0.01	0.000038	0.000039	1 x	0.00011	0.00011	n/a	0.000042	0.000043	1 x	0.00011	0.00012	1.1 x
Dissolved Vanadium	mg/L	0.1	0.0002	0.0002	n/a	0.00056	0.00056	n/a	0.00022	0.00023	1 x	0.00059	0.00062	1.1 x
Dissolved Zinc	mg/L	0.03	0.0034	0.0034	n/a	0.0094	0.0093	1 x	0.0037	0.0037	n/a	0.0099	0.0099	n/a
Dissolved Phosphorous	mg/L	Variable	0.026	0.025	1 x	0.072	0.071	1 x	0.028	0.028	n/a	0.078	0.078	n/a
Total Aluminum	mg/L	0.1	0.065	0.065	n/a	***0.18***	***0.18***	n/a	0.07	0.07	n/a	***0.19***	***0.19***	n/a
Total Antimony	mg/L	-	0.000027	0.000027	n/a	0.000075	0.000075	n/a	0.00003	0.000032	1.1 x	0.000081	0.000089	1.1 x
Total Arsenic	mg/L	0.005	0.00032	0.00032	n/a	0.00089	0.00093	1 x	0.00035	0.00067	1.9 x	0.00095	0.0019	2 x
Total Barium	mg/L	-	0.004	0.004	n/a	0.011	0.011	n/a	0.0043	0.0043	n/a	0.011	0.012	1.1 x
Total Beryllium	mg/L	0.1	0.0000057	0.0000058	1 x	0.000016	0.000017	1.1 x	0.0000061	0.0000071	1.2 x	0.000016	0.00002	1.3 x
Total Boron	mg/L	0.5	0.035	0.035	n/a	0.098	0.097	1 x	0.038	0.038	n/a	0.1	0.1	n/a
Total Cadmium	mg/L	0.00012	0.0000057	0.0000056	1 x	0.000016	0.000016	n/a	0.0000061	0.0000062	1 x	0.000016	0.000017	1.1 x
Total Calcium	mg/L	-	9.8	9.8	n/a	27	27	n/a	11	11	n/a	29	29	n/a
Total Chromium	mg/L	0.001	0.00057	0.00056	1 x	***0.0016***	***0.0015***	0.9 x	0.00061	0.00061	n/a	***0.0016***	***0.0017***	1.1 x
Total Cobalt	mg/L	0.05	0.000057	0.000057	n/a	0.00016	0.00016	n/a	0.000061	0.000068	1.1 x	0.00016	0.00019	1.2 x
Total Copper	mg/L	0.002	0.0016	0.0016	n/a	***0.0044***	***0.0044***	n/a	0.0017	0.0018	1.1 x	***0.0047***	***0.0049***	1 x
Total Iron	mg/L	0.3	0.18	0.18	n/a	***0.48***	***0.48***	n/a	0.19	0.19	n/a	***0.48***	***0.49***	1 x
Total Lead	mg/L	0.001	0.000057	0.000056	1 x	0.00016	0.00015	0.9 x	0.000061	0.000061	n/a	0.00016	0.00017	1.1 x
Total Lithium	mg/L	2.5	0.0042	0.0042	n/a	0.012	0.011	0.9 x	0.0046	0.0045	1 x	0.012	0.012	n/a
Total Magnesium	mg/L	-	7.3	7.2	1 x	20	20	n/a	7.9	7.9	n/a	21	21	n/a
Total Manganese	mg/L	0.2	0.023	0.023	n/a	0.065	0.064	1 x	0.025	0.025	n/a	0.069	0.069	n/a
Total Mercury	mg/L	0.000016	0.00000078	0.0000009	1.2 x	0.0000021	0.0000029	1.4 x	0.00000083	0.0000014	1.7 x	0.0000022	0.000004	1.8 x
Total Molybdenum	mg/L	0.01	0.0002	0.0002	n/a	0.00056	0.00056	n/a	0.00022	0.00022	n/a	0.00061	0.00062	1 x
Total Nickel	mg/L	0.025	0.0006	0.0006	n/a	0.0017	0.0017	n/a	0.00065	0.00066	1 x	0.0018	0.0018	n/a
Total Selenium	mg/L	0.001	0.00023	0.00023	n/a	0.00063	0.00062	1 x	0.00024	0.00024	n/a	0.00066	0.00066	n/a
Total Silver	mg/L	0.00025	0.0000057	0.0000056	1 x	0.000016	0.000016	n/a	0.0000061	0.0000062	1 x	0.000016	0.000017	1.1 x
Total Sodium	mg/L	-	37	37	n/a	100	100	n/a	40	40	n/a	110	110	n/a
Total Thallium	mg/L	0.0008	0.0000023	0.0000023	n/a	0.0000063	0.0000063	n/a	0.0000024	0.0000025	1 x	0.0000066	0.0000069	1 x
Total Uranium	mg/L	0.01	0.000038	0.000039	1 x	0.00011	0.00011	n/a	0.000042	0.000043	1 x	0.00011	0.00012	1.1 x
Total Vanadium	mg/L	0.1	0.0002	0.0002	n/a	0.00056	0.00057	1 x	0.00022	0.00023	1 x	0.00059	0.00062	1.1 x
Total Zinc	mg/L	0.03	0.0034	0.0034	n/a	0.0094	0.0093	1 x	0.0037	0.0037	n/a	0.0099	0.0099	n/a
Total Phosphorous	mg/L	Variable	0.026	0.025	1 x	0.072	0.071	1 x	0.028	0.028	n/a	0.078	0.078	n/a

[1] ***CCME Exceedance shown in bold italics***

PO Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline
TSS	mg/L	Variable	5.5	5.5	0.99 x	16	15	0.99 x	6.1	6.1	1 x	17	17	1 x
TDS	mg/L	-	180	180	0.99 x	510	500	0.99 x	200	200	0.99 x	540	540	0.99 x
Fluoride	mg/L	0.12	0.062	0.061	0.99 x	***0.17***	***0.17***	0.99 x	0.067	0.067	1 x	***0.18***	***0.18***	1 x
Chloride	mg/L	120	72	71	0.99 x	***200***	***200***	0.99 x	78	78	1 x	***210***	***210***	1 x
Free Cyanide	mg/L	0.005	0.0011	0.0011	0.99 x	0.0031	0.0031	0.99 x	0.0012	0.0012	1 x	0.0033	0.0033	1 x
Total Cyanide	mg/L	0.005	0.0011	0.0011	0.99 x	0.0031	0.0031	0.99 x	0.0012	0.0012	1 x	0.0033	0.0033	1 x
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0057	0.0057	0.99 x	0.016	0.016	0.99 x	0.0062	0.0062	1 x	0.017	0.017	1 x
Nitrate	mg/L as N	3	0.0057	0.0056	0.99 x	0.016	0.015	0.99 x	0.0061	0.0061	1 x	0.016	0.016	1 x
Nitrite	mg/L as N	10	0.0011	0.0011	0.99 x	0.0031	0.0031	0.99 x	0.0012	0.0012	1 x	0.0033	0.0033	1 x
Sulphate	mg/L	1000	3	3.1	1.01 x	8.4	8.7	1.03 x	3.3	3.5	1.08 x	8.9	9.7	1.09 x
Alkalinity	mg/L	-	33	33	1 x	93	93	1 x	36	37	1.02 x	98	100	1.02 x
Hardness	mg/L	-	56	56	0.99 x	150	150	0.99 x	61	60	1 x	160	160	1 x
Dissolved Aluminum	mg/L	0.1	0.086	0.086	0.99 x	***0.23***	***0.23***	0.99 x	0.09	0.09	1 x	***0.24***	***0.24***	1 x
Dissolved Antimony	mg/L	-	0.000034	0.000034	1 x	0.000094	0.000095	1.01 x	0.000037	0.000041	1.12 x	0.000099	0.00011	1.14 x
Dissolved Arsenic	mg/L	0.005	0.00036	0.00036	1.01 x	0.001	0.0011	1.08 x	0.0004	0.001	2.58 x	0.0011	0.003	2.71 x
Dissolved Barium	mg/L	-	0.0044	0.0044	1 x	0.012	0.012	0.99 x	0.0046	0.0047	1.01 x	0.012	0.013	1.01 x
Dissolved Beryllium	mg/L	0.1	0.0000061	0.0000063	1.03 x	0.000018	0.000019	1.06 x	0.0000071	0.0000081	1.14 x	0.00002	0.000024	1.15 x
Dissolved Boron	mg/L	0.5	0.039	0.039	1 x	0.11	0.11	0.99 x	0.042	0.043	1.01 x	0.12	0.12	1.01 x
Dissolved Cadmium	mg/L	0.00012	0.0000057	0.0000057	1 x	0.000016	0.000016	n/a	0.0000061	0.0000063	1.02 x	0.000016	0.000017	1.03 x
Dissolved Calcium	mg/L	-	10	10	1 x	28	28	1 x	11	11	1.02 x	30	31	1.03 x
Dissolved Chromium	mg/L	0.001	0.00057	0.00056	0.99 x	***0.0016***	***0.0015***	0.99 x	0.00061	0.00061	1 x	***0.0016***	***0.0016***	1 x
Dissolved Cobalt	mg/L	0.05	0.000063	0.000063	1 x	0.00017	0.00017	1.01 x	0.000067	0.000078	1.17 x	0.00018	0.00021	1.19 x
Dissolved Copper	mg/L	0.002	0.0017	0.0017	1.01 x	***0.0047***	***0.0049***	1.03 x	0.0019	0.002	1.07 x	***0.0051***	***0.0055***	1.08 x
Dissolved Iron	mg/L	0.3	0.22	0.21	0.99 x	***0.57***	***0.57***	n/a	0.22	0.22	1 x	***0.57***	***0.57***	0.99 x
Dissolved Lead	mg/L	0.001	0.000076	0.000076	1 x	0.00021	0.00021	0.99 x	0.000084	0.000084	1.01 x	0.00023	0.00023	1.01 x
Dissolved Lithium	mg/L	2.5	0.0045	0.0045	0.99 x	0.012	0.012	0.99 x	0.0049	0.0049	1 x	0.013	0.013	1 x
Dissolved Magnesium	mg/L	-	7.5	7.4	0.99 x	21	20	0.99 x	8.1	8.1	1 x	22	22	1 x
Dissolved Manganese	mg/L	0.2	0.031	0.031	1 x	0.086	0.086	0.99 x	0.034	0.034	1.01 x	0.091	0.092	1.01 x
Dissolved Mercury	mg/L	0.000016	0.00000099	0.000001	1.02 x	0.0000027	0.0000028	1.04 x	0.000001	0.0000011	1.1 x	0.0000027	0.0000031	1.12 x
Dissolved Molybdenum	mg/L	0.01	0.0002	0.0002	1 x	0.00058	0.00058	1.01 x	0.00023	0.00024	1.04 x	0.00062	0.00065	1.05 x
Dissolved Nickel	mg/L	0.025	0.00076	0.00076	1 x	0.0021	0.0021	n/a	0.00081	0.00084	1.03 x	0.0022	0.0023	1.03 x
Dissolved Selenium	mg/L	0.001	0.00023	0.00023	1 x	0.00063	0.00062	0.99 x	0.00024	0.00025	1.01 x	0.00066	0.00066	1.01 x
Dissolved Silver	mg/L	0.00025	0.0000057	0.0000056	1 x	0.000016	0.000016	0.99 x	0.0000061	0.0000062	1.01 x	0.000016	0.000017	1.01 x
Dissolved Sodium	mg/L	-	38	38	0.99 x	100	100	0.99 x	41	41	1 x	110	110	n/a
Dissolved Thallium	mg/L	0.0008	0.0000025	0.0000025	1 x	0.0000069	0.0000069	1 x	0.0000027	0.0000028	1.03 x	0.0000071	0.0000074	1.04 x
Dissolved Uranium	mg/L	0.01	0.000043	0.000043	1.01 x	0.00012	0.00012	1.02 x	0.000047	0.00005	1.07 x	0.00013	0.00014	1.08 x
Dissolved Vanadium	mg/L	0.1	0.00025	0.00025	1 x	0.00068	0.00069	1.01 x	0.00027	0.00028	1.04 x	0.00071	0.00074	1.05 x
Dissolved Zinc	mg/L	0.03	0.0034	0.0034	1 x	0.0094	0.0093	0.99 x	0.0037	0.0037	1 x	0.0099	0.01	1.01 x
Dissolved Phosphorous	mg/L	Variable	0.029	0.029	0.99 x	0.08	0.079	0.99 x	0.032	0.031	1 x	0.086	0.086	1 x
Total Aluminum	mg/L	0.1	0.086	0.086	0.99 x	***0.23***	***0.23***	0.99 x	0.09	0.09	1 x	***0.24***	***0.24***	1 x
Total Antimony	mg/L	-	0.000034	0.000034	1 x	0.000094	0.000095	1.01 x	0.000037	0.000041	1.13 x	0.000099	0.00011	1.14 x
Total Arsenic	mg/L	0.005	0.00036	0.00036	1.02 x	0.001	0.0011	1.09 x	0.0004	0.001	2.59 x	0.0011	0.003	2.72 x
Total Barium	mg/L	-	0.0044	0.0044	1 x	0.012	0.012	0.99 x	0.0046	0.0047	1.01 x	0.012	0.013	1.01 x
Total Beryllium	mg/L	0.1	0.0000061	0.0000063	1.03 x	0.000018	0.000019	1.06 x	0.0000071	0.0000081	1.14 x	0.00002	0.000024	1.15 x
Total Boron	mg/L	0.5	0.039	0.039	1 x	0.11	0.11	0.99 x	0.042	0.043	1.01 x	0.12	0.12	1.01 x
Total Cadmium	mg/L	0.00012	0.0000057	0.0000057	1 x	0.000016	0.000016	1 x	0.0000061	0.0000063	1.03 x	0.000016	0.000017	1.03 x
Total Calcium	mg/L	-	10	10	1 x	28	28	1 x	11	11	1.02 x	30	31	1.03 x
Total Chromium	mg/L	0.001	0.00057	0.00056	1 x	***0.0016***	***0.0016***	0.99 x	0.00061	0.00062	1.01 x	***0.0016***	***0.0017***	1.01 x
Total Cobalt	mg/L	0.05	0.000063	0.000063	1 x	0.00017	0.00017	1.01 x	0.000067	0.000079	1.18 x	0.00018	0.00021	1.2 x
Total Copper	mg/L	0.002	0.0017	0.0017	1.01 x	***0.0047***	***0.0049***	1.03 x	0.0019	0.002	1.07 x	***0.0051***	***0.0055***	1.08 x
Total Iron	mg/L	0.3	0.22	0.21	1 x	***0.57***	***0.57***	n/a	0.22	0.22	1.01 x	***0.57***	***0.58***	1 x
Total Lead	mg/L	0.001	0.000076	0.000076	1 x	0.00021	0.00021	0.99 x	0.000084	0.000085	1.01 x	0.00023	0.00023	1.01 x
Total Lithium	mg/L	2.5	0.0045	0.0045	0.99 x	0.012	0.012	0.99 x	0.0049	0.0049	1 x	0.013	0.013	1 x
Total Magnesium	mg/L	-	7.5	7.4	0.99 x	21	20	0.99 x	8.1	8.1	1 x	22	22	1 x
Total Manganese	mg/L	0.2	0.031	0.031	1 x	0.086	0.086	1 x	0.034	0.034	1.01 x	0.091	0.092	1.02 x
Total Mercury	mg/L	0.000016	0.00000099	0.0000011	1.13 x	0.0000027	0.0000035	1.31 x	0.000001	0.0000017	1.59 x	0.0000027	0.0000047	1.71 x
Total Molybdenum	mg/L	0.01	0.0002	0.0002	1 x	0.00058	0.00058	1.01 x	0.00023	0.00024	1.04 x	0.00062	0.00065	1.05 x
Total Nickel	mg/L	0.025	0.00076	0.00076	1 x	0.0021	0.0021	1 x	0.00081	0.00084	1.03 x	0.0022	0.0023	1.04 x
Total Selenium	mg/L	0.001	0.00023	0.00023	1 x	0.00063	0.00062	0.99 x	0.00024	0.00025	1.01 x	0.00066	0.00066	1.01 x
Total Silver	mg/L	0.00025	0.0000057	0.0000056	1 x	0.000016	0.000016	0.99 x	0.0000061	0.0000062	1.01 x	0.000016	0.000017	1.01 x
Total Sodium	mg/L	-	38	38	0.99 x	100	100	0.99 x	41	41	1 x	110	110	n/a
Total Thallium	mg/L	0.0008	0.0000025	0.0000025	1 x	0.0000069	0.0000069	1.01 x	0.0000027	0.0000028	1.03 x	0.0000071	0.0000074	1.04 x
Total Uranium	mg/L	0.01	0.000043	0.000043	1.01 x	0.00012	0.00012	1.02 x	0.000047	0.00005	1.07 x	0.00013	0.00014	1.08 x
Total Vanadium	mg/L	0.1	0.00025	0.00025	1 x	0.00068	0.00069	1.01 x	0.00027	0.00028	1.04 x	0.00071	0.00074	1.05 x
Total Zinc	mg/L	0.03	0.0034	0.0034	1 x	0.0094	0.0093	0.99 x	0.0037	0.0037	1.01 x	0.0099	0.01	1.01 x
Total Phosphorous	mg/L	Variable	0.029	0.029	0.99 x	0.08	0.079	0.99 x	0.032	0.031	1 x	0.086	0.086	1 x

[1] ***CCME Exceedance shown in bold italics***

Ogama Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline
TSS	mg/L	Variable	4.9	4.9	n/a	13	13	n/a	5.1	5.1	n/a	13	13	n/a
TDS	mg/L	-	170	170	n/a	440	430	1 x	170	170	n/a	440	440	n/a
Fluoride	mg/L	0.12	0.058	0.058	n/a	***0.15***	***0.15***	n/a	0.059	0.059	n/a	***0.15***	***0.15***	n/a
Chloride	mg/L	120	67	67	n/a	***170***	***170***	n/a	69	69	n/a	***180***	***180***	n/a
Free Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0028	0.0028	n/a	0.0011	0.0011	n/a	0.0028	0.0028	n/a
Total Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0028	0.0028	n/a	0.0011	0.0011	n/a	0.0028	0.0028	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0054	0.0054	n/a	0.014	0.014	n/a	0.0055	0.0055	n/a	0.014	0.014	n/a
Nitrate	mg/L as N	3	0.0054	0.0054	n/a	0.014	0.014	n/a	0.0055	0.0055	n/a	0.014	0.014	n/a
Nitrite	mg/L as N	10	0.0011	0.0011	n/a	0.0028	0.0028	n/a	0.0011	0.0011	n/a	0.0028	0.0028	n/a
Sulphate	mg/L	1000	2.9	2.9	n/a	7.5	7.5	n/a	3	3	n/a	7.6	7.7	1 x
Alkalinity	mg/L	-	32	31	1 x	82	82	n/a	32	33	1 x	83	84	1 x
Hardness	mg/L	-	52	52	n/a	140	130	0.9 x	54	54	n/a	140	140	n/a
Dissolved Aluminum	mg/L	0.1	0.062	0.062	n/a	***0.16***	***0.16***	n/a	0.063	0.063	n/a	***0.16***	***0.16***	n/a
Dissolved Antimony	mg/L	-	0.000026	0.000026	n/a	0.000068	0.000068	n/a	0.000027	0.000028	1 x	0.00007	0.000073	1 x
Dissolved Arsenic	mg/L	0.005	0.00031	0.00031	n/a	0.00081	0.00081	n/a	0.00032	0.00044	1.4 x	0.00082	0.0012	1.5 x
Dissolved Barium	mg/L	-	0.0038	0.0038	n/a	0.0098	0.0097	1 x	0.0039	0.0039	n/a	0.0098	0.0098	n/a
Dissolved Beryllium	mg/L	0.1	0.0000054	0.0000055	1 x	0.000014	0.000014	n/a	0.0000055	0.0000059	1.1 x	0.000014	0.000015	1.1 x
Dissolved Boron	mg/L	0.5	0.034	0.034	n/a	0.088	0.087	1 x	0.035	0.035	n/a	0.089	0.089	n/a
Dissolved Cadmium	mg/L	0.00012	0.0000054	0.0000054	n/a	0.000014	0.000014	n/a	0.0000055	0.0000056	1 x	0.000014	0.000014	n/a
Dissolved Calcium	mg/L	-	9.4	9.4	n/a	24	24	n/a	9.7	9.7	n/a	25	25	n/a
Dissolved Chromium	mg/L	0.001	0.00054	0.00054	n/a	***0.0014***	***0.0014***	n/a	0.00055	0.00055	n/a	***0.0014***	***0.0014***	n/a
Dissolved Cobalt	mg/L	0.05	0.000054	0.000054	n/a	0.00014	0.00014	n/a	0.000055	0.000058	1.1 x	0.00014	0.00015	1.1 x
Dissolved Copper	mg/L	0.002	0.0015	0.0015	n/a	***0.0039***	***0.004***	1 x	0.0016	0.0016	n/a	***0.004***	***0.0041***	1 x
Dissolved Iron	mg/L	0.3	0.17	0.17	n/a	***0.43***	***0.43***	n/a	0.17	0.17	n/a	***0.42***	***0.42***	n/a
Dissolved Lead	mg/L	0.001	0.000054	0.000054	n/a	0.00014	0.00014	n/a	0.000055	0.000055	n/a	0.00014	0.00014	n/a
Dissolved Lithium	mg/L	2.5	0.004	0.004	n/a	0.01	0.01	n/a	0.0041	0.0041	n/a	0.011	0.011	n/a
Dissolved Magnesium	mg/L	-	7	7	n/a	18	18	n/a	7.1	7.1	n/a	18	18	n/a
Dissolved Manganese	mg/L	0.2	0.022	0.022	n/a	0.059	0.058	1 x	0.023	0.023	n/a	0.059	0.06	1 x
Dissolved Mercury	mg/L	0.000016	0.00000075	0.00000075	n/a	0.0000019	0.0000019	n/a	0.00000075	0.00000079	1.1 x	0.0000019	0.000002	1.1 x
Dissolved Molybdenum	mg/L	0.01	0.00019	0.00019	n/a	0.00051	0.00051	n/a	0.0002	0.0002	n/a	0.00052	0.00053	1 x
Dissolved Nickel	mg/L	0.025	0.00058	0.00057	1 x	0.0015	0.0015	n/a	0.00059	0.00059	n/a	0.0015	0.0015	n/a
Dissolved Selenium	mg/L	0.001	0.00022	0.00022	n/a	0.00056	0.00056	n/a	0.00022	0.00022	n/a	0.00057	0.00057	n/a
Dissolved Silver	mg/L	0.00025	0.0000054	0.0000054	n/a	0.000014	0.000014	n/a	0.0000055	0.0000056	1 x	0.000014	0.000014	n/a
Dissolved Sodium	mg/L	-	35	35	n/a	91	91	n/a	36	36	n/a	92	92	n/a
Dissolved Thallium	mg/L	0.0008	0.0000022	0.0000022	n/a	0.0000056	0.0000056	n/a	0.0000022	0.0000022	n/a	0.0000057	0.0000057	n/a
Dissolved Uranium	mg/L	0.01	0.000037	0.000037	n/a	0.000096	0.000097	1 x	0.000038	0.000039	1 x	0.000098	0.000099	1 x
Dissolved Vanadium	mg/L	0.1	0.00019	0.00019	n/a	0.0005	0.0005	n/a	0.0002	0.0002	n/a	0.00051	0.00051	n/a
Dissolved Zinc	mg/L	0.03	0.0033	0.0032	1 x	0.0084	0.0084	n/a	0.0033	0.0033	n/a	0.0085	0.0085	n/a
Dissolved Phosphorous	mg/L	Variable	0.025	0.025	n/a	0.066	0.066	n/a	0.026	0.026	n/a	0.068	0.068	n/a
Total Aluminum	mg/L	0.1	0.062	0.062	n/a	***0.16***	***0.16***	n/a	0.063	0.063	n/a	***0.16***	***0.16***	n/a
Total Antimony	mg/L	-	0.000026	0.000026	n/a	0.000068	0.000068	n/a	0.000027	0.000028	1 x	0.00007	0.000073	1 x
Total Arsenic	mg/L	0.005	0.00031	0.00031	n/a	0.00081	0.00081	n/a	0.00032	0.00044	1.4 x	0.00082	0.0012	1.5 x
Total Barium	mg/L	-	0.0038	0.0038	n/a	0.0098	0.0097	1 x	0.0039	0.0039	n/a	0.0098	0.0098	n/a
Total Beryllium	mg/L	0.1	0.0000054	0.0000055	1 x	0.000014	0.000014	n/a	0.0000055	0.0000059	1.1 x	0.000014	0.000015	1.1 x
Total Boron	mg/L	0.5	0.034	0.034	n/a	0.088	0.087	1 x	0.035	0.035	n/a	0.089	0.089	n/a
Total Cadmium	mg/L	0.00012	0.0000054	0.0000054	n/a	0.000014	0.000014	n/a	0.0000055	0.0000056	1 x	0.000014	0.000014	n/a
Total Calcium	mg/L	-	9.4	9.4	n/a	24	24	n/a	9.7	9.7	n/a	25	25	n/a
Total Chromium	mg/L	0.001	0.00054	0.00054	n/a	***0.0014***	***0.0014***	n/a	0.00055	0.00055	n/a	***0.0014***	***0.0014***	n/a
Total Cobalt	mg/L	0.05	0.000054	0.000054	n/a	0.00014	0.00014	n/a	0.000055	0.000058	1.1 x	0.00014	0.00015	1.1 x
Total Copper	mg/L	0.002	0.0015	0.0015	n/a	***0.0039***	***0.004***	1 x	0.0016	0.0016	n/a	***0.004***	***0.0041***	1 x
Total Iron	mg/L	0.3	0.17	0.17	n/a	***0.43***	***0.43***	n/a	0.17	0.17	n/a	***0.42***	***0.42***	n/a
Total Lead	mg/L	0.001	0.000054	0.000054	n/a	0.00014	0.00014	n/a	0.000055	0.000055	n/a	0.00014	0.00014	n/a
Total Lithium	mg/L	2.5	0.004	0.004	n/a	0.01	0.01	n/a	0.0041	0.0041	n/a	0.011	0.011	n/a
Total Magnesium	mg/L	-	7	7	n/a	18	18	n/a	7.1	7.1	n/a	18	18	n/a
Total Manganese	mg/L	0.2	0.022	0.022	n/a	0.059	0.058	1 x	0.023	0.023	n/a	0.059	0.06	1 x
Total Mercury	mg/L	0.000016	0.00000075	0.00000079	1.1 x	0.0000019	0.0000022	1.2 x	0.00000075	0.00000098	1.3 x	0.0000019	0.0000025	1.3 x
Total Molybdenum	mg/L	0.01	0.00019	0.00019	n/a	0.00051	0.00051	n/a	0.0002	0.0002	n/a	0.00052	0.00053	1 x
Total Nickel	mg/L	0.025	0.00058	0.00058	n/a	0.0015	0.0015	n/a	0.00059	0.00059	n/a	0.0015	0.0015	n/a
Total Selenium	mg/L	0.001	0.00022	0.00022	n/a	0.00056	0.00056	n/a	0.00022	0.00022	n/a	0.00057	0.00057	n/a
Total Silver	mg/L	0.00025	0.0000054	0.0000054	n/a	0.000014	0.000014	n/a	0.0000055	0.0000056	1 x	0.000014	0.000014	n/a
Total Sodium	mg/L	-	35	35	n/a	91	91	n/a	36	36	n/a	92	92	n/a
Total Thallium	mg/L	0.0008	0.0000022	0.0000022	n/a	0.0000056	0.0000056	n/a	0.0000022	0.0000023	1 x	0.0000057	0.0000058	1 x
Total Uranium	mg/L	0.01	0.000037	0.000037	n/a	0.000096	0.000097	1 x	0.000038	0.000039	1 x	0.000098	0.000099	1 x
Total Vanadium	mg/L	0.1	0.00019	0.00019	n/a	0.0005	0.0005	n/a	0.0002	0.0002	n/a	0.00051	0.00051	n/a
Total Zinc	mg/L	0.03	0.0033	0.0032	1 x	0.0084	0.0084	n/a	0.0033	0.0033	n/a	0.0085	0.0085	n/a
Total Phosphorous	mg/L	Variable	0.025	0.025	n/a	0.066	0.066	n/a	0.026	0.026	n/a	0.068	0.068	n/a

[1] ***CCME Exceedance shown in bold italics***

Ogama Lake Average and Maximum Concentrations During Operations and Post-Closure														
			Operations						Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
Parameter	Units	Min CCME[1]	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline
TSS	mg/L	Variable	5.3	5.3	1 x	14	14	0.99 x	5.5	5.5	1 x	15	15	1 x
TDS	mg/L	-	180	180	1 x	460	460	0.99 x	180	180	1 x	470	460	1 x
Fluoride	mg/L	0.12	0.059	0.059	1 x	***0.15***	***0.15***	0.99 x	0.061	0.061	1 x	***0.16***	***0.16***	1 x
Chloride	mg/L	120	69	69	1 x	***180***	***180***	0.99 x	70	70	1 x	***180***	***180***	1 x
Free Cyanide	mg/L	0.005	0.0011	0.0011	1 x	0.0028	0.0028	0.99 x	0.0011	0.0011	1 x	0.0028	0.0028	1 x
Total Cyanide	mg/L	0.005	0.0011	0.0011	1 x	0.0028	0.0028	0.99 x	0.0011	0.0011	1 x	0.0028	0.0028	1 x
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0055	0.0055	1 x	0.014	0.014	0.99 x	0.0056	0.0056	1 x	0.014	0.014	1 x
Nitrate	mg/L as N	3	0.0054	0.0054	1 x	0.014	0.014	0.99 x	0.0055	0.0055	1 x	0.014	0.014	1 x
Nitrite	mg/L as N	10	0.0011	0.0011	1 x	0.0028	0.0028	0.99 x	0.0011	0.0011	1 x	0.0028	0.0028	1 x
Sulphate	mg/L	1000	2.9	2.9	1 x	7.6	7.7	1.01 x	3	3.1	1.03 x	7.7	7.9	1.03 x
Alkalinity	mg/L	-	32	32	1 x	83	83	1 x	33	33	1.01 x	85	85	1.01 x
Hardness	mg/L	-	54	53	1 x	140	140	0.99 x	55	55	1 x	140	140	1 x
Dissolved Aluminum	mg/L	0.1	0.082	0.081	1 x	***0.21***	***0.21***	n/a	0.082	0.082	1 x	***0.2***	***0.2***	1 x
Dissolved Antimony	mg/L	-	0.000033	0.000033	1 x	0.000084	0.000084	1 x	0.000033	0.000035	1.05 x	0.000085	0.00009	1.06 x
Dissolved Arsenic	mg/L	0.005	0.00035	0.00035	1 x	0.00093	0.00095	1.02 x	0.00036	0.00061	1.68 x	0.00096	0.0016	1.72 x
Dissolved Barium	mg/L	-	0.0042	0.0042	1 x	0.011	0.011	1 x	0.0042	0.0042	1 x	0.011	0.011	n/a
Dissolved Beryllium	mg/L	0.1	0.000006	0.000006	1.01 x	0.000017	0.000017	1.02 x	0.0000064	0.0000068	1.06 x	0.000018	0.000019	1.06 x
Dissolved Boron	mg/L	0.5	0.037	0.037	1 x	0.098	0.097	1 x	0.038	0.038	1 x	0.1	0.1	1 x
Dissolved Cadmium	mg/L	0.00012	0.0000054	0.0000054	1 x	0.000014	0.000014	1 x	0.0000055	0.0000056	1.01 x	0.000014	0.000014	1.01 x
Dissolved Calcium	mg/L	-	9.8	9.8	1 x	25	25	1 x	10	10	1.01 x	26	26	1.01 x
Dissolved Chromium	mg/L	0.001	0.00054	0.00054	1 x	***0.0014***	***0.0014***	0.99 x	0.00055	0.00055	1 x	***0.0014***	***0.0014***	1 x
Dissolved Cobalt	mg/L	0.05	0.00006	0.00006	1 x	0.00015	0.00015	1 x	0.000061	0.000065	1.07 x	0.00015	0.00016	1.07 x
Dissolved Copper	mg/L	0.002	0.0016	0.0016	1 x	***0.0043***	***0.0044***	1.01 x	0.0017	0.0017	1.03 x	***0.0044***	***0.0045***	1.03 x
Dissolved Iron	mg/L	0.3	0.2	0.2	1 x	***0.51***	***0.51***	n/a	0.2	0.2	1 x	***0.49***	***0.49***	1 x
Dissolved Lead	mg/L	0.001	0.000073	0.000073	1 x	0.00019	0.00019	1 x	0.000076	0.000076	1 x	0.0002	0.0002	1 x
Dissolved Lithium	mg/L	2.5	0.0043	0.0043	1 x	0.011	0.011	0.99 x	0.0044	0.0044	1 x	0.011	0.011	1 x
Dissolved Magnesium	mg/L	-	7.2	7.1	1 x	19	18	0.99 x	7.3	7.3	1 x	19	19	1 x
Dissolved Manganese	mg/L	0.2	0.03	0.03	1 x	0.078	0.077	1 x	0.031	0.031	1 x	0.078	0.078	1 x
Dissolved Mercury	mg/L	0.000016	0.00000094	0.00000095	1 x	0.0000024	0.0000024	1.01 x	0.00000095	0.00000099	1.04 x	0.0000024	0.0000024	1.03 x
Dissolved Molybdenum	mg/L	0.01	0.0002	0.0002	1 x	0.00052	0.00053	1 x	0.0002	0.00021	1.02 x	0.00054	0.00055	1.02 x
Dissolved Nickel	mg/L	0.025	0.00072	0.00072	1 x	0.0019	0.0019	1 x	0.00074	0.00075	1.01 x	0.0019	0.0019	1.01 x
Dissolved Selenium	mg/L	0.001	0.00022	0.00022	1 x	0.00056	0.00056	1 x	0.00022	0.00022	1 x	0.00057	0.00057	1 x
Dissolved Silver	mg/L	0.00025	0.0000054	0.0000054	1 x	0.000014	0.000014	1 x	0.0000055	0.0000056	1 x	0.000014	0.000014	1 x
Dissolved Sodium	mg/L	-	36	36	1 x	94	93	0.99 x	37	37	1 x	94	94	1 x
Dissolved Thallium	mg/L	0.0008	0.0000024	0.0000024	1 x	0.0000061	0.0000061	1 x	0.0000024	0.0000025	1.01 x	0.0000061	0.0000062	1.01 x
Dissolved Uranium	mg/L	0.01	0.000041	0.000041	1 x	0.00011	0.00011	1.01 x	0.000042	0.000044	1.03 x	0.00011	0.00011	1.03 x
Dissolved Vanadium	mg/L	0.1	0.00024	0.00024	1 x	0.0006	0.0006	1 x	0.00024	0.00025	1.02 x	0.00061	0.00061	1.01 x
Dissolved Zinc	mg/L	0.03	0.0033	0.0032	1 x	0.0084	0.0084	1 x	0.0033	0.0033	1 x	0.0085	0.0085	1 x
Dissolved Phosphorous	mg/L	Variable	0.028	0.028	1 x	0.073	0.072	0.99 x	0.029	0.029	1 x	0.074	0.074	1 x
Total Aluminum	mg/L	0.1	0.082	0.081	1 x	***0.21***	***0.21***	n/a	0.082	0.082	1 x	***0.2***	***0.2***	1 x
Total Antimony	mg/L	-	0.000033	0.000033	1 x	0.000084	0.000084	1 x	0.000033	0.000035	1.05 x	0.000085	0.00009	1.06 x
Total Arsenic	mg/L	0.005	0.00035	0.00035	1 x	0.00093	0.00095	1.02 x	0.00036	0.00061	1.69 x	0.00096	0.0017	1.72 x
Total Barium	mg/L	-	0.0042	0.0042	1 x	0.011	0.011	1 x	0.0042	0.0042	1 x	0.011	0.011	n/a
Total Beryllium	mg/L	0.1	0.000006	0.000006	1.01 x	0.000017	0.000017	1.02 x	0.0000064	0.0000068	1.06 x	0.000018	0.000019	1.06 x
Total Boron	mg/L	0.5	0.037	0.037	1 x	0.098	0.097	1 x	0.038	0.038	1 x	0.1	0.1	1 x
Total Cadmium	mg/L	0.00012	0.0000054	0.0000054	1 x	0.000014	0.000014	n/a	0.0000055	0.0000056	1.01 x	0.000014	0.000014	1.01 x
Total Calcium	mg/L	-	9.8	9.8	1 x	25	25	1 x	10	10	1.01 x	26	26	1.01 x
Total Chromium	mg/L	0.001	0.00054	0.00054	1 x	***0.0014***	***0.0014***	1 x	0.00055	0.00056	1 x	***0.0014***	***0.0014***	1 x
Total Cobalt	mg/L	0.05	0.00006	0.00006	1 x	0.00015	0.00015	1 x	0.000061	0.000065	1.08 x	0.00015	0.00017	1.08 x
Total Copper	mg/L	0.002	0.0016	0.0016	1 x	***0.0043***	***0.0044***	1.01 x	0.0017	0.0017	1.03 x	***0.0044***	***0.0045***	1.03 x
Total Iron	mg/L	0.3	0.2	0.2	1 x	***0.51***	***0.51***	n/a	0.2	0.2	1 x	***0.49***	***0.49***	1 x
Total Lead	mg/L	0.001	0.000073	0.000073	1 x	0.00019	0.00019	1 x	0.000076	0.000076	1 x	0.0002	0.0002	1 x
Total Lithium	mg/L	2.5	0.0043	0.0043	1 x	0.011	0.011	0.99 x	0.0044	0.0044	1 x	0.011	0.011	1 x
Total Magnesium	mg/L	-	7.2	7.1	1 x	19	18	0.99 x	7.3	7.3	1 x	19	19	1 x
Total Manganese	mg/L	0.2	0.03	0.03	1 x	0.078	0.077	1 x	0.031	0.031	1.01 x	0.078	0.079	1 x
Total Mercury	mg/L	0.000016	0.00000094	0.00000099	1.05 x	0.0000024	0.0000027	1.13 x	0.00000095	0.0000012	1.25 x	0.0000024	0.0000029	1.24 x
Total Molybdenum	mg/L	0.01	0.0002	0.0002	1 x	0.00052	0.00053	1 x	0.0002	0.00021	1.02 x	0.00054	0.00055	1.02 x
Total Nickel	mg/L	0.025	0.00072	0.00072	1 x	0.0019	0.0019	1 x	0.00074	0.00075	1.01 x	0.0019	0.0019	1.01 x
Total Selenium	mg/L	0.001	0.00022	0.00022	1 x	0.00056	0.00056	1 x	0.00022	0.00022	1 x	0.00057	0.00057	1 x
Total Silver	mg/L	0.00025	0.0000054	0.0000054	1 x	0.000014	0.000014	1 x	0.0000055	0.0000056	1 x	0.000014	0.000014	1 x
Total Sodium	mg/L	-	36	36	1 x	94	93	0.99 x	37	37	1 x	94	94	1 x
Total Thallium	mg/L	0.0008	0.0000024	0.0000024	1 x	0.0000061	0.0000061	1 x	0.0000024	0.0000025	1.01 x	0.0000061	0.0000062	1.01 x
Total Uranium	mg/L	0.01	0.000041	0.000041	1 x	0.00011	0.00011	1.01 x	0.000042	0.000044	1.03 x	0.00011	0.00011	1.03 x
Total Vanadium	mg/L	0.1	0.00024	0.00024	1 x	0.0006	0.00061	1 x	0.00024	0.00025	1.02 x	0.00061	0.00061	1.01 x
Total Zinc	mg/L	0.03	0.0033	0.0032	1 x	0.0084	0.0084	1 x	0.0033	0.0033	1 x	0.0085	0.0085	1 x
Total Phosphorous	mg/L	Variable	0.028	0.028	1 x	0.073	0.072	0.99 x	0.029	0.029	1 x	0.074	0.074	1 x

[1] ***CCME Exceedance shown in bold italics***

Doris TIA Average and Maximum Concentrations During Operations (to Contact Water Pond) and Post-Closure (to TL-2)

Parameter	Units	MMER		Operations				Post-Closure			
				Average		Maximum		Average		Maximum	
		Current[1]	Proposed[2]	Base Case	Upper Case	Base Case	Upper Case	Base Case	Upper Case	Base Case	Upper Case
TSS	mg/L	15	15	2.8	3.3	11	14	3.3	4.3	3.9	4.9
TDS	mg/L	-	-	540	560	3100	3100	130	140	130	140
Fluoride	mg/L	-	-	0.091	0.094	0.33	0.33	0.049	0.06	0.051	0.061
Chloride	mg/L	-	-	190	190	1700	1700	39	40	39	40
Free Cyanide	mg/L	-	-	0.0015	0.0015	0.0096	0.0096	0.00062	0.00062	0.00062	0.00062
Total Cyanide	mg/L	1	0.5	0.0054	0.0054	0.42	0.42	0.00062	0.00062	0.00062	0.00062
WAD Cyanide	mg/L	-	-	0.081	0.081	0.45	0.45				
Cyanate	mg/L	-	-	0.24	0.24	19	19				
Thiocyanate	mg/L	-	-	0.22	0.22	15	15				
Ammonia	mg/L as N	-	Variable	3.8	3.8	35	35	0.0031	0.0032	0.0031	0.0035
Nitrate	mg/L as N	-	-	4.3	4.3	18	18	0.0031	0.0031	0.0031	0.0031
Nitrite	mg/L as N	-	-	0.35	0.35	3.1	3.1	0.00062	0.00062	0.00062	0.00062
Sulphate	mg/L	-	-	140	150	1000	1000	6.8	12	6.9	13
Alkalinity	mg/L	-	-	89	90	570	570	53	54	54	54
Hardness	mg/L	-	-	310	310	1500	1500	130	130	130	130
Dissolved Aluminum	mg/L	-	-	0.13	0.14	1.6	1.6	0.071	0.081	0.073	0.086
Dissolved Antimony	mg/L	-	-	0.0087	0.0088	0.064	0.065	0.00095	0.0011	0.00096	0.0011
Dissolved Arsenic	mg/L	0.5	0.1	0.19	0.2	***1.2***	***1.2***	0.064	0.079	0.064	0.079
Dissolved Barium	mg/L	-	-	0.033	0.04	0.15	0.21	0.051	0.077	0.051	0.077
Dissolved Beryllium	mg/L	-	-	0.0017	0.0017	0.028	0.028	0.000043	0.000044	0.000043	0.000046
Dissolved Boron	mg/L	-	-	0.12	0.13	0.44	0.45	0.083	0.086	0.084	0.089
Dissolved Cadmium	mg/L	-	-	0.00012	0.00012	0.00072	0.00073	0.000014	0.000017	0.000014	0.000017
Dissolved Calcium	mg/L	-	-	82	84	620	630	22	24	22	24
Dissolved Chromium	mg/L	-	-	0.0038	0.0038	0.019	0.019	0.00068	0.00087	0.00068	0.00087
Dissolved Cobalt	mg/L	-	-	0.0041	0.0041	0.018	0.018	0.00015	0.00018	0.00015	0.00019
Dissolved Copper	mg/L	0.3	0.1	0.0092	0.01	0.041	0.042	0.0042	0.0066	0.0043	0.0067
Dissolved Iron	mg/L	-	-	0.48	0.51	2.8	2.9	0.1	0.16	0.12	0.18
Dissolved Lead	mg/L	0.2	0.08	0.00035	0.00046	0.003	0.0031	0.000072	0.00011	0.000072	0.00012
Dissolved Lithium	mg/L	-	-	0.013	0.013	0.05	0.051	0.0037	0.0042	0.0038	0.0042
Dissolved Magnesium	mg/L	-	-	41	41	210	210	18	19	18	19
Dissolved Manganese	mg/L	-	-	0.063	0.075	0.28	0.3	0.027	0.054	0.029	0.057
Dissolved Mercury	mg/L	-	-	0.000025	0.000026	0.000096	0.000097	0.0000044	0.0000053	0.0000045	0.0000053
Dissolved Molybdenum	mg/L	-	-	0.041	0.041	0.23	0.24	0.0015	0.0027	0.0015	0.0027
Dissolved Nickel	mg/L	0.5	0.25	0.016	0.016	0.088	0.09	0.00087	0.0014	0.00088	0.0014
Dissolved Selenium	mg/L	-	-	0.0033	0.0034	0.018	0.018	0.00032	0.00043	0.00032	0.00043
Dissolved Silver	mg/L	-	-	0.00032	0.00032	0.0016	0.0016	0.000011	0.000018	0.000011	0.000018
Dissolved Sodium	mg/L	-	-	110	110	760	760	20	21	21	21
Dissolved Thallium	mg/L	-	-	0.00013	0.00015	0.00065	0.00066	0.00001	0.000013	0.00001	0.000013
Dissolved Uranium	mg/L	-	-	0.00036	0.00039	0.003	0.0031	0.000089	0.00016	0.00009	0.00016
Dissolved Vanadium	mg/L	-	-	0.0036	0.0038	0.036	0.037	0.00051	0.0012	0.00051	0.0012
Dissolved Zinc	mg/L	0.5	0.4	0.013	0.013	0.091	0.093	0.0031	0.0038	0.0031	0.0038
Dissolved Phosphorous	mg/L	-	-	0.028	0.03	0.13	0.13	0.015	0.017	0.017	0.018
Total Aluminum	mg/L	-	-	0.13	0.14	1.7	1.7	0.073	0.085	0.075	0.09
Total Antimony	mg/L	-	-	0.0087	0.0088	0.064	0.065	0.00095	0.0011	0.00096	0.0011
Total Arsenic	mg/L	0.5	0.1	0.19	0.2	***1.2***	***1.2***	0.064	0.079	0.064	0.079
Total Barium	mg/L	-	-	0.033	0.04	0.15	0.21	0.051	0.077	0.051	0.077
Total Beryllium	mg/L	-	-	0.0017	0.0017	0.028	0.028	0.000043	0.000044	0.000043	0.000046
Total Boron	mg/L	-	-	0.12	0.13	0.44	0.46	0.083	0.086	0.084	0.089
Total Cadmium	mg/L	-	-	0.00012	0.00012	0.00072	0.00073	0.000014	0.000017	0.000014	0.000017
Total Calcium	mg/L	-	-	83	85	620	630	22	24	22	24
Total Chromium	mg/L	-	-	0.004	0.004	0.02	0.02	0.00073	0.001	0.00074	0.001
Total Cobalt	mg/L	-	-	0.0041	0.0041	0.018	0.018	0.00016	0.0002	0.00016	0.0002
Total Copper	mg/L	0.3	0.1	0.0093	0.01	0.041	0.042	0.0042	0.0066	0.0043	0.0067
Total Iron	mg/L	-	-	0.57	0.61	3.1	3.1	0.13	0.22	0.15	0.24
Total Lead	mg/L	0.2	0.08	0.00036	0.00046	0.003	0.0031	0.000074	0.00011	0.000074	0.00012
Total Lithium	mg/L	-	-	0.013	0.013	0.05	0.051	0.0037	0.0042	0.0038	0.0042
Total Magnesium	mg/L	-	-	41	41	210	210	18	19	18	19
Total Manganese	mg/L	-	-	0.066	0.078	0.29	0.3	0.027	0.056	0.03	0.059
Total Mercury	mg/L	-	-	0.000044	0.000047	0.00017	0.00018	0.0000095	0.000018	0.0000097	0.000018
Total Molybdenum	mg/L	-	-	0.041	0.041	0.23	0.24	0.0015	0.0027	0.0015	0.0027
Total Nickel	mg/L	0.5	0.25	0.016	0.017	0.089	0.09	0.00091	0.0014	0.00092	0.0014
Total Selenium	mg/L	-	-	0.0033	0.0034	0.018	0.018	0.00032	0.00044	0.00032	0.00044
Total Silver	mg/L	-	-	0.00032	0.00032	0.0016	0.0016	0.000011	0.000018	0.000011	0.000018
Total Sodium	mg/L	-	-	110	110	760	760	20	21	21	21
Total Thallium	mg/L	-	-	0.00013	0.00015	0.00065	0.00066	0.00001	0.000013	0.00001	0.000013
Total Uranium	mg/L	-	-	0.00036	0.00039	0.003	0.0031	0.000089	0.00016	0.00009	0.00016
Total Vanadium	mg/L	-	-	0.0036	0.0038	0.036	0.037	0.00052	0.0012	0.00052	0.0012
Total Zinc	mg/L	0.5	0.4	0.013	0.013	0.091	0.093	0.0031	0.0039	0.0031	0.0039
Total Phosphorous	mg/L	-	-	0.028	0.031	0.13	0.14	0.015	0.017	0.017	0.018

[1] ***Current MMER Exceedance Shown in bold italics***

[2] Proposed MMER Exceedance shown in grey highlight

Doris Creek (TL-2) Average and Maximum Concenrations During Operations and Post-Closure														
Parameter	Units	Min CCME[2]	Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline
TSS	mg/L	Variable	5.1	5.1	n/a	6.3	8.3	1.3 x	5.2	4.9	0.9 x	6.3	5.1	0.8 x
TDS	mg/L	-	170	170	n/a	210	280	1.3 x	180	170	0.9 x	210	170	0.8 x
Fluoride	mg/L	0.12	0.06	0.06	n/a	0.074	0.097	1.3 x	0.06	0.058	1 x	0.074	0.06	0.8 x
Chloride	mg/L	120	70	71	1 x	86	110	1.3 x	70	66	0.9 x	86	68	0.8 x
Free Cyanide	mg/L	0.005	0.0011	0.0012	1.1 x	0.0014	0.0018	1.3 x	0.0011	0.0011	n/a	0.0014	0.0011	0.8 x
Total Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0013	0.0018	1.4 x	0.0011	0.0011	n/a	0.0013	0.0011	0.8 x
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	0.000011	0.0000046	0.4 x	0.000016	0.000056	3.5 x	0.000012	-	-	0.000016	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0054	0.0057	1.1 x	0.0066	0.0091	1.4 x	0.0054	0.0053	1 x	0.0066	0.0055	0.8 x
Nitrate	mg/L as N	3	0.0056	0.022	3.9 x	0.0069	0.28	40.6 x	0.0056	0.0053	0.9 x	0.0069	0.0055	0.8 x
Nitrite	mg/L as N	10	0.0011	0.0016	1.5 x	0.0014	0.0072	5.1 x	0.0011	0.0011	n/a	0.0014	0.0011	0.8 x
Sulphate	mg/L	1000	3	3.2	1.1 x	3.7	5.3	1.4 x	3	7.6	2.5 x	3.7	8.4	2.3 x
Alkalinity	mg/L	-	33	33	n/a	40	54	1.4 x	33	34	1 x	40	38	1 x
Hardness	mg/L	-	54	55	1 x	67	88	1.3 x	54	57	1.1 x	67	66	1 x
Dissolved Aluminum	mg/L	0.1	0.065	0.065	n/a	0.079	0.1	1.3 x	0.064	0.063	1 x	0.079	0.067	0.8 x
Dissolved Antimony	mg/L	-	0.000027	0.000033	1.2 x	0.000033	0.00015	4.5 x	0.000027	0.000091	3.4 x	0.000033	0.00018	5.5 x
Dissolved Arsenic	mg/L	0.005	0.00032	0.00048	1.5 x	0.00039	***0.0084***	21.5 x	0.00032	0.0042	13.1 x	0.00039	***0.01***	25.6 x
Dissolved Barium	mg/L	-	0.004	0.0042	1.1 x	0.0049	0.01	2 x	0.0039	0.0068	1.7 x	0.0048	0.011	2.3 x
Dissolved Beryllium	mg/L	0.1	0.0000056	0.000015	2.7 x	0.0000069	0.00012	17.4 x	0.0000056	0.0000099	1.8 x	0.0000069	0.000013	1.9 x
Dissolved Boron	mg/L	0.5	0.035	0.036	1 x	0.043	0.057	1.3 x	0.035	0.038	1.1 x	0.043	0.044	1 x
Dissolved Cadmium	mg/L	0.00012	0.0000056	0.0000058	1 x	0.0000069	0.0000092	1.3 x	0.0000056	0.0000068	1.2 x	0.0000069	0.0000078	1.1 x
Dissolved Calcium	mg/L	-	9.8	10	1 x	12	16	1.3 x	9.8	12	1.2 x	12	13	1.1 x
Dissolved Chromium	mg/L	0.001	0.00056	0.00057	1 x	0.00069	0.00091	1.3 x	0.00056	0.00055	1 x	0.00069	0.00059	0.9 x
Dissolved Cobalt	mg/L	0.05	0.000056	0.000082	1.5 x	0.000069	0.00028	4.1 x	0.000056	0.0004	7.1 x	0.000069	0.00043	6.2 x
Dissolved Copper	mg/L	0.002	0.0016	0.0016	n/a	0.0019	***0.0026***	1.4 x	0.0016	0.0018	1.1 x	0.0019	***0.0021***	1.1 x
Dissolved Iron	mg/L	0.3	0.18	0.18	n/a	0.22	0.28	1.3 x	0.17	0.16	0.9 x	0.21	0.17	0.8 x
Dissolved Lead	mg/L	0.001	0.000056	0.000057	1 x	0.000069	0.000091	1.3 x	0.000056	0.000056	n/a	0.000069	0.00006	0.9 x
Dissolved Lithium	mg/L	2.5	0.0042	0.0043	1 x	0.0052	0.0068	1.3 x	0.0042	0.0043	1 x	0.0051	0.0045	0.9 x
Dissolved Magnesium	mg/L	-	7.3	7.4	1 x	8.9	12	1.3 x	7.3	8.1	1.1 x	8.9	9.4	1.1 x
Dissolved Manganese	mg/L	0.2	0.023	0.024	1 x	0.029	0.038	1.3 x	0.023	0.03	1.3 x	0.029	0.031	1.1 x
Dissolved Mercury	mg/L	0.000016	0.00000078	0.000001	1.3 x	0.00000095	0.0000031	3.3 x	0.00000076	0.0000012	1.6 x	0.00000094	0.0000015	1.6 x
Dissolved Molybdenum	mg/L	0.01	0.0002	0.00025	1.3 x	0.00025	0.00072	2.9 x	0.0002	0.00029	1.5 x	0.00025	0.00041	1.6 x
Dissolved Nickel	mg/L	0.025	0.0006	0.00065	1.1 x	0.00074	0.0011	1.5 x	0.0006	0.0018	3 x	0.00073	0.002	2.7 x
Dissolved Selenium	mg/L	0.001	0.00023	0.00023	n/a	0.00028	0.00036	1.3 x	0.00023	0.00036	1.6 x	0.00028	0.00039	1.4 x
Dissolved Silver	mg/L	0.00025	0.0000056	0.0000059	1.1 x	0.0000069	0.0000092	1.3 x	0.0000056	0.0000059	1.1 x	0.0000069	0.0000066	1 x
Dissolved Sodium	mg/L	-	37	37	n/a	45	60	1.3 x	37	35	0.9 x	45	36	0.8 x
Dissolved Thallium	mg/L	0.0008	0.0000023	0.0000032	1.4 x	0.0000028	0.000013	4.6 x	0.0000023	0.0000037	1.6 x	0.0000028	0.0000045	1.6 x
Dissolved Uranium	mg/L	0.01	0.000038	0.000041	1.1 x	0.000047	0.000064	1.4 x	0.000039	0.000044	1.1 x	0.000047	0.00005	1.1 x
Dissolved Vanadium	mg/L	0.1	0.0002	0.00022	1.1 x	0.00025	0.00034	1.4 x	0.0002	0.00023	1.2 x	0.00025	0.00027	1.1 x
Dissolved Zinc	mg/L	0.03	0.0034	0.0034	n/a	0.0042	0.0055	1.3 x	0.0034	0.0034	n/a	0.0041	0.0035	0.9 x
Dissolved Phosphorous	mg/L	Variable	0.026	0.026	n/a	0.032	0.042	1.3 x	0.026	0.025	1 x	0.032	0.026	0.8 x
Total Aluminum	mg/L	0.1	0.065	0.066	1 x	0.079	0.1	1.3 x	0.064	0.063	1 x	0.079	0.067	0.8 x
Total Antimony	mg/L	-	0.000027	0.000033	1.2 x	0.000033	0.00015	4.5 x	0.000027	0.000091	3.4 x	0.000033	0.00018	5.5 x
Total Arsenic	mg/L	0.005	0.00032	0.00049	1.5 x	0.00039	***0.0084***	21.5 x	0.00032	0.0042	13.1 x	0.00039	***0.01***	25.6 x
Total Barium	mg/L	-	0.004	0.0042	1.1 x	0.0049	0.01	2 x	0.0039	0.0068	1.7 x	0.0048	0.011	2.3 x
Total Beryllium	mg/L	0.1	0.0000056	0.000015	2.7 x	0.0000069	0.00012	17.4 x	0.0000056	0.0000099	1.8 x	0.0000069	0.000013	1.9 x
Total Boron	mg/L	0.5	0.035	0.036	1 x	0.043	0.057	1.3 x	0.035	0.038	1.1 x	0.043	0.044	1 x
Total Cadmium	mg/L	0.00012	0.0000056	0.0000058	1 x	0.0000069	0.0000092	1.3 x	0.0000056	0.0000068	1.2 x	0.0000069	0.0000079	1.1 x
Total Calcium	mg/L	-	9.8	10	1 x	12	16	1.3 x	9.8	12	1.2 x	12	13	1.1 x
Total Chromium	mg/L	0.001	0.00056	0.00058	1 x	0.00069	0.00091	1.3 x	0.00056	0.00057	1 x	0.00069	0.00061	0.9 x
Total Cobalt	mg/L	0.05	0.000056	0.000083	1.5 x	0.000069	0.00028	4.1 x	0.000056	0.0004	7.1 x	0.000069	0.00044	6.4 x
Total Copper	mg/L	0.002	0.0016	0.0016	n/a	0.0019	***0.0026***	1.4 x	0.0016	0.0018	1.1 x	0.0019	***0.0021***	1.1 x
Total Iron	mg/L	0.3	0.18	0.18	n/a	0.22	0.28	1.3 x	0.17	0.17	n/a	0.21	0.18	0.9 x
Total Lead	mg/L	0.001	0.000056	0.000058	1 x	0.000069	0.000091	1.3 x	0.000056	0.000056	n/a	0.000069	0.00006	0.9 x
Total Lithium	mg/L	2.5	0.0042	0.0043	1 x	0.0052	0.0068	1.3 x	0.0042	0.0043	1 x	0.0051	0.0045	0.9 x
Total Magnesium	mg/L	-	7.3	7.4	1 x	8.9	12	1.3 x	7.3	8.1	1.1 x	8.9	9.4	1.1 x
Total Manganese	mg/L	0.2	0.023	0.024	1 x	0.029	0.038	1.3 x	0.023	0.03	1.3 x	0.029	0.032	1.1 x
Total Mercury	mg/L	0.000016	0.00000078	0.0000014	1.8 x	0.00000095	0.0000034	3.6 x	0.00000076	0.0000023	3 x	0.00000094	0.000003	3.2 x
Total Molybdenum	mg/L	0.01	0.0002	0.00025	1.3 x	0.00025	0.00072	2.9 x	0.0002	0.00029	1.5 x	0.00025	0.00041	1.6 x
Total Nickel	mg/L	0.025	0.0006	0.00065	1.1 x	0.00074	0.0011	1.5 x	0.0006	0.0018	3 x	0.00073	0.002	2.7 x
Total Selenium	mg/L	0.001	0.00023	0.00023	n/a	0.00028	0.00036	1.3 x	0.00023	0.00036	1.6 x	0.00028	0.00039	1.4 x
Total Silver	mg/L	0.00025	0.0000056	0.0000059	1.1 x	0.0000069	0.0000092	1.3 x	0.0000056	0.0000059	1.1 x	0.0000069	0.0000066	1 x
Total Sodium	mg/L	-	37	37	n/a	45	60	1.3 x	37	35	0.9 x	45	36	0.8 x
Total Thallium	mg/L	0.0008	0.0000023	0.0000032	1.4 x	0.0000028	0.000013	4.6 x	0.0000023	0.0000037	1.6 x	0.0000028	0.0000045	1.6 x
Total Uranium	mg/L	0.01	0.000038	0.000041	1.1 x	0.000047	0.000064	1.4 x	0.000039	0.000044	1.1 x	0.000047	0.00005	1.1 x
Total Vanadium	mg/L	0.1	0.0002	0.00022	1.1 x	0.00025	0.00034	1.4 x	0.0002	0.00023	1.2 x	0.00025	0.00027	1.1 x
Total Zinc	mg/L	0.03	0.0034	0.0034	n/a	0.0042	0.0055	1.3 x	0.0034	0.0034	n/a	0.0041	0.0035	0.9 x
Total Phosphorous	mg/L	Variable	0.026	0.026	n/a	0.032	0.042	1.3 x	0.026	0.025	1 x	0.032	0.026	0.8 x

[1] ***CCME Exceedance shown in bold italics***

Doris Creek (TL-2) Average and Maximum Concenrations During Operations and Post-Closure														
Parameter	Units	Min CCME[2]	Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline
TSS	mg/L	Variable	5.5	5.6	1.01 x	6.9	9	1.32 x	5.7	5.4	0.96 x	6.9	5.6	0.82 x
TDS	mg/L	-	180	180	1 x	230	300	1.31 x	180	180	0.95 x	230	180	0.8 x
Fluoride	mg/L	0.12	0.061	0.062	1.01 x	0.076	0.1	1.32 x	0.062	0.06	0.97 x	0.076	0.063	0.83 x
Chloride	mg/L	120	71	72	1.01 x	88	120	1.31 x	72	68	0.95 x	88	69	0.79 x
Free Cyanide	mg/L	0.005	0.0011	0.0012	1.04 x	0.0014	0.0018	1.31 x	0.0011	0.0011	0.95 x	0.0014	0.0011	0.79 x
Total Cyanide	mg/L	0.005	0.0011	0.0011	1.03 x	0.0013	0.0018	1.36 x	0.0011	0.0011	0.98 x	0.0013	0.0011	0.82 x
WAD Cyanide	mg/L	-			-			-			-			-
Cyanate	mg/L	-	0.000011	0.0000045	0.39 x	0.000016	0.000056	3.55 x	0.000012		0 x	0.000016		0 x
Thiocyanate	mg/L	-			-			-			-			-
Ammonia	mg/L as N	1.54	0.0055	0.0058	1.05 x	0.0067	0.0092	1.37 x	0.0055	0.0054	0.99 x	0.0067	0.0055	0.82 x
Nitrate	mg/L as N	3	0.0056	0.021	3.81 x	0.0069	0.28	39.99 x	0.0056	0.0053	0.95 x	0.0069	0.0055	0.79 x
Nitrite	mg/L as N	10	0.0011	0.0016	1.41 x	0.0014	0.0072	5.22 x	0.0011	0.0011	0.95 x	0.0014	0.0011	0.79 x
Sulphate	mg/L	1000	3	3.3	1.09 x	3.7	5.2	1.41 x	3	3.9	1.3 x	3.7	4.9	1.31 x
Alkalinity	mg/L	-	33	34	1.02 x	41	55	1.33 x	33	35	1.04 x	41	38	0.92 x
Hardness	mg/L	-	56	57	1.02 x	69	90	1.31 x	56	59	1.06 x	68	68	1 x
Dissolved Aluminum	mg/L	0.1	0.085	0.086	1.01 x	0.1	***0.14***	1.31 x	0.083	0.081	0.97 x	0.1	0.086	0.83 x
Dissolved Antimony	mg/L	-	0.000034	0.000044	1.3 x	0.000042	0.00018	4.23 x	0.000034	0.0001	2.99 x	0.000041	0.0002	4.91 x
Dissolved Arsenic	mg/L	0.005	0.00036	0.00076	2.11 x	0.00045	***0.01***	23.14 x	0.00037	***0.0052***	14.04 x	0.00045	***0.012***	27.41 x
Dissolved Barium	mg/L	-	0.0043	0.0049	1.13 x	0.0053	0.014	2.56 x	0.0043	0.0085	2 x	0.0053	0.015	2.93 x
Dissolved Beryllium	mg/L	0.1	0.0000062	0.000015	2.45 x	0.0000078	0.00012	14.79 x	0.0000066	0.00001	1.56 x	0.0000078	0.000014	1.73 x
Dissolved Boron	mg/L	0.5	0.039	0.04	1.03 x	0.048	0.063	1.32 x	0.039	0.041	1.05 x	0.048	0.047	0.98 x
Dissolved Cadmium	mg/L	0.00012	0.0000056	0.0000059	1.05 x	0.0000069	0.0000093	1.34 x	0.0000056	0.0000064	1.13 x	0.0000069	0.0000076	1.1 x
Dissolved Calcium	mg/L	-	10	11	1.05 x	12	17	1.34 x	10	11	1.09 x	12	13	1.02 x
Dissolved Chromium	mg/L	0.001	0.00056	0.00057	1.02 x	0.00069	0.00091	1.31 x	0.00056	0.00056	1 x	0.00069	0.00062	0.89 x
Dissolved Cobalt	mg/L	0.05	0.000062	0.000081	1.3 x	0.000076	0.00028	3.67 x	0.000062	0.000073	1.18 x	0.000076	0.000086	1.13 x
Dissolved Copper	mg/L	0.002	0.0017	0.0018	1.08 x	***0.0021***	***0.0029***	1.4 x	0.0017	***0.0022***	1.27 x	***0.0021***	***0.0027***	1.27 x
Dissolved Iron	mg/L	0.3	0.21	0.21	1.01 x	0.26	***0.34***	1.3 x	0.2	0.19	0.96 x	0.25	0.21	0.81 x
Dissolved Lead	mg/L	0.001	0.000076	0.000081	1.06 x	0.000094	0.00012	1.33 x	0.000077	0.000078	1.01 x	0.000094	0.000084	0.9 x
Dissolved Lithium	mg/L	2.5	0.0045	0.0046	1.02 x	0.0055	0.0072	1.31 x	0.0045	0.0043	0.96 x	0.0055	0.0045	0.82 x
Dissolved Magnesium	mg/L	-	7.4	7.6	1.02 x	9.2	12	1.31 x	7.5	7.9	1.06 x	9.1	9.3	1.01 x
Dissolved Manganese	mg/L	0.2	0.031	0.032	1.03 x	0.038	0.051	1.33 x	0.031	0.032	1.04 x	0.038	0.036	0.93 x
Dissolved Mercury	mg/L	0.000016	0.00000098	0.0000012	1.27 x	0.0000012	0.0000033	2.74 x	0.00000096	0.0000013	1.41 x	0.0000012	0.0000018	1.5 x
Dissolved Molybdenum	mg/L	0.01	0.0002	0.00026	1.29 x	0.00025	0.00072	2.87 x	0.00021	0.00036	1.73 x	0.00025	0.00059	2.33 x
Dissolved Nickel	mg/L	0.025	0.00075	0.00079	1.05 x	0.00092	0.0012	1.34 x	0.00075	0.0008	1.06 x	0.00092	0.00088	0.96 x
Dissolved Selenium	mg/L	0.001	0.00023	0.00023	1.03 x	0.00028	0.00037	1.32 x	0.00023	0.00023	1.04 x	0.00028	0.00026	0.95 x
Dissolved Silver	mg/L	0.00025	0.0000056	0.0000059	1.05 x	0.0000069	0.0000092	1.32 x	0.0000056	0.0000063	1.12 x	0.0000069	0.0000077	1.12 x
Dissolved Sodium	mg/L	-	38	38	1.01 x	46	61	1.31 x	38	36	0.95 x	46	36	0.79 x
Dissolved Thallium	mg/L	0.0008	0.0000025	0.0000042	1.69 x	0.000003	0.000024	7.91 x	0.0000025	0.0000031	1.28 x	0.000003	0.0000042	1.39 x
Dissolved Uranium	mg/L	0.01	0.000043	0.000047	1.11 x	0.000053	0.000073	1.39 x	0.000043	0.000054	1.25 x	0.000053	0.000065	1.24 x
Dissolved Vanadium	mg/L	0.1	0.00025	0.00027	1.08 x	0.00031	0.00041	1.35 x	0.00025	0.00031	1.26 x	0.0003	0.0004	1.34 x
Dissolved Zinc	mg/L	0.03	0.0034	0.0035	1.02 x	0.0042	0.0055	1.32 x	0.0034	0.0034	0.99 x	0.0041	0.0035	0.86 x
Dissolved Phosphorous	mg/L	Variable	0.029	0.029	1.01 x	0.035	0.047	1.32 x	0.029	0.028	0.95 x	0.035	0.028	0.8 x
Total Aluminum	mg/L	0.1	0.085	0.086	1.01 x	0.1	***0.14***	1.31 x	0.083	0.081	0.98 x	0.1	0.086	0.84 x
Total Antimony	mg/L	-	0.000034	0.000044	1.3 x	0.000042	0.00018	4.23 x	0.000034	0.0001	2.99 x	0.000041	0.0002	4.92 x
Total Arsenic	mg/L	0.005	0.00036	0.00076	2.12 x	0.00045	***0.01***	23.18 x	0.00037	***0.0052***	14.08 x	0.00045	***0.012***	27.48 x
Total Barium	mg/L	-	0.0043	0.0049	1.13 x	0.0053	0.014	2.56 x	0.0043	0.0085	2 x	0.0053	0.015	2.93 x
Total Beryllium	mg/L	0.1	0.0000062	0.000015	2.45 x	0.0000078	0.00012	14.79 x	0.0000066	0.00001	1.56 x	0.0000078	0.000014	1.73 x
Total Boron	mg/L	0.5	0.039	0.04	1.03 x	0.048	0.063	1.32 x	0.039	0.041	1.05 x	0.048	0.047	0.98 x
Total Cadmium	mg/L	0.00012	0.0000056	0.0000059	1.05 x	0.0000069	0.0000093	1.34 x	0.0000056	0.0000064	1.13 x	0.0000069	0.0000076	1.11 x
Total Calcium	mg/L	-	10	11	1.05 x	12	17	1.34 x	10	11	1.09 x	12	13	1.02 x
Total Chromium	mg/L	0.001	0.00056	0.00058	1.03 x	0.00069	0.00092	1.32 x	0.00056	0.00058	1.03 x	0.00069	0.00065	0.94 x
Total Cobalt	mg/L	0.05	0.000062	0.000082	1.31 x	0.000076	0.00028	3.68 x	0.000062	0.000075	1.22 x	0.000076	0.000089	1.18 x
Total Copper	mg/L	0.002	0.0017	0.0018	1.08 x	***0.0021***	***0.0029***	1.4 x	0.0017	***0.0022***	1.27 x	***0.0021***	***0.0027***	1.27 x
Total Iron	mg/L	0.3	0.21	0.22	1.02 x	0.26	***0.34***	1.32 x	0.2	0.2	1 x	0.25	0.22	0.86 x
Total Lead	mg/L	0.001	0.000076	0.000081	1.06 x	0.000094	0.00012	1.33 x	0.000077	0.000079	1.02 x	0.000094	0.000085	0.9 x
Total Lithium	mg/L	2.5	0.0045	0.0046	1.02 x	0.0055	0.0072	1.31 x	0.0045	0.0043	0.96 x	0.0055	0.0045	0.82 x
Total Magnesium	mg/L	-	7.4	7.6	1.02 x	9.2	12	1.31 x	7.5	7.9	1.06 x	9.1	9.3	1.01 x
Total Manganese	mg/L	0.2	0.031	0.032	1.03 x	0.038	0.051	1.33 x	0.031	0.033	1.05 x	0.038	0.036	0.94 x
Total Mercury	mg/L	0.000016	0.00000098	0.0000017	1.71 x	0.0000012	0.0000038	3.19 x	0.00000096	0.000003	3.1 x	0.0000012	0.0000045	3.75 x
Total Molybdenum	mg/L	0.01	0.0002	0.00026	1.29 x	0.00025	0.00072	2.87 x	0.00021	0.00036	1.74 x	0.00025	0.00059	2.33 x
Total Nickel	mg/L	0.025	0.00075	0.00079	1.05 x	0.00092	0.0012	1.35 x	0.00075	0.00081	1.08 x	0.00092	0.0009	0.98 x
Total Selenium	mg/L	0.001	0.00023	0.00023	1.03 x	0.00028	0.00037	1.32 x	0.00023	0.00023	1.04 x	0.00028	0.00026	0.95 x
Total Silver	mg/L	0.00025	0.0000056	0.0000059	1.05 x	0.0000069	0.0000092	1.33 x	0.0000056	0.0000063	1.12 x	0.0000069	0.0000077	1.12 x
Total Sodium	mg/L	-	38	38	1.01 x	46	61	1.31 x	38	36	0.95 x	46	36	0.79 x
Total Thallium	mg/L	0.0008	0.0000025	0.0000042	1.69 x	0.000003	0.000024	7.91 x	0.0000025	0.0000032	1.28 x	0.000003	0.0000042	1.39 x
Total Uranium	mg/L	0.01	0.000043	0.000047	1.11 x	0.000053	0.000073	1.39 x	0.000043	0.000054	1.25 x	0.000053	0.000065	1.24 x
Total Vanadium	mg/L	0.1	0.00025	0.00027	1.08 x	0.00031	0.00041	1.36 x	0.00025	0.00031	1.27 x	0.0003	0.00041	1.36 x
Total Zinc	mg/L	0.03	0.0034	0.0035	1.02 x	0.0042	0.0055	1.32 x	0.0034	0.0034	1 x	0.0041	0.0036	0.86 x
Total Phosphorous	mg/L	Variable	0.029	0.029	1.01 x	0.035	0.047	1.32 x	0.029	0.028	0.95 x	0.035	0.028	0.8 x

[1] ***CCME Exceedance shown in bold italics***

Windy Lake Average and Maximum Concentrations During Operations and Post-Closure												
Parameter	Units	Min CCME[1]	Operations						Post-Closure		
			Average Open Water			Maximum Under Ice			Steady State Closure		
			Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline
TSS	mg/L	Variable	4.9	4.8	1 x	5.9	5.9	n/a	5.8	5.8	n/a
TDS	mg/L	-	170	170	n/a	200	200	n/a	200	200	n/a
Fluoride	mg/L	0.12	0.058	0.058	n/a	0.07	0.07	n/a	0.068	0.068	n/a
Chloride	mg/L	120	68	68	n/a	82	82	n/a	80	80	n/a
Free Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0013	0.0013	n/a	0.0013	0.0013	n/a
Total Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0013	0.0013	n/a	0.0013	0.0013	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0055	0.0055	n/a	0.0066	0.0066	n/a	0.0064	0.0064	n/a
Nitrate	mg/L as N	3	0.0055	0.0055	n/a	0.0066	0.0066	n/a	0.0064	0.0064	n/a
Nitrite	mg/L as N	10	0.0011	0.0011	n/a	0.0013	0.0013	n/a	0.0013	0.0013	n/a
Sulphate	mg/L	1000	2.9	2.9	n/a	3.5	3.6	1 x	3.4	5.5	1.6 x
Alkalinity	mg/L	-	32	32	n/a	38	38	n/a	37	38	1 x
Hardness	mg/L	-	53	53	n/a	64	64	n/a	62	62	n/a
Dissolved Aluminum	mg/L	0.1	0.064	0.064	n/a	0.077	0.077	n/a	0.074	0.076	1 x
Dissolved Antimony	mg/L	-	0.000025	0.000026	1 x	0.000031	0.000031	n/a	0.00003	0.000045	1.5 x
Dissolved Arsenic	mg/L	0.005	0.0003	0.0003	n/a	0.00037	0.0004	1.1 x	0.00036	0.0015	4.2 x
Dissolved Barium	mg/L	-	0.0039	0.0039	n/a	0.0047	0.0047	n/a	0.0045	0.0046	1 x
Dissolved Beryllium	mg/L	0.1	0.0000055	0.0000056	1 x	0.0000066	0.000007	1.1 x	0.0000064	0.0000084	1.3 x
Dissolved Boron	mg/L	0.5	0.034	0.034	n/a	0.041	0.041	n/a	0.04	0.041	1 x
Dissolved Cadmium	mg/L	0.00012	0.0000055	0.0000055	n/a	0.0000066	0.0000066	n/a	0.0000064	0.0000085	1.3 x
Dissolved Calcium	mg/L	-	9.5	9.5	n/a	11	12	1.1 x	11	12	1.1 x
Dissolved Chromium	mg/L	0.001	0.00055	0.00055	n/a	0.00066	0.00066	n/a	0.00064	0.00065	1 x
Dissolved Cobalt	mg/L	0.05	0.000055	0.000055	n/a	0.000066	0.00007	1.1 x	0.000064	0.00021	3.3 x
Dissolved Copper	mg/L	0.002	0.0015	0.0015	n/a	0.0018	0.0019	1.1 x	0.0018	0.002	1.1 x
Dissolved Iron	mg/L	0.3	0.18	0.18	n/a	0.21	0.21	n/a	0.2	0.21	1.1 x
Dissolved Lead	mg/L	0.001	0.000055	0.000055	n/a	0.000066	0.000066	n/a	0.000064	0.000076	1.2 x
Dissolved Lithium	mg/L	2.5	0.0041	0.0041	n/a	0.0049	0.0049	n/a	0.0048	0.0048	n/a
Dissolved Magnesium	mg/L	-	7	7	n/a	8.5	8.5	n/a	8.2	8.3	1 x
Dissolved Manganese	mg/L	0.2	0.022	0.022	n/a	0.027	0.027	n/a	0.026	0.029	1.1 x
Dissolved Mercury	mg/L	0.000016	0.00000076	0.00000078	1 x	0.00000091	0.00000096	1.1 x	0.00000088	0.0000012	1.4 x
Dissolved Molybdenum	mg/L	0.01	0.00019	0.00019	n/a	0.00023	0.00023	n/a	0.00023	0.00024	1 x
Dissolved Nickel	mg/L	0.025	0.00058	0.00058	n/a	0.0007	0.00071	1 x	0.00068	0.0012	1.8 x
Dissolved Selenium	mg/L	0.001	0.00022	0.00022	n/a	0.00026	0.00026	n/a	0.00026	0.00026	n/a
Dissolved Silver	mg/L	0.00025	0.0000055	0.0000055	n/a	0.0000066	0.0000066	n/a	0.0000064	0.0000067	1 x
Dissolved Sodium	mg/L	-	36	36	n/a	43	43	n/a	42	42	n/a
Dissolved Thallium	mg/L	0.0008	0.0000022	0.0000022	n/a	0.0000026	0.0000027	1 x	0.0000026	0.0000031	1.2 x
Dissolved Uranium	mg/L	0.01	0.000037	0.000037	n/a	0.000045	0.000045	n/a	0.000044	0.000046	1 x
Dissolved Vanadium	mg/L	0.1	0.0002	0.0002	n/a	0.00024	0.00024	n/a	0.00023	0.00026	1.1 x
Dissolved Zinc	mg/L	0.03	0.0033	0.0033	n/a	0.004	0.004	n/a	0.0038	0.0041	1.1 x
Dissolved Phosphorous	mg/L	Variable	0.024	0.024	n/a	0.029	0.029	n/a	0.029	0.029	n/a
Total Aluminum	mg/L	0.1	0.064	0.064	n/a	0.077	0.077	n/a	0.074	0.076	1 x
Total Antimony	mg/L	-	0.000025	0.000026	1 x	0.000031	0.000031	n/a	0.00003	0.000045	1.5 x
Total Arsenic	mg/L	0.005	0.0003	0.00031	1 x	0.00037	0.0004	1.1 x	0.00036	0.0015	4.2 x
Total Barium	mg/L	-	0.0039	0.0039	n/a	0.0047	0.0047	n/a	0.0045	0.0046	1 x
Total Beryllium	mg/L	0.1	0.0000055	0.0000056	1 x	0.0000066	0.000007	1.1 x	0.0000064	0.0000084	1.3 x
Total Boron	mg/L	0.5	0.034	0.034	n/a	0.041	0.041	n/a	0.04	0.041	1 x
Total Cadmium	mg/L	0.00012	0.0000055	0.0000055	n/a	0.0000066	0.0000066	n/a	0.0000064	0.0000085	1.3 x
Total Calcium	mg/L	-	9.5	9.5	n/a	11	12	1.1 x	11	12	1.1 x
Total Chromium	mg/L	0.001	0.00055	0.00055	n/a	0.00066	0.00066	n/a	0.00064	0.00066	1 x
Total Cobalt	mg/L	0.05	0.000055	0.000055	n/a	0.000066	0.00007	1.1 x	0.000064	0.00022	3.4 x
Total Copper	mg/L	0.002	0.0015	0.0015	n/a	0.0018	0.0019	1.1 x	0.0018	0.002	1.1 x
Total Iron	mg/L	0.3	0.18	0.18	n/a	0.21	0.22	1 x	0.2	0.21	1.1 x
Total Lead	mg/L	0.001	0.000055	0.000055	n/a	0.000066	0.000066	n/a	0.000064	0.000076	1.2 x
Total Lithium	mg/L	2.5	0.0041	0.0041	n/a	0.0049	0.0049	n/a	0.0048	0.0048	n/a
Total Magnesium	mg/L	-	7	7	n/a	8.5	8.5	n/a	8.2	8.3	1 x
Total Manganese	mg/L	0.2	0.022	0.022	n/a	0.027	0.027	n/a	0.026	0.029	1.1 x
Total Mercury	mg/L	0.000016	0.00000076	0.00000085	1.1 x	0.00000091	0.0000012	1.3 x	0.00000088	0.000002	2.3 x
Total Molybdenum	mg/L	0.01	0.00019	0.00019	n/a	0.00023	0.00023	n/a	0.00023	0.00024	1 x
Total Nickel	mg/L	0.025	0.00058	0.00058	n/a	0.0007	0.00071	1 x	0.00068	0.0012	1.8 x
Total Selenium	mg/L	0.001	0.00022	0.00022	n/a	0.00026	0.00026	n/a	0.00026	0.00026	n/a
Total Silver	mg/L	0.00025	0.0000055	0.0000055	n/a	0.0000066	0.0000066	n/a	0.0000064	0.0000067	1 x
Total Sodium	mg/L	-	36	36	n/a	43	43	n/a	42	42	n/a
Total Thallium	mg/L	0.0008	0.0000022	0.0000022	n/a	0.0000026	0.0000027	1 x	0.0000026	0.0000031	1.2 x
Total Uranium	mg/L	0.01	0.000037	0.000037	n/a	0.000045	0.000045	n/a	0.000044	0.000046	1 x
Total Vanadium	mg/L	0.1	0.0002	0.0002	n/a	0.00024	0.00024	n/a	0.00023	0.00026	1.1 x
Total Zinc	mg/L	0.03	0.0033	0.0033	n/a	0.004	0.004	n/a	0.0038	0.0041	1.1 x
Total Phosphorous	mg/L	Variable	0.024	0.024	n/a	0.029	0.029	n/a	0.029	0.029	n/a

[1] ***CCME Exceedance shown in bold italics***

Windy Lake Average and Maximum Concentrations During Operations and Post-Closure												
Parameter	Units	Min CCME[1]	Operations						Post-Closure		
			Average Open Water			Maximum Under Ice			Steady State Closure		
			Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline
TSS	mg/L	Variable	5.3	5.3	1 x	6.4	6.4	1 x	8.9	8.9	0.99 x
TDS	mg/L	-	180	180	1 x	210	210	1 x	250	250	0.99 x
Fluoride	mg/L	0.12	0.059	0.059	1 x	0.072	0.072	1 x	0.085	0.086	1 x
Chloride	mg/L	120	69	69	1 x	84	83	1 x	96	95	0.99 x
Free Cyanide	mg/L	0.005	0.0011	0.0011	1 x	0.0013	0.0013	n/a	0.0015	0.0015	0.99 x
Total Cyanide	mg/L	0.005	0.0011	0.0011	1 x	0.0013	0.0013	n/a	0.0015	0.0015	0.99 x
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0055	0.0055	1 x	0.0066	0.0066	1 x	0.0074	0.0074	0.99 x
Nitrate	mg/L as N	3	0.0055	0.0055	1 x	0.0066	0.0066	1 x	0.0074	0.0074	0.99 x
Nitrite	mg/L as N	10	0.0011	0.0011	1 x	0.0013	0.0013	n/a	0.0015	0.0015	0.99 x
Sulphate	mg/L	1000	2.9	3	1 x	3.5	3.7	1 x	4.2	9.4	2.3 x
Alkalinity	mg/L	-	32	32	1 x	39	39	1 x	46	48	1.1 x
Hardness	mg/L	-	54	54	1 x	65	65	1 x	75	74	0.99 x
Dissolved Aluminum	mg/L	0.1	0.085	0.085	1 x	0.1	0.1	1 x	0.098	***0.11***	1.1 x
Dissolved Antimony	mg/L	-	0.000033	0.000033	1 x	0.00004	0.00004	1 x	0.000046	0.00011	2.4 x
Dissolved Arsenic	mg/L	0.005	0.00034	0.00034	1 x	0.00041	0.0005	1.2 x	0.00059	***0.0064***	11 x
Dissolved Barium	mg/L	-	0.0043	0.0043	1 x	0.0051	0.0051	1 x	0.0051	0.0052	1 x
Dissolved Beryllium	mg/L	0.1	0.0000056	0.0000058	1 x	0.000007	0.0000074	1.1 x	0.0000093	0.000013	1.4 x
Dissolved Boron	mg/L	0.5	0.037	0.037	1 x	0.045	0.045	1 x	0.066	0.07	1.1 x
Dissolved Cadmium	mg/L	0.00012	0.0000055	0.0000055	1 x	0.0000066	0.0000067	1 x	0.0000074	0.000013	1.8 x
Dissolved Calcium	mg/L	-	9.9	9.9	1 x	12	12	1 x	14	15	1.1 x
Dissolved Chromium	mg/L	0.001	0.00055	0.00055	1 x	0.00066	0.00066	1 x	0.00074	0.00078	1.1 x
Dissolved Cobalt	mg/L	0.05	0.000061	0.000062	1 x	0.000074	0.000078	1.1 x	0.000074	0.0005	6.7 x
Dissolved Copper	mg/L	0.002	0.0016	0.0016	1 x	0.002	0.002	1 x	***0.0024***	***0.0027***	1.1 x
Dissolved Iron	mg/L	0.3	0.22	0.22	1 x	0.25	0.25	1 x	0.17	0.19	1.1 x
Dissolved Lead	mg/L	0.001	0.000074	0.000074	1 x	0.000089	0.000089	1 x	0.00017	0.0002	1.2 x
Dissolved Lithium	mg/L	2.5	0.0044	0.0044	1 x	0.0053	0.0053	1 x	0.006	0.0063	1 x
Dissolved Magnesium	mg/L	-	7.2	7.2	1 x	8.7	8.7	1 x	10	10	1 x
Dissolved Manganese	mg/L	0.2	0.03	0.03	1 x	0.036	0.036	1 x	0.039	0.046	1.2 x
Dissolved Mercury	mg/L	0.000016	0.00000097	0.00000099	1 x	0.0000012	0.0000012	1 x	0.00000085	0.0000018	2.1 x
Dissolved Molybdenum	mg/L	0.01	0.00019	0.00019	1 x	0.00023	0.00024	1 x	0.00033	0.00036	1.1 x
Dissolved Nickel	mg/L	0.025	0.00073	0.00073	1 x	0.00088	0.00089	1 x	0.00098	0.0024	2.5 x
Dissolved Selenium	mg/L	0.001	0.00022	0.00022	1 x	0.00026	0.00026	1 x	0.0003	0.00031	1.1 x
Dissolved Silver	mg/L	0.00025	0.0000055	0.0000055	1 x	0.0000066	0.0000066	1 x	0.0000074	0.0000083	1.1 x
Dissolved Sodium	mg/L	-	37	37	1 x	44	44	1 x	49	48	0.99 x
Dissolved Thallium	mg/L	0.0008	0.0000024	0.0000025	1 x	0.0000029	0.000003	1 x	0.0000041	0.0000056	1.4 x
Dissolved Uranium	mg/L	0.01	0.000041	0.000042	1 x	0.00005	0.000051	1 x	0.000054	0.000059	1.1 x
Dissolved Vanadium	mg/L	0.1	0.00025	0.00025	1 x	0.0003	0.0003	1 x	0.00029	0.00038	1.3 x
Dissolved Zinc	mg/L	0.03	0.0033	0.0033	1 x	0.004	0.004	1 x	0.0045	0.0052	1.2 x
Dissolved Phosphorous	mg/L	Variable	0.027	0.027	1 x	0.033	0.033	1 x	0.032	0.032	0.99 x
Total Aluminum	mg/L	0.1	0.085	0.085	1 x	0.1	0.1	n/a	0.098	***0.11***	1.1 x
Total Antimony	mg/L	-	0.000033	0.000033	1 x	0.00004	0.00004	1 x	0.000046	0.00011	2.4 x
Total Arsenic	mg/L	0.005	0.00034	0.00034	1 x	0.00041	0.0005	1.2 x	0.00059	***0.0064***	11 x
Total Barium	mg/L	-	0.0043	0.0043	1 x	0.0051	0.0051	1 x	0.0051	0.0052	1 x
Total Beryllium	mg/L	0.1	0.0000056	0.0000058	1 x	0.000007	0.0000074	1.1 x	0.0000093	0.000013	1.4 x
Total Boron	mg/L	0.5	0.037	0.037	1 x	0.045	0.045	1 x	0.066	0.07	1.1 x
Total Cadmium	mg/L	0.00012	0.0000055	0.0000055	1 x	0.0000066	0.0000067	1 x	0.0000074	0.000013	1.8 x
Total Calcium	mg/L	-	9.9	9.9	1 x	12	12	1 x	14	15	1.1 x
Total Chromium	mg/L	0.001	0.00055	0.00055	1 x	0.00066	0.00066	1 x	0.00074	0.00078	1.1 x
Total Cobalt	mg/L	0.05	0.000061	0.000062	1 x	0.000074	0.000079	1.1 x	0.000074	0.0005	6.7 x
Total Copper	mg/L	0.002	0.0016	0.0016	1 x	0.002	0.002	1 x	***0.0024***	***0.0027***	1.1 x
Total Iron	mg/L	0.3	0.22	0.22	1 x	0.25	0.26	1 x	0.17	0.19	1.1 x
Total Lead	mg/L	0.001	0.000074	0.000074	1 x	0.000089	0.000089	1 x	0.00017	0.0002	1.2 x
Total Lithium	mg/L	2.5	0.0044	0.0044	1 x	0.0053	0.0053	1 x	0.006	0.0063	1 x
Total Magnesium	mg/L	-	7.2	7.2	1 x	8.7	8.7	1 x	10	10	1 x
Total Manganese	mg/L	0.2	0.03	0.03	1 x	0.036	0.036	1 x	0.039	0.046	1.2 x
Total Mercury	mg/L	0.000016	0.00000097	0.0000011	1.1 x	0.0000012	0.0000014	1.2 x	0.00000085	0.0000018	2.1 x
Total Molybdenum	mg/L	0.01	0.00019	0.00019	1 x	0.00023	0.00024	1 x	0.00033	0.00036	1.1 x
Total Nickel	mg/L	0.025	0.00073	0.00074	1 x	0.00088	0.00089	1 x	0.00098	0.0024	2.5 x
Total Selenium	mg/L	0.001	0.00022	0.00022	1 x	0.00026	0.00026	1 x	0.0003	0.00031	1.1 x
Total Silver	mg/L	0.00025	0.0000055	0.0000055	1 x	0.0000066	0.0000066	1 x	0.0000074	0.0000083	1.1 x
Total Sodium	mg/L	-	37	37	1 x	44	44	1 x	49	48	0.99 x
Total Thallium	mg/L	0.0008	0.0000024	0.0000025	1 x	0.0000029	0.000003	1 x	0.0000041	0.0000056	1.4 x
Total Uranium	mg/L	0.01	0.000041	0.000042	1 x	0.00005	0.000051	1 x	0.000054	0.000059	1.1 x
Total Vanadium	mg/L	0.1	0.00025	0.00025	1 x	0.0003	0.0003	1 x	0.00029	0.00038	1.3 x
Total Zinc	mg/L	0.03	0.0033	0.0033	1 x	0.004	0.004	1 x	0.0045	0.0052	1.2 x
Total Phosphorous	mg/L	Variable	0.027	0.027	1 x	0.033	0.033	1 x	0.032	0.032	0.99 x

[1] ***CCME Exceedance shown in bold italics***

Marine Mixing Box Average and Maximum Concentrations During Operations and Closure

Parameter	Units	MMER		Operations (2017-2032)				Closure (2033-2035)			
				Average		Maximum		Average		Maximum	
		Current[1]	Proposed[2]	Base Case	Upper Case	Base Case	Upper Case	Base Case	Upper Case	Base Case	Upper Case
TSS	mg/L	15	15	15	15	15	15	12	12	15	15
TDS	mg/L	-	-	8800	8800	32000	32000	310	330	1200	1200
Fluoride	mg/L	-	-	0.29	0.29	0.74	0.75	0.057	0.065	0.093	0.1
Chloride	mg/L	-	-	4800	4800	18000	18000	94	95	490	490
Free Cyanide	mg/L	-	-	0.00072	0.00073	0.0012	0.0012	0.00048	0.00048	0.00077	0.00077
Total Cyanide	mg/L	1	0.5	0.024	0.024	0.23	0.23	0.0011	0.0011	0.0092	0.0092
WAD Cyanide	mg/L	-	-	0.1	0.1	0.3	0.3	0.029	0.029	0.087	0.087
Cyanate	mg/L	-	-	0.95	0.95	5.4	5.4	0.15	0.15	2.1	2.1
Thiocyanate	mg/L	-	-	1.2	1.2	6.2	6.2	0.041	0.041	0.56	0.56
Ammonia	mg/L as N	-	Variable	8.7	8.7	14	14	1.5	1.5	11	11
Nitrate	mg/L as N	-	-	16	16	32	32	1.6	1.6	9.1	9.1
Nitrite	mg/L as N	-	-	0.24	0.24	0.91	0.91	0.2	0.2	0.61	0.61
Sulphate	mg/L	-	-	800	800	2000	2000	77	90	230	240
Alkalinity	mg/L	-	-	100	100	260	260	71	72	130	140
Hardness	mg/L	-	-	2900	2900	11000	11000	200	200	510	510
Dissolved Aluminum	mg/L	-	-	0.11	0.11	0.32	0.32	0.15	0.16	0.35	0.35
Dissolved Antimony	mg/L	-	-	0.0076	0.0076	0.032	0.033	0.005	0.0052	0.013	0.013
Dissolved Arsenic	mg/L	0.5	0.1	0.01	0.01	0.01	0.01	0.0081	0.0081	0.01	0.01
Dissolved Barium	mg/L	-	-	0.047	0.048	0.12	0.13	0.039	0.053	0.057	0.084
Dissolved Beryllium	mg/L	-	-	0.001	0.001	0.0047	0.0048	0.0018	0.0018	0.0054	0.0054
Dissolved Boron	mg/L	-	-	0.85	0.86	2.8	2.8	0.098	0.1	0.18	0.2
Dissolved Cadmium	mg/L	-	-	0.00012	0.00012	0.00037	0.00037	0.000057	0.00006	0.00015	0.00015
Dissolved Calcium	mg/L	-	-	640	640	2000	2000	61	63	200	210
Dissolved Chromium	mg/L	-	-	0.003	0.003	0.014	0.014	0.0017	0.0018	0.0037	0.0038
Dissolved Cobalt	mg/L	-	-	0.02	0.02	0.058	0.058	0.0021	0.0022	0.0043	0.0049
Dissolved Copper	mg/L	0.3	0.1	0.008	0.0082	0.03	0.031	0.0051	0.0069	0.0084	0.01
Dissolved Iron	mg/L	-	-	0.5	0.5	0.5	0.5	0.4	0.4	0.5	0.5
Dissolved Lead	mg/L	0.2	0.08	0.00036	0.00037	0.00087	0.00091	0.00026	0.0003	0.00064	0.00068
Dissolved Lithium	mg/L	-	-	0.095	0.096	0.34	0.35	0.0067	0.0082	0.014	0.016
Dissolved Magnesium	mg/L	-	-	380	380	1300	1300	26	27	67	68
Dissolved Manganese	mg/L	-	-	0.58	0.59	1.8	1.9	0.04	0.062	0.08	0.1
Dissolved Mercury	mg/L	-	-	0.000036	0.000036	0.000075	0.000076	0.0000054	0.0000061	0.0000085	0.00001
Dissolved Molybdenum	mg/L	-	-	0.033	0.033	0.15	0.15	0.016	0.017	0.046	0.047
Dissolved Nickel	mg/L	0.5	0.25	0.072	0.073	0.2	0.2	0.0055	0.0075	0.013	0.015
Dissolved Selenium	mg/L	-	-	0.0043	0.0043	0.014	0.014	0.0014	0.0014	0.0034	0.0035
Dissolved Silver	mg/L	-	-	0.00023	0.00024	0.00085	0.00085	0.000099	0.0001	0.00027	0.00028
Dissolved Sodium	mg/L	-	-	2200	2200	8700	8700	47	47	210	210
Dissolved Thallium	mg/L	-	-	0.00011	0.00011	0.00032	0.00032	0.000057	0.000059	0.00014	0.00014
Dissolved Uranium	mg/L	-	-	0.00029	0.0003	0.0011	0.0011	0.00027	0.00031	0.00064	0.00069
Dissolved Vanadium	mg/L	-	-	0.004	0.004	0.012	0.013	0.0029	0.0034	0.0074	0.008
Dissolved Zinc	mg/L	0.5	0.4	0.05	0.051	0.15	0.16	0.0092	0.01	0.022	0.023
Dissolved Phosphorous	mg/L	-	-	0.26	0.26	0.97	0.97	0.018	0.019	0.04	0.041
Total Aluminum	mg/L	-	-	0.35	0.35	0.55	0.55	0.15	0.16	0.36	0.37
Total Antimony	mg/L	-	-	0.0076	0.0076	0.033	0.033	0.005	0.0052	0.013	0.013
Total Arsenic	mg/L	0.5	0.1	0.014	0.014	0.015	0.015	0.0081	0.0081	0.01	0.01
Total Barium	mg/L	-	-	0.047	0.048	0.12	0.13	0.039	0.053	0.057	0.084
Total Beryllium	mg/L	-	-	0.001	0.001	0.0047	0.0048	0.0018	0.0018	0.0054	0.0054
Total Boron	mg/L	-	-	0.85	0.86	2.8	2.8	0.098	0.1	0.18	0.2
Total Cadmium	mg/L	-	-	0.00012	0.00013	0.00037	0.00037	0.000057	0.00006	0.00015	0.00015
Total Calcium	mg/L	-	-	640	650	2000	2000	61	63	200	210
Total Chromium	mg/L	-	-	0.0062	0.0063	0.017	0.017	0.0018	0.002	0.0039	0.0042
Total Cobalt	mg/L	-	-	0.021	0.021	0.059	0.059	0.0021	0.0022	0.0044	0.005
Total Copper	mg/L	0.3	0.1	0.0093	0.0095	0.031	0.032	0.0052	0.007	0.0085	0.01
Total Iron	mg/L	-	-	1.3	1.3	1.4	1.4	0.4	0.4	0.5	0.5
Total Lead	mg/L	0.2	0.08	0.00042	0.00043	0.00092	0.00096	0.00027	0.0003	0.00064	0.00069
Total Lithium	mg/L	-	-	0.095	0.096	0.34	0.35	0.0067	0.0082	0.014	0.016
Total Magnesium	mg/L	-	-	380	380	1300	1300	26	27	67	68
Total Manganese	mg/L	-	-	0.61	0.62	1.8	1.9	0.042	0.065	0.083	0.11
Total Mercury	mg/L	-	-	0.00025	0.00025	0.0003	0.0003	0.000018	0.000025	0.000034	0.00004
Total Molybdenum	mg/L	-	-	0.033	0.033	0.15	0.15	0.016	0.017	0.046	0.047
Total Nickel	mg/L	0.5	0.25	0.077	0.078	0.2	0.2	0.0056	0.0076	0.013	0.015
Total Selenium	mg/L	-	-	0.0043	0.0043	0.014	0.014	0.0014	0.0014	0.0034	0.0035
Total Silver	mg/L	-	-	0.00024	0.00024	0.00085	0.00085	0.000099	0.0001	0.00027	0.00028
Total Sodium	mg/L	-	-	2200	2200	8700	8700	47	47	210	210
Total Thallium	mg/L	-	-	0.00011	0.00011	0.00032	0.00033	0.000057	0.000059	0.00014	0.00014
Total Uranium	mg/L	-	-	0.0003	0.00031	0.0011	0.0011	0.00027	0.00031	0.00064	0.00069
Total Vanadium	mg/L	-	-	0.0052	0.0053	0.013	0.014	0.0029	0.0034	0.0074	0.008
Total Zinc	mg/L	0.5	0.4	0.051	0.051	0.16	0.16	0.0093	0.01	0.022	0.023
Total Phosphorous	mg/L	-	-	0.27	0.27	0.98	0.98	0.018	0.019	0.04	0.041

[1] ***Current MMER Exceedance Shown in bold italics***

[2] Proposed MMER Exceedance shown in grey highlight

Stickleback Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Post -Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline
TSS	mg/L	Variable	2.5	2.5	n/a	7.2	7.3	1 x	2.9	2.9	n/a	8.2	8.2	n/a
TDS	mg/L	-	27	50	1.9 x	80	150	1.9 x	33	39	1.2 x	92	120	1.3 x
Fluoride	mg/L	0.12	0.038	0.045	1.2 x	0.11	***0.13***	1.2 x	0.046	0.048	1 x	***0.13***	***0.13***	n/a
Chloride	mg/L	120	11	30	2.7 x	32	99	3.1 x	13	16	1.2 x	38	61	1.6 x
Free Cyanide	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Total Cyanide	mg/L	0.005	0.0013	0.0013	n/a	0.0039	0.0039	n/a	0.0016	0.0016	n/a	0.0045	0.0045	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.016	0.021	1.3 x	0.045	0.058	1.3 x	0.018	0.019	1.1 x	0.048	0.053	1.1 x
Nitrate	mg/L as N	3	0.017	0.017	n/a	0.048	0.049	1 x	0.019	0.019	n/a	0.05	0.05	n/a
Nitrite	mg/L as N	10	0.0013	0.0013	n/a	0.0039	0.0039	n/a	0.0016	0.0016	n/a	0.0045	0.0045	n/a
Sulphate	mg/L	1000	3.9	4	1 x	12	12	n/a	4.8	6.2	1.3 x	14	18	1.3 x
Alkalinity	mg/L	-	13	18	1.4 x	38	49	1.3 x	15	25	1.7 x	43	74	1.7 x
Hardness	mg/L	-	17	26	1.5 x	49	74	1.5 x	20	21	1.1 x	56	63	1.1 x
Dissolved Aluminum	mg/L	0.1	0.061	0.061	n/a	***0.18***	***0.18***	n/a	0.077	0.075	1 x	***0.22***	***0.21***	1 x
Dissolved Antimony	mg/L	-	0.000014	0.000015	1.1 x	0.000048	0.000053	1.1 x	0.000021	0.000033	1.6 x	0.000061	0.0001	1.6 x
Dissolved Arsenic	mg/L	0.005	0.00021	0.00025	1.2 x	0.00063	0.00073	1.2 x	0.00026	0.00035	1.3 x	0.00074	0.001	1.4 x
Dissolved Barium	mg/L	-	0.0028	0.0039	1.4 x	0.0084	0.011	1.3 x	0.0034	0.0041	1.2 x	0.0097	0.012	1.2 x
Dissolved Beryllium	mg/L	0.1	0.0000066	0.0000074	1.1 x	0.000019	0.000025	1.3 x	0.0000081	0.000021	2.6 x	0.000023	0.000067	2.9 x
Dissolved Boron	mg/L	0.5	0.0066	0.0088	1.3 x	0.02	0.025	1.3 x	0.008	0.013	1.6 x	0.023	0.037	1.6 x
Dissolved Cadmium	mg/L	0.00012	0.0000091	0.0000092	1 x	0.000025	0.000026	1 x	0.0000098	0.00001	1 x	0.000026	0.000028	1.1 x
Dissolved Calcium	mg/L	-	3.4	6.5	1.9 x	10	19	1.9 x	4.1	7.6	1.9 x	12	22	1.8 x
Dissolved Chromium	mg/L	0.001	0.00031	0.00031	n/a	0.00095	0.00096	1 x	0.0004	0.0004	n/a	***0.0012***	***0.0012***	n/a
Dissolved Cobalt	mg/L	0.05	0.000076	0.0001	1.3 x	0.00021	0.00028	1.3 x	0.000085	0.00011	1.3 x	0.00023	0.0003	1.3 x
Dissolved Copper	mg/L	0.002	0.0012	0.0013	1.1 x	***0.0036***	***0.0041***	1.1 x	0.0015	***0.0025***	1.7 x	***0.0042***	***0.0077***	1.8 x
Dissolved Iron	mg/L	0.3	0.14	0.14	n/a	***0.41***	***0.42***	1 x	0.16	0.16	n/a	***0.45***	***0.43***	1 x
Dissolved Lead	mg/L	0.001	0.000044	0.00005	1.1 x	0.00013	0.00014	1.1 x	0.000055	0.000058	1.1 x	0.00016	0.00016	n/a
Dissolved Lithium	mg/L	2.5	0.0096	0.0096	n/a	0.028	0.028	n/a	0.011	0.011	n/a	0.032	0.029	0.9 x
Dissolved Magnesium	mg/L	-	2.1	2.7	1.3 x	6.2	7.4	1.2 x	2.5	3.1	1.2 x	7.2	8.8	1.2 x
Dissolved Manganese	mg/L	0.2	0.02	0.044	2.2 x	0.058	0.14	2.4 x	0.023	0.028	1.2 x	0.062	0.095	1.5 x
Dissolved Mercury	mg/L	0.000016	0.0000015	0.0000019	1.3 x	0.0000057	0.0000067	1.2 x	0.0000029	0.0000041	1.4 x	0.0000099	0.000014	1.4 x
Dissolved Molybdenum	mg/L	0.01	0.000063	0.000067	1.1 x	0.00018	0.00021	1.2 x	0.000076	0.00014	1.8 x	0.00021	0.00042	2 x
Dissolved Nickel	mg/L	0.025	0.00055	0.00056	1 x	0.0016	0.0017	1.1 x	0.00066	0.00076	1.2 x	0.0019	0.0022	1.2 x
Dissolved Selenium	mg/L	0.001	0.00026	0.00033	1.3 x	0.00077	0.00092	1.2 x	0.00032	0.00032	n/a	0.0009	0.00089	1 x
Dissolved Silver	mg/L	0.00025	0.0000032	0.0000033	1 x	0.000009	0.0000096	1.1 x	0.0000035	0.0000046	1.3 x	0.0000095	0.000013	1.4 x
Dissolved Sodium	mg/L	-	6.3	6.9	1.1 x	18	20	1.1 x	7.6	7.7	1 x	21	21	n/a
Dissolved Thallium	mg/L	0.0008	0.0000057	0.0000058	1 x	0.000017	0.000018	1.1 x	0.0000072	0.000008	1.1 x	0.000021	0.000023	1.1 x
Dissolved Uranium	mg/L	0.01	0.000027	0.000029	1.1 x	0.000081	0.000091	1.1 x	0.000034	0.000054	1.6 x	0.000095	0.00016	1.7 x
Dissolved Vanadium	mg/L	0.1	0.00024	0.00025	1 x	0.00069	0.00075	1.1 x	0.00028	0.00039	1.4 x	0.00077	0.0012	1.6 x
Dissolved Zinc	mg/L	0.03	0.0029	0.0033	1.1 x	0.0083	0.009	1.1 x	0.0033	0.0034	1 x	0.0089	0.0092	1 x
Dissolved Phosphorous	mg/L	Variable	0.016	0.016	n/a	0.046	0.047	1 x	0.019	0.019	n/a	0.052	0.052	n/a
Total Aluminum	mg/L	0.1	0.061	0.061	n/a	***0.18***	***0.18***	n/a	0.077	0.075	1 x	***0.22***	***0.21***	1 x
Total Antimony	mg/L	-	0.000014	0.000015	1.1 x	0.000048	0.000053	1.1 x	0.000021	0.000033	1.6 x	0.000061	0.0001	1.6 x
Total Arsenic	mg/L	0.005	0.00021	0.00025	1.2 x	0.00063	0.00073	1.2 x	0.00026	0.00035	1.3 x	0.00074	0.001	1.4 x
Total Barium	mg/L	-	0.0028	0.0039	1.4 x	0.0084	0.011	1.3 x	0.0034	0.0041	1.2 x	0.0097	0.012	1.2 x
Total Beryllium	mg/L	0.1	0.0000066	0.0000074	1.1 x	0.000019	0.000025	1.3 x	0.0000081	0.000021	2.6 x	0.000023	0.000067	2.9 x
Total Boron	mg/L	0.5	0.0066	0.0088	1.3 x	0.02	0.025	1.3 x	0.008	0.013	1.6 x	0.023	0.037	1.6 x
Total Cadmium	mg/L	0.00012	0.0000091	0.0000092	1 x	0.000025	0.000026	1 x	0.0000098	0.00001	1 x	0.000026	0.000028	1.1 x
Total Calcium	mg/L	-	3.4	6.5	1.9 x	10	19	1.9 x	4.1	7.6	1.9 x	12	22	1.8 x
Total Chromium	mg/L	0.001	0.00031	0.00031	n/a	0.00095	0.00096	1 x	0.0004	0.0004	n/a	***0.0012***	***0.0012***	n/a
Total Cobalt	mg/L	0.05	0.000076	0.0001	1.3 x	0.00021	0.00028	1.3 x	0.000085	0.00011	1.3 x	0.00023	0.0003	1.3 x
Total Copper	mg/L	0.002	0.0012	0.0013	1.1 x	***0.0036***	***0.0041***	1.1 x	0.0015	***0.0025***	1.7 x	***0.0042***	***0.0077***	1.8 x
Total Iron	mg/L	0.3	0.14	0.14	n/a	***0.41***	***0.42***	1 x	0.16	0.16	n/a	***0.45***	***0.43***	1 x
Total Lead	mg/L	0.001	0.000044	0.00005	1.1 x	0.00013	0.00014	1.1 x	0.000055	0.000058	1.1 x	0.00016	0.00016	n/a
Total Lithium	mg/L	2.5	0.0096	0.0096	n/a	0.028	0.028	n/a	0.011	0.011	n/a	0.032	0.029	0.9 x
Total Magnesium	mg/L	-	2.1	2.7	1.3 x	6.2	7.4	1.2 x	2.5	3.1	1.2 x	7.2	8.8	1.2 x
Total Manganese	mg/L	0.2	0.02	0.044	2.2 x	0.058	0.14	2.4 x	0.023	0.028	1.2 x	0.062	0.095	1.5 x
Total Mercury	mg/L	0.000016	0.0000015	0.0000019	1.3 x	0.0000057	0.0000067	1.2 x	0.0000029	0.0000041	1.4 x	0.0000099	0.000014	1.4 x
Total Molybdenum	mg/L	0.01	0.000063	0.000067	1.1 x	0.00018	0.00021	1.2 x	0.000076	0.00014	1.8 x	0.00021	0.00042	2 x
Total Nickel	mg/L	0.025	0.00055	0.00056	1 x	0.0016	0.0017	1.1 x	0.00066	0.00076	1.2 x	0.0019	0.0022	1.2 x
Total Selenium	mg/L	0.001	0.00026	0.00033	1.3 x	0.00077	0.00092	1.2 x	0.00032	0.00032	n/a	0.0009	0.00089	1 x
Total Silver	mg/L	0.00025	0.0000032	0.0000033	1 x	0.000009	0.0000096	1.1 x	0.0000035	0.0000046	1.3 x	0.0000095	0.000013	1.4 x
Total Sodium	mg/L	-	6.3	6.9	1.1 x	18	20	1.1 x	7.6	7.7	1 x	21	21	n/a
Total Thallium	mg/L	0.0008	0.0000057	0.0000058	1 x	0.000017	0.000018	1.1 x	0.0000072	0.000008	1.1 x	0.000021	0.000023	1.1 x
Total Uranium	mg/L	0.01	0.000027	0.000029	1.1 x	0.000081	0.000091	1.1 x	0.000034	0.000054	1.6 x	0.000095	0.00016	1.7 x
Total Vanadium	mg/L	0.1	0.00024	0.00025	1 x	0.00069	0.00075	1.1 x	0.00028	0.00039	1.4 x	0.00077	0.0012	1.6 x
Total Zinc	mg/L	0.03	0.0029	0.0033	1.1 x	0.0083	0.009	1.1 x	0.0033	0.0034	1 x	0.0089	0.0092	1 x
Total Phosphorous	mg/L	Variable	0.016	0.016	n/a	0.046	0.047	1 x	0.019	0.019	n/a	0.052	0.052	n/a

[1] ***CCME Exceedance shown in bold italics***

Stickleback Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Post -Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline
TSS	mg/L	Variable	2.9	2.9	n/a	9.2	9.3	1 x	4.1	4.1	n/a	13	13	n/a
TDS	mg/L	-	29	51	1.8 x	87	150	1.7 x	36	45	1.3 x	100	120	1.2 x
Fluoride	mg/L	0.12	0.077	0.078	1 x	***0.22***	***0.22***	n/a	0.085	0.086	1 x	***0.23***	***0.23***	n/a
Chloride	mg/L	120	12	30	2.5 x	36	99	2.8 x	15	17	1.1 x	42	63	1.5 x
Free Cyanide	mg/L	0.005												
Total Cyanide	mg/L	0.005	0.0013	0.0013	n/a	0.0039	0.0039	n/a	0.0016	0.0016	n/a	0.0045	0.0045	n/a
WAD Cyanide	mg/L	-												
Cyanate	mg/L	-												
Thiocyanate	mg/L	-												
Ammonia	mg/L as N	1.54	0.02	0.023	1.2 x	0.058	0.062	1.1 x	0.023	0.023	n/a	0.061	0.062	1 x
Nitrate	mg/L as N	3	0.025	0.026	1 x	0.07	0.071	1 x	0.027	0.027	n/a	0.073	0.073	n/a
Nitrite	mg/L as N	10	0.0046	0.0046	n/a	0.012	0.013	1.1 x	0.0048	0.0048	n/a	0.013	0.013	n/a
Sulphate	mg/L	1000	4.2	4.4	1 x	13	14	1.1 x	5.4	8.7	1.6 x	16	27	1.7 x
Alkalinity	mg/L	-	13	18	1.4 x	39	51	1.3 x	16	27	1.7 x	45	81	1.8 x
Hardness	mg/L	-	17	26	1.5 x	51	75	1.5 x	21	22	1 x	59	65	1.1 x
Dissolved Aluminum	mg/L	0.1	0.099	0.1	1 x	***0.29***	***0.29***	n/a	***0.12***	***0.11***	0.9 x	***0.32***	***0.32***	n/a
Dissolved Antimony	mg/L	-	0.000065	0.000066	1 x	0.00018	0.00019	1.1 x	0.000072	0.000084	1.2 x	0.00019	0.00023	1.2 x
Dissolved Arsenic	mg/L	0.005	0.00022	0.00027	1.2 x	0.00066	0.00082	1.2 x	0.00027	0.00053	2 x	0.00077	0.0016	2.1 x
Dissolved Barium	mg/L	-	0.0038	0.0043	1.1 x	0.011	0.012	1.1 x	0.0045	0.0052	1.2 x	0.012	0.015	1.3 x
Dissolved Beryllium	mg/L	0.1	0.00012	0.00012	n/a	0.00033	0.00033	n/a	0.00013	0.00013	n/a	0.00034	0.00035	1 x
Dissolved Boron	mg/L	0.5	0.01	0.011	1.1 x	0.03	0.033	1.1 x	0.012	0.018	1.5 x	0.034	0.052	1.5 x
Dissolved Cadmium	mg/L	0.00012	0.000011	0.000011	n/a	0.000032	0.000033	1 x	0.000013	0.000014	1.1 x	0.000034	0.000039	1.1 x
Dissolved Calcium	mg/L	-	3.7	6.6	1.8 x	11	19	1.7 x	4.4	8.9	2 x	12	26	2.2 x
Dissolved Chromium	mg/L	0.001	0.00057	0.00057	n/a	***0.0017***	***0.0017***	n/a	0.00069	0.00068	1 x	***0.0019***	***0.0019***	n/a
Dissolved Cobalt	mg/L	0.05	0.00016	0.00016	n/a	0.00044	0.00046	1 x	0.00017	0.00019	1.1 x	0.00047	0.00053	1.1 x
Dissolved Copper	mg/L	0.002	0.0014	0.0015	1.1 x	***0.0041***	***0.0049***	1.2 x	0.0017	***0.0034***	2 x	***0.0046***	***0.011***	2.4 x
Dissolved Iron	mg/L	0.3	0.23	0.23	n/a	***0.64***	***0.65***	1 x	0.25	0.25	n/a	***0.68***	***0.67***	1 x
Dissolved Lead	mg/L	0.001	0.000072	0.000073	1 x	0.00021	0.00022	1 x	0.000083	0.000094	1.1 x	0.00023	0.00027	1.2 x
Dissolved Lithium	mg/L	2.5	0.011	0.011	n/a	0.034	0.034	n/a	0.014	0.013	0.9 x	0.04	0.037	0.9 x
Dissolved Magnesium	mg/L	-	2.2	2.7	1.2 x	6.4	7.6	1.2 x	2.7	3.4	1.3 x	7.5	9.8	1.3 x
Dissolved Manganese	mg/L	0.2	0.022	0.045	2 x	0.062	0.14	2.3 x	0.024	0.035	1.5 x	0.066	0.1	1.5 x
Dissolved Mercury	mg/L	0.000016	0.0000077	0.0000078	1 x	***0.000024***	***0.000024***	n/a	0.00001	0.000011	1.1 x	***0.000031***	***0.000032***	1 x
Dissolved Molybdenum	mg/L	0.01	0.000063	0.000072	1.1 x	0.00019	0.00025	1.3 x	0.000077	0.00021	2.7 x	0.00022	0.00066	3 x
Dissolved Nickel	mg/L	0.025	0.00061	0.00063	1 x	0.0018	0.0019	1.1 x	0.00073	0.001	1.4 x	0.0021	0.003	1.4 x
Dissolved Selenium	mg/L	0.001	0.00029	0.00035	1.2 x	0.00085	0.00096	1.1 x	0.00035	0.00037	1.1 x	0.001	0.001	n/a
Dissolved Silver	mg/L	0.00025	0.0000077	0.0000078	1 x	0.000022	0.000023	1 x	0.0000088	0.0000094	1.1 x	0.000024	0.000026	1.1 x
Dissolved Sodium	mg/L	-	6.5	7.1	1.1 x	19	20	1.1 x	7.9	8	1 x	22	22	n/a
Dissolved Thallium	mg/L	0.0008	0.0000092	0.0000092	n/a	0.000029	0.000029	n/a	0.000012	0.000013	1.1 x	0.000035	0.000036	1 x
Dissolved Uranium	mg/L	0.01	0.000028	0.000031	1.1 x	0.000084	0.0001	1.2 x	0.000035	0.000077	2.2 x	0.000099	0.00024	2.4 x
Dissolved Vanadium	mg/L	0.1	0.00032	0.00033	1 x	0.00095	0.001	1.1 x	0.00039	0.00051	1.3 x	0.0011	0.0015	1.4 x
Dissolved Zinc	mg/L	0.03	0.0065	0.0065	n/a	0.018	0.019	1.1 x	0.0071	0.0072	1 x	0.019	0.019	n/a
Dissolved Phosphorous	mg/L	Variable	0.017	0.017	n/a	0.051	0.052	1 x	0.021	0.021	n/a	0.06	0.06	n/a
Total Aluminum	mg/L	0.1	0.099	0.1	1 x	***0.29***	***0.29***	n/a	***0.12***	***0.11***	0.9 x	***0.32***	***0.32***	n/a
Total Antimony	mg/L	-	0.000065	0.000066	1 x	0.00018	0.00019	1.1 x	0.000072	0.000084	1.2 x	0.00019	0.00023	1.2 x
Total Arsenic	mg/L	0.005	0.00022	0.00027	1.2 x	0.00066	0.00082	1.2 x	0.00027	0.00053	2 x	0.00077	0.0016	2.1 x
Total Barium	mg/L	-	0.0038	0.0043	1.1 x	0.011	0.012	1.1 x	0.0045	0.0052	1.2 x	0.012	0.015	1.3 x
Total Beryllium	mg/L	0.1	0.00012	0.00012	n/a	0.00033	0.00033	n/a	0.00013	0.00013	n/a	0.00034	0.00035	1 x
Total Boron	mg/L	0.5	0.01	0.011	1.1 x	0.03	0.033	1.1 x	0.012	0.018	1.5 x	0.034	0.052	1.5 x
Total Cadmium	mg/L	0.00012	0.000011	0.000011	n/a	0.000032	0.000033	1 x	0.000013	0.000014	1.1 x	0.000034	0.000039	1.1 x
Total Calcium	mg/L	-	3.7	6.6	1.8 x	11	19	1.7 x	4.4	8.9	2 x	12	26	2.2 x
Total Chromium	mg/L	0.001	0.00057	0.00057	n/a	***0.0017***	***0.0017***	n/a	0.00069	0.00068	1 x	***0.0019***	***0.0019***	n/a
Total Cobalt	mg/L	0.05	0.00016	0.00016	n/a	0.00044	0.00046	1 x	0.00017	0.00019	1.1 x	0.00047	0.00053	1.1 x
Total Copper	mg/L	0.002	0.0014	0.0015	1.1 x	***0.0041***	***0.0049***	1.2 x	0.0017	***0.0034***	2 x	***0.0046***	***0.011***	2.4 x
Total Iron	mg/L	0.3	0.23	0.23	n/a	***0.64***	***0.65***	1 x	0.25	0.25	n/a	***0.68***	***0.67***	1 x
Total Lead	mg/L	0.001	0.000072	0.000073	1 x	0.00021	0.00022	1 x	0.000083	0.000094	1.1 x	0.00023	0.00027	1.2 x
Total Lithium	mg/L	2.5	0.011	0.011	n/a	0.034	0.034	n/a	0.014	0.013	0.9 x	0.04	0.037	0.9 x
Total Magnesium	mg/L	-	2.2	2.7	1.2 x	6.4	7.6	1.2 x	2.7	3.4	1.3 x	7.5	9.8	1.3 x
Total Manganese	mg/L	0.2	0.022	0.045	2 x	0.062	0.14	2.3 x	0.024	0.035	1.5 x	0.066	0.1	1.5 x
Total Mercury	mg/L	0.000016	0.0000077	0.0000078	1 x	***0.000024***	***0.000024***	n/a	0.00001	0.000011	1.1 x	***0.000031***	***0.000032***	1 x
Total Molybdenum	mg/L	0.01	0.000063	0.000072	1.1 x	0.00019	0.00025	1.3 x	0.000077	0.00021	2.7 x	0.00022	0.00066	3 x
Total Nickel	mg/L	0.025	0.00061	0.00063	1 x	0.0018	0.0019	1.1 x	0.00073	0.001	1.4 x	0.0021	0.003	1.4 x
Total Selenium	mg/L	0.001	0.00029	0.00035	1.2 x	0.00085	0.00096	1.1 x	0.00035	0.00037	1.1 x	0.001	0.001	n/a
Total Silver	mg/L	0.00025	0.0000077	0.0000078	1 x	0.000022	0.000023	1 x	0.0000088	0.0000094	1.1 x	0.000024	0.000026	1.1 x
Total Sodium	mg/L	-	6.5	7.1	1.1 x	19	20	1.1 x	7.9	8	1 x	22	22	n/a
Total Thallium	mg/L	0.0008	0.0000092	0.0000092	n/a	0.000029	0.000029	n/a	0.000012	0.000013	1.1 x	0.000035	0.000036	1 x
Total Uranium	mg/L	0.01	0.000028	0.000031	1.1 x	0.000084	0.0001	1.2 x	0.000035	0.000077	2.2 x	0.000099	0.00024	2.4 x
Total Vanadium	mg/L	0.1	0.00032	0.00033	1 x	0.00095	0.001	1.1 x	0.00039	0.00051	1.3 x	0.0011	0.0015	1.4 x
Total Zinc	mg/L	0.03	0.0065	0.0065	n/a	0.018	0.019	1.1 x	0.0071	0.0072	1 x	0.019	0.019	n/a
Total Phosphorous	mg/L	Variable	0.017	0.017	n/a	0.051	0.052	1 x	0.021	0.021	n/a	0.06	0.06	n/a

[1] ***CCME Exceedance shown in bold italics***

Boston TMA Average and Maximum Concentrations During Post-Closure							
Parameter	Units	MMER		Post-Closure			
				Average		Maximum	
		Current[1]	Proposed[2]	Base Case	Upper Case	Base Case	Upper Case
TSS	mg/L	15	15	1.8	2.8	2	6
TDS	mg/L	-	-	78	120	110	160
Fluoride	mg/L	-	-	0.046	0.059	0.051	0.064
Chloride	mg/L	-	-	8.1	8.4	8.4	9.7
Free Cyanide	mg/L	-	-	-	-	-	-
Total Cyanide	mg/L	1	0.5	0.00099	0.00099	0.001	0.001
WAD Cyanide	mg/L	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-
Ammonia	mg/L as N	-	Variable	0.0068	0.011	0.013	0.017
Nitrate	mg/L as N	-	-	0.0059	0.01	0.015	0.022
Nitrite	mg/L as N	-	-	0.00099	0.0018	0.001	0.004
Sulphate	mg/L	-	-	45	74	77	120
Alkalinity	mg/L	-	-	75	86	75	86
Hardness	mg/L	-	-	21	23	31	32
Dissolved Aluminum	mg/L	-	-	0.038	0.06	0.038	0.061
Dissolved Antimony	mg/L	-	-	0.0047	0.0051	0.0095	0.0095
Dissolved Arsenic	mg/L	0.5	0.1	0.04	0.044	0.08	0.081
Dissolved Barium	mg/L	-	-	0.0089	0.011	0.012	0.014
Dissolved Beryllium	mg/L	-	-	0.00074	0.00078	0.0014	0.0014
Dissolved Boron	mg/L	-	-	0.65	0.91	1.3	1.7
Dissolved Cadmium	mg/L	-	-	0.00017	0.00019	0.00034	0.00035
Dissolved Calcium	mg/L	-	-	27	35	29	36
Dissolved Chromium	mg/L	-	-	0.00042	0.00059	0.00063	0.00079
Dissolved Cobalt	mg/L	-	-	0.0019	0.0021	0.0037	0.0038
Dissolved Copper	mg/L	0.3	0.1	0.0085	0.014	0.0086	0.014
Dissolved Iron	mg/L	-	-	0.053	0.14	0.055	0.14
Dissolved Lead	mg/L	0.2	0.08	0.000081	0.00016	0.00011	0.00019
Dissolved Lithium	mg/L	-	-	0.0058	0.0073	0.01	0.011
Dissolved Magnesium	mg/L	-	-	6.1	7.5	7.1	8.4
Dissolved Manganese	mg/L	-	-	0.035	0.071	0.041	0.076
Dissolved Mercury	mg/L	-	-	0.00001	0.00001	0.000011	0.000011
Dissolved Molybdenum	mg/L	-	-	0.00078	0.0013	0.0011	0.0016
Dissolved Nickel	mg/L	0.5	0.25	0.0042	0.0057	0.0073	0.0086
Dissolved Selenium	mg/L	-	-	0.0003	0.00045	0.00045	0.00059
Dissolved Silver	mg/L	-	-	0.000014	0.000014	0.000018	0.000018
Dissolved Sodium	mg/L	-	-	4.6	4.7	4.9	5
Dissolved Thallium	mg/L	-	-	0.00002	0.000021	0.000031	0.000031
Dissolved Uranium	mg/L	-	-	0.00019	0.00035	0.0002	0.00036
Dissolved Vanadium	mg/L	-	-	0.0013	0.0014	0.0016	0.0017
Dissolved Zinc	mg/L	0.5	0.4	0.0041	0.0067	0.0057	0.0081
Dissolved Phosphorous	mg/L	-	-	0.011	0.013	0.012	0.013
Total Aluminum	mg/L	-	-	0.038	0.061	0.039	0.062
Total Antimony	mg/L	-	-	0.0047	0.0051	0.0095	0.0095
Total Arsenic	mg/L	0.5	0.1	0.04	0.044	0.08	0.081
Total Barium	mg/L	-	-	0.0089	0.011	0.012	0.014
Total Beryllium	mg/L	-	-	0.00074	0.00078	0.0014	0.0014
Total Boron	mg/L	-	-	0.65	0.91	1.3	1.7
Total Cadmium	mg/L	-	-	0.00017	0.00019	0.00034	0.00035
Total Calcium	mg/L	-	-	27	35	29	36
Total Chromium	mg/L	-	-	0.00042	0.0006	0.00064	0.0008
Total Cobalt	mg/L	-	-	0.0019	0.0021	0.0037	0.0038
Total Copper	mg/L	0.3	0.1	0.0085	0.014	0.0086	0.014
Total Iron	mg/L	-	-	0.053	0.14	0.056	0.15
Total Lead	mg/L	0.2	0.08	0.000081	0.00016	0.00011	0.00019
Total Lithium	mg/L	-	-	0.0058	0.0073	0.01	0.011
Total Magnesium	mg/L	-	-	6.1	7.5	7.1	8.4
Total Manganese	mg/L	-	-	0.035	0.071	0.041	0.076
Total Mercury	mg/L	-	-	0.000011	0.000011	0.000011	0.000011
Total Molybdenum	mg/L	-	-	0.00078	0.0013	0.0011	0.0016
Total Nickel	mg/L	0.5	0.25	0.0042	0.0057	0.0073	0.0086
Total Selenium	mg/L	-	-	0.0003	0.00045	0.00045	0.00059
Total Silver	mg/L	-	-	0.000014	0.000014	0.000018	0.000018
Total Sodium	mg/L	-	-	4.6	4.7	4.9	5
Total Thallium	mg/L	-	-	0.00002	0.000021	0.000031	0.000031
Total Uranium	mg/L	-	-	0.00019	0.00035	0.0002	0.00036
Total Vanadium	mg/L	-	-	0.0013	0.0014	0.0016	0.0017
Total Zinc	mg/L	0.5	0.4	0.0041	0.0067	0.0057	0.0081
Total Phosphorous	mg/L	-	-	0.011	0.013	0.012	0.013

[1] ***Current MMER Exceedance Shown in bold italics***

[2] Proposed MMER Exceedance shown in grey highlight

Boston Combined Average and Maximum Concentrations During Operations and Post-Closure - Base Case											
Parameter	Units	MMER		Operations							
				Combined Effluent		Sewage Treatment Plant Effluent		Contact Water Treatment Plant Effluent		Process Plant Treatment Plant Effluent	
		Current[1]	Proposed[2]	Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum
TSS	mg/L	15	15	8.5	14	1.7	2	2	11	11	15
TDS	mg/L	-	-	530	1800	11	21	73	900	760	2200
Fluoride	mg/L	-	-	0.053	0.28	0.014	0.03	0.026	0.28	0.053	0.15
Chloride	mg/L	-	-	180	670	4.4	8.5	6.7	210	280	820
Free Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-
Total Cyanide	mg/L	1	0.5	0.069	0.25	0.00053	0.001	0.000067	0.00067	0.11	0.31
WAD Cyanide	mg/L	-	-	0.069	0.25	-	-	-	-	0.11	0.31
Cyanate	mg/L	-	-	5.6	20	-	-	-	-	8.9	25
Thiocyanate	mg/L	-	-	3.7	13	-	-	-	-	5.9	17
Ammonia	mg/L as N	-	Variable	3.4	13	5.3	10	0.22	7.3	3.5	10
Nitrate	mg/L as N	-	-	0.66	15	0.5	1.0	0.53	18	0.35	1.0
Nitrite	mg/L as N	-	-	9.7	30	16	30	0.00087	0.027	11	30
Sulphate	mg/L	-	-	79	310	1.6	3.0	22	270	100	670
Alkalinity	mg/L	-	-	85	280	5	9.9	8.7	88	120	350
Hardness	mg/L	-	-	530	1600	6.5	13	110	1100	720	2000
Dissolved Aluminum	mg/L	-	-	0.033	0.095	0.03	0.064	0.0074	0.073	0.035	0.1
Dissolved Antimony	mg/L	-	-	0.011	0.037	0.0000061	0.000073	0.0022	0.027	0.015	0.043
Dissolved Arsenic	mg/L	0.5	0.1	0.0028	0.0091	0.000088	0.00017	0.00074	0.0073	0.0035	0.01
Dissolved Barium	mg/L	-	-	0.011	0.11	0.0011	0.0022	0.0098	0.11	0.0071	0.02
Dissolved Beryllium	mg/L	-	-	0.0046	0.016	0.0000026	0.0000055	0.00029	0.0038	0.0071	0.02
Dissolved Boron	mg/L	-	-	0.23	3.6	0.0027	0.0053	0.29	3.6	0.063	0.18
Dissolved Cadmium	mg/L	-	-	0.000028	0.000091	0.0000017	0.0000079	0.0000074	0.000073	0.000035	0.0001
Dissolved Calcium	mg/L	-	-	160	500	1.3	2.7	38	380	220	620
Dissolved Chromium	mg/L	-	-	0.0031	0.01	0.0013	0.0025	0.00077	0.0088	0.0037	0.011
Dissolved Cobalt	mg/L	-	-	0.0029	0.015	0.00002	0.000062	0.0012	0.015	0.0034	0.0096
Dissolved Copper	mg/L	0.3	0.1	0.00048	0.0018	0.0011	0.002	0.000074	0.00073	0.00035	0.001
Dissolved Iron	mg/L	-	-	0.14	0.45	0.013	0.025	0.037	0.37	0.18	0.5
Dissolved Lead	mg/L	0.2	0.08	0.00052	0.0017	0.000027	0.00005	0.00011	0.0013	0.00071	0.002
Dissolved Lithium	mg/L	-	-	0.0084	0.076	0.0031	0.0075	0.0075	0.083	0.0046	0.013
Dissolved Magnesium	mg/L	-	-	30	99	0.82	1.6	4.4	47	43	120
Dissolved Manganese	mg/L	-	-	0.036	0.29	0.0049	0.017	0.027	0.31	0.026	0.075
Dissolved Mercury	mg/L	-	-	0.0000045	0.000028	0.0000029	0.000008	0.0000027	0.000029	0.0000032	0.000009
Dissolved Molybdenum	mg/L	-	-	0.0027	0.009	0.000027	0.00005	0.00074	0.0073	0.0035	0.01
Dissolved Nickel	mg/L	0.5	0.25	0.0014	0.0046	0.00027	0.0005	0.00037	0.0037	0.0018	0.005
Dissolved Selenium	mg/L	-	-	0.00057	0.0018	0.00011	0.00022	0.00015	0.0015	0.00071	0.002
Dissolved Silver	mg/L	-	-	0.00022	0.00075	0.00000078	0.0000028	0.000016	0.00018	0.00033	0.00094
Dissolved Sodium	mg/L	-	-	55	200	2.5	4.9	0.31	3.2	86	240
Dissolved Thallium	mg/L	-	-	0.00012	0.00047	0.0000026	0.0000057	0.000038	0.00044	0.00015	0.00043
Dissolved Uranium	mg/L	-	-	0.00052	0.0017	0.00011	0.0002	0.000082	0.00089	0.00071	0.002
Dissolved Vanadium	mg/L	-	-	0.0061	0.02	0.000083	0.0002	0.0012	0.014	0.0085	0.024
Dissolved Zinc	mg/L	0.5	0.4	0.0057	0.018	0.0011	0.002	0.0015	0.015	0.0071	0.02
Dissolved Phosphorous	mg/L	-	-	0.1	0.76	0.5	1.0	0.00075	0.008		
Total Aluminum	mg/L	-	-	0.078	0.24	0.03	0.064	0.02	0.19	0.094	0.27
Total Antimony	mg/L	-	-	0.011	0.037	0.0000061	0.000073	0.0022	0.027	0.015	0.043
Total Arsenic	mg/L	0.5	0.1	0.0041	0.013	0.000088	0.00017	0.0011	0.011	0.0052	0.015
Total Barium	mg/L	-	-	0.011	0.11	0.0011	0.0022	0.0098	0.11	0.0072	0.02
Total Beryllium	mg/L	-	-	0.0046	0.016	0.0000026	0.0000055	0.00029	0.0038	0.0071	0.02
Total Boron	mg/L	-	-	0.23	3.6	0.0027	0.0053	0.29	3.6	0.063	0.18
Total Cadmium	mg/L	-	-	0.000028	0.000092	0.0000017	0.0000079	0.0000075	0.000074	0.000036	0.0001
Total Calcium	mg/L	-	-	160	500	1.3	2.7	38	380	220	620
Total Chromium	mg/L	-	-	0.0041	0.014	0.0013	0.0025	0.00099	0.011	0.005	0.014
Total Cobalt	mg/L	-	-	0.0031	0.016	0.00002	0.000062	0.0012	0.015	0.0036	0.01
Total Copper	mg/L	0.3	0.1	0.00061	0.0019	0.0011	0.002	0.00011	0.0011	0.00052	0.0015
Total Iron	mg/L	-	-	0.39	1.3	0.013	0.025	0.1	1	0.5	1.4
Total Lead	mg/L	0.2	0.08	0.00054	0.0018	0.000027	0.00005	0.00012	0.0014	0.00072	0.0021
Total Lithium	mg/L	-	-	0.0084	0.076	0.0031	0.0075	0.0075	0.083	0.0046	0.013
Total Magnesium	mg/L	-	-	30	100	0.82	1.6	4.4	47	43	120
Total Manganese	mg/L	-	-	0.045	0.31	0.0049	0.017	0.029	0.33	0.039	0.11
Total Mercury	mg/L	-	-	0.000059	0.0002	0.0000029	0.000008	0.000015	0.00015	0.000076	0.00021
Total Molybdenum	mg/L	-	-	0.0027	0.0091	0.000027	0.00005	0.00074	0.0073	0.0035	0.01
Total Nickel	mg/L	0.5	0.25	0.0026	0.0085	0.00027	0.0005	0.00069	0.0069	0.0033	0.0094
Total Selenium	mg/L	-	-	0.00057	0.0018	0.00011	0.00022	0.00015	0.0015	0.00071	0.002
Total Silver	mg/L	-	-	0.00022	0.00075	0.00000078	0.0000028	0.000016	0.00018	0.00033	0.00094
Total Sodium	mg/L	-	-	55	200	2.5	4.9	0.31	3.2	86	240
Total Thallium	mg/L	-	-	0.00012	0.00047	0.0000026	0.0000057	0.000038	0.00044	0.00015	0.00043
Total Uranium	mg/L	-	-	0.00052	0.0017	0.00011	0.0002	0.000082	0.00089	0.00071	0.002
Total Vanadium	mg/L	-	-	0.0064	0.021	0.000083	0.0002	0.0013	0.014	0.0089	0.025
Total Zinc	mg/L	0.5	0.4	0.0058	0.019	0.0011	0.002	0.0015	0.015	0.0073	0.021
Total Phosphorous	mg/L	-	-	0.11	0.76	0.5	1.0	0.0013	0.013	0.0033	0.0094

[1] ***Current MMER Exceedance Shown in bold italics***

[2] Proposed MMER Exceedance shown in grey highlight

Boston Combined Average and Maximum Concentrations During Operations and Post-Closure - Upper Case											
Parameter	Units	MMER		Operations							
				Combined Effluent		Sewage Treatment Plant Effluent		Contact Water Treatment Plant Effluent		Process Plant Treatment Plant Effluent	
		Current[1]	Proposed[2]	Average	Maximum	Average	Maximum	Average	Maximum	Average	Maximum
TSS	mg/L	15	15	9.1	14	4.6	6	2	11	11	15
TDS	mg/L	-	-	540	1800	22	23	86	1100	760	2200
Fluoride	mg/L	-	-	0.055	0.3	0.036	0.065	0.028	0.3	0.053	0.15
Chloride	mg/L	-	-	180	670	8.6	9.8	6.7	210	280	820
Free Cyanide	mg/L	-	-								
Total Cyanide	mg/L	1	0.5	0.069	0.25	0.001	0.001	0.000067	0.00067	0.11	0.31
WAD Cyanide	mg/L	-	-	0.069	0.25					0.11	0.31
Cyanate	mg/L	-	-	5.6	20					8.9	25
Thiocyanate	mg/L	-	-	3.7	13					5.9	17
Ammonia	mg/L as N	-	Variable	3.4	13	10	10	0.22	7.3	3.5	10
Nitrate	mg/L as N	-	-	0.66	15	1.0	1.0	0.53	18	0.35	1.0
Nitrite	mg/L as N	-	-	9.7	30	30	30	0.00094	0.029	11	30
Sulphate	mg/L	-	-	88	450	4.4	5.0	35	460	100	670
Alkalinity	mg/L	-	-	85	280	9.9	10	9.5	96	120	350
Hardness	mg/L	-	-	530	1600	13	13	110	1100	720	2000
Dissolved Aluminum	mg/L	-	-	0.034	0.098	0.067	0.081	0.0074	0.073	0.035	0.1
Dissolved Antimony	mg/L	-	-	0.011	0.037	0.000021	0.000087	0.0023	0.027	0.015	0.043
Dissolved Arsenic	mg/L	0.5	0.1	0.0028	0.0091	0.00018	0.00018	0.00074	0.0073	0.0035	0.01
Dissolved Barium	mg/L	-	-	0.013	0.13	0.0023	0.0031	0.012	0.13	0.0071	0.02
Dissolved Beryllium	mg/L	-	-	0.0046	0.016	0.00003	0.0001	0.00029	0.0038	0.0071	0.02
Dissolved Boron	mg/L	-	-	0.3	4.8	0.0065	0.0083	0.38	4.8	0.063	0.18
Dissolved Cadmium	mg/L	-	-	0.000028	0.000091	0.0000045	0.000009	0.0000074	0.000073	0.000035	0.0001
Dissolved Calcium	mg/L	-	-	160	500	2.5	2.9	38	380	220	620
Dissolved Chromium	mg/L	-	-	0.0031	0.011	0.0025	0.0025	0.00078	0.0089	0.0037	0.011
Dissolved Cobalt	mg/L	-	-	0.003	0.016	0.000068	0.00013	0.0013	0.016	0.0034	0.0096
Dissolved Copper	mg/L	0.3	0.1	0.00048	0.0018	0.002	0.002	0.000074	0.00073	0.00035	0.001
Dissolved Iron	mg/L	-	-	0.14	0.45	0.025	0.025	0.037	0.37	0.18	0.5
Dissolved Lead	mg/L	0.2	0.08	0.00053	0.0017	0.00005	0.00005	0.00012	0.0014	0.00071	0.002
Dissolved Lithium	mg/L	-	-	0.0095	0.088	0.0088	0.0088	0.0086	0.094	0.0046	0.013
Dissolved Magnesium	mg/L	-	-	30	100	1.7	1.7	4.6	50	43	120
Dissolved Manganese	mg/L	-	-	0.038	0.31	0.0099	0.018	0.031	0.34	0.026	0.075
Dissolved Mercury	mg/L	-	-	0.0000049	0.000028	0.00001	0.000013	0.0000027	0.000029	0.0000032	0.000009
Dissolved Molybdenum	mg/L	-	-	0.0027	0.009	0.00005	0.00005	0.00074	0.0073	0.0035	0.01
Dissolved Nickel	mg/L	0.5	0.25	0.0014	0.0046	0.0005	0.0005	0.00037	0.0037	0.0018	0.005
Dissolved Selenium	mg/L	-	-	0.00057	0.0018	0.00024	0.00026	0.00015	0.0015	0.00071	0.002
Dissolved Silver	mg/L	-	-	0.00022	0.00075	0.0000042	0.0000064	0.000017	0.00019	0.00033	0.00094
Dissolved Sodium	mg/L	-	-	55	200	4.9	5	0.32	3.3	86	240
Dissolved Thallium	mg/L	-	-	0.00012	0.00047	0.0000086	0.000015	0.000038	0.00044	0.00015	0.00043
Dissolved Uranium	mg/L	-	-	0.00053	0.0017	0.0002	0.0002	0.000093	0.00099	0.00071	0.002
Dissolved Vanadium	mg/L	-	-	0.0061	0.021	0.00021	0.00057	0.0012	0.014	0.0085	0.024
Dissolved Zinc	mg/L	0.5	0.4	0.0057	0.018	0.002	0.002	0.0015	0.015	0.0071	0.02
Dissolved Phosphorous	mg/L	-	-	0.1	0.76	1.0	1.0	0.00089	0.0088		
Total Aluminum	mg/L	-	-	0.08	0.25	0.067	0.081	0.02	0.19	0.094	0.27
Total Antimony	mg/L	-	-	0.011	0.037	0.000021	0.000087	0.0023	0.027	0.015	0.043
Total Arsenic	mg/L	0.5	0.1	0.0041	0.013	0.00018	0.00018	0.0011	0.011	0.0052	0.015
Total Barium	mg/L	-	-	0.013	0.13	0.0023	0.0031	0.012	0.13	0.0072	0.02
Total Beryllium	mg/L	-	-	0.0046	0.016	0.00003	0.0001	0.00029	0.0038	0.0071	0.02
Total Boron	mg/L	-	-	0.3	4.8	0.0065	0.0083	0.38	4.8	0.063	0.18
Total Cadmium	mg/L	-	-	0.000028	0.000093	0.0000045	0.000009	0.0000075	0.000074	0.000036	0.0001
Total Calcium	mg/L	-	-	160	500	2.5	2.9	38	380	220	620
Total Chromium	mg/L	-	-	0.0041	0.014	0.0025	0.0025	0.001	0.011	0.005	0.014
Total Cobalt	mg/L	-	-	0.0032	0.016	0.000068	0.00013	0.0013	0.016	0.0036	0.01
Total Copper	mg/L	0.3	0.1	0.00061	0.0019	0.002	0.002	0.00011	0.0011	0.00052	0.0015
Total Iron	mg/L	-	-	0.39	1.3	0.025	0.025	0.1	1	0.5	1.4
Total Lead	mg/L	0.2	0.08	0.00054	0.0018	0.00005	0.00005	0.00012	0.0014	0.00072	0.0021
Total Lithium	mg/L	-	-	0.0095	0.088	0.0088	0.0088	0.0086	0.094	0.0046	0.013
Total Magnesium	mg/L	-	-	30	100	1.7	1.7	4.7	50	43	120
Total Manganese	mg/L	-	-	0.047	0.34	0.0099	0.018	0.033	0.37	0.039	0.11
Total Mercury	mg/L	-	-	0.00006	0.00021	0.00001	0.000013	0.000017	0.00017	0.000076	0.00021
Total Molybdenum	mg/L	-	-	0.0027	0.0091	0.00005	0.00005	0.00074	0.0073	0.0035	0.01
Total Nickel	mg/L	0.5	0.25	0.0026	0.0085	0.0005	0.0005	0.00069	0.0069	0.0033	0.0094
Total Selenium	mg/L	-	-	0.00057	0.0018	0.00024	0.00026	0.00015	0.0015	0.00071	0.002
Total Silver	mg/L	-	-	0.00022	0.00075	0.0000042	0.0000064	0.000017	0.00019	0.00033	0.00094
Total Sodium	mg/L	-	-	55	200	4.9	5	0.32	3.4	86	240
Total Thallium	mg/L	-	-	0.00012	0.00047	0.0000086	0.000015	0.000038	0.00044	0.00015	0.00043
Total Uranium	mg/L	-	-	0.00053	0.0017	0.0002	0.0002	0.000093	0.001	0.00071	0.002
Total Vanadium	mg/L	-	-	0.0065	0.022	0.00021	0.00057	0.0013	0.014	0.0089	0.025
Total Zinc	mg/L	0.5	0.4	0.0058	0.019	0.002	0.002	0.0015	0.015	0.0073	0.021
Total Phosphorous	mg/L	-	-	0.11	0.76	1.0	1.0	0.0015	0.014	0.0033	0.0094

[1] ***Current MMER Exceedance Shown in bold italics***

[2] Proposed MMER Exceedance shown in grey highlight

Aimaolokatalok Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Post -Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline
TSS	mg/L	Variable	1.3	1.3	n/a	2.3	2.3	n/a	1.5	1.5	n/a	2.4	2.4	n/a
TDS	mg/L	-	15	16	1.1 x	24	24	n/a	18	19	1.1 x	25	26	1 x
Fluoride	mg/L	0.12	0.022	0.022	n/a	0.035	0.036	1 x	0.025	0.026	1 x	0.036	0.037	1 x
Chloride	mg/L	120	6.3	6.3	n/a	9.7	9.8	1 x	7.3	7.4	1 x	10	10	n/a
Free Cyanide	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Total Cyanide	mg/L	0.005	0.00092	0.00092	n/a	0.0012	0.0012	n/a	0.00099	0.001	1 x	0.0012	0.0012	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0083	0.0084	1 x	0.015	0.015	n/a	0.0097	0.0097	n/a	0.016	0.016	n/a
Nitrate	mg/L as N	3	0.0086	0.0086	n/a	0.017	0.017	n/a	0.01	0.0099	1 x	0.018	0.018	n/a
Nitrite	mg/L as N	10	0.00092	0.00092	n/a	0.0012	0.0012	n/a	0.00099	0.001	1 x	0.0012	0.0012	n/a
Sulphate	mg/L	1000	2.3	2.4	1 x	3.5	3.7	1.1 x	2.7	3.2	1.2 x	3.6	5	1.4 x
Alkalinity	mg/L	-	7.3	7.9	1.1 x	11	13	1.2 x	8.5	10	1.2 x	12	15	1.3 x
Hardness	mg/L	-	9.3	9.4	1 x	15	15	n/a	11	11	n/a	16	16	n/a
Dissolved Aluminum	mg/L	0.1	0.035	0.035	n/a	0.055	0.06	1.1 x	0.041	0.041	n/a	0.057	0.059	1 x
Dissolved Antimony	mg/L	-	0.00017	0.00016	0.9 x	0.00047	0.00047	n/a	0.00012	0.00016	1.3 x	0.00042	0.00042	n/a
Dissolved Arsenic	mg/L	0.005	0.00028	0.00028	n/a	0.00047	0.00047	n/a	0.00025	0.00061	2.4 x	0.00044	0.0015	3.4 x
Dissolved Barium	mg/L	-	0.0018	0.0018	n/a	0.0025	0.0026	1 x	0.002	0.0021	1.1 x	0.0027	0.0028	1 x
Dissolved Beryllium	mg/L	0.1	0.00016	0.00016	n/a	0.00047	0.00047	n/a	0.00011	0.00012	1.1 x	0.00042	0.00042	n/a
Dissolved Boron	mg/L	0.5	0.0039	0.0042	1.1 x	0.006	0.0066	1.1 x	0.0045	0.011	2.4 x	0.0062	0.028	4.5 x
Dissolved Cadmium	mg/L	0.00012	***0.00016***	***0.00016***	n/a	***0.00047***	***0.00047***	n/a	0.00011	0.00011	n/a	***0.00042***	***0.00042***	n/a
Dissolved Calcium	mg/L	-	1.9	2.1	1.1 x	3.1	3.5	1.1 x	2.3	2.8	1.2 x	3.2	4.4	1.4 x
Dissolved Chromium	mg/L	0.001	0.00034	0.00034	n/a	0.00047	0.00047	n/a	0.00032	0.00033	1 x	0.00045	0.00045	n/a
Dissolved Cobalt	mg/L	0.05	0.00019	0.00019	n/a	0.00047	0.00047	n/a	0.00015	0.00017	1.1 x	0.00042	0.00042	n/a
Dissolved Copper	mg/L	0.002	0.00086	0.00093	1.1 x	0.0011	0.0013	1.2 x	0.00093	0.0011	1.2 x	0.0012	0.0016	1.3 x
Dissolved Iron	mg/L	0.3	0.076	0.076	n/a	0.13	0.13	n/a	0.089	0.088	1 x	0.14	0.14	n/a
Dissolved Lead	mg/L	0.001	0.00018	0.00018	n/a	0.00047	0.00047	n/a	0.00014	0.00014	n/a	0.00042	0.00042	n/a
Dissolved Lithium	mg/L	2.5	0.0057	0.0057	n/a	0.0087	0.0089	1 x	0.0066	0.0065	1 x	0.009	0.0089	1 x
Dissolved Magnesium	mg/L	-	1.2	1.2	n/a	1.9	1.9	n/a	1.4	1.5	1.1 x	2	2.1	1.1 x
Dissolved Manganese	mg/L	0.2	0.011	0.011	n/a	0.019	0.019	n/a	0.012	0.013	1.1 x	0.02	0.02	n/a
Dissolved Mercury	mg/L	0.000016	***0.00015***	***0.00015***	n/a	***0.00047***	***0.00047***	n/a	***0.00011***	***0.00011***	n/a	***0.00042***	***0.00042***	n/a
Dissolved Molybdenum	mg/L	0.01	0.00019	0.00019	n/a	0.00047	0.00047	n/a	0.00014	0.00016	1.1 x	0.00042	0.00042	n/a
Dissolved Nickel	mg/L	0.025	0.00046	0.00047	1 x	0.00052	0.00053	1 x	0.00046	0.00051	1.1 x	0.00054	0.00059	1.1 x
Dissolved Selenium	mg/L	0.001	0.0003	0.0003	n/a	0.00047	0.00047	n/a	0.00028	0.00028	n/a	0.00044	0.00044	n/a
Dissolved Silver	mg/L	0.00025	0.00016	0.00015	0.9 x	***0.00047***	***0.00047***	n/a	0.00011	0.00011	n/a	***0.00042***	***0.00042***	n/a
Dissolved Sodium	mg/L	-	3.5	3.6	1 x	5.6	5.6	n/a	4.1	4.2	1 x	5.9	5.9	n/a
Dissolved Thallium	mg/L	0.0008	0.00016	0.00015	0.9 x	0.00047	0.00047	n/a	0.00011	0.00011	n/a	0.00042	0.00042	n/a
Dissolved Uranium	mg/L	0.01	0.00017	0.00017	n/a	0.00047	0.00047	n/a	0.00012	0.00013	1.1 x	0.00042	0.00042	n/a
Dissolved Vanadium	mg/L	0.1	0.00028	0.00028	n/a	0.00047	0.00047	n/a	0.00025	0.00028	1.1 x	0.00044	0.00044	n/a
Dissolved Zinc	mg/L	0.03	0.0017	0.0017	n/a	0.0027	0.0028	1 x	0.0019	0.002	1.1 x	0.0028	0.0029	1 x
Dissolved Phosphorous	mg/L	Variable	0.009	0.0091	1 x	0.014	0.014	n/a	0.01	0.011	1.1 x	0.015	0.015	n/a
Total Aluminum	mg/L	0.1	0.035	0.035	n/a	0.055	0.06	1.1 x	0.041	0.041	n/a	0.057	0.059	1 x
Total Antimony	mg/L	-	0.00017	0.00016	0.9 x	0.00047	0.00047	n/a	0.00012	0.00016	1.3 x	0.00042	0.00042	n/a
Total Arsenic	mg/L	0.005	0.00028	0.00028	n/a	0.00047	0.00047	n/a	0.00025	0.00061	2.4 x	0.00044	0.0015	3.4 x
Total Barium	mg/L	-	0.0018	0.0018	n/a	0.0025	0.0026	1 x	0.002	0.0021	1.1 x	0.0027	0.0028	1 x
Total Beryllium	mg/L	0.1	0.00016	0.00016	n/a	0.00047	0.00047	n/a	0.00011	0.00012	1.1 x	0.00042	0.00042	n/a
Total Boron	mg/L	0.5	0.0039	0.0042	1.1 x	0.006	0.0066	1.1 x	0.0045	0.011	2.4 x	0.0062	0.028	4.5 x
Total Cadmium	mg/L	0.00012	***0.00016***	***0.00016***	n/a	***0.00047***	***0.00047***	n/a	0.00011	0.00011	n/a	***0.00042***	***0.00042***	n/a
Total Calcium	mg/L	-	1.9	2.1	1.1 x	3.1	3.5	1.1 x	2.3	2.8	1.2 x	3.2	4.4	1.4 x
Total Chromium	mg/L	0.001	0.00034	0.00034	n/a	0.00047	0.00047	n/a	0.00032	0.00033	1 x	0.00045	0.00045	n/a
Total Cobalt	mg/L	0.05	0.00019	0.00019	n/a	0.00047	0.00047	n/a	0.00015	0.00017	1.1 x	0.00042	0.00042	n/a
Total Copper	mg/L	0.002	0.00086	0.00093	1.1 x	0.0011	0.0013	1.2 x	0.00093	0.0011	1.2 x	0.0012	0.0016	1.3 x
Total Iron	mg/L	0.3	0.076	0.076	n/a	0.13	0.13	n/a	0.089	0.088	1 x	0.14	0.14	n/a
Total Lead	mg/L	0.001	0.00018	0.00018	n/a	0.00047	0.00047	n/a	0.00014	0.00014	n/a	0.00042	0.00042	n/a
Total Lithium	mg/L	2.5	0.0057	0.0057	n/a	0.0087	0.0089	1 x	0.0066	0.0065	1 x	0.009	0.0089	1 x
Total Magnesium	mg/L	-	1.2	1.2	n/a	1.9	1.9	n/a	1.4	1.5	1.1 x	2	2.1	1.1 x
Total Manganese	mg/L	0.2	0.011	0.011	n/a	0.019	0.019	n/a	0.012	0.013	1.1 x	0.02	0.02	n/a
Total Mercury	mg/L	0.000016	***0.00015***	***0.00015***	n/a	***0.00047***	***0.00047***	n/a	***0.00011***	***0.00011***	n/a	***0.00042***	***0.00042***	n/a
Total Molybdenum	mg/L	0.01	0.00019	0.00019	n/a	0.00047	0.00047	n/a	0.00014	0.00016	1.1 x	0.00042	0.00042	n/a
Total Nickel	mg/L	0.025	0.00046	0.00047	1 x	0.00052	0.00053	1 x	0.00046	0.00051	1.1 x	0.00054	0.00059	1.1 x
Total Selenium	mg/L	0.001	0.0003	0.0003	n/a	0.00047	0.00047	n/a	0.00028	0.00028	n/a	0.00044	0.00044	n/a
Total Silver	mg/L	0.00025	0.00016	0.00015	0.9 x	***0.00047***	***0.00047***	n/a	0.00011	0.00011	n/a	***0.00042***	***0.00042***	n/a
Total Sodium	mg/L	-	3.5	3.6	1 x	5.6	5.6	n/a	4.1	4.2	1 x	5.9	5.9	n/a
Total Thallium	mg/L	0.0008	0.00016	0.00015	0.9 x	0.00047	0.00047	n/a	0.00011	0.00011	n/a	0.00042	0.00042	n/a
Total Uranium	mg/L	0.01	0.00017	0.00017	n/a	0.00047	0.00047	n/a	0.00012	0.00013	1.1 x	0.00042	0.00042	n/a
Total Vanadium	mg/L	0.1	0.00028	0.00028	n/a	0.00047	0.00047	n/a	0.00025	0.00028	1.1 x	0.00044	0.00044	n/a
Total Zinc	mg/L	0.03	0.0017	0.0017	n/a	0.0027	0.0028	1 x	0.0019	0.002	1.1 x	0.0028	0.0029	1 x
Total Phosphorous	mg/L	Variable	0.009	0.0091	1 x	0.014	0.014	n/a	0.01	0.011	1.1 x	0.015	0.015	n/a

[1] ***CCME Exceedance shown in bold italics***

Aimaolokatalok Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Post -Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline
TSS	mg/L	Variable	2.6	2.6	n/a	8.8	8.8	n/a	2.6	2.6	n/a	8.2	8	1 x
TDS	mg/L	-	26	27	1 x	69	69	n/a	27	28	1 x	58	62	1.1 x
Fluoride	mg/L	0.12	0.066	0.067	1 x	***0.16***	***0.16***	n/a	0.067	0.068	1 x	0.12	0.12	n/a
Chloride	mg/L	120	11	11	n/a	29	29	n/a	11	11	n/a	23	23	n/a
Free Cyanide	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Total Cyanide	mg/L	0.005	0.0012	0.0012	n/a	0.0032	0.0032	n/a	0.0012	0.0012	n/a	0.0027	0.0027	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.018	0.018	n/a	0.044	0.044	n/a	0.018	0.018	n/a	0.032	0.032	n/a
Nitrate	mg/L as N	3	0.021	0.021	n/a	0.051	0.051	n/a	0.022	0.022	n/a	0.033	0.034	1 x
Nitrite	mg/L as N	10	0.0038	0.0038	n/a	0.0091	0.0091	n/a	0.0039	0.0039	n/a	0.0058	0.0059	1 x
Sulphate	mg/L	1000	3.8	4.1	1.1 x	12	12	n/a	3.8	4.9	1.3 x	9.7	12	1.2 x
Alkalinity	mg/L	-	12	13	1.1 x	31	32	1 x	12	15	1.3 x	26	32	1.2 x
Hardness	mg/L	-	16	16	n/a	41	41	n/a	16	16	n/a	34	34	n/a
Dissolved Aluminum	mg/L	0.1	0.085	0.085	n/a	***0.21***	***0.21***	n/a	0.086	0.086	n/a	***0.17***	***0.17***	n/a
Dissolved Antimony	mg/L	-	0.00008	0.000081	1 x	0.00018	0.00018	n/a	0.000082	0.00012	1.5 x	0.00012	0.00022	1.8 x
Dissolved Arsenic	mg/L	0.005	0.00023	0.00025	1.1 x	0.00058	0.00058	n/a	0.00023	0.00056	2.4 x	0.00046	0.0015	3.3 x
Dissolved Barium	mg/L	-	0.0034	0.0035	1 x	0.0085	0.0086	1 x	0.0034	0.0036	1.1 x	0.0066	0.0071	1.1 x
Dissolved Beryllium	mg/L	0.1	0.00012	0.00012	n/a	0.00028	0.00028	n/a	0.00013	0.00013	n/a	0.00017	0.0002	1.2 x
Dissolved Boron	mg/L	0.5	0.0091	0.0096	1.1 x	0.023	0.023	n/a	0.0092	0.016	1.7 x	0.019	0.039	2.1 x
Dissolved Cadmium	mg/L	0.00012	0.000035	0.000034	1 x	0.00011	0.00011	n/a	0.000035	0.000038	1.1 x	0.000049	0.000051	1 x
Dissolved Calcium	mg/L	-	3.3	3.6	1.1 x	8.4	8.5	1 x	3.3	4.3	1.3 x	6.8	9	1.3 x
Dissolved Chromium	mg/L	0.001	0.00052	0.00052	n/a	***0.0013***	***0.0013***	n/a	0.00053	0.00053	n/a	***0.0011***	***0.0011***	n/a
Dissolved Cobalt	mg/L	0.05	0.00016	0.00016	n/a	0.00037	0.00037	n/a	0.00016	0.00018	1.1 x	0.00024	0.00029	1.2 x
Dissolved Copper	mg/L	0.002	0.0013	0.0014	1.1 x	***0.0032***	***0.0033***	1 x	0.0013	0.0017	1.3 x	***0.0026***	***0.0036***	1.4 x
Dissolved Iron	mg/L	0.3	0.19	0.2	1.1 x	***0.48***	***0.48***	n/a	0.2	0.2	n/a	***0.33***	***0.34***	1 x
Dissolved Lead	mg/L	0.001	0.000087	0.000088	1 x	0.0002	0.0002	n/a	0.000089	0.000093	1 x	0.00013	0.00014	1.1 x
Dissolved Lithium	mg/L	2.5	0.01	0.01	n/a	0.028	0.028	n/a	0.01	0.01	n/a	0.023	0.023	n/a
Dissolved Magnesium	mg/L	-	2	2	n/a	5.1	5.2	1 x	2	2.1	1.1 x	4.3	4.7	1.1 x
Dissolved Manganese	mg/L	0.2	0.019	0.02	1.1 x	0.048	0.049	1 x	0.02	0.021	1.1 x	0.033	0.038	1.2 x
Dissolved Mercury	mg/L	0.000016	***0.000031***	***0.00003***	1 x	***0.000092***	***0.000092***	n/a	***0.000032***	***0.000033***	1 x	***0.000046***	***0.000046***	n/a
Dissolved Molybdenum	mg/L	0.01	0.00008	0.000091	1.1 x	0.0002	0.0002	n/a	0.000082	0.00012	1.5 x	0.00014	0.00021	1.5 x
Dissolved Nickel	mg/L	0.025	0.00057	0.00059	1 x	0.0014	0.0014	n/a	0.00057	0.00066	1.2 x	0.0012	0.0014	1.2 x
Dissolved Selenium	mg/L	0.001	0.00028	0.00028	n/a	0.00071	0.00071	n/a	0.00028	0.00029	1 x	0.0006	0.0006	n/a
Dissolved Silver	mg/L	0.00025	0.000031	0.00003	1 x	0.000091	0.000091	n/a	0.000032	0.000033	1 x	0.000046	0.000047	1 x
Dissolved Sodium	mg/L	-	5.8	5.9	1 x	15	15	n/a	5.9	5.9	n/a	13	13	n/a
Dissolved Thallium	mg/L	0.0008	0.000034	0.000033	1 x	0.00012	0.00012	n/a	0.000034	0.000035	1 x	0.000047	0.000048	1 x
Dissolved Uranium	mg/L	0.01	0.00005	0.000053	1.1 x	0.00014	0.00014	n/a	0.000051	0.000062	1.2 x	0.00007	0.000092	1.3 x
Dissolved Vanadium	mg/L	0.1	0.00031	0.00032	1 x	0.00081	0.00081	n/a	0.00032	0.00035	1.1 x	0.00069	0.00076	1.1 x
Dissolved Zinc	mg/L	0.03	0.0056	0.0057	1 x	0.014	0.014	n/a	0.0057	0.0058	1 x	0.0094	0.0099	1.1 x
Dissolved Phosphorous	mg/L	Variable	0.016	0.016	n/a	0.042	0.042	n/a	0.016	0.016	n/a	0.035	0.035	n/a
Total Aluminum	mg/L	0.1	0.085	0.085	n/a	***0.21***	***0.21***	n/a	0.086	0.086	n/a	***0.17***	***0.17***	n/a
Total Antimony	mg/L	-	0.00008	0.000081	1 x	0.00018	0.00018	n/a	0.000082	0.00012	1.5 x	0.00012	0.00022	1.8 x
Total Arsenic	mg/L	0.005	0.00023	0.00025	1.1 x	0.00058	0.00058	n/a	0.00023	0.00056	2.4 x	0.00046	0.0015	3.3 x
Total Barium	mg/L	-	0.0034	0.0035	1 x	0.0085	0.0086	1 x	0.0034	0.0036	1.1 x	0.0066	0.0071	1.1 x
Total Beryllium	mg/L	0.1	0.00012	0.00012	n/a	0.00028	0.00028	n/a	0.00013	0.00013	n/a	0.00017	0.0002	1.2 x
Total Boron	mg/L	0.5	0.0091	0.0096	1.1 x	0.023	0.023	n/a	0.0092	0.016	1.7 x	0.019	0.039	2.1 x
Total Cadmium	mg/L	0.00012	0.000035	0.000034	1 x	0.00011	0.00011	n/a	0.000035	0.000038	1.1 x	0.000049	0.000051	1 x
Total Calcium	mg/L	-	3.3	3.6	1.1 x	8.4	8.5	1 x	3.3	4.3	1.3 x	6.8	9	1.3 x
Total Chromium	mg/L	0.001	0.00052	0.00052	n/a	***0.0013***	***0.0013***	n/a	0.00053	0.00053	n/a	***0.0011***	***0.0011***	n/a
Total Cobalt	mg/L	0.05	0.00016	0.00016	n/a	0.00037	0.00037	n/a	0.00016	0.00018	1.1 x	0.00024	0.00029	1.2 x
Total Copper	mg/L	0.002	0.0013	0.0014	1.1 x	***0.0032***	***0.0033***	1 x	0.0013	0.0017	1.3 x	***0.0026***	***0.0036***	1.4 x
Total Iron	mg/L	0.3	0.19	0.2	1.1 x	***0.48***	***0.48***	n/a	0.2	0.2	n/a	***0.33***	***0.34***	1 x
Total Lead	mg/L	0.001	0.000087	0.000088	1 x	0.0002	0.0002	n/a	0.000089	0.000093	1 x	0.00013	0.00014	1.1 x
Total Lithium	mg/L	2.5	0.01	0.01	n/a	0.028	0.028	n/a	0.01	0.01	n/a	0.023	0.023	n/a
Total Magnesium	mg/L	-	2	2	n/a	5.1	5.2	1 x	2	2.1	1.1 x	4.3	4.7	1.1 x
Total Manganese	mg/L	0.2	0.019	0.02	1.1 x	0.048	0.049	1 x	0.02	0.021	1.1 x	0.033	0.038	1.2 x
Total Mercury	mg/L	0.000016	***0.000031***	***0.00003***	1 x	***0.000092***	***0.000092***	n/a	***0.000032***	***0.000033***	1 x	***0.000046***	***0.000046***	n/a
Total Molybdenum	mg/L	0.01	0.00008	0.000091	1.1 x	0.0002	0.0002	n/a	0.000082	0.00012	1.5 x	0.00014	0.00021	1.5 x
Total Nickel	mg/L	0.025	0.00057	0.00059	1 x	0.0014	0.0014	n/a	0.00057	0.00066	1.2 x	0.0012	0.0014	1.2 x
Total Selenium	mg/L	0.001	0.00028	0.00028	n/a	0.00071	0.00071	n/a	0.00028	0.00029	1 x	0.0006	0.0006	n/a
Total Silver	mg/L	0.00025	0.000031	0.00003	1 x	0.000091	0.000091	n/a	0.000032	0.000033	1 x	0.000046	0.000047	1 x
Total Sodium	mg/L	-	5.8	5.9	1 x	15	15	n/a	5.9	5.9	n/a	13	13	n/a
Total Thallium	mg/L	0.0008	0.000034	0.000033	1 x	0.00012	0.00012	n/a	0.000034	0.000035	1 x	0.000047	0.000048	1 x
Total Uranium	mg/L	0.01	0.00005	0.000053	1.1 x	0.00014	0.00014	n/a	0.000051	0.000062	1.2 x	0.00007	0.000092	1.3 x
Total Vanadium	mg/L	0.1	0.00031	0.00032	1 x	0.00081	0.00081	n/a	0.00032	0.00035	1.1 x	0.00069	0.00076	1.1 x
Total Zinc	mg/L	0.03	0.0056	0.0057	1 x	0.014	0.014	n/a	0.0057	0.0058	1 x	0.0094	0.0099	1.1 x
Total Phosphorous	mg/L	Variable	0.016	0.016	n/a	0.042	0.042	n/a	0.016	0.016	n/a	0.035	0.035	n/a

[1] ***CCME Exceedance shown in bold italics***

Aimaolokatalok Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Post -Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline	Base Case Baseline	Base Case	Increase from Baseline
TSS	mg/L	Variable	1.3	1.3	n/a	2.3	2.3	n/a	1.5	1.5	n/a	2.4	2.4	n/a
TDS	mg/L	-	15	16	1.1 x	24	24	n/a	18	19	1.1 x	25	26	1 x
Fluoride	mg/L	0.12	0.022	0.022	n/a	0.035	0.036	1 x	0.025	0.026	1 x	0.036	0.037	1 x
Chloride	mg/L	120	6.3	6.3	n/a	9.7	9.8	1 x	7.3	7.4	1 x	10	10	n/a
Free Cyanide	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Total Cyanide	mg/L	0.005	0.00092	0.00092	n/a	0.0012	0.0012	n/a	0.00099	0.001	1 x	0.0012	0.0012	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0083	0.0084	1 x	0.015	0.015	n/a	0.0097	0.0097	n/a	0.016	0.016	n/a
Nitrate	mg/L as N	3	0.0086	0.0086	n/a	0.017	0.017	n/a	0.01	0.0099	1 x	0.018	0.018	n/a
Nitrite	mg/L as N	10	0.00092	0.00092	n/a	0.0012	0.0012	n/a	0.00099	0.001	1 x	0.0012	0.0012	n/a
Sulphate	mg/L	1000	2.3	2.4	1 x	3.5	3.7	1.1 x	2.7	3.2	1.2 x	3.6	5	1.4 x
Alkalinity	mg/L	-	7.3	7.9	1.1 x	11	13	1.2 x	8.5	10	1.2 x	12	15	1.3 x
Hardness	mg/L	-	9.3	9.4	1 x	15	15	n/a	11	11	n/a	16	16	n/a
Dissolved Aluminum	mg/L	0.1	0.035	0.035	n/a	0.055	0.06	1.1 x	0.041	0.041	n/a	0.057	0.059	1 x
Dissolved Antimony	mg/L	-	0.00017	0.00016	0.9 x	0.00047	0.00047	n/a	0.00012	0.00016	1.3 x	0.00042	0.00042	n/a
Dissolved Arsenic	mg/L	0.005	0.00028	0.00028	n/a	0.00047	0.00047	n/a	0.00025	0.00061	2.4 x	0.00044	0.0015	3.4 x
Dissolved Barium	mg/L	-	0.0018	0.0018	n/a	0.0025	0.0026	1 x	0.002	0.0021	1.1 x	0.0027	0.0028	1 x
Dissolved Beryllium	mg/L	0.1	0.00016	0.00016	n/a	0.00047	0.00047	n/a	0.00011	0.00012	1.1 x	0.00042	0.00042	n/a
Dissolved Boron	mg/L	0.5	0.0039	0.0042	1.1 x	0.006	0.0066	1.1 x	0.0045	0.011	2.4 x	0.0062	0.028	4.5 x
Dissolved Cadmium	mg/L	0.00012	***0.00016***	***0.00016***	n/a	***0.00047***	***0.00047***	n/a	0.00011	0.00011	n/a	***0.00042***	***0.00042***	n/a
Dissolved Calcium	mg/L	-	1.9	2.1	1.1 x	3.1	3.5	1.1 x	2.3	2.8	1.2 x	3.2	4.4	1.4 x
Dissolved Chromium	mg/L	0.001	0.00034	0.00034	n/a	0.00047	0.00047	n/a	0.00032	0.00033	1 x	0.00045	0.00045	n/a
Dissolved Cobalt	mg/L	0.05	0.00019	0.00019	n/a	0.00047	0.00047	n/a	0.00015	0.00017	1.1 x	0.00042	0.00042	n/a
Dissolved Copper	mg/L	0.002	0.00086	0.00093	1.1 x	0.0011	0.0013	1.2 x	0.00093	0.0011	1.2 x	0.0012	0.0016	1.3 x
Dissolved Iron	mg/L	0.3	0.076	0.076	n/a	0.13	0.13	n/a	0.089	0.088	1 x	0.14	0.14	n/a
Dissolved Lead	mg/L	0.001	0.00018	0.00018	n/a	0.00047	0.00047	n/a	0.00014	0.00014	n/a	0.00042	0.00042	n/a
Dissolved Lithium	mg/L	2.5	0.0057	0.0057	n/a	0.0087	0.0089	1 x	0.0066	0.0065	1 x	0.009	0.0089	1 x
Dissolved Magnesium	mg/L	-	1.2	1.2	n/a	1.9	1.9	n/a	1.4	1.5	1.1 x	2	2.1	1.1 x
Dissolved Manganese	mg/L	0.2	0.011	0.011	n/a	0.019	0.019	n/a	0.012	0.013	1.1 x	0.02	0.02	n/a
Dissolved Mercury	mg/L	0.000016	***0.00015***	***0.00015***	n/a	***0.00047***	***0.00047***	n/a	***0.00011***	***0.00011***	n/a	***0.00042***	***0.00042***	n/a
Dissolved Molybdenum	mg/L	0.01	0.00019	0.00019	n/a	0.00047	0.00047	n/a	0.00014	0.00016	1.1 x	0.00042	0.00042	n/a
Dissolved Nickel	mg/L	0.025	0.00046	0.00047	1 x	0.00052	0.00053	1 x	0.00046	0.00051	1.1 x	0.00054	0.00059	1.1 x
Dissolved Selenium	mg/L	0.001	0.0003	0.0003	n/a	0.00047	0.00047	n/a	0.00028	0.00028	n/a	0.00044	0.00044	n/a
Dissolved Silver	mg/L	0.00025	0.00016	0.00015	0.9 x	***0.00047***	***0.00047***	n/a	0.00011	0.00011	n/a	***0.00042***	***0.00042***	n/a
Dissolved Sodium	mg/L	-	3.5	3.6	1 x	5.6	5.6	n/a	4.1	4.2	1 x	5.9	5.9	n/a
Dissolved Thallium	mg/L	0.0008	0.00016	0.00015	0.9 x	0.00047	0.00047	n/a	0.00011	0.00011	n/a	0.00042	0.00042	n/a
Dissolved Uranium	mg/L	0.01	0.00017	0.00017	n/a	0.00047	0.00047	n/a	0.00012	0.00013	1.1 x	0.00042	0.00042	n/a
Dissolved Vanadium	mg/L	0.1	0.00028	0.00028	n/a	0.00047	0.00047	n/a	0.00025	0.00028	1.1 x	0.00044	0.00044	n/a
Dissolved Zinc	mg/L	0.03	0.0017	0.0017	n/a	0.0027	0.0028	1 x	0.0019	0.002	1.1 x	0.0028	0.0029	1 x
Dissolved Phosphorous	mg/L	Variable	0.009	0.0091	1 x	0.014	0.014	n/a	0.01	0.011	1.1 x	0.015	0.015	n/a
Total Aluminum	mg/L	0.1	0.035	0.035	n/a	0.055	0.06	1.1 x	0.041	0.041	n/a	0.057	0.059	1 x
Total Antimony	mg/L	-	0.00017	0.00016	0.9 x	0.00047	0.00047	n/a	0.00012	0.00016	1.3 x	0.00042	0.00042	n/a
Total Arsenic	mg/L	0.005	0.00028	0.00028	n/a	0.00047	0.00047	n/a	0.00025	0.00061	2.4 x	0.00044	0.0015	3.4 x
Total Barium	mg/L	-	0.0018	0.0018	n/a	0.0025	0.0026	1 x	0.002	0.0021	1.1 x	0.0027	0.0028	1 x
Total Beryllium	mg/L	0.1	0.00016	0.00016	n/a	0.00047	0.00047	n/a	0.00011	0.00012	1.1 x	0.00042	0.00042	n/a
Total Boron	mg/L	0.5	0.0039	0.0042	1.1 x	0.006	0.0066	1.1 x	0.0045	0.011	2.4 x	0.0062	0.028	4.5 x
Total Cadmium	mg/L	0.00012	***0.00016***	***0.00016***	n/a	***0.00047***	***0.00047***	n/a	0.00011	0.00011	n/a	***0.00042***	***0.00042***	n/a
Total Calcium	mg/L	-	1.9	2.1	1.1 x	3.1	3.5	1.1 x	2.3	2.8	1.2 x	3.2	4.4	1.4 x
Total Chromium	mg/L	0.001	0.00034	0.00034	n/a	0.00047	0.00047	n/a	0.00032	0.00033	1 x	0.00045	0.00045	n/a
Total Cobalt	mg/L	0.05	0.00019	0.00019	n/a	0.00047	0.00047	n/a	0.00015	0.00017	1.1 x	0.00042	0.00042	n/a
Total Copper	mg/L	0.002	0.00086	0.00093	1.1 x	0.0011	0.0013	1.2 x	0.00093	0.0011	1.2 x	0.0012	0.0016	1.3 x
Total Iron	mg/L	0.3	0.076	0.076	n/a	0.13	0.13	n/a	0.089	0.088	1 x	0.14	0.14	n/a
Total Lead	mg/L	0.001	0.00018	0.00018	n/a	0.00047	0.00047	n/a	0.00014	0.00014	n/a	0.00042	0.00042	n/a
Total Lithium	mg/L	2.5	0.0057	0.0057	n/a	0.0087	0.0089	1 x	0.0066	0.0065	1 x	0.009	0.0089	1 x
Total Magnesium	mg/L	-	1.2	1.2	n/a	1.9	1.9	n/a	1.4	1.5	1.1 x	2	2.1	1.1 x
Total Manganese	mg/L	0.2	0.011	0.011	n/a	0.019	0.019	n/a	0.012	0.013	1.1 x	0.02	0.02	n/a
Total Mercury	mg/L	0.000016	***0.00015***	***0.00015***	n/a	***0.00047***	***0.00047***	n/a	***0.00011***	***0.00011***	n/a	***0.00042***	***0.00042***	n/a
Total Molybdenum	mg/L	0.01	0.00019	0.00019	n/a	0.00047	0.00047	n/a	0.00014	0.00016	1.1 x	0.00042	0.00042	n/a
Total Nickel	mg/L	0.025	0.00046	0.00047	1 x	0.00052	0.00053	1 x	0.00046	0.00051	1.1 x	0.00054	0.00059	1.1 x
Total Selenium	mg/L	0.001	0.0003	0.0003	n/a	0.00047	0.00047	n/a	0.00028	0.00028	n/a	0.00044	0.00044	n/a
Total Silver	mg/L	0.00025	0.00016	0.00015	0.9 x	***0.00047***	***0.00047***	n/a	0.00011	0.00011	n/a	***0.00042***	***0.00042***	n/a
Total Sodium	mg/L	-	3.5	3.6	1 x	5.6	5.6	n/a	4.1	4.2	1 x	5.9	5.9	n/a
Total Thallium	mg/L	0.0008	0.00016	0.00015	0.9 x	0.00047	0.00047	n/a	0.00011	0.00011	n/a	0.00042	0.00042	n/a
Total Uranium	mg/L	0.01	0.00017	0.00017	n/a	0.00047	0.00047	n/a	0.00012	0.00013	1.1 x	0.00042	0.00042	n/a
Total Vanadium	mg/L	0.1	0.00028	0.00028	n/a	0.00047	0.00047	n/a	0.00025	0.00028	1.1 x	0.00044	0.00044	n/a
Total Zinc	mg/L	0.03	0.0017	0.0017	n/a	0.0027	0.0028	1 x	0.0019	0.002	1.1 x	0.0028	0.0029	1 x
Total Phosphorous	mg/L	Variable	0.009	0.0091	1 x	0.014	0.014	n/a	0.01	0.011	1.1 x	0.015	0.015	n/a

[1] ***CCME Exceedance shown in bold italics***

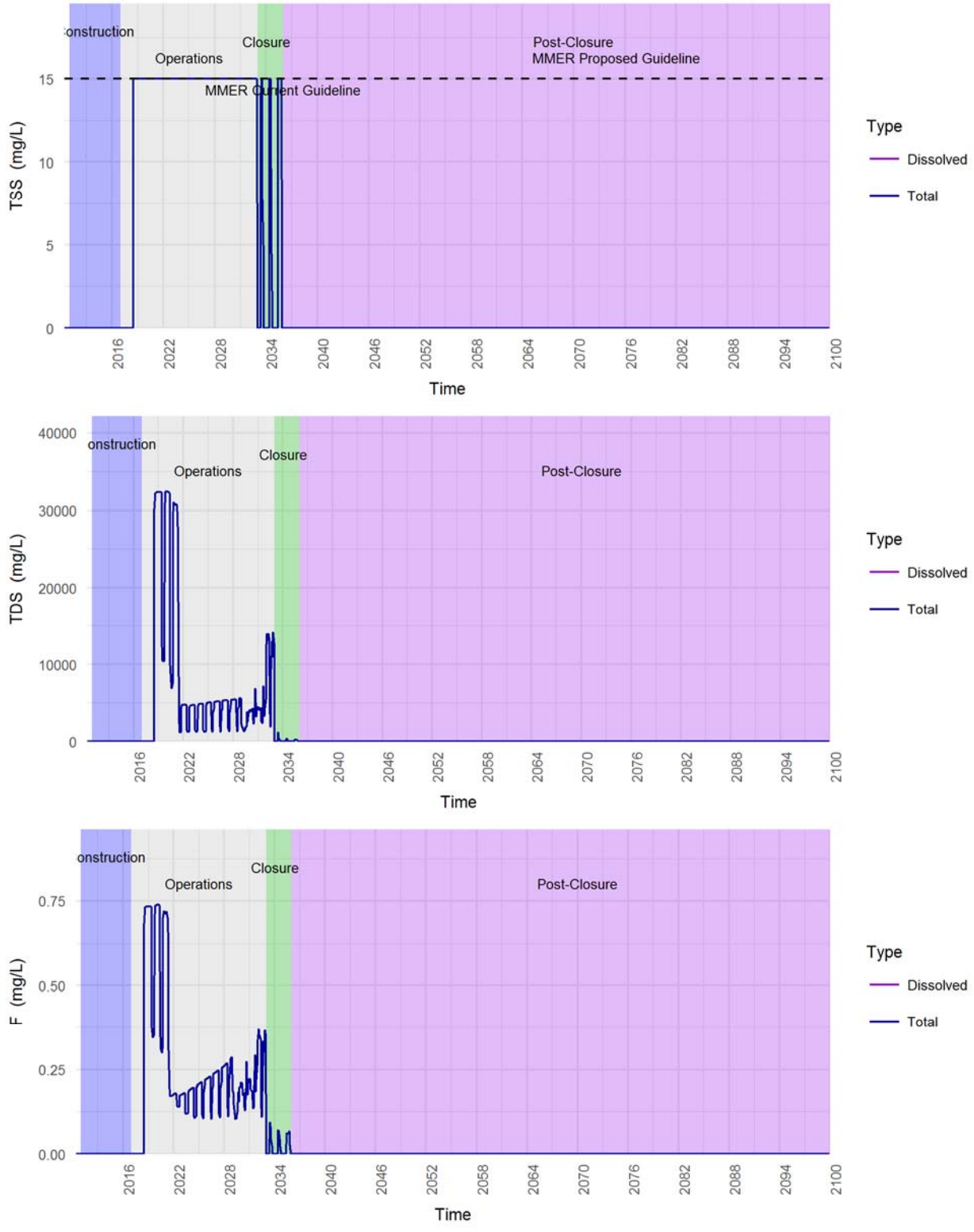
Aimaolokatalok Lake Average and Maximum Concentrations During Operations and Post-Closure														
Parameter	Units	Min CCME[1]	Operations						Post -Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline	Upper Case Baseline	Upper Case	Increase from Baseline
TSS	mg/L	Variable	2.3	2.3	n/a	4.2	4.2	n/a	2.6	2.6	n/a	4.8	4.8	n/a
TDS	mg/L	-	21	22	1 x	33	37	1.1 x	23	23	n/a	33	33	n/a
Fluoride	mg/L	0.12	0.05	0.05	n/a	0.071	0.071	n/a	0.053	0.053	n/a	0.071	0.071	n/a
Chloride	mg/L	120	8.9	9.1	1 x	13	15	1.2 x	9.4	9.3	1 x	13	13	n/a
Free Cyanide	mg/L	0.005	-	-	-	-	-	-	-	-	-	-	-	-
Total Cyanide	mg/L	0.005	0.00097	0.001	1 x	0.0015	0.002	1.3 x	0.001	0.001	n/a	0.0015	0.0015	n/a
WAD Cyanide	mg/L	-	-	0.000073	-	-	0.00051	-	-	0.00000018	-	-	0.00002	-
Cyanate	mg/L	-	-	0.0059	-	-	0.042	-	-	0.000014	-	-	0.0016	-
Thiocyanate	mg/L	-	-	0.0039	-	-	0.028	-	-	0.0000095	-	-	0.0011	-
Ammonia	mg/L as N	1.54	0.013	0.018	1.4 x	0.019	0.042	2.2 x	0.014	0.014	n/a	0.019	0.021	1.1 x
Nitrate	mg/L as N	3	0.016	0.018	1.1 x	0.022	0.037	1.7 x	0.017	0.016	0.9 x	0.022	0.022	n/a
Nitrite	mg/L as N	10	0.0028	0.013	4.6 x	0.0038	0.066	17.4 x	0.0029	0.003	1 x	0.0038	0.01	2.6 x
Sulphate	mg/L	1000	3.2	3.4	1.1 x	5.3	6.1	1.2 x	3.5	3.5	n/a	5.5	5.5	n/a
Alkalinity	mg/L	-	9.7	9.8	1 x	15	15	n/a	10	10	n/a	15	15	n/a
Hardness	mg/L	-	13	13	n/a	19	23	1.2 x	13	13	n/a	19	20	1.1 x
Dissolved Aluminum	mg/L	0.1	0.067	0.067	n/a	0.1	0.1	n/a	0.071	0.071	n/a	0.1	0.1	n/a
Dissolved Antimony	mg/L	-	0.000043	0.000059	1.4 x	0.000061	0.00015	2.5 x	0.000045	0.000045	n/a	0.000061	0.000072	1.2 x
Dissolved Arsenic	mg/L	0.005	0.00016	0.00017	1.1 x	0.00025	0.00027	1.1 x	0.00017	0.00018	1.1 x	0.00025	0.00026	1 x
Dissolved Barium	mg/L	-	0.0026	0.0027	1 x	0.0039	0.004	1 x	0.0028	0.0028	n/a	0.0039	0.0039	n/a
Dissolved Beryllium	mg/L	0.1	0.000074	0.000079	1.1 x	0.0001	0.00014	1.4 x	0.000077	0.000077	n/a	0.0001	0.0001	n/a
Dissolved Boron	mg/L	0.5	0.0072	0.0082	1.1 x	0.011	0.014	1.3 x	0.0076	0.0077	1 x	0.011	0.012	1.1 x
Dissolved Cadmium	mg/L	0.00012	0.0000077	0.0000077	n/a	0.000012	0.000012	n/a	0.0000079	0.0000079	n/a	0.000011	0.000011	n/a
Dissolved Calcium	mg/L	-	2.6	2.8	1.1 x	3.9	5.2	1.3 x	2.7	2.8	1 x	3.9	4.1	1.1 x
Dissolved Chromium	mg/L	0.001	0.0004	0.00041	1 x	0.00062	0.00064	1 x	0.00043	0.00043	n/a	0.00062	0.00062	n/a
Dissolved Cobalt	mg/L	0.05	0.0001	0.00011	1.1 x	0.00014	0.00017	1.2 x	0.00011	0.00011	n/a	0.00014	0.00015	1.1 x
Dissolved Copper	mg/L	0.002	0.00099	0.00099	n/a	0.0015	0.0015	n/a	0.001	0.0011	1.1 x	0.0015	0.0015	n/a
Dissolved Iron	mg/L	0.3	0.15	0.15	n/a	0.21	0.21	n/a	0.15	0.15	n/a	0.21	0.21	n/a
Dissolved Lead	mg/L	0.001	0.000049	0.00005	1 x	0.000072	0.000076	1.1 x	0.000052	0.000052	n/a	0.000071	0.000072	1 x
Dissolved Lithium	mg/L	2.5	0.0085	0.0085	n/a	0.013	0.013	n/a	0.0089	0.0089	n/a	0.013	0.013	n/a
Dissolved Magnesium	mg/L	-	1.6	1.6	n/a	2.4	2.7	1.1 x	1.7	1.7	n/a	2.4	2.5	1 x
Dissolved Manganese	mg/L	0.2	0.015	0.015	n/a	0.021	0.021	n/a	0.015	0.015	n/a	0.02	0.021	1.1 x
Dissolved Mercury	mg/L	0.000016	0.0000057	0.0000057	n/a	0.00001	0.00001	n/a	0.0000064	0.0000064	n/a	0.000011	0.000011	n/a
Dissolved Molybdenum	mg/L	0.01	0.000045	0.00005	1.1 x	0.000071	0.000093	1.3 x	0.000049	0.000049	n/a	0.000071	0.000074	1 x
Dissolved Nickel	mg/L	0.025	0.00044	0.00044	n/a	0.00066	0.00067	1 x	0.00046	0.00046	n/a	0.00066	0.00066	n/a
Dissolved Selenium	mg/L	0.001	0.00021	0.00021	n/a	0.00033	0.00033	n/a	0.00022	0.00022	n/a	0.00033	0.00033	n/a
Dissolved Silver	mg/L	0.00025	0.0000051	0.0000053	1 x	0.0000075	0.0000092	1.2 x	0.0000054	0.0000054	n/a	0.0000075	0.0000076	1 x
Dissolved Sodium	mg/L	-	4.7	4.8	1 x	7.2	7.6	1.1 x	5	5	n/a	7.2	7.2	n/a
Dissolved Thallium	mg/L	0.0008	0.0000078	0.000008	1 x	0.000014	0.000014	n/a	0.0000081	0.0000081	n/a	0.000012	0.000012	n/a
Dissolved Uranium	mg/L	0.01	0.000021	0.000022	1 x	0.000032	0.000036	1.1 x	0.000022	0.000022	n/a	0.000032	0.000033	1 x
Dissolved Vanadium	mg/L	0.1	0.00024	0.00024	n/a	0.00037	0.00042	1.1 x	0.00025	0.00025	n/a	0.00037	0.00037	n/a
Dissolved Zinc	mg/L	0.03	0.0042	0.0042	n/a	0.0058	0.0058	n/a	0.0044	0.0044	n/a	0.0058	0.0058	n/a
Dissolved Phosphorous	mg/L	Variable	0.013	0.013	n/a	0.02	0.02	n/a	0.014	0.013	0.9 x	0.02	0.02	n/a
Total Aluminum	mg/L	0.1	0.067	0.067	n/a	0.1	0.1	n/a	0.071	0.071	n/a	0.1	0.1	n/a
Total Antimony	mg/L	-	0.000043	0.000059	1.4 x	0.000061	0.00015	2.5 x	0.000045	0.000045	n/a	0.000061	0.000072	1.2 x
Total Arsenic	mg/L	0.005	0.00016	0.00017	1.1 x	0.00025	0.00028	1.1 x	0.00017	0.00018	1.1 x	0.00025	0.00026	1 x
Total Barium	mg/L	-	0.0026	0.0027	1 x	0.0039	0.004	1 x	0.0028	0.0028	n/a	0.0039	0.0039	n/a
Total Beryllium	mg/L	0.1	0.000074	0.000079	1.1 x	0.0001	0.00014	1.4 x	0.000077	0.000077	n/a	0.0001	0.0001	n/a
Total Boron	mg/L	0.5	0.0072	0.0082	1.1 x	0.011	0.014	1.3 x	0.0076	0.0077	1 x	0.011	0.012	1.1 x
Total Cadmium	mg/L	0.00012	0.0000077	0.0000077	n/a	0.000012	0.000012	n/a	0.0000079	0.0000079	n/a	0.000011	0.000011	n/a
Total Calcium	mg/L	-	2.6	2.8	1.1 x	3.9	5	1.3 x	2.7	2.8	1 x	3.9	4.1	1.1 x
Total Chromium	mg/L	0.001	0.0004	0.00041	1 x	0.00062	0.00065	1 x	0.00043	0.00043	n/a	0.00062	0.00062	n/a
Total Cobalt	mg/L	0.05	0.0001	0.00011	1.1 x	0.00014	0.00017	1.2 x	0.00011	0.00011	n/a	0.00014	0.00015	1.1 x
Total Copper	mg/L	0.002	0.00099	0.00099	n/a	0.0015	0.0015	n/a	0.001	0.0011	1.1 x	0.0015	0.0015	n/a
Total Iron	mg/L	0.3	0.15	0.15	n/a	0.21	0.21	n/a	0.15	0.15	n/a	0.21	0.21	n/a
Total Lead	mg/L	0.001	0.000049	0.00005	1 x	0.000072	0.000076	1.1 x	0.000052	0.000052	n/a	0.000071	0.000072	1 x
Total Lithium	mg/L	2.5	0.0085	0.0085	n/a	0.013	0.013	n/a	0.0089	0.0089	n/a	0.013	0.013	n/a
Total Magnesium	mg/L	-	1.6	1.6	n/a	2.4	2.7	1.1 x	1.7	1.7	n/a	2.4	2.5	1 x
Total Manganese	mg/L	0.2	0.015	0.015	n/a	0.021	0.021	n/a	0.015	0.015	n/a	0.02	0.021	1.1 x
Total Mercury	mg/L	0.000016	0.0000057	0.0000058	1 x	0.00001	0.00001	n/a	0.0000064	0.0000064	n/a	0.000011	0.000011	n/a
Total Molybdenum	mg/L	0.01	0.000045	0.00005	1.1 x	0.000071	0.000093	1.3 x	0.000049	0.000049	n/a	0.000071	0.000074	1 x
Total Nickel	mg/L	0.025	0.00044	0.00044	n/a	0.00066	0.00068	1 x	0.00046	0.00046	n/a	0.00066	0.00066	n/a
Total Selenium	mg/L	0.001	0.00021	0.00021	n/a	0.00033	0.00033	n/a	0.00022	0.00022	n/a	0.00033	0.00033	n/a
Total Silver	mg/L	0.00025	0.0000051	0.0000054	1.1 x	0.0000075	0.0000092	1.2 x	0.0000054	0.0000054	n/a	0.0000075	0.0000076	1 x
Total Sodium	mg/L	-	4.7	4.8	1 x	7.2	7.6	1.1 x	5	5	n/a	7.2	7.2	n/a
Total Thallium	mg/L	0.0008	0.0000078	0.000008	1 x	0.000014	0.000014	n/a	0.0000081	0.0000081	n/a	0.000012	0.000012	n/a
Total Uranium	mg/L	0.01	0.000021	0.000022	1 x	0.000032	0.000036	1.1 x	0.000022	0.000022	n/a	0.000032	0.000033	1 x
Total Vanadium	mg/L	0.1	0.00024	0.00024	n/a	0.00037	0.00042	1.1 x	0.00025	0.00025	n/a	0.00037	0.00037	n/a
Total Zinc	mg/L	0.03	0.0042	0.0042	n/a	0.0058	0.0058	n/a	0.0044	0.0044	n/a	0.0058	0.0058	n/a
Total Phosphorous	mg/L	Variable	0.013	0.013	n/a	0.02	0.02	n/a	0.014	0.013	0.9 x	0.02	0.02	n/a

[1] ***CCME Exceedance shown in bold italics***

Appendix C2: Results Time Series for Effluent Prediction Nodes

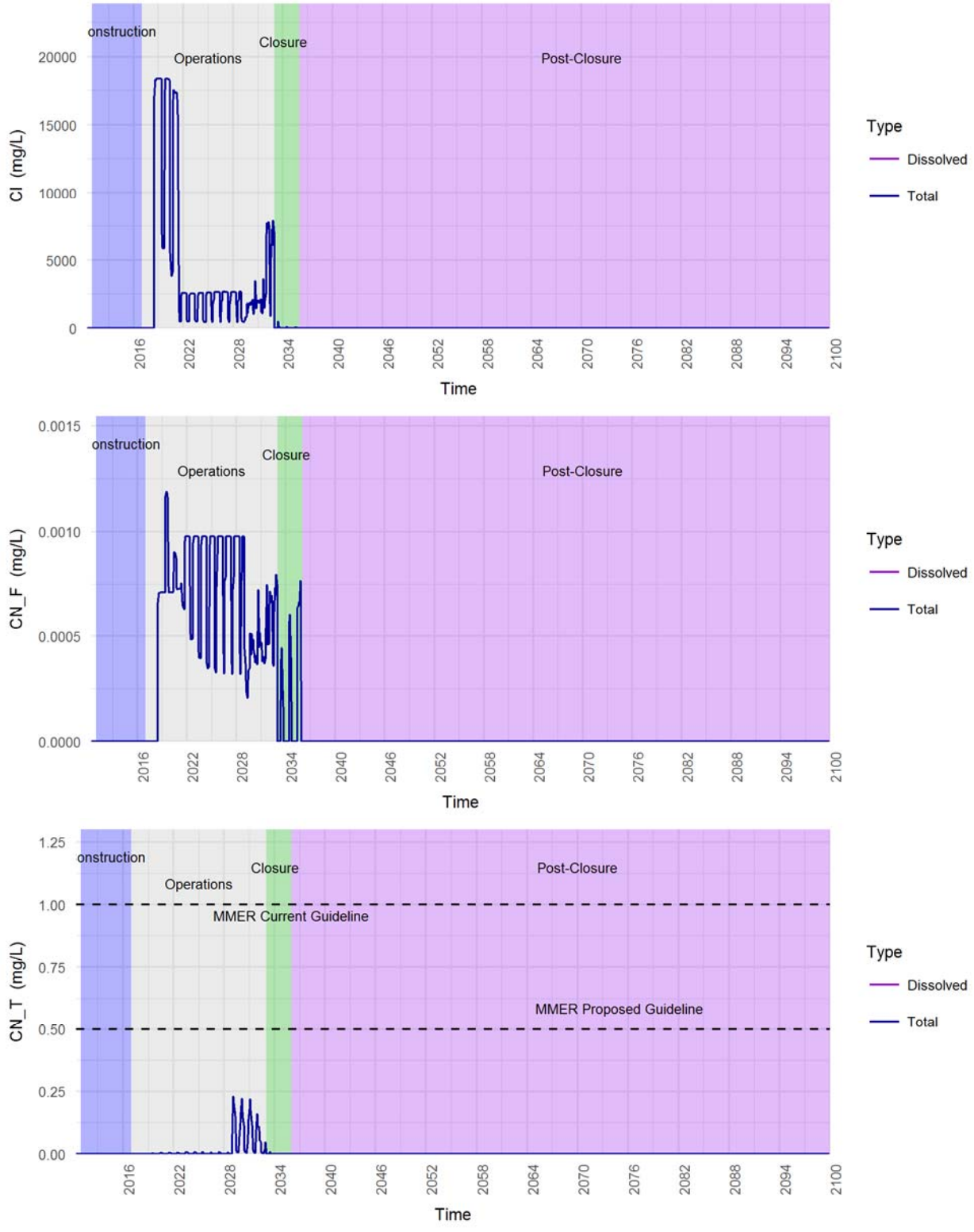
Marine Mixing Box

For the operations and closure period (July 2018 and 2034), discharge will occur during the open water season and in post-closure (2035) the TIA will be emptied year round until Jan 17, 2036.



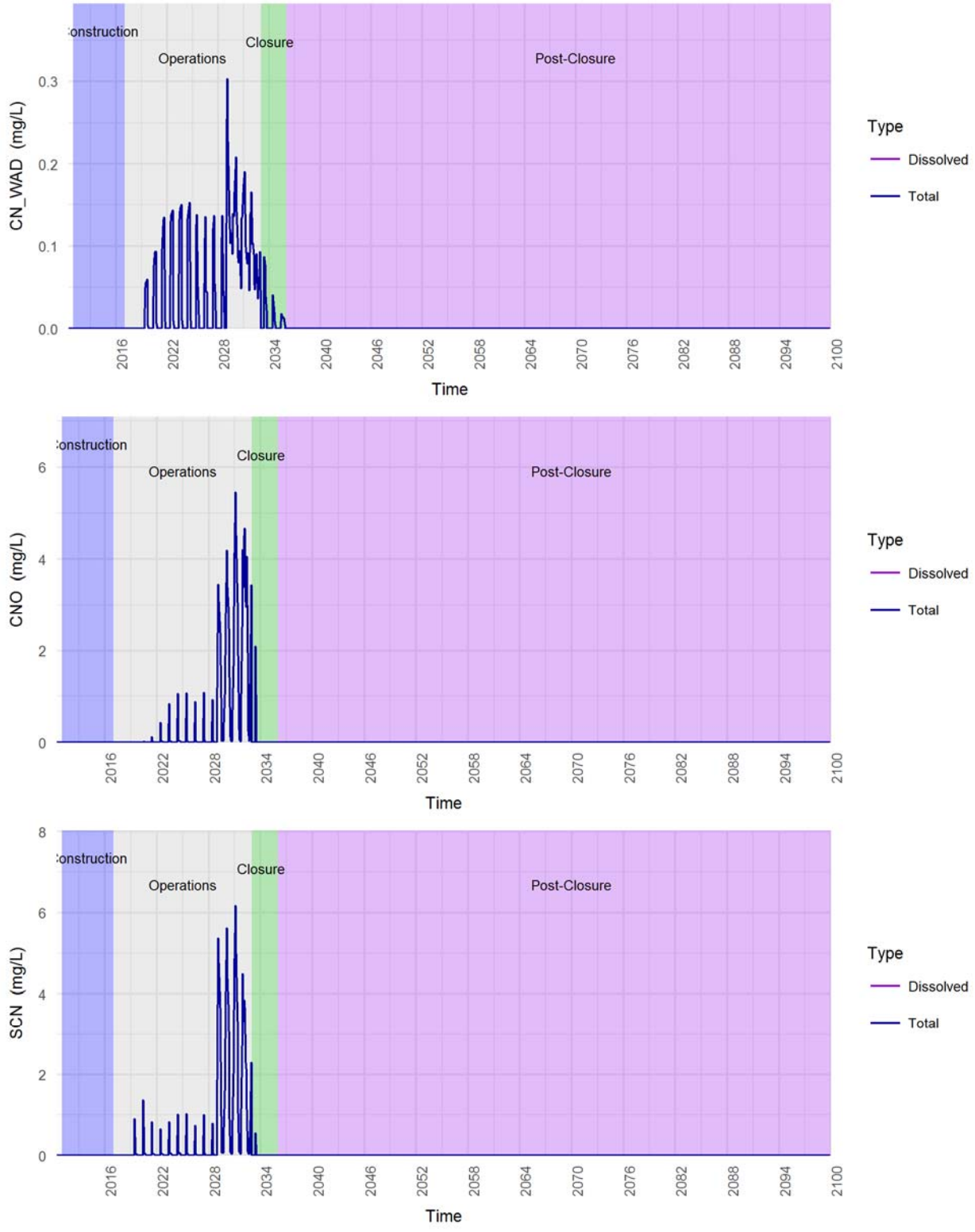
Marine Mixing Box

For the operations and closure period (July 2018 and 2034), discharge will occur during the open water season and in post-closure (2035) the TIA will be emptied year round until Jan 17, 2036.



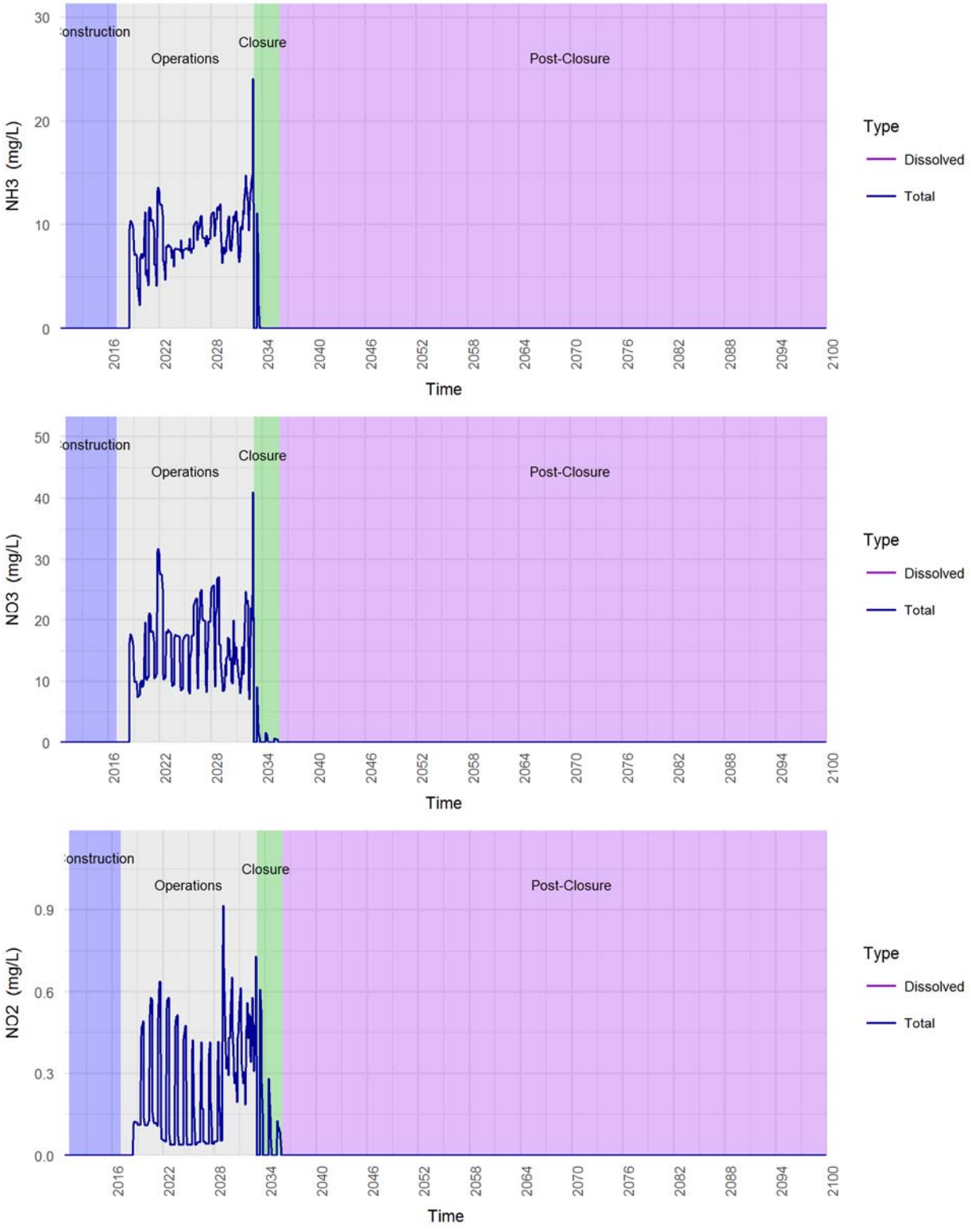
Marine Mixing Box

For the operations and closure period (July 2018 and 2034), discharge will occur during the open water season and in post-closure (2035) the TIA will be emptied year round until Jan 17, 2036.



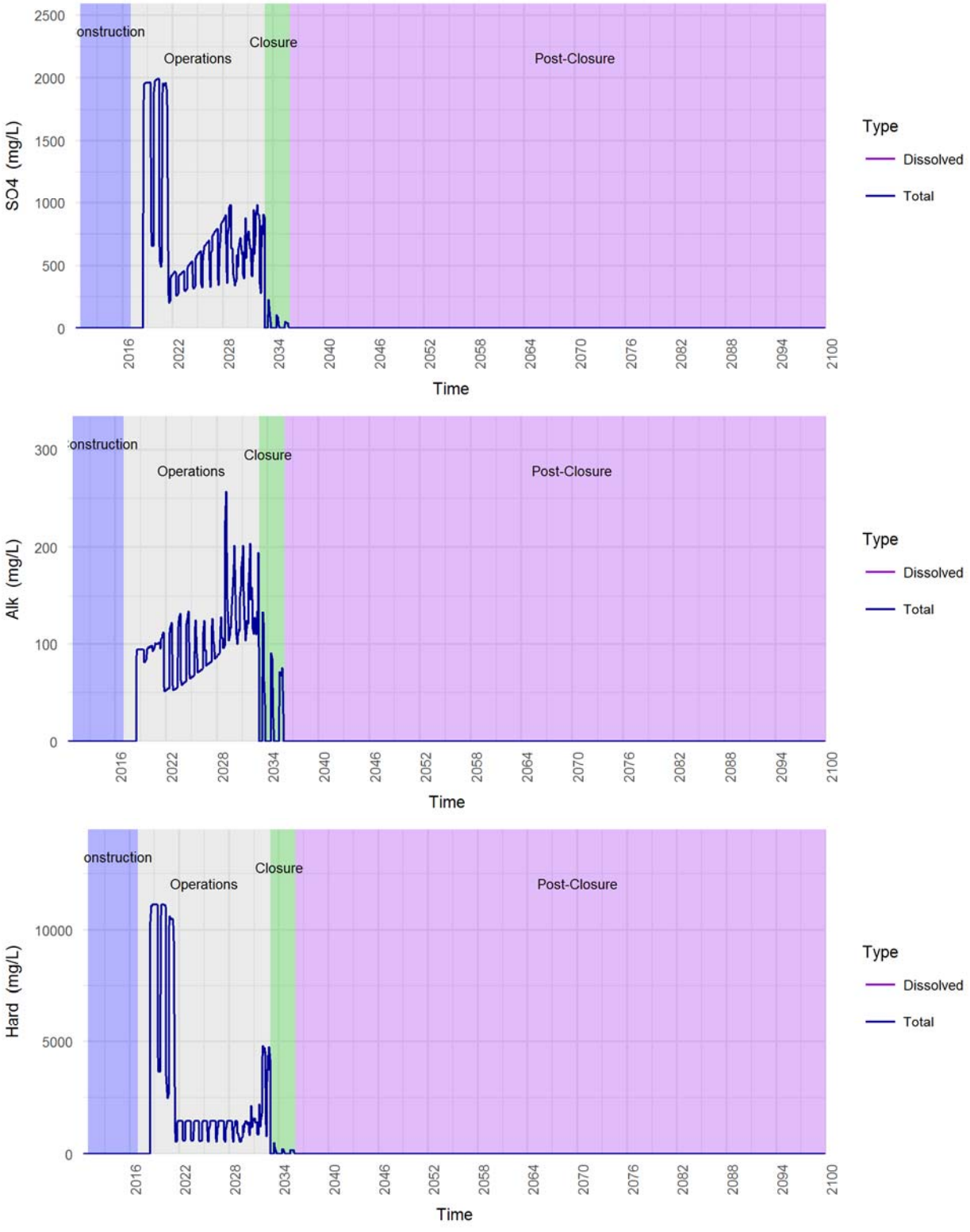
Marine Mixing Box

For the operations and closure period (July 2018 and 2034), discharge will occur during the open water season and in post-closure (2035) the TIA will be emptied year round until Jan 17, 2036.



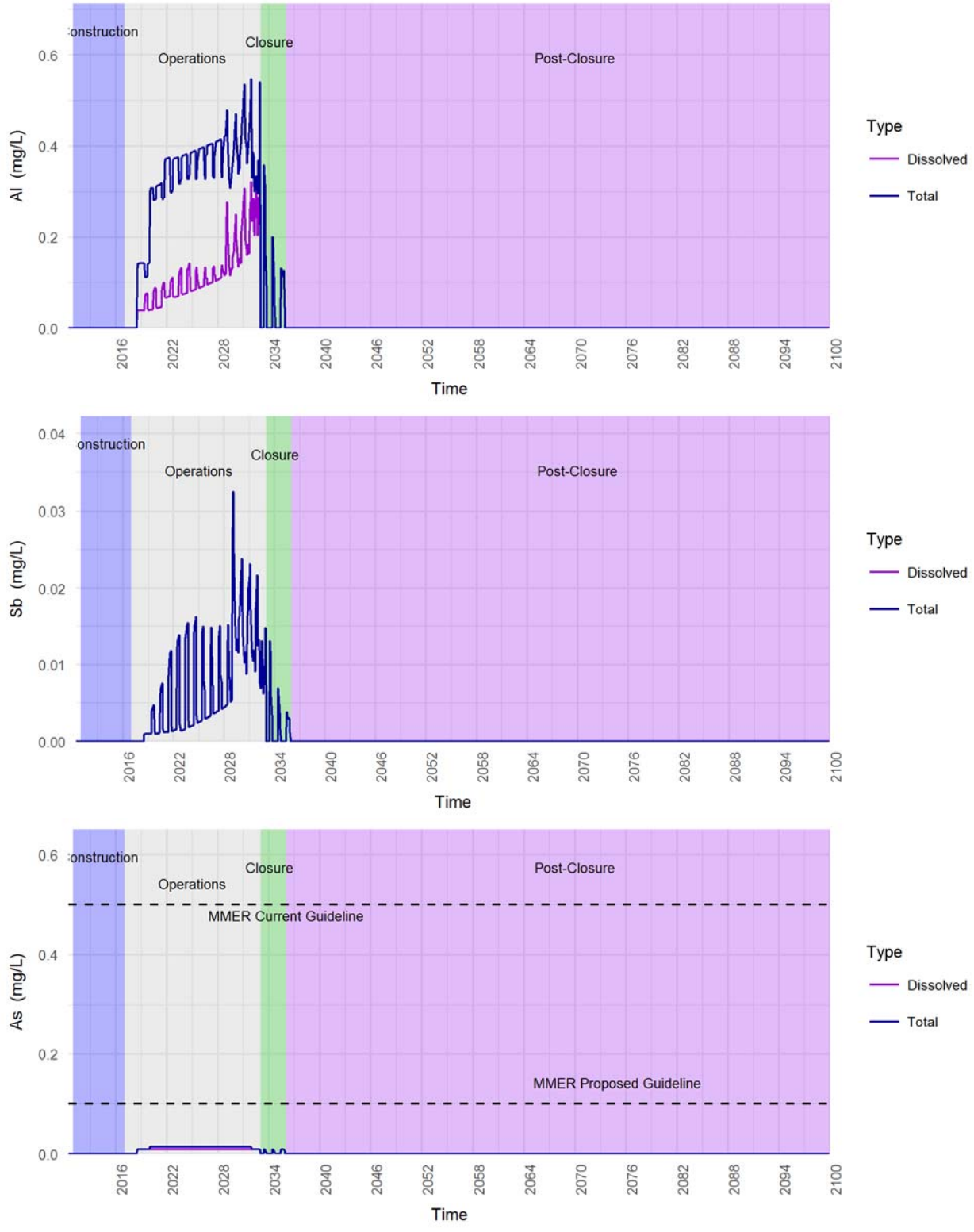
Marine Mixing Box

For the operations and closure period (July 2018 and 2034), discharge will occur during the open water season and in post-closure (2035) the TIA will be emptied year round until Jan 17, 2036.



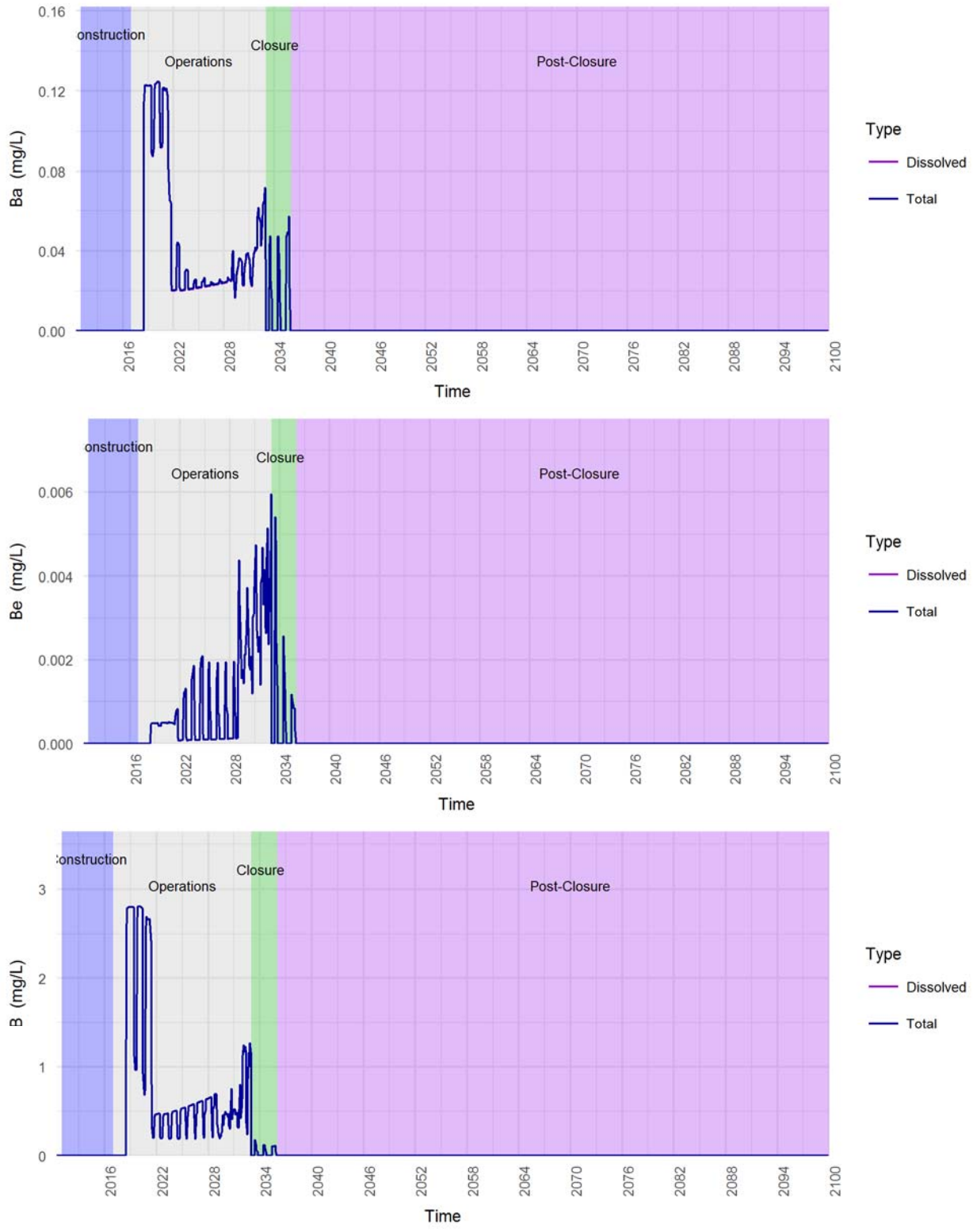
Marine Mixing Box

For the operations and closure period (July 2018 and 2034), discharge will occur during the open water season and in post-closure (2035) the TIA will be emptied year round until Jan 17, 2036.



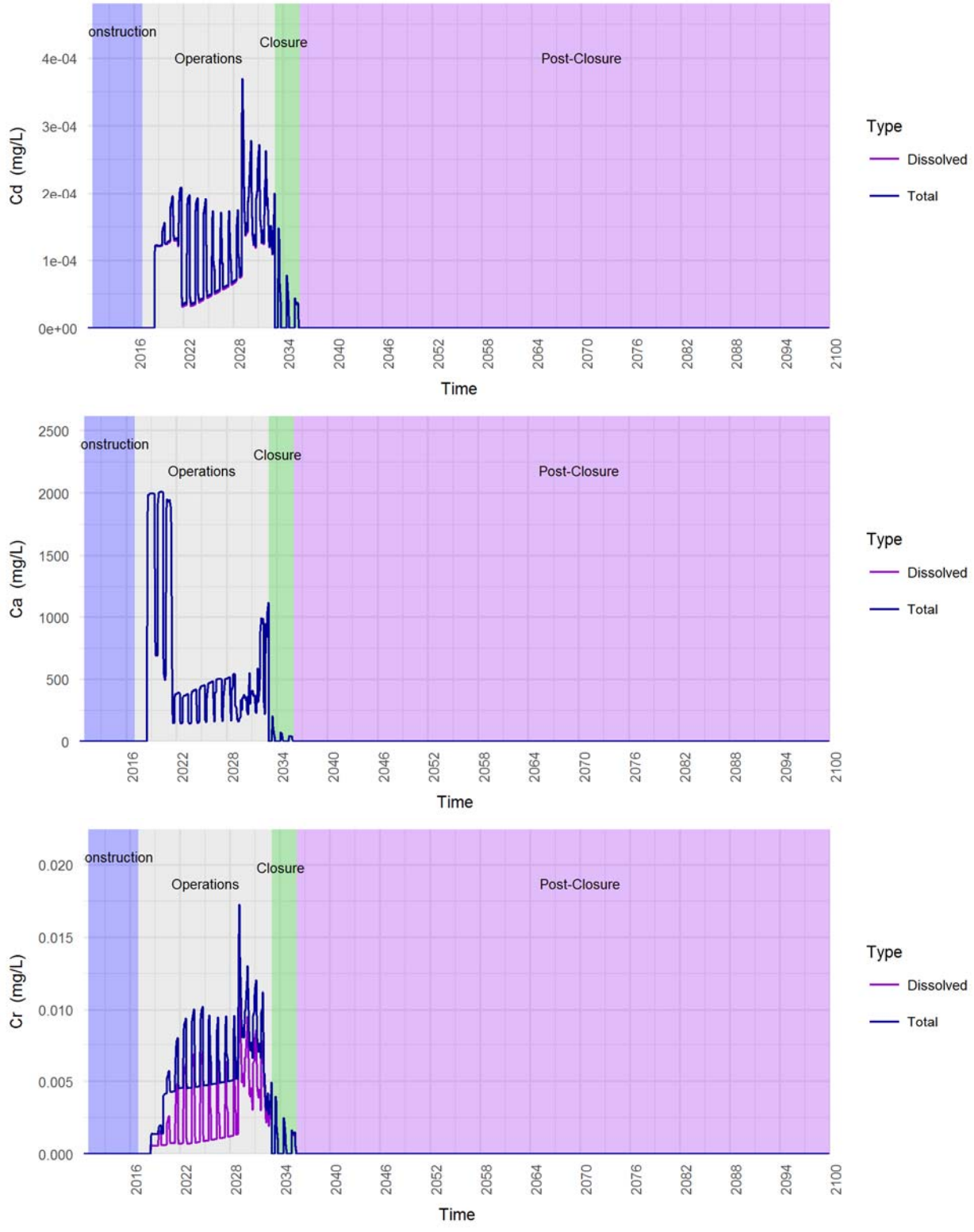
Marine Mixing Box

For the operations and closure period (July 2018 and 2034), discharge will occur during the open water season and in post-closure (2035) the TIA will be emptied year round until Jan 17, 2036.



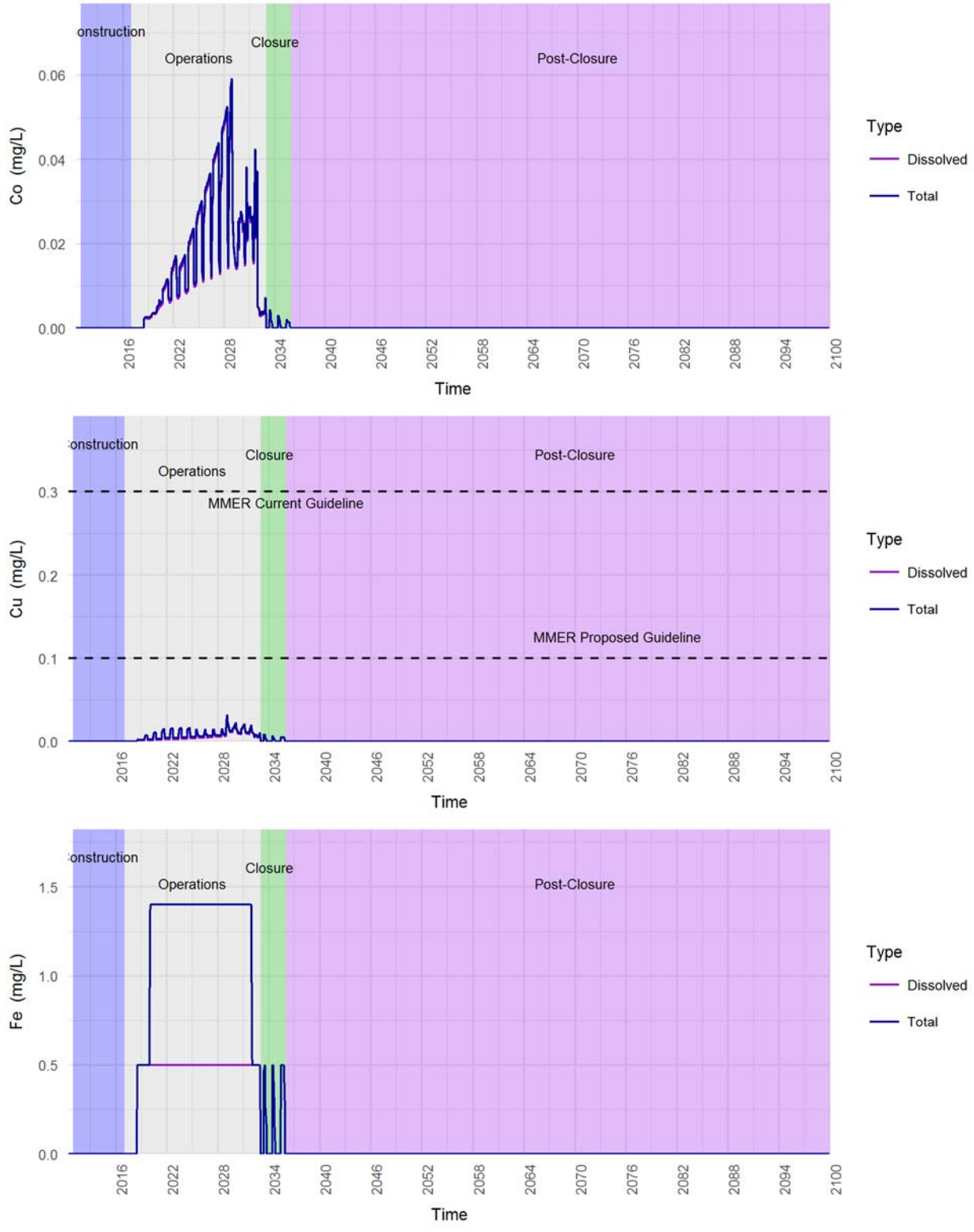
Marine Mixing Box

For the operations and closure period (July 2018 and 2034), discharge will occur during the open water season and in post-closure (2035) the TIA will be emptied year round until Jan 17, 2036.



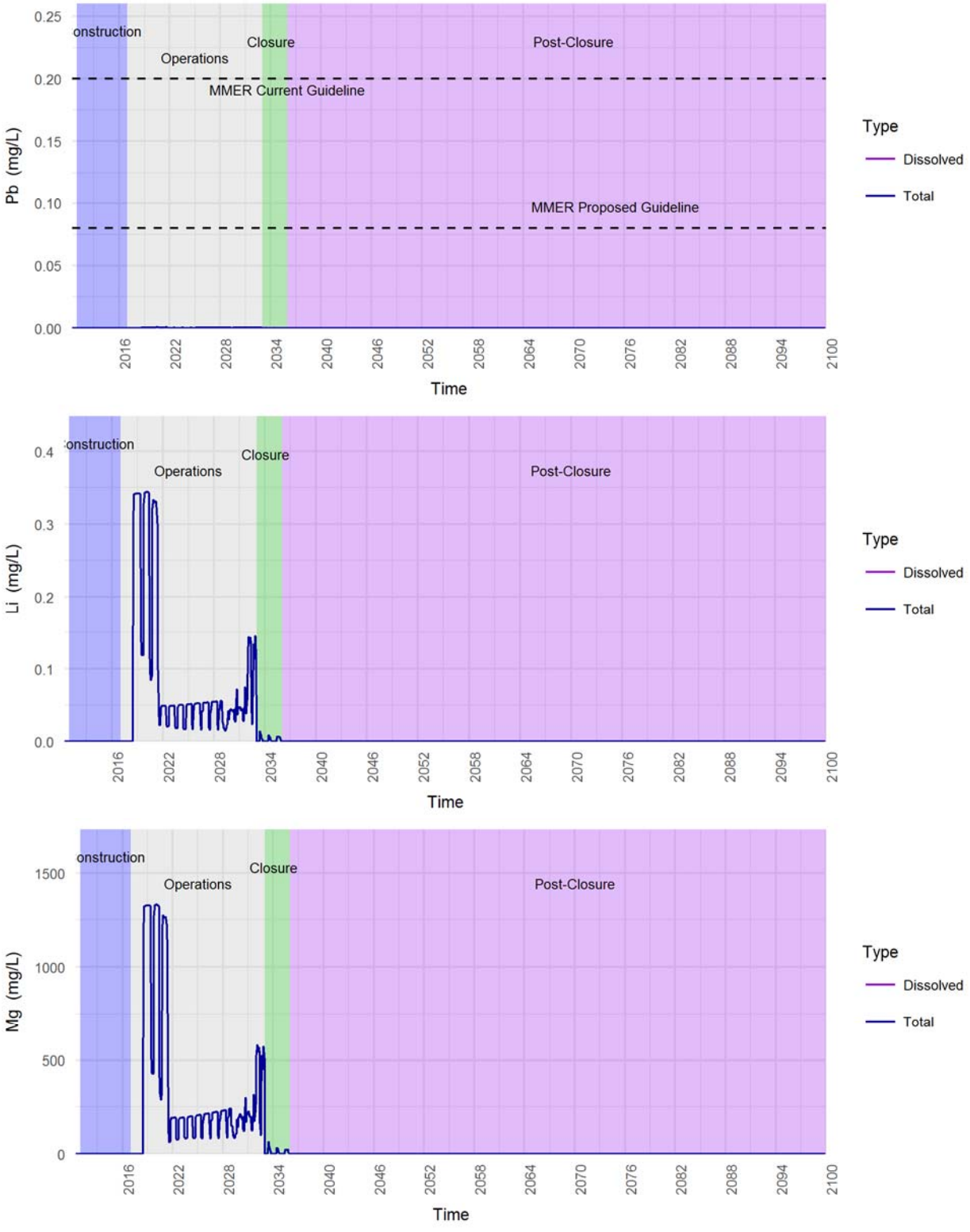
Marine Mixing Box

For the operations and closure period (July 2018 and 2034), discharge will occur during the open water season and in post-closure (2035) the TIA will be emptied year round until Jan 17, 2036.



Marine Mixing Box

For the operations and closure period (July 2018 and 2034), discharge will occur during the open water season and in post-closure (2035) the TIA will be emptied year round until Jan 17, 2036.



Marine Mixing Box

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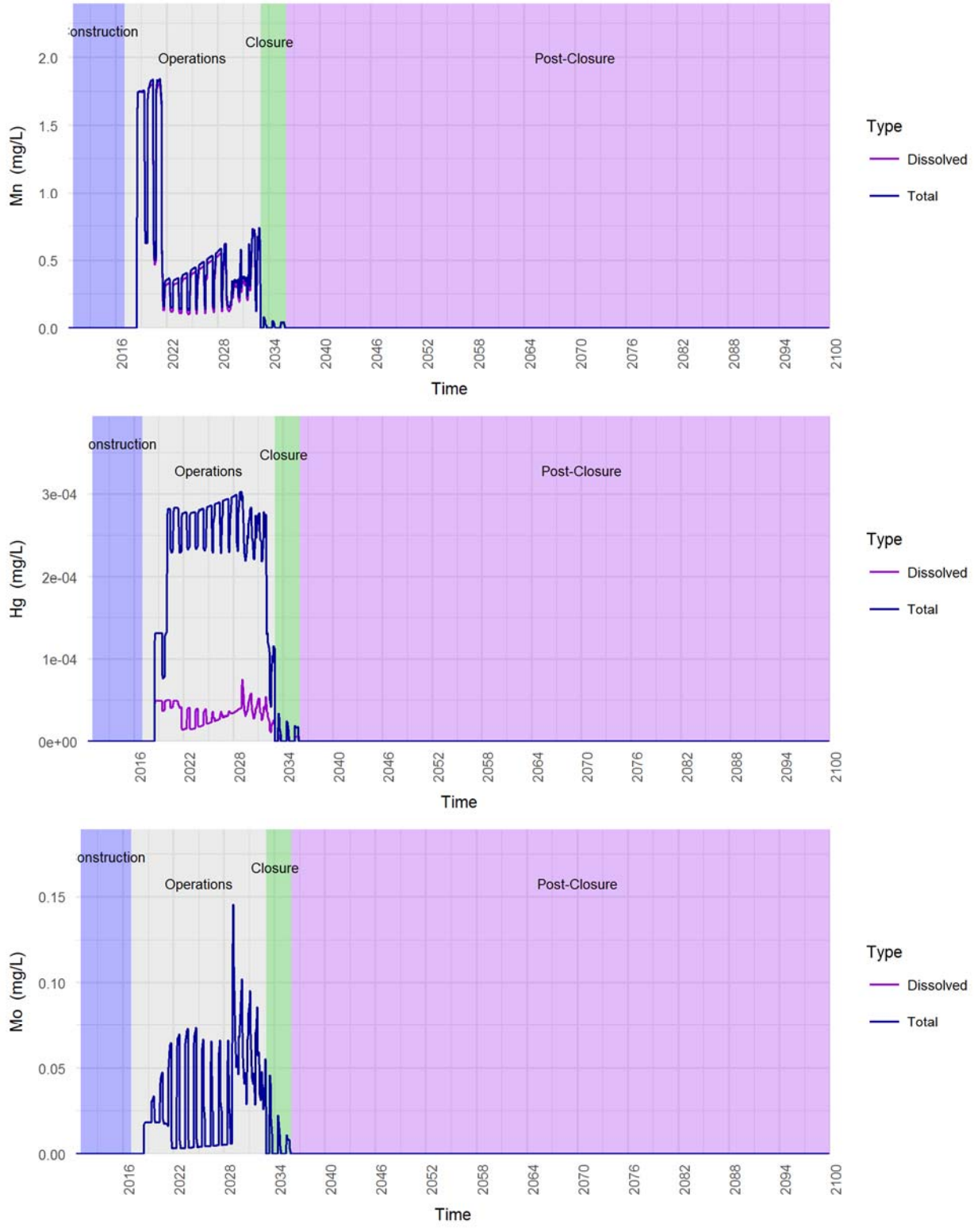

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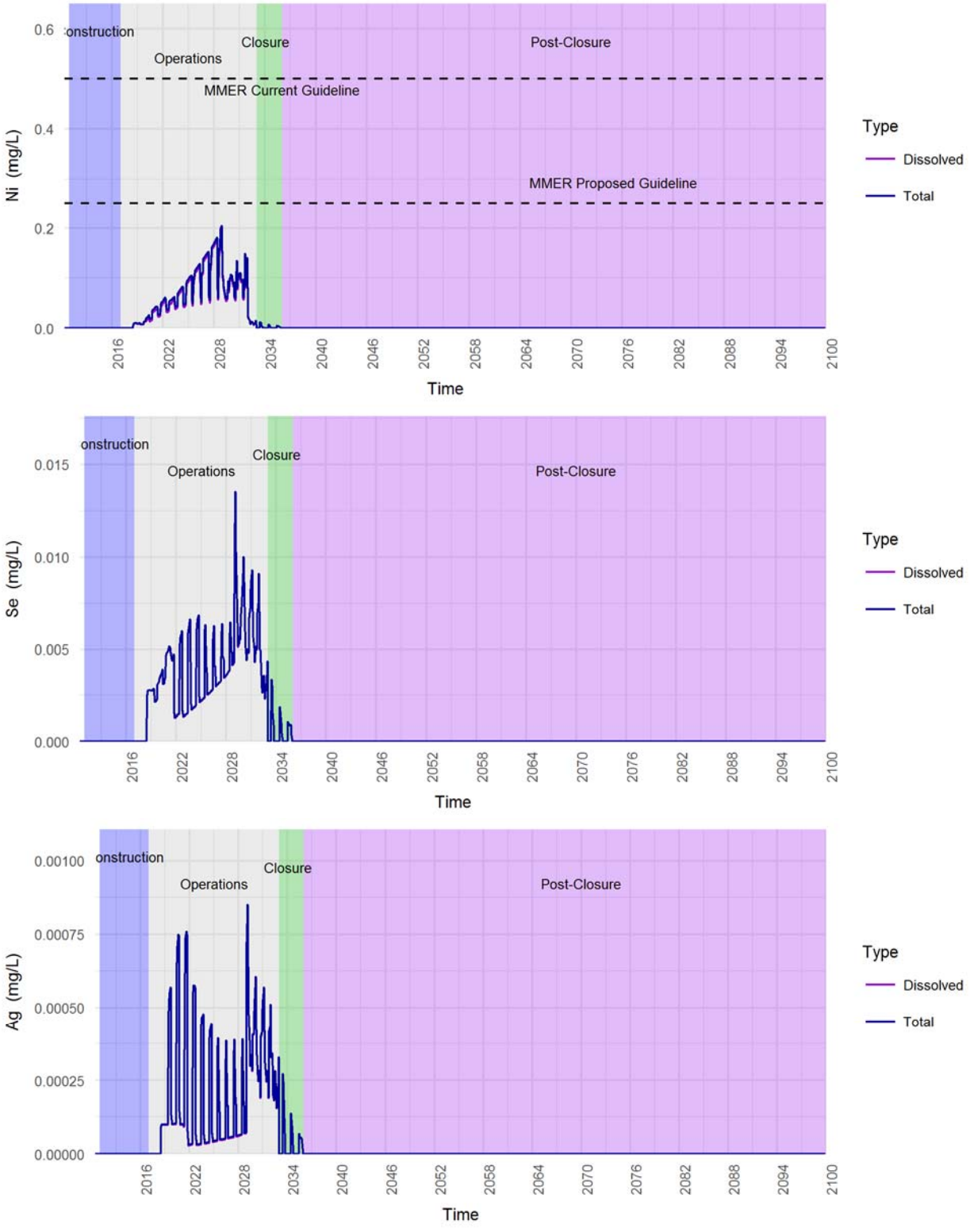

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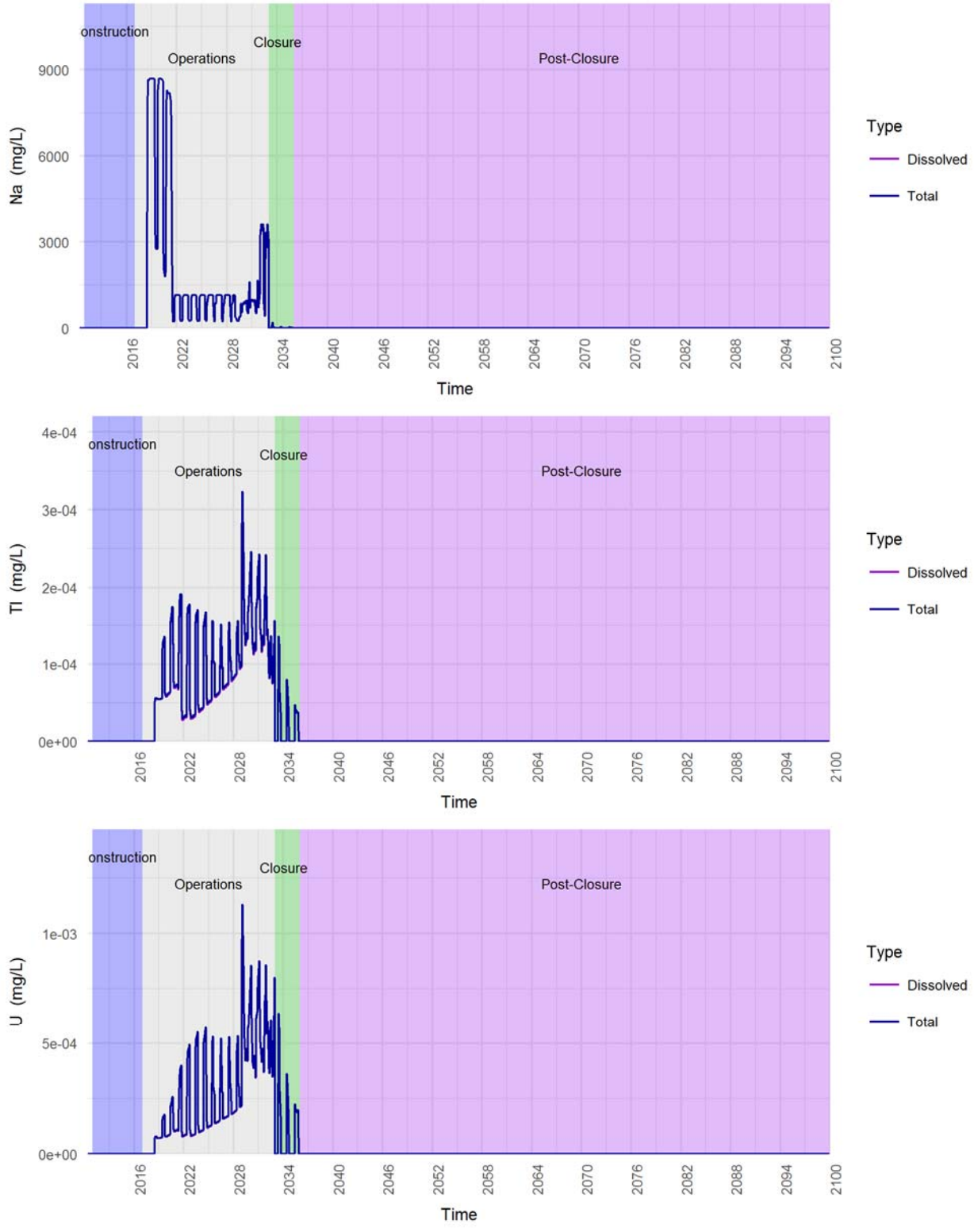

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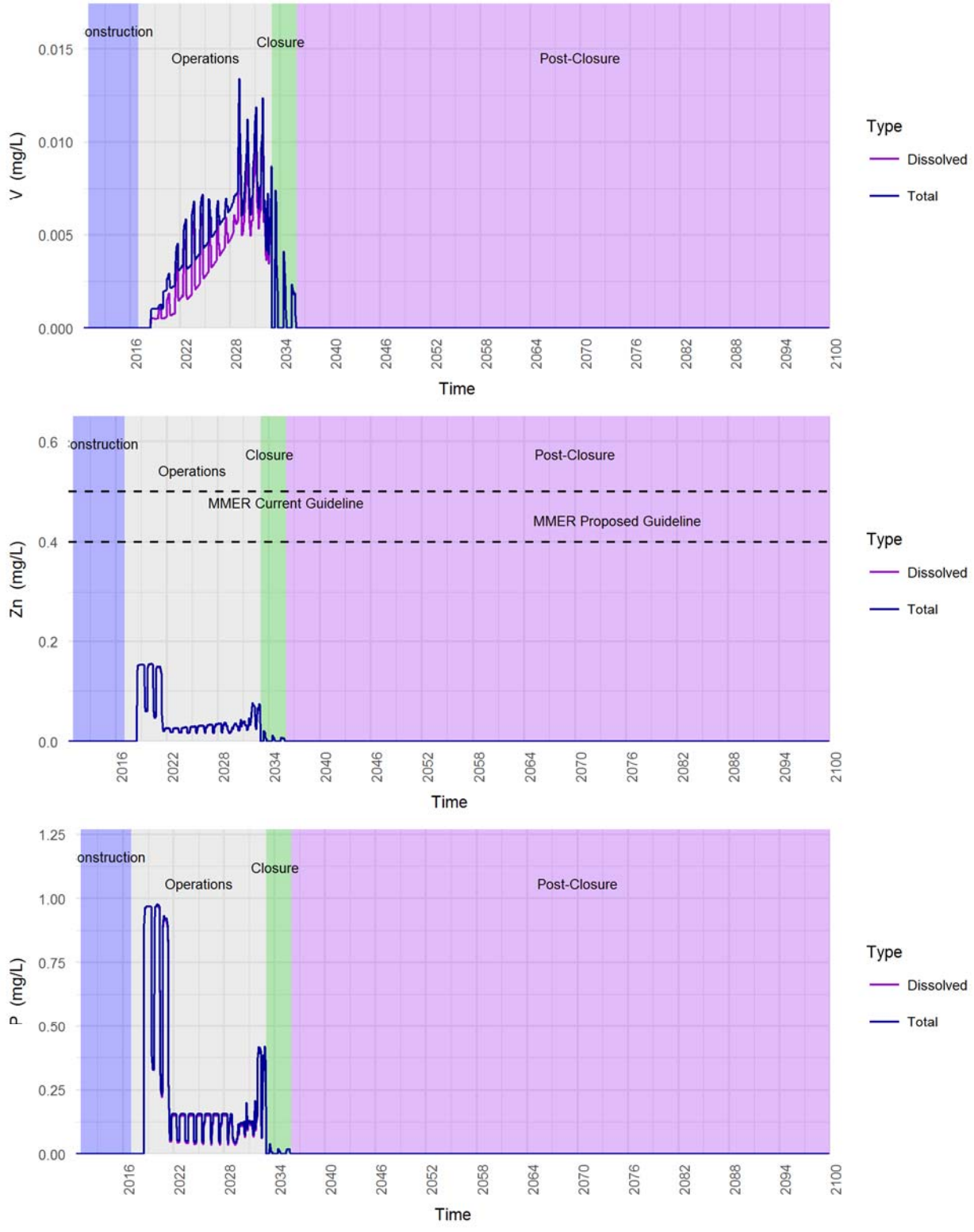

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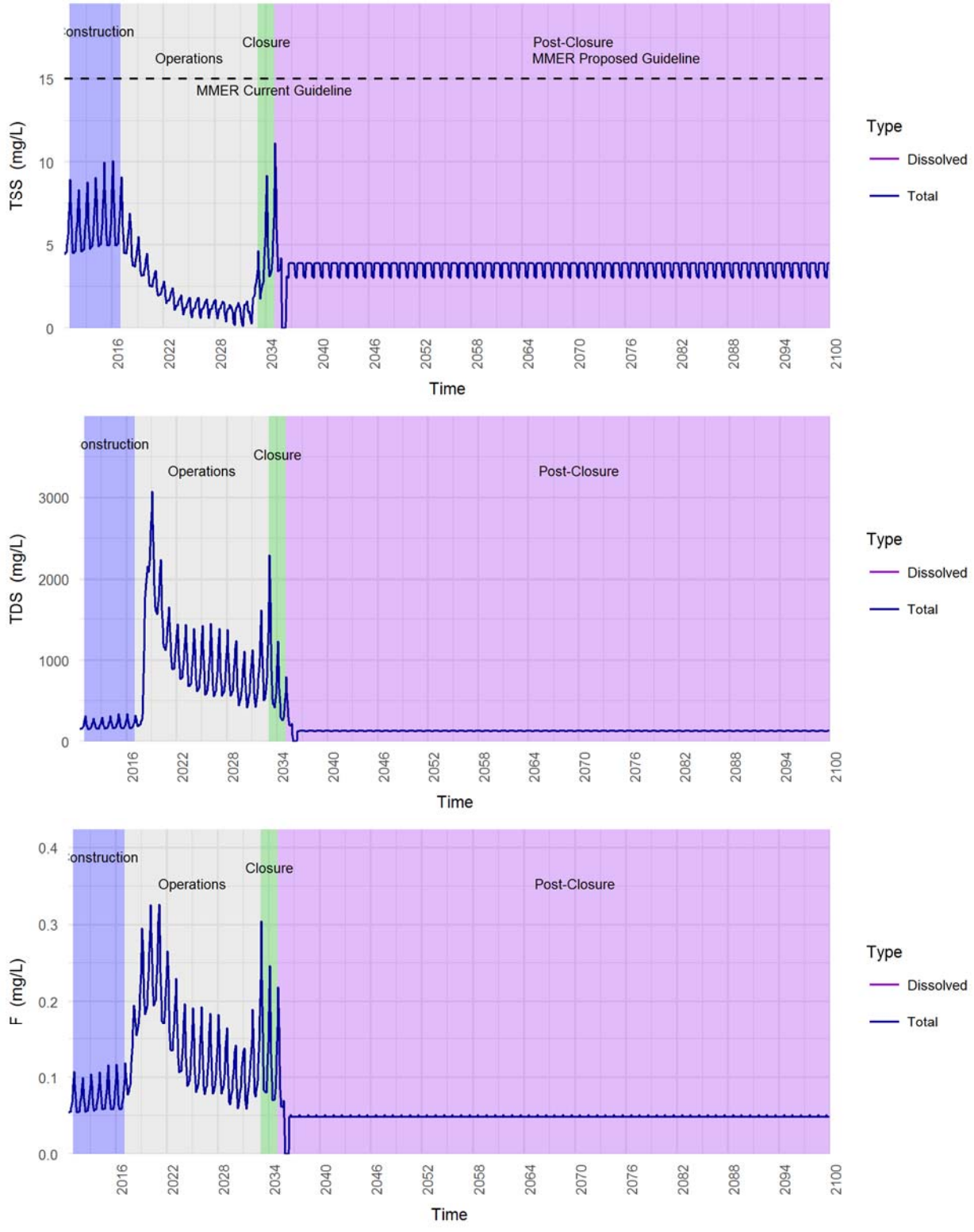

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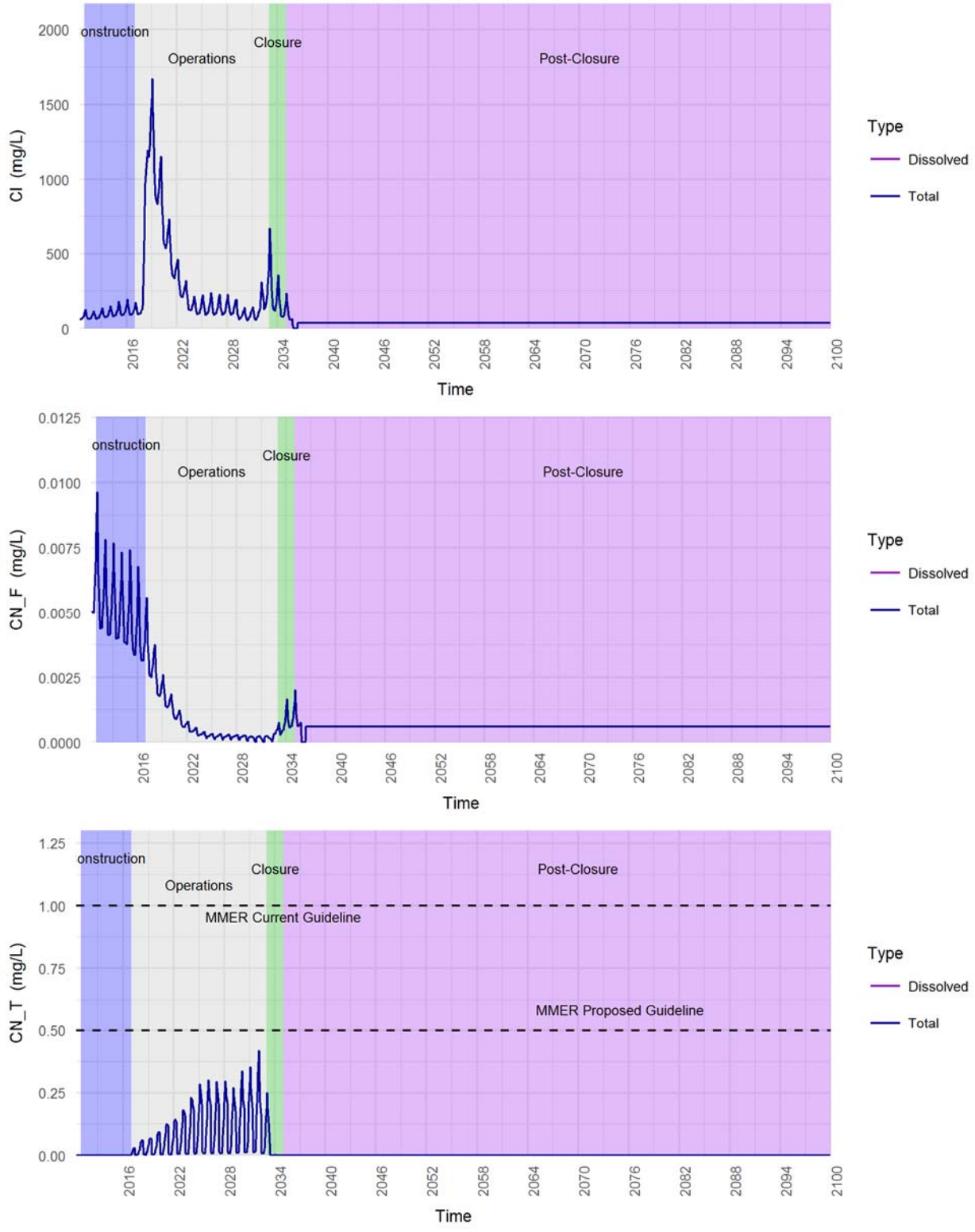

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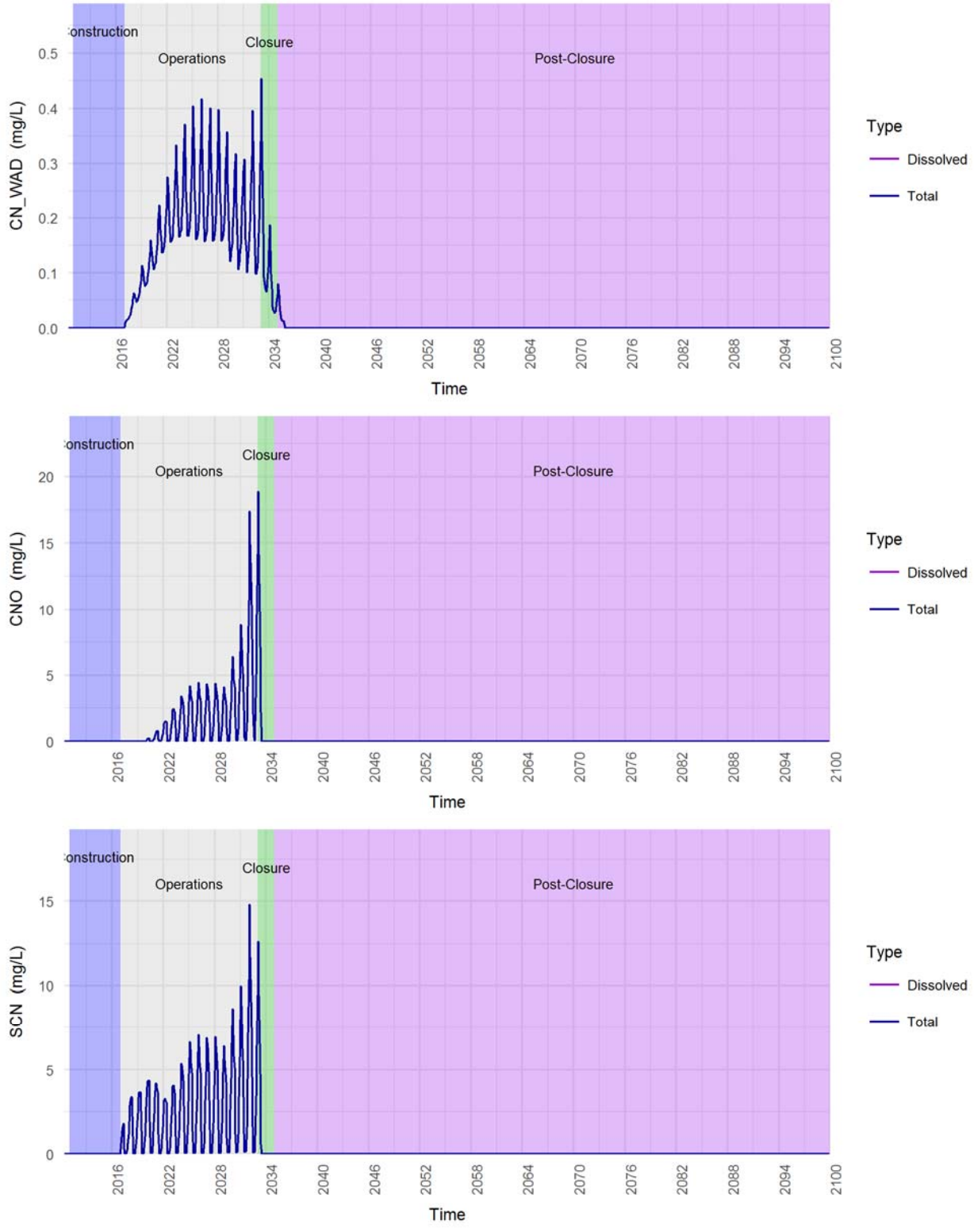

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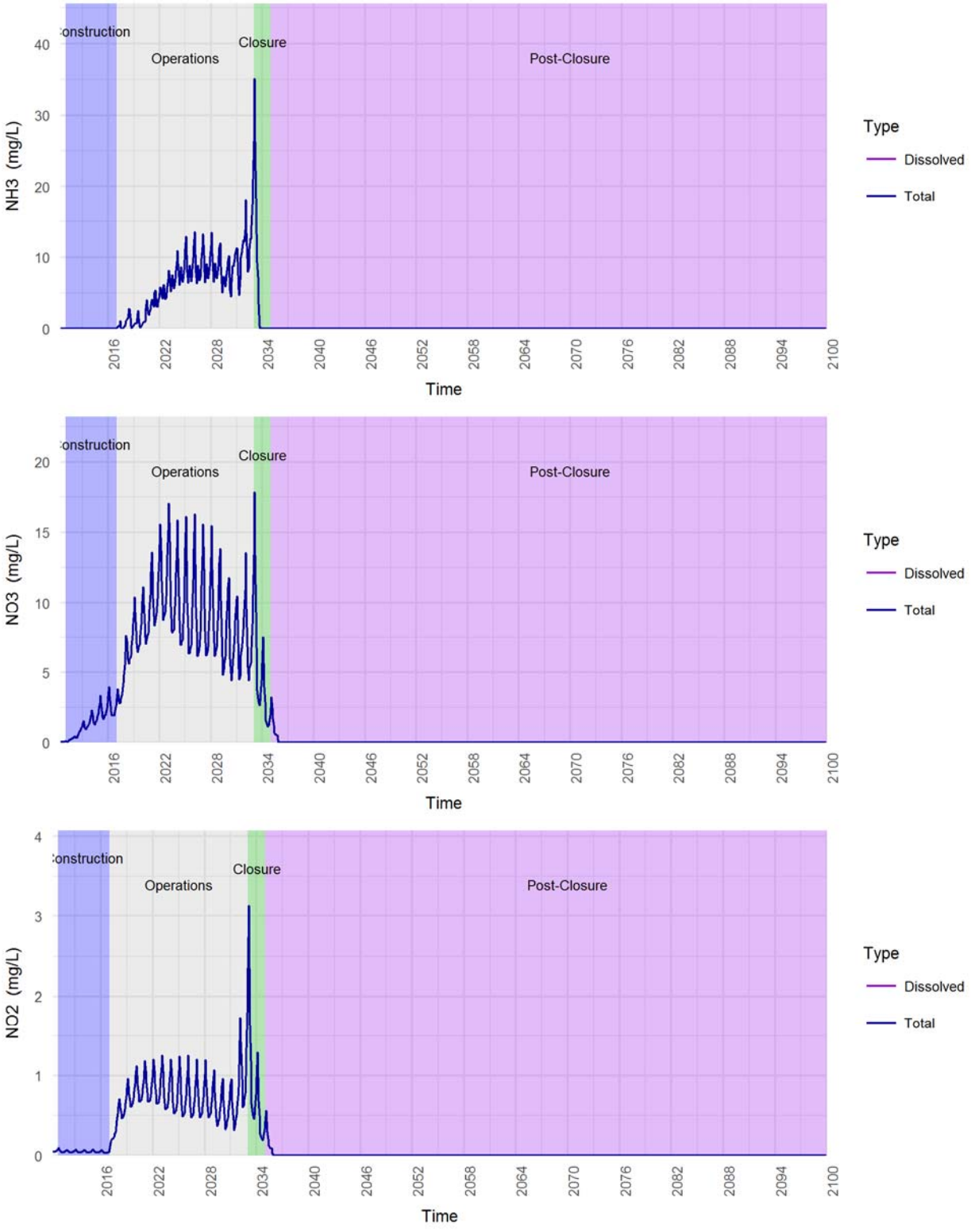

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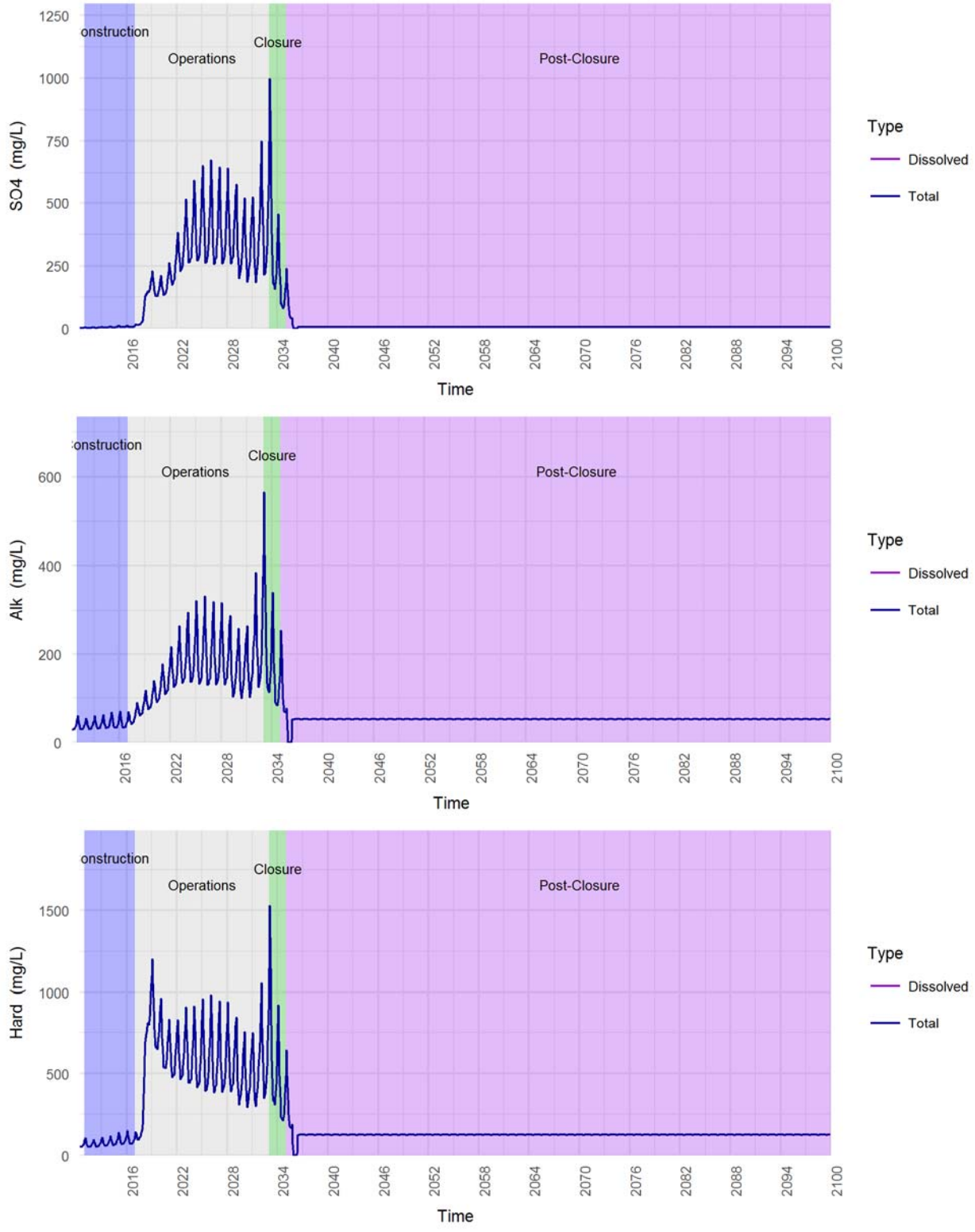

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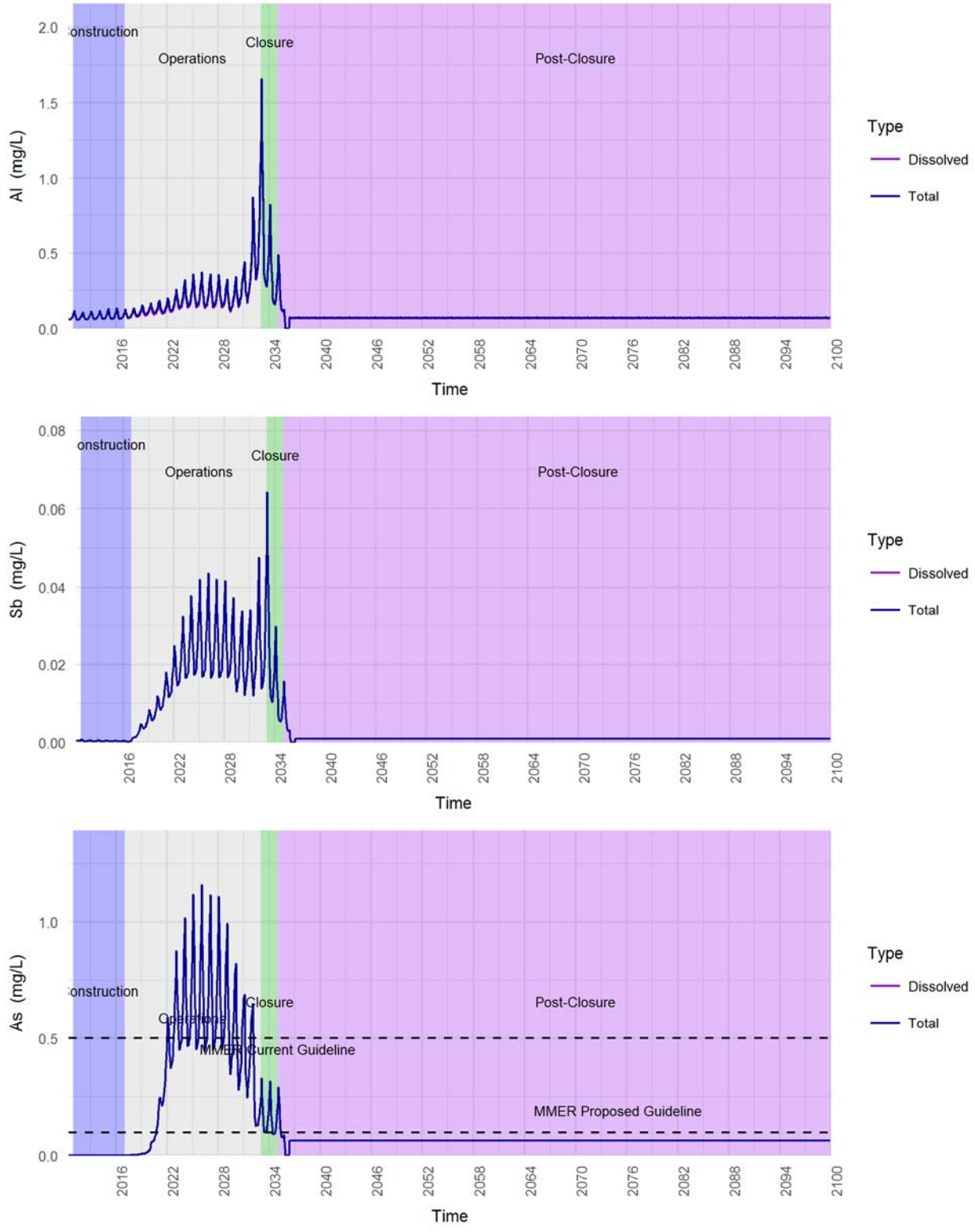

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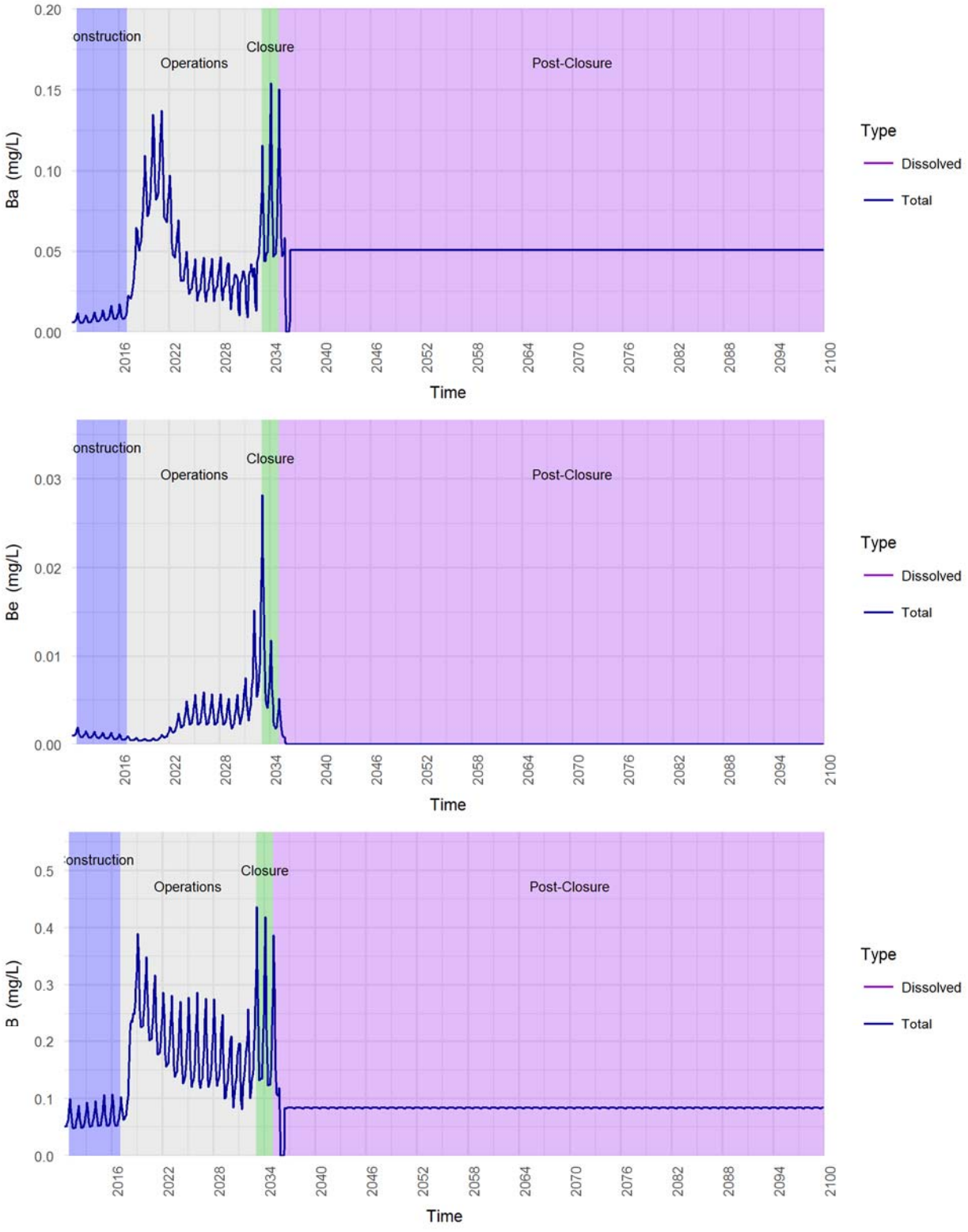

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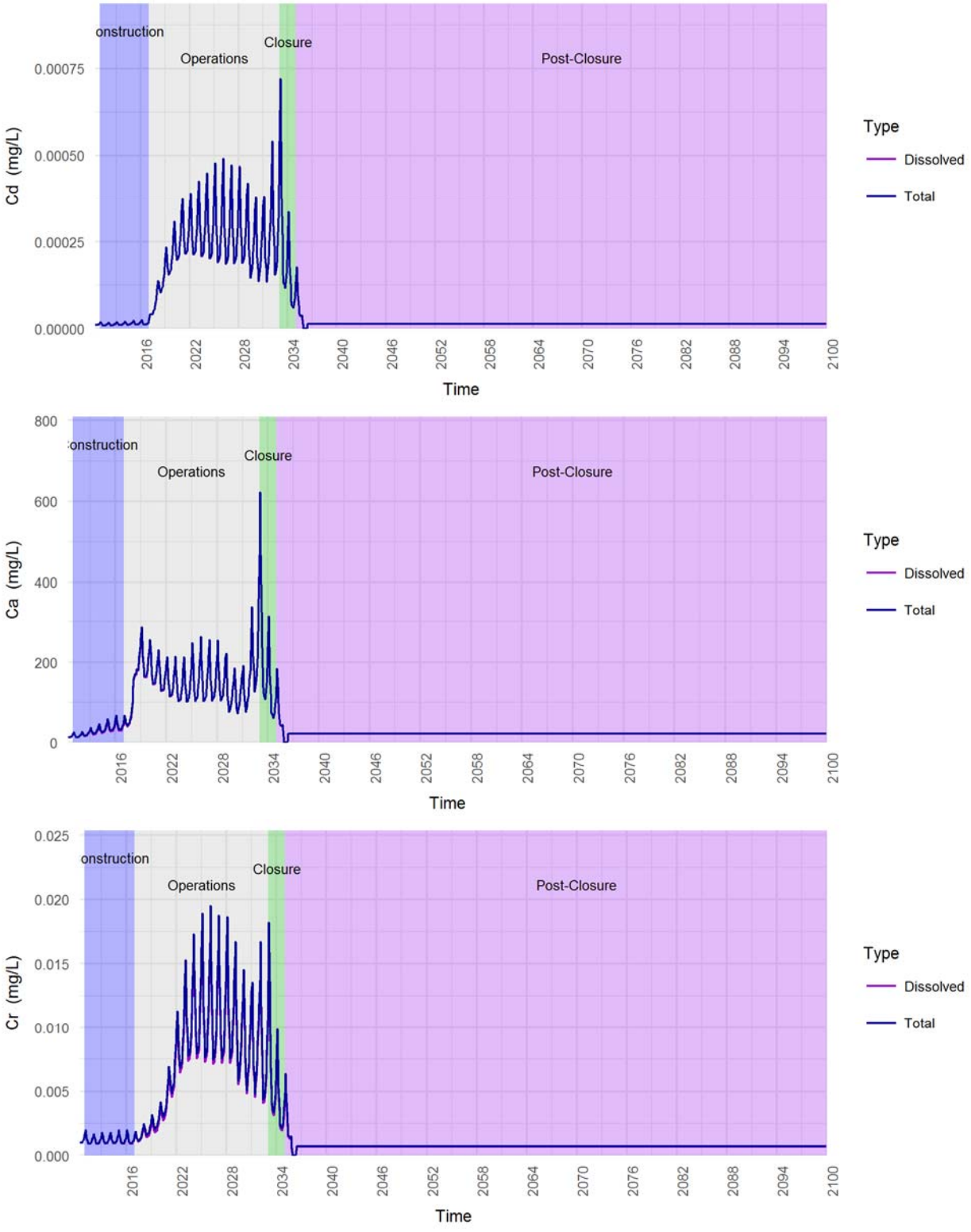

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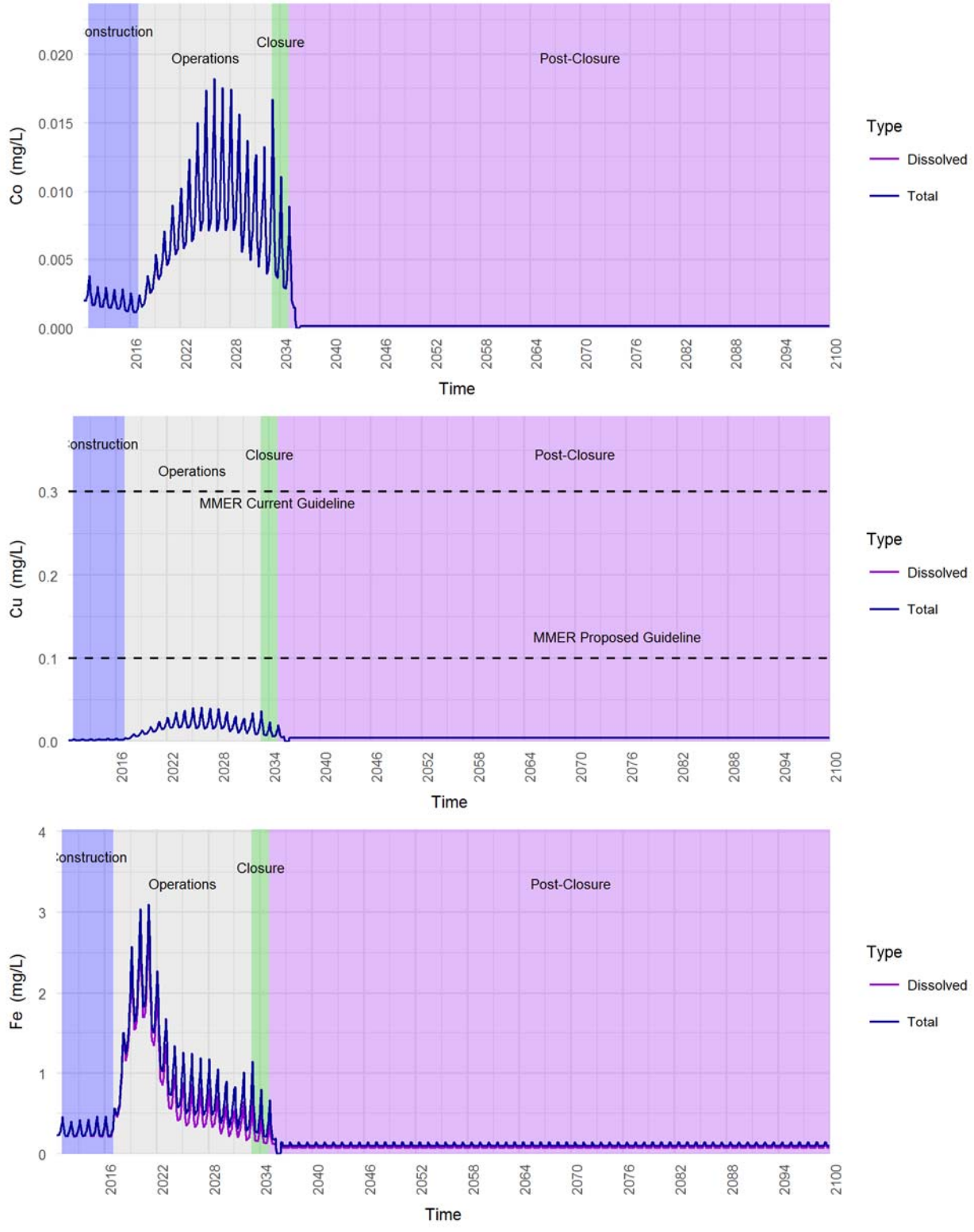

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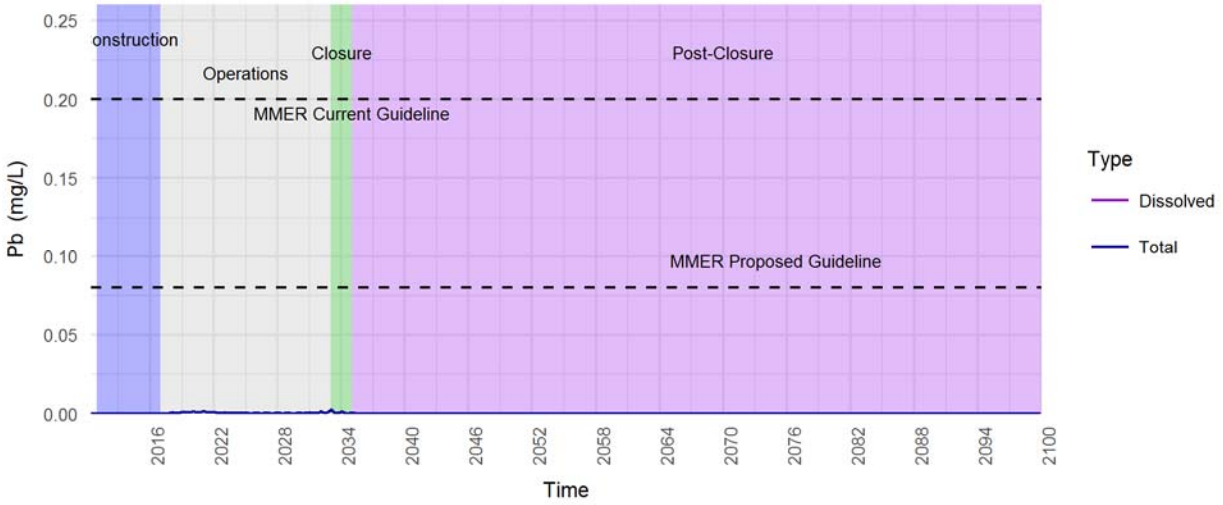

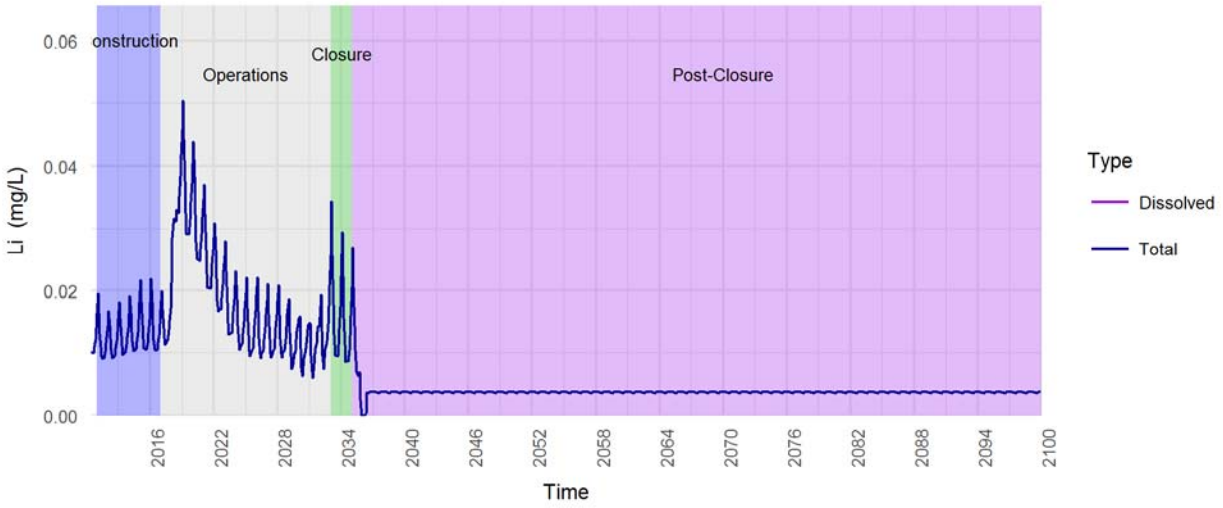

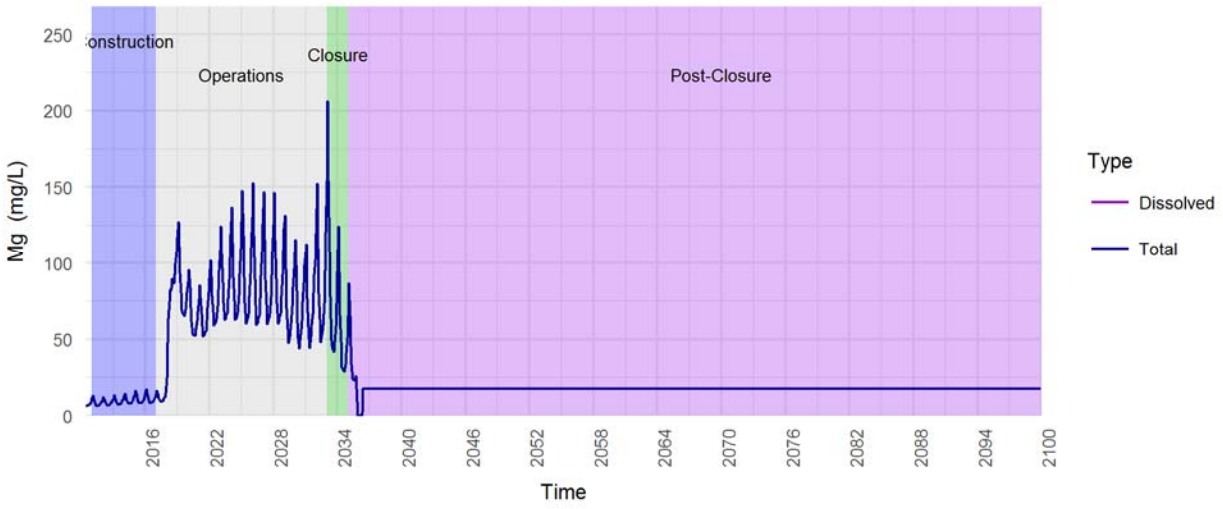

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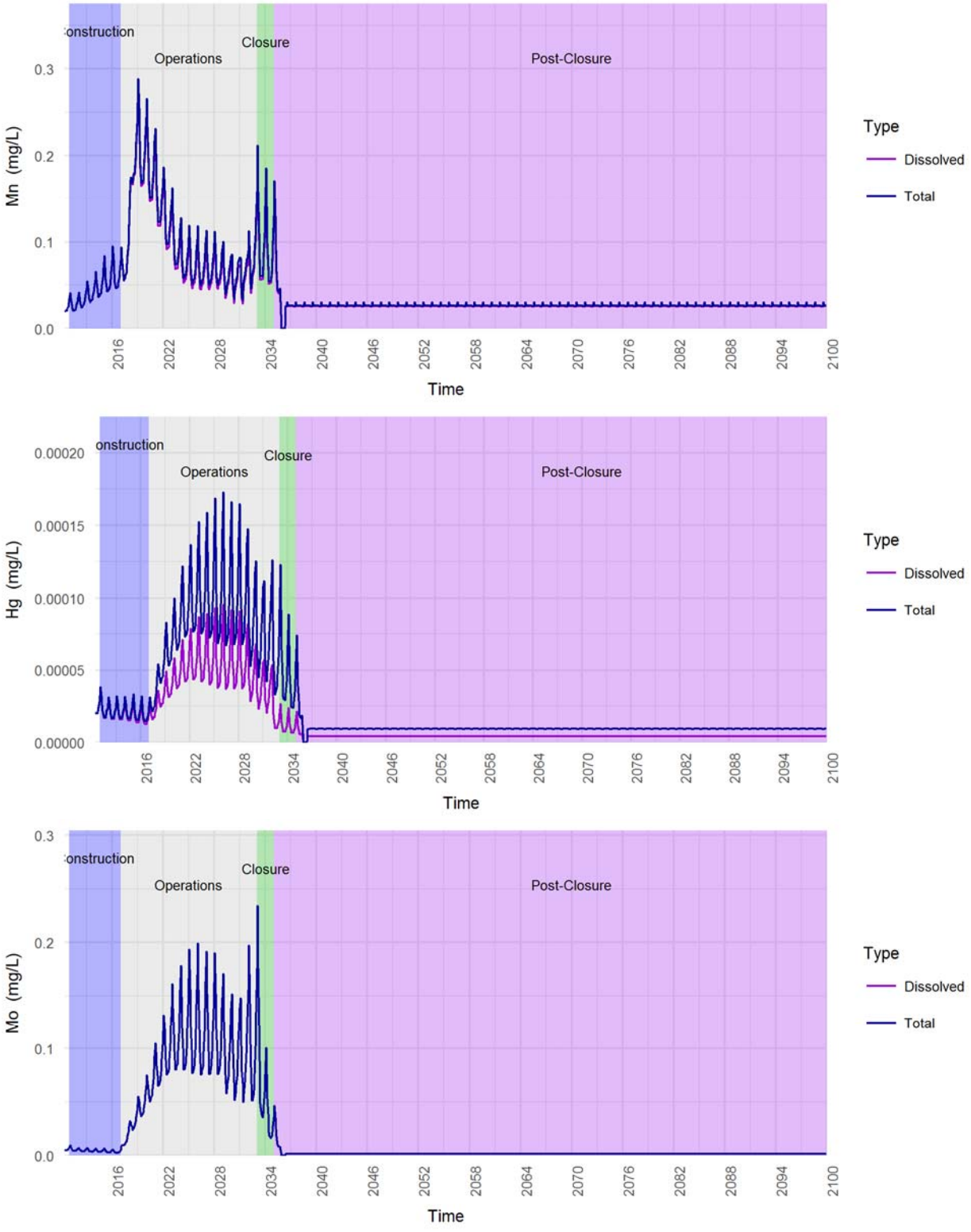

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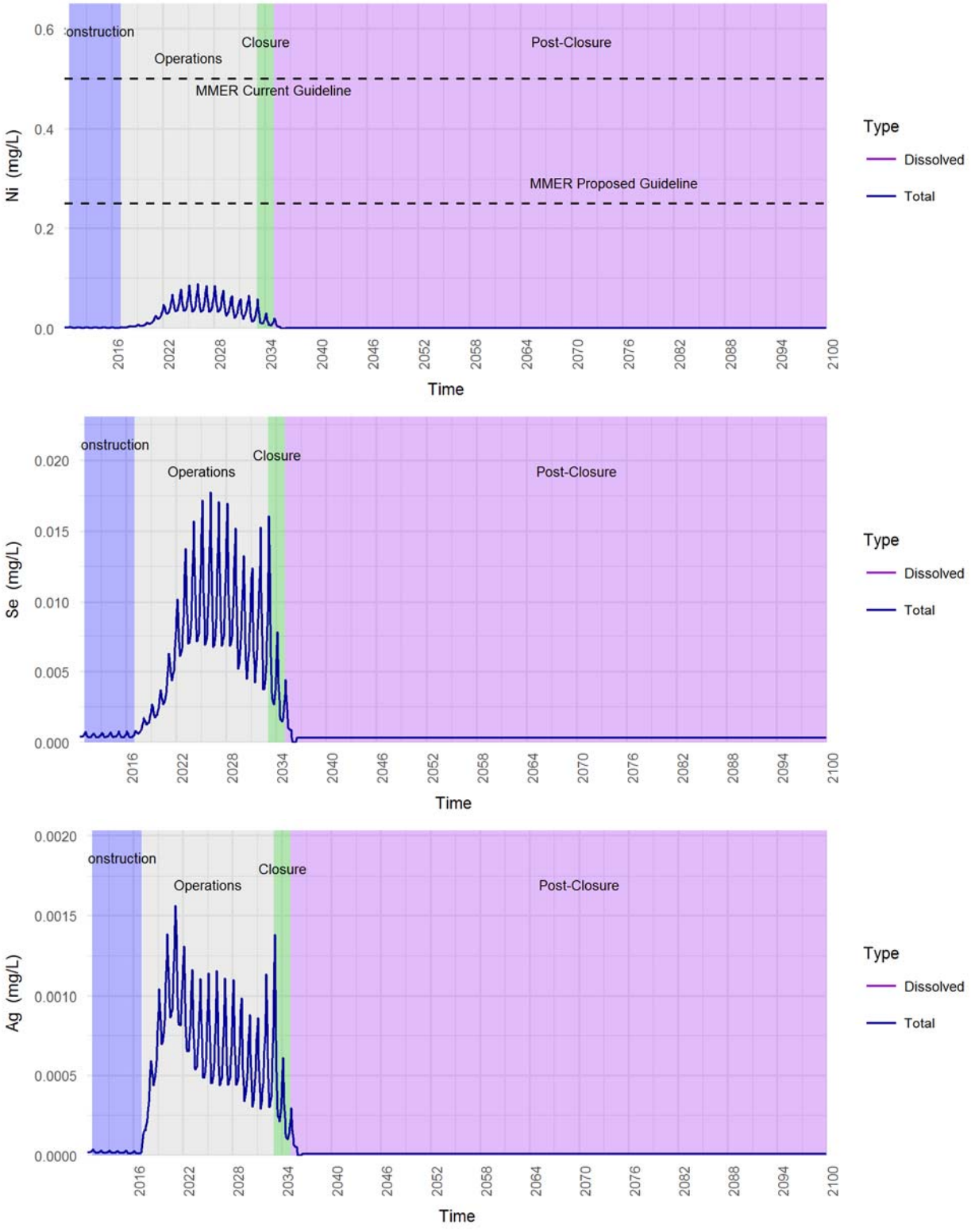

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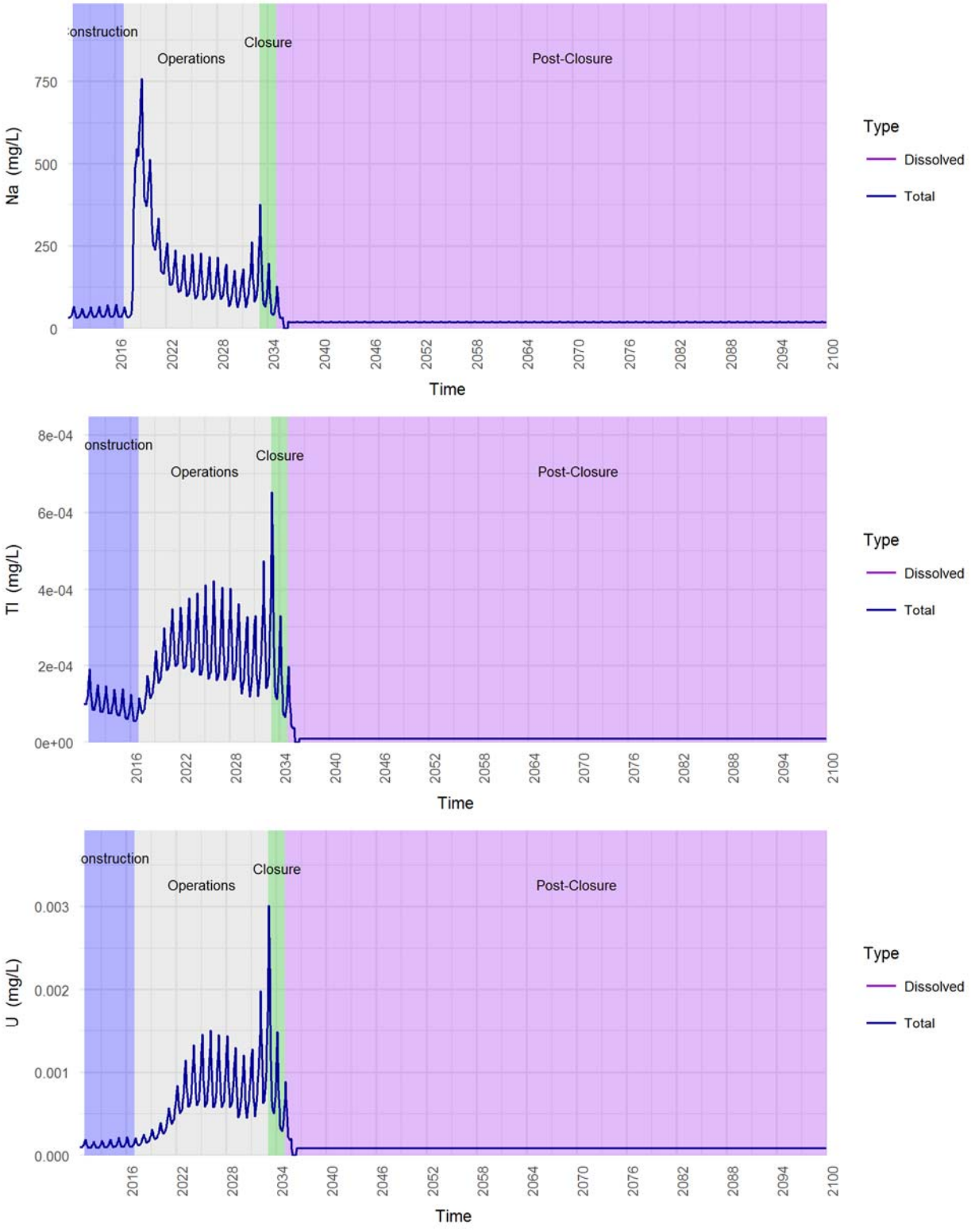

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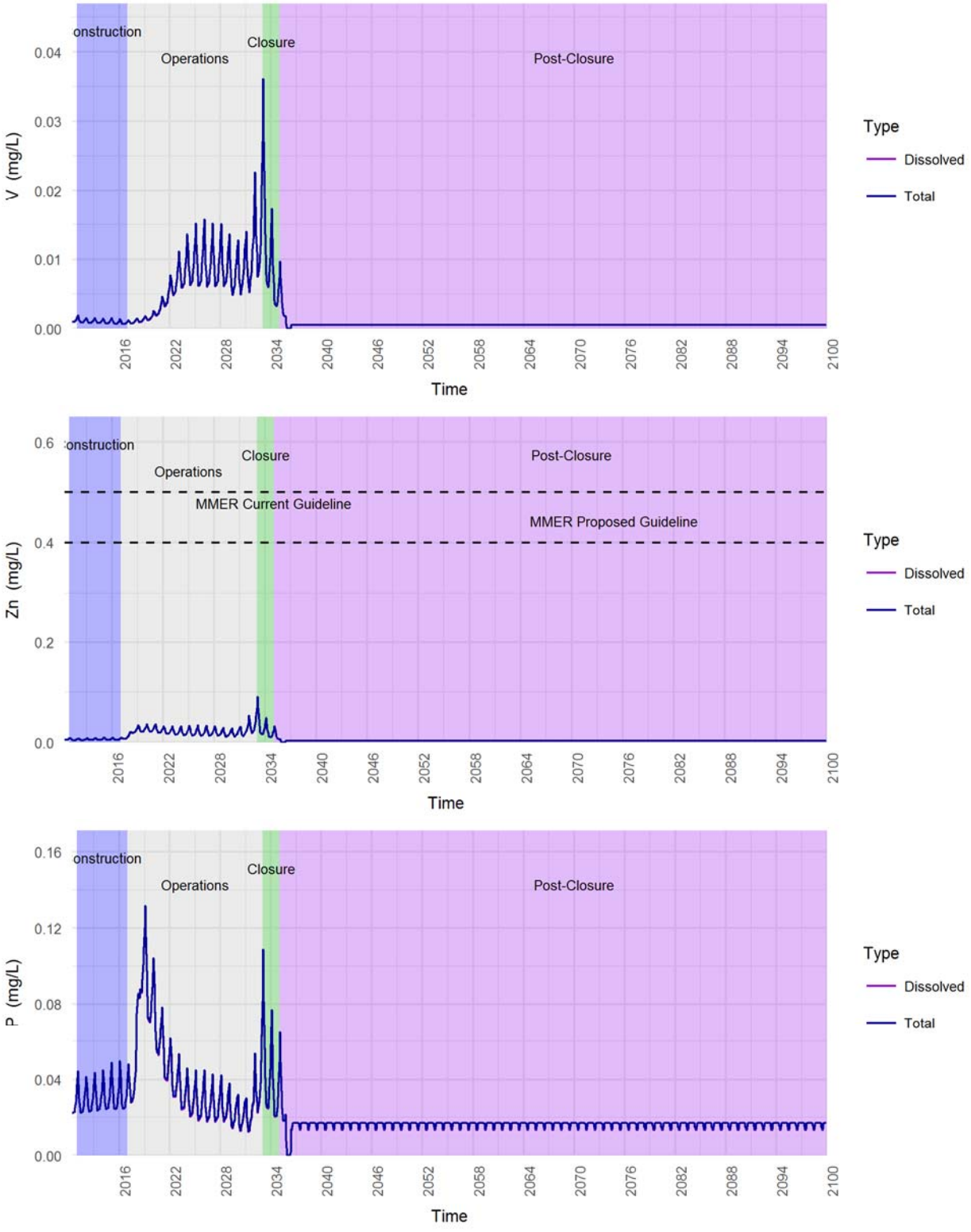

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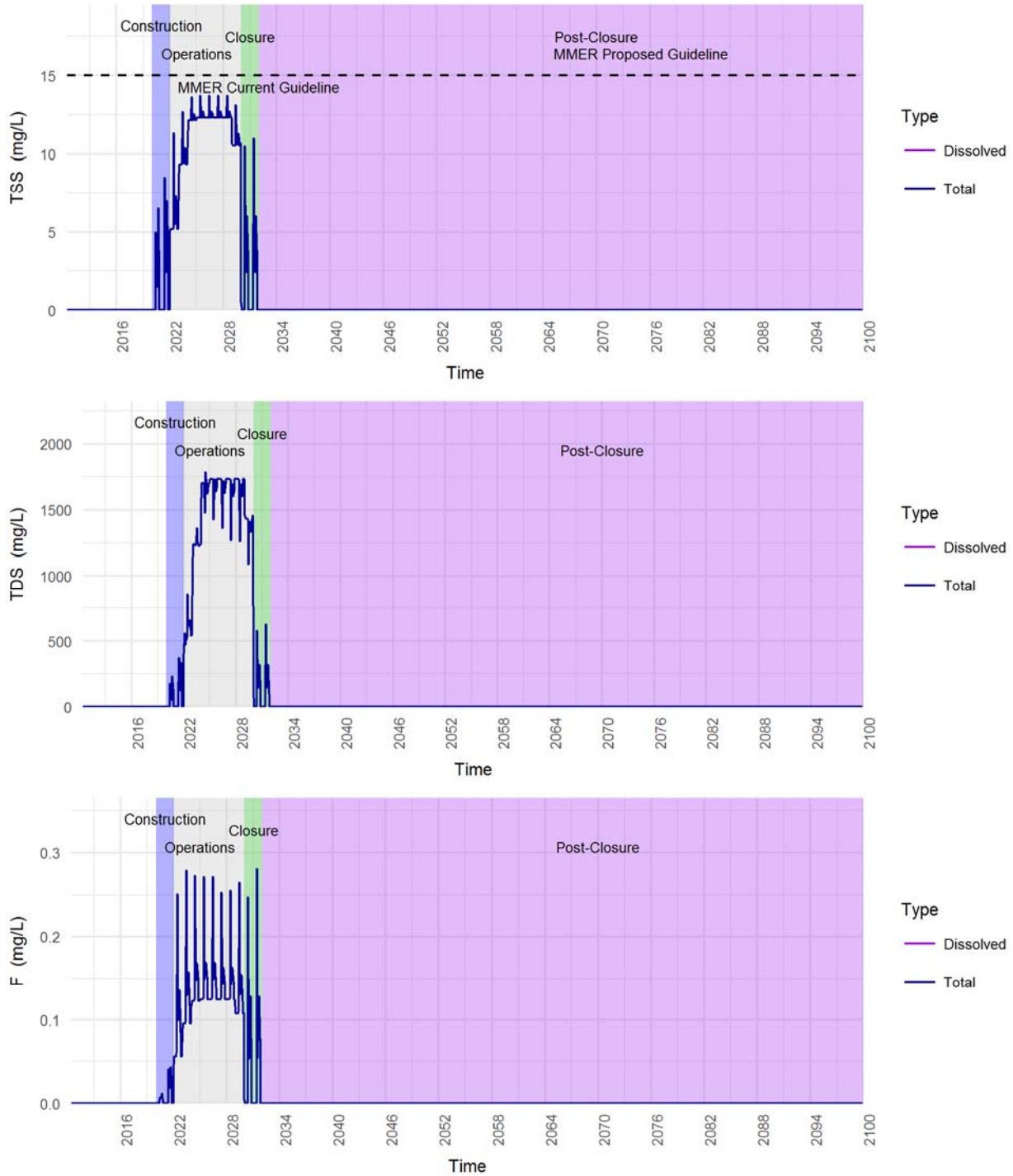

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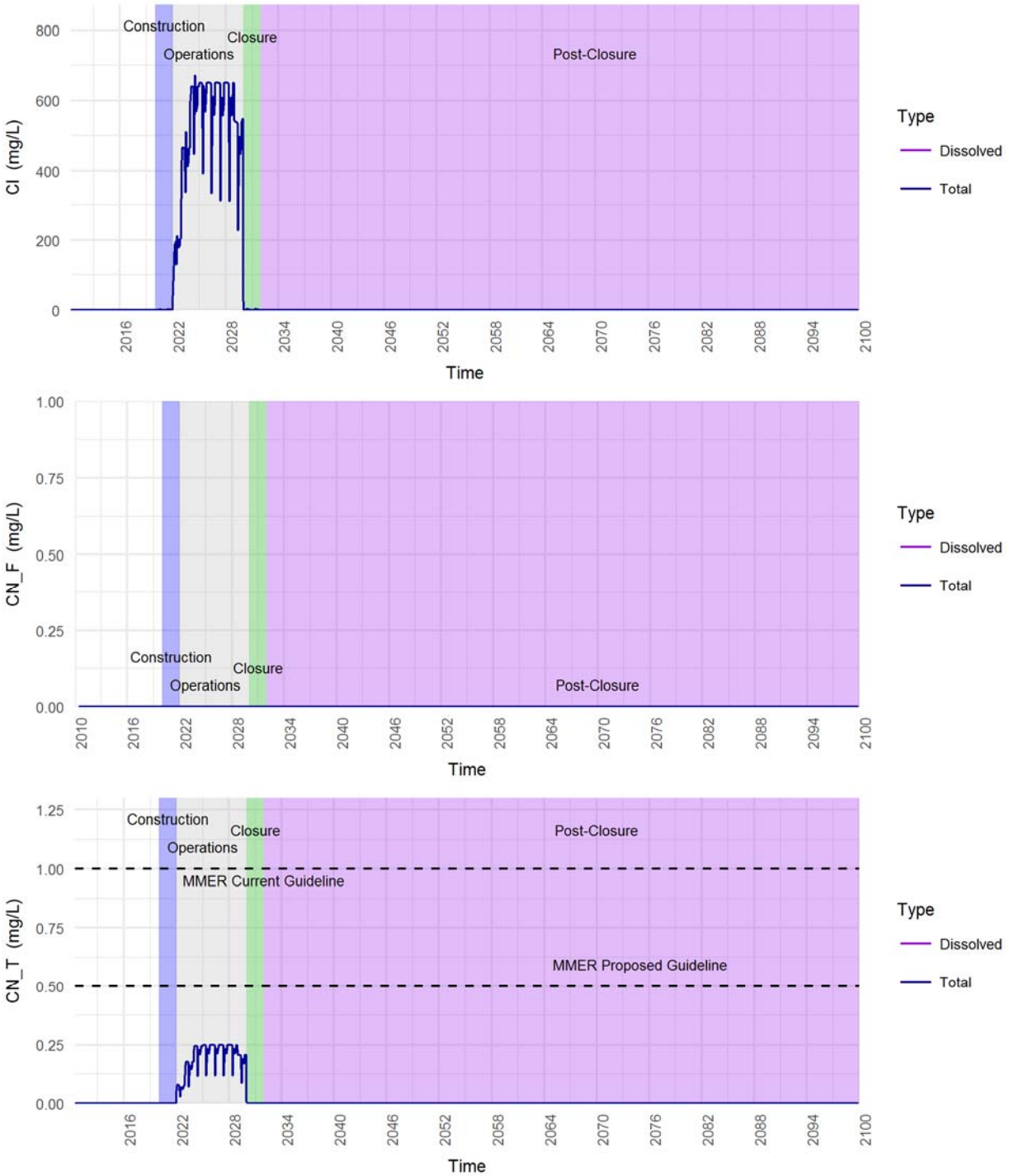

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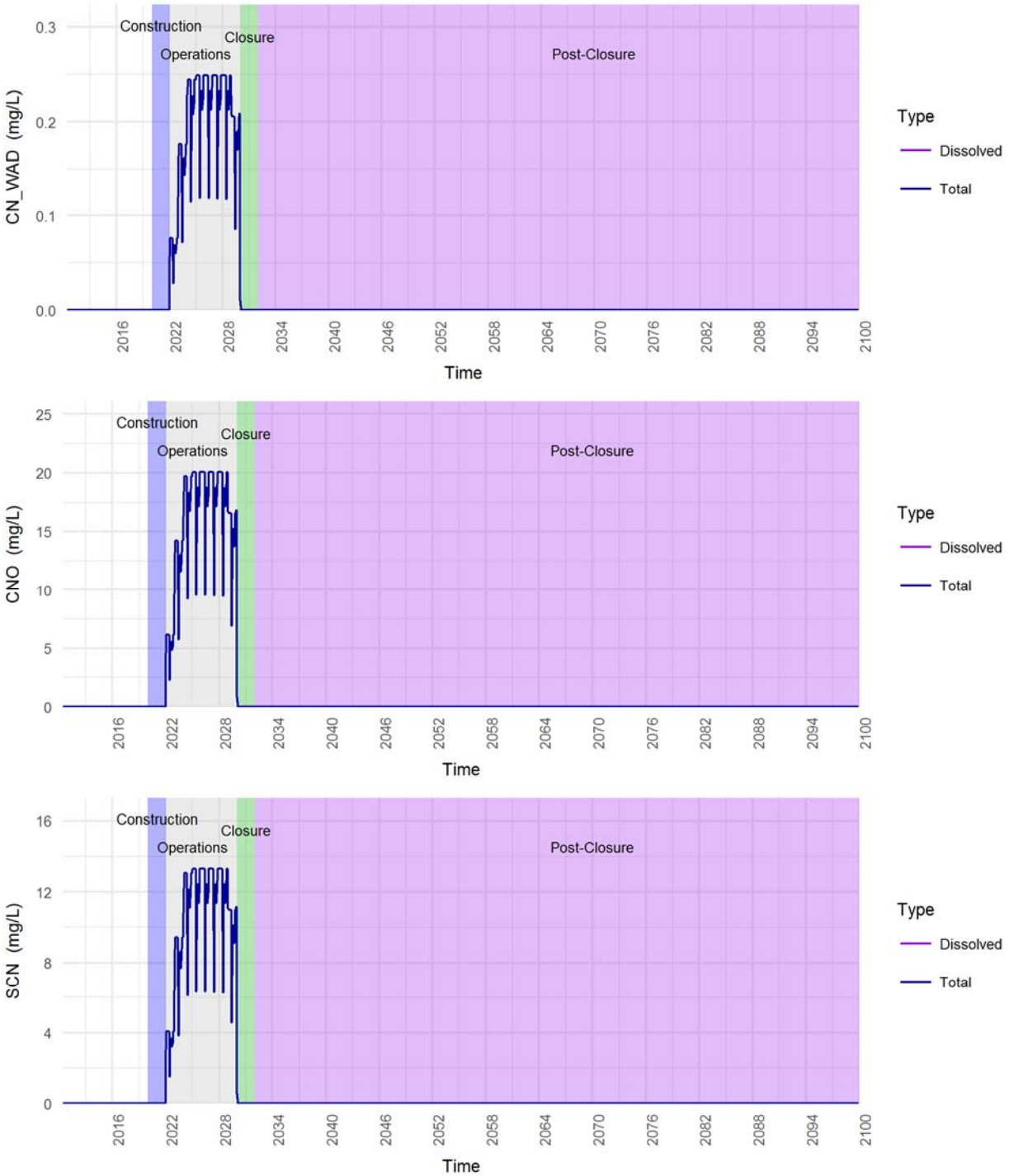

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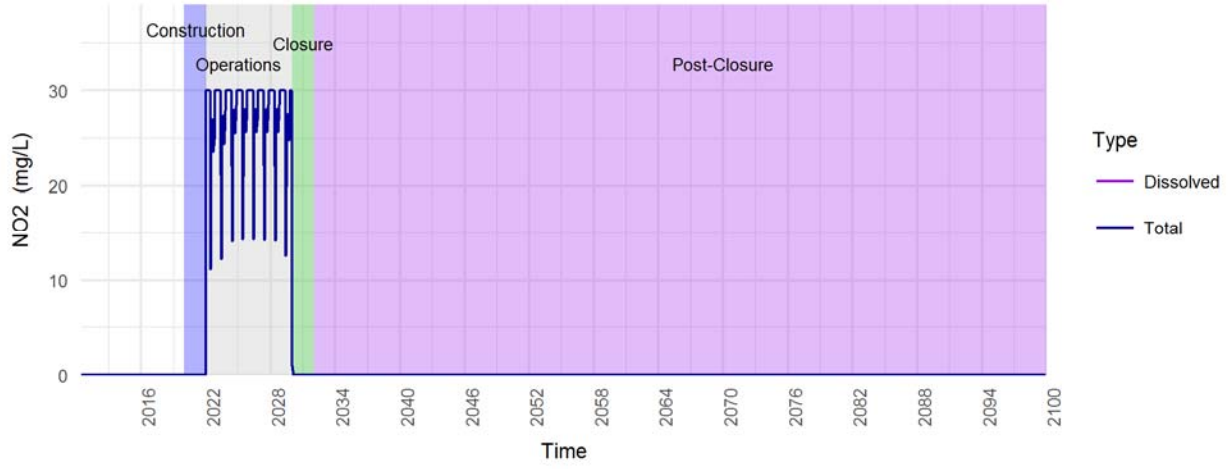

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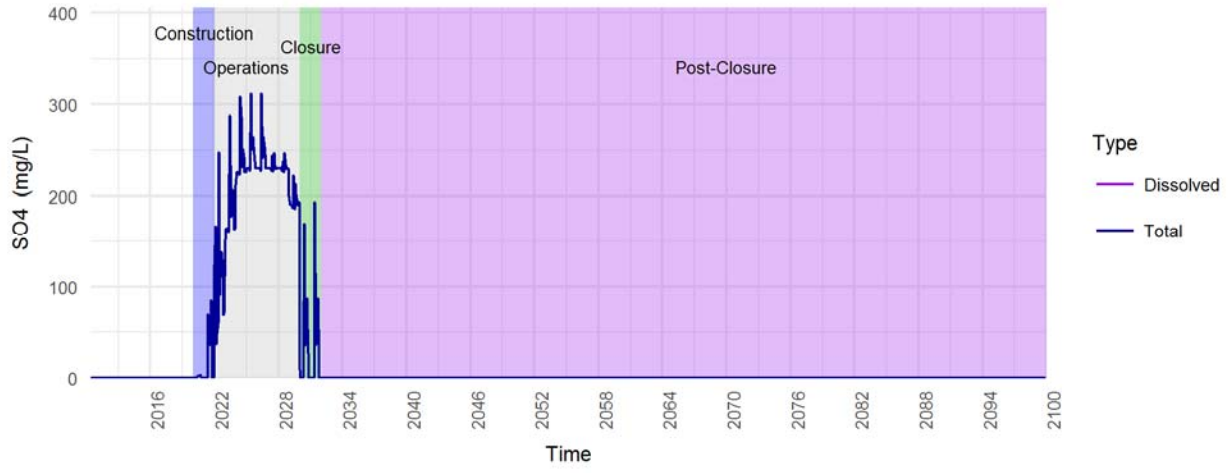

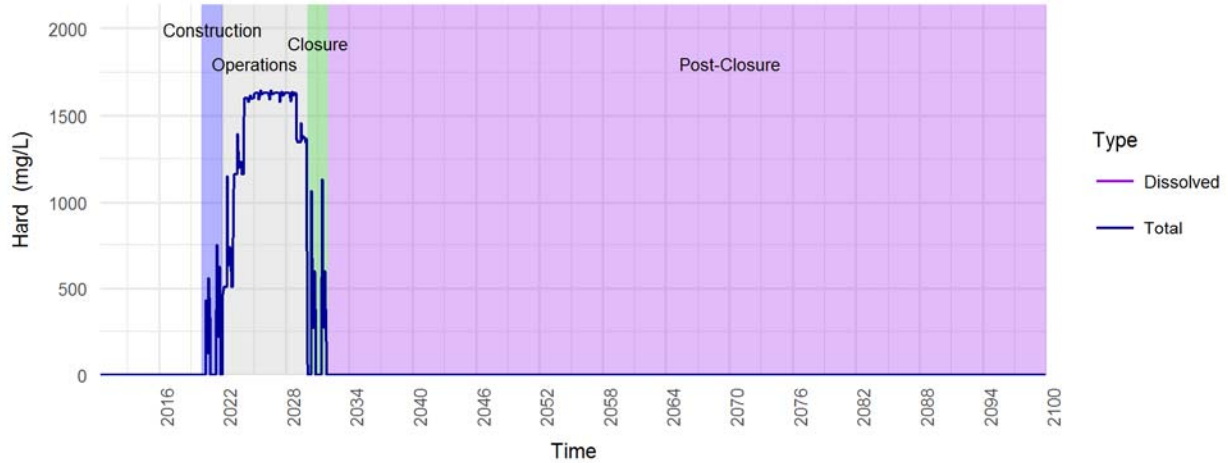

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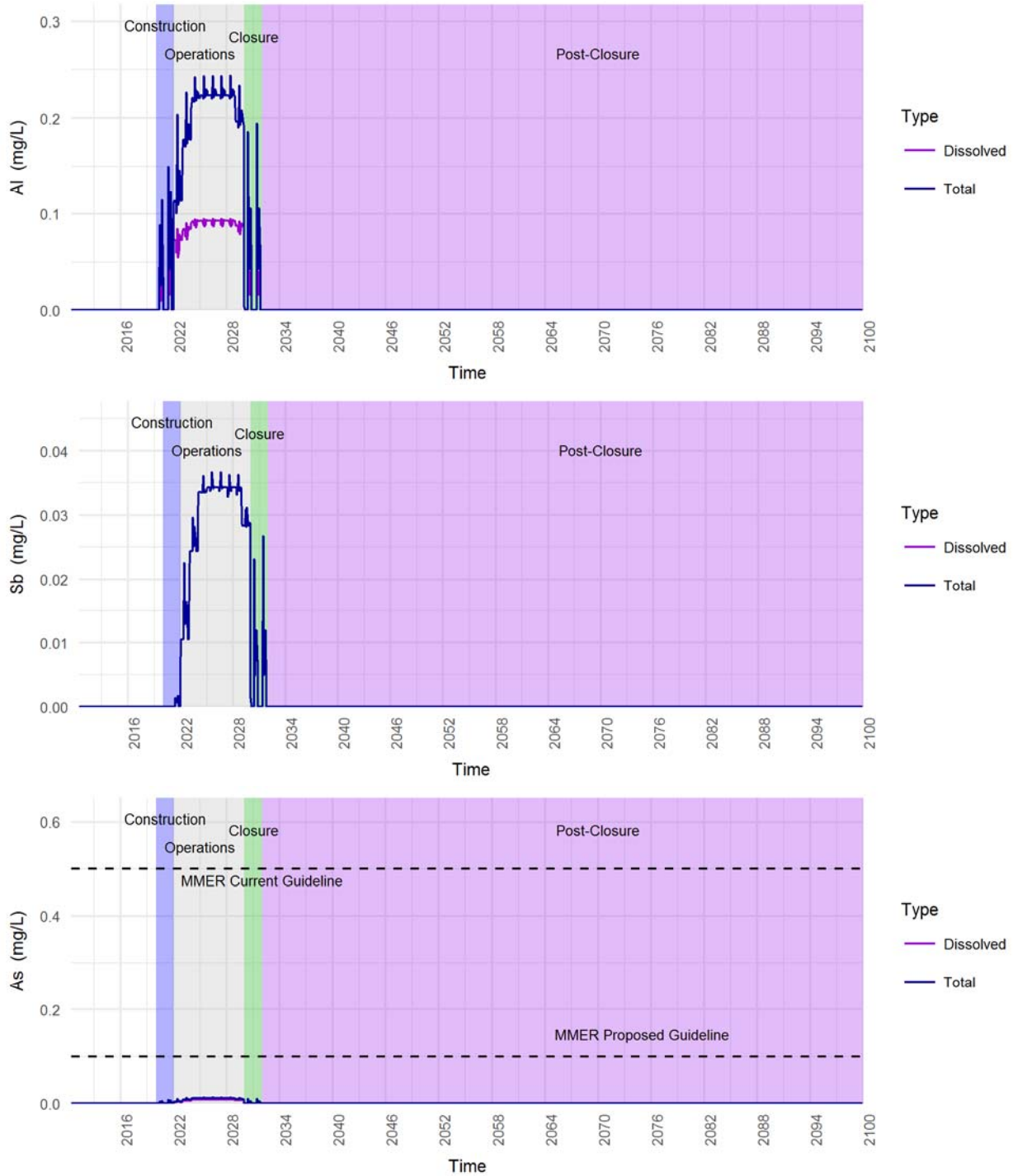

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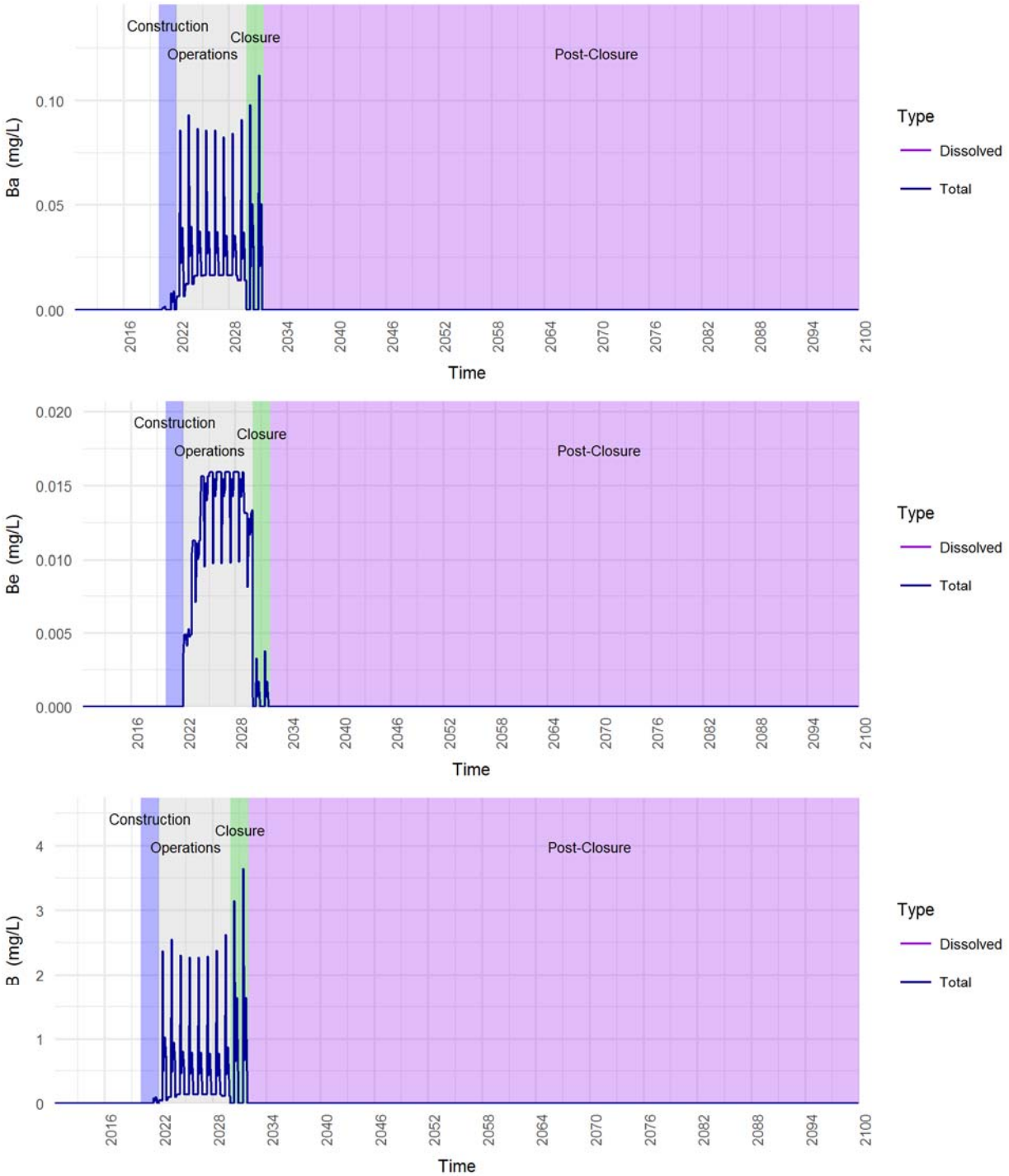

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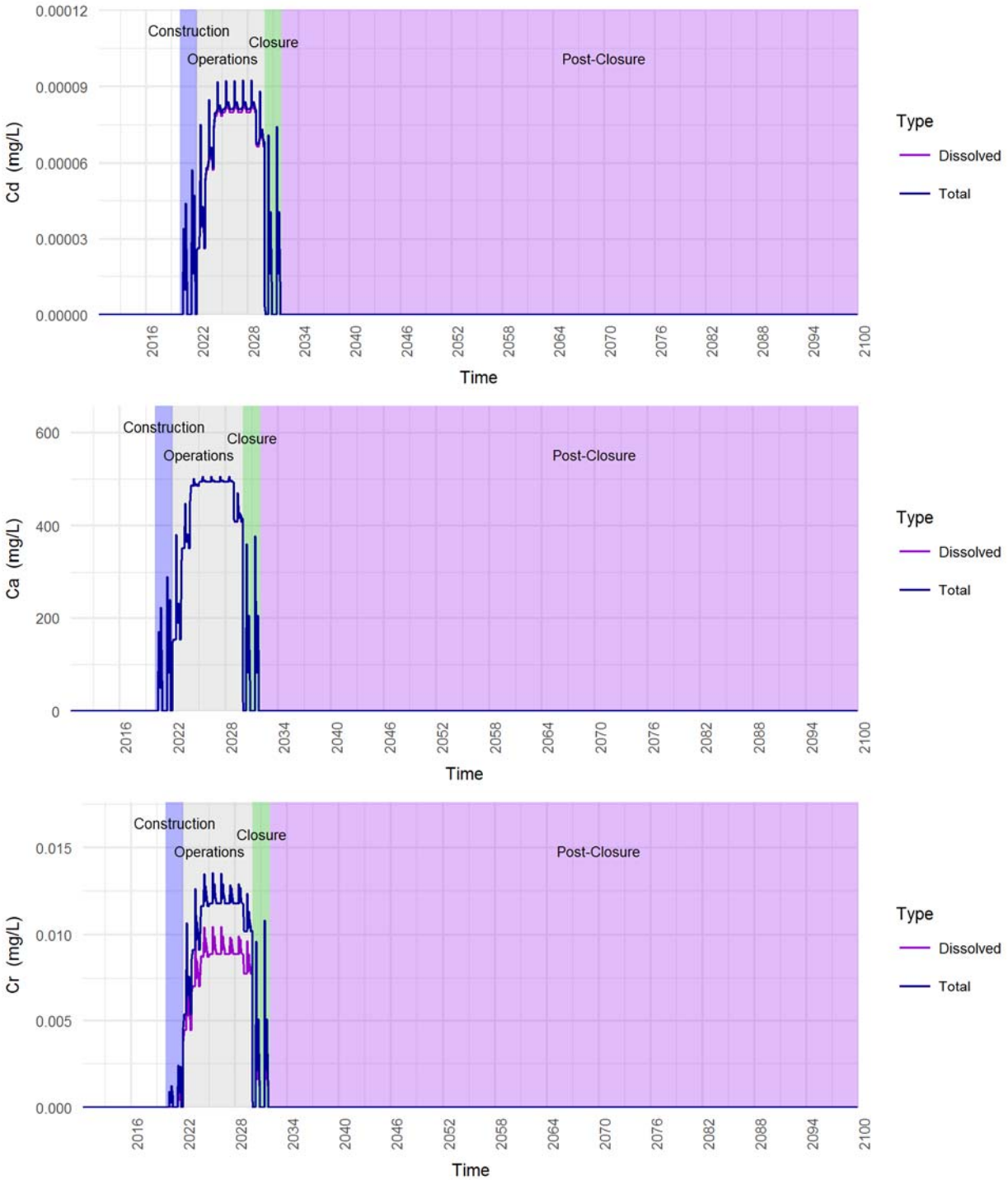

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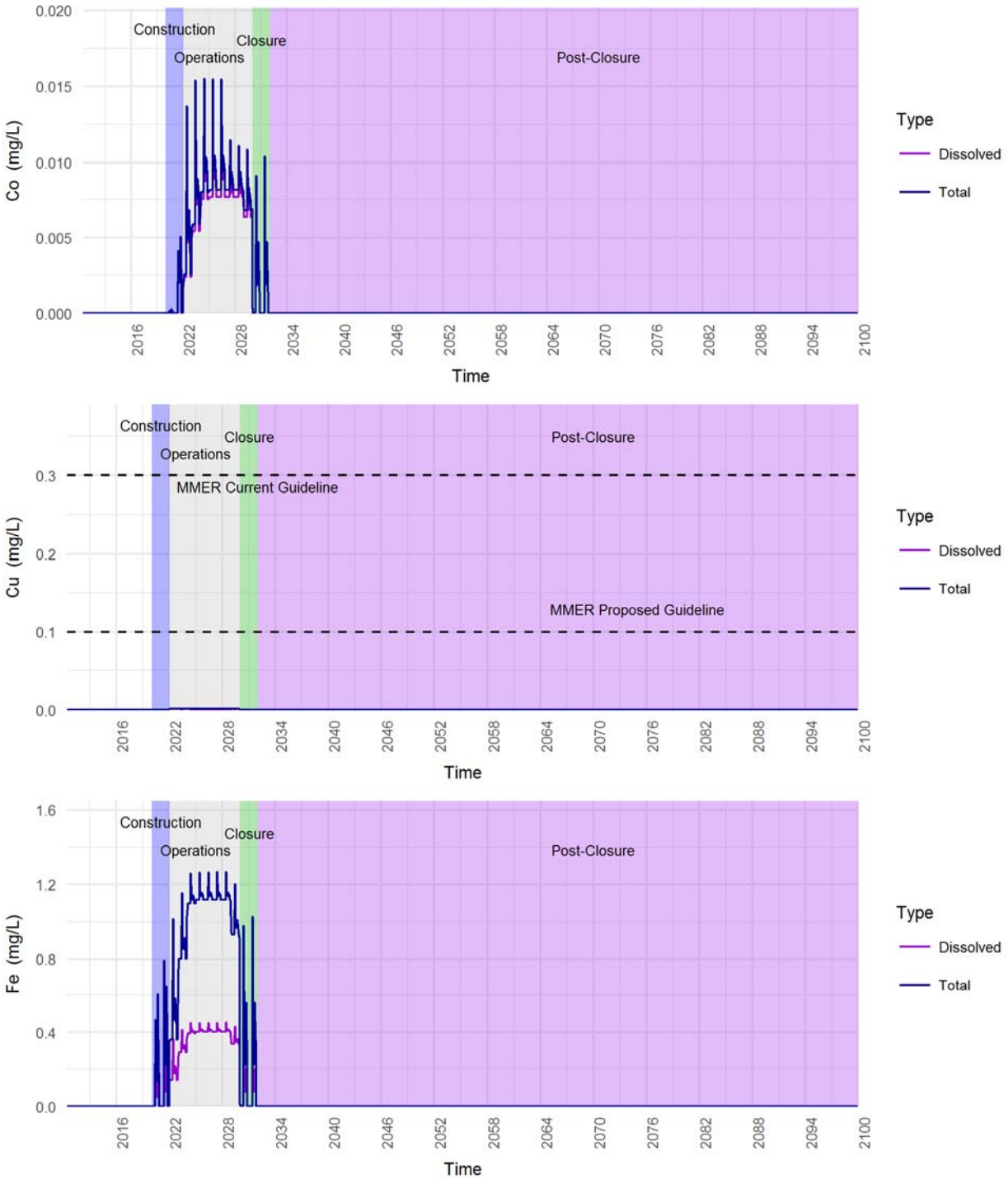

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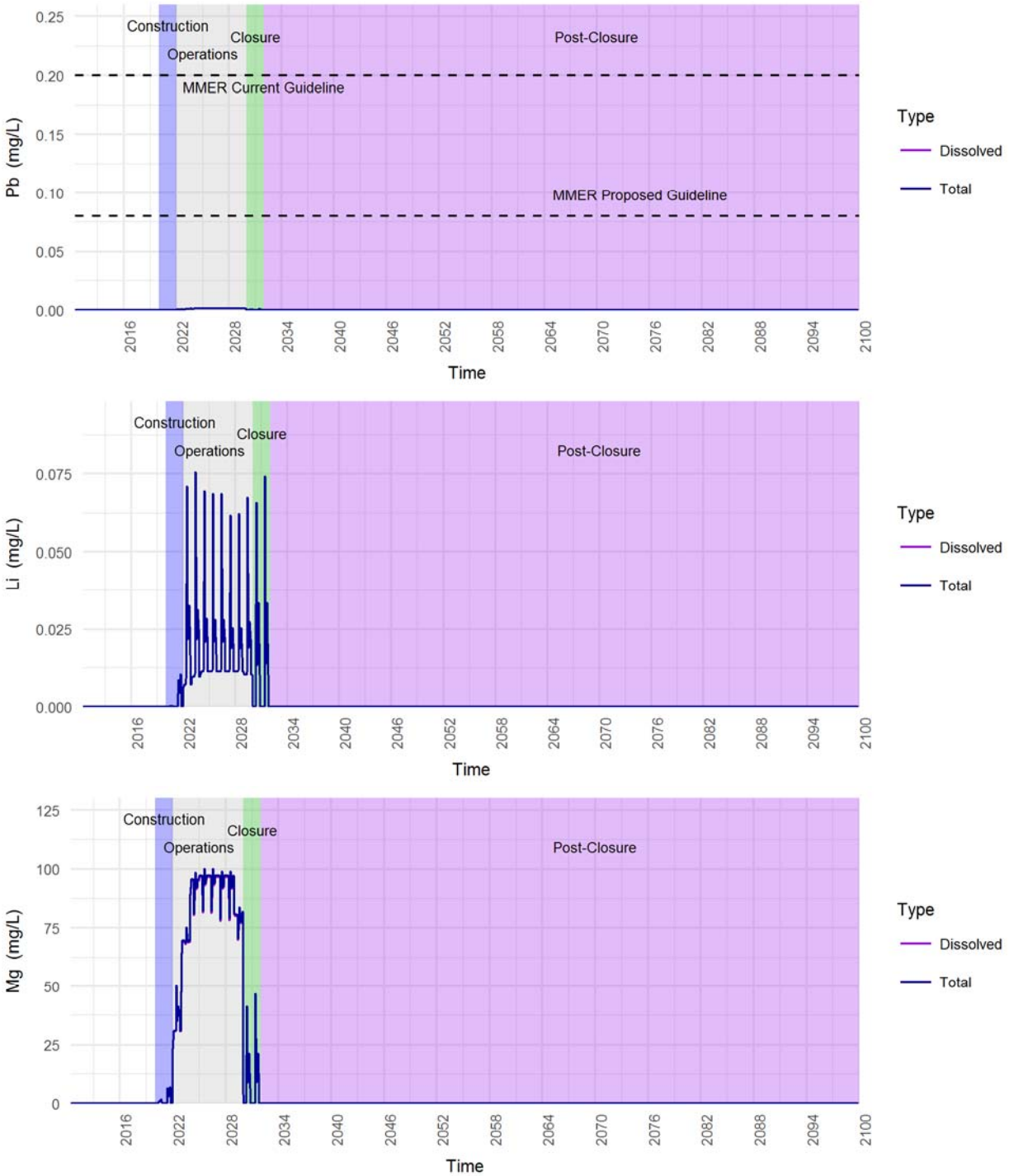

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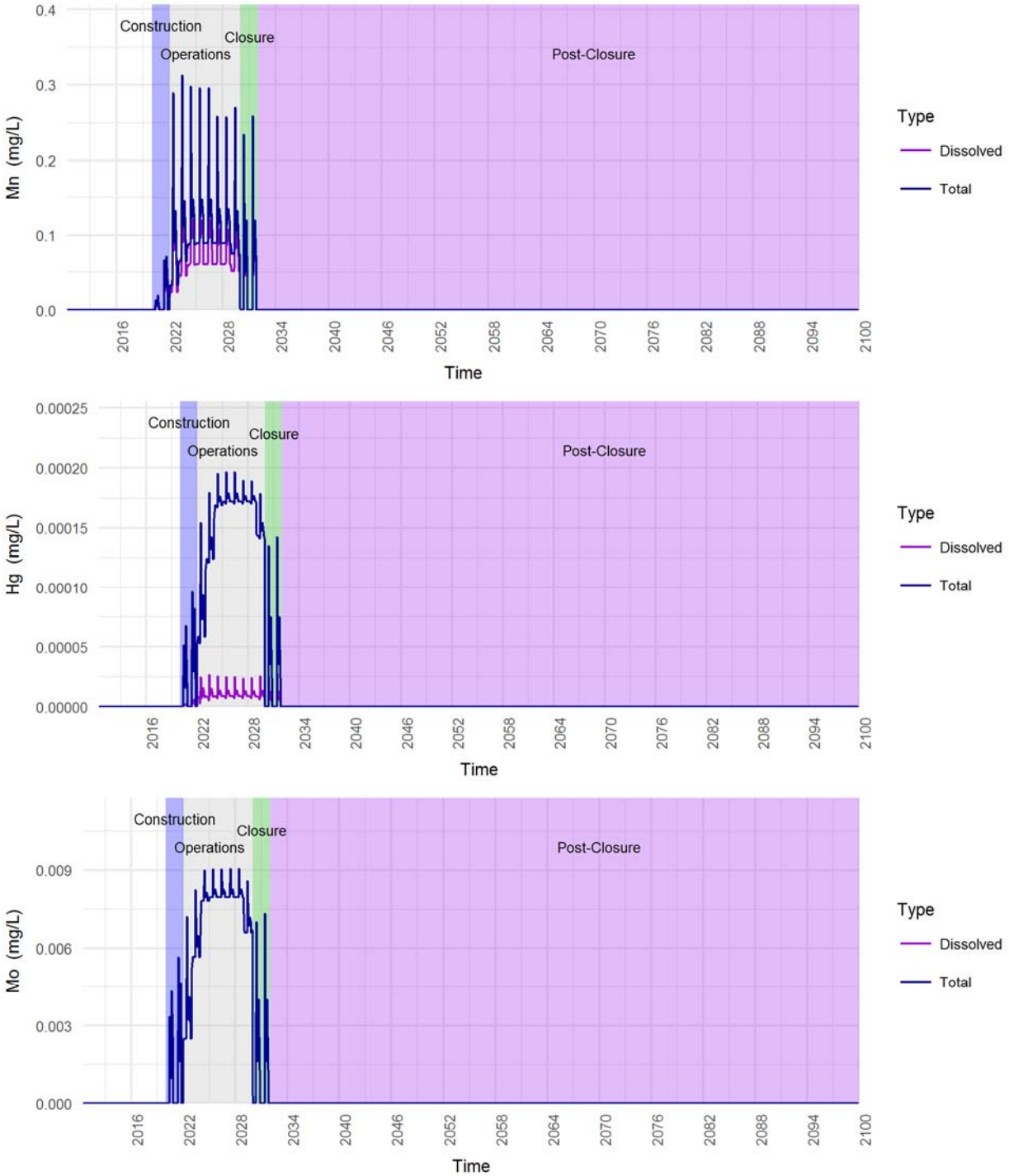

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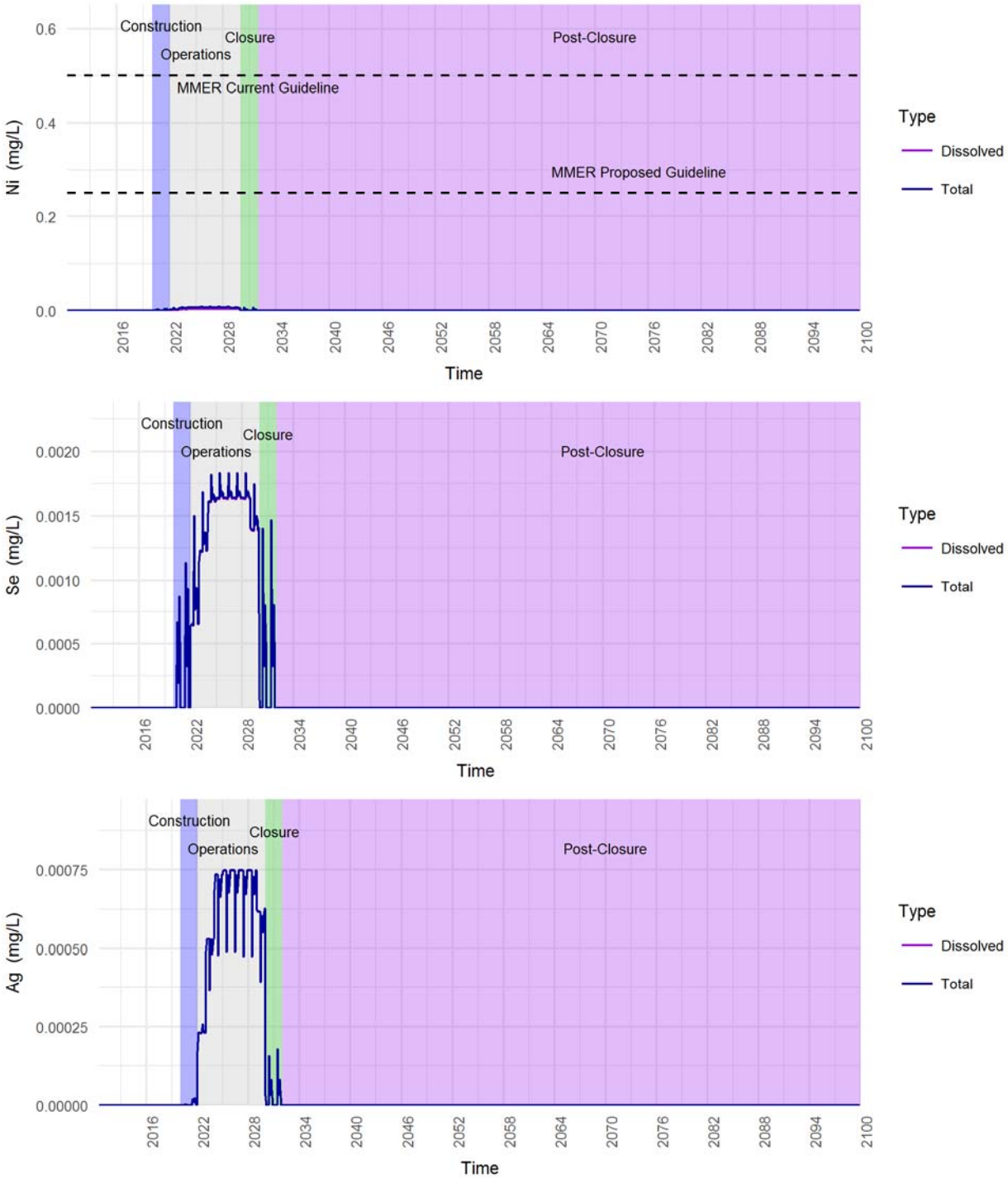

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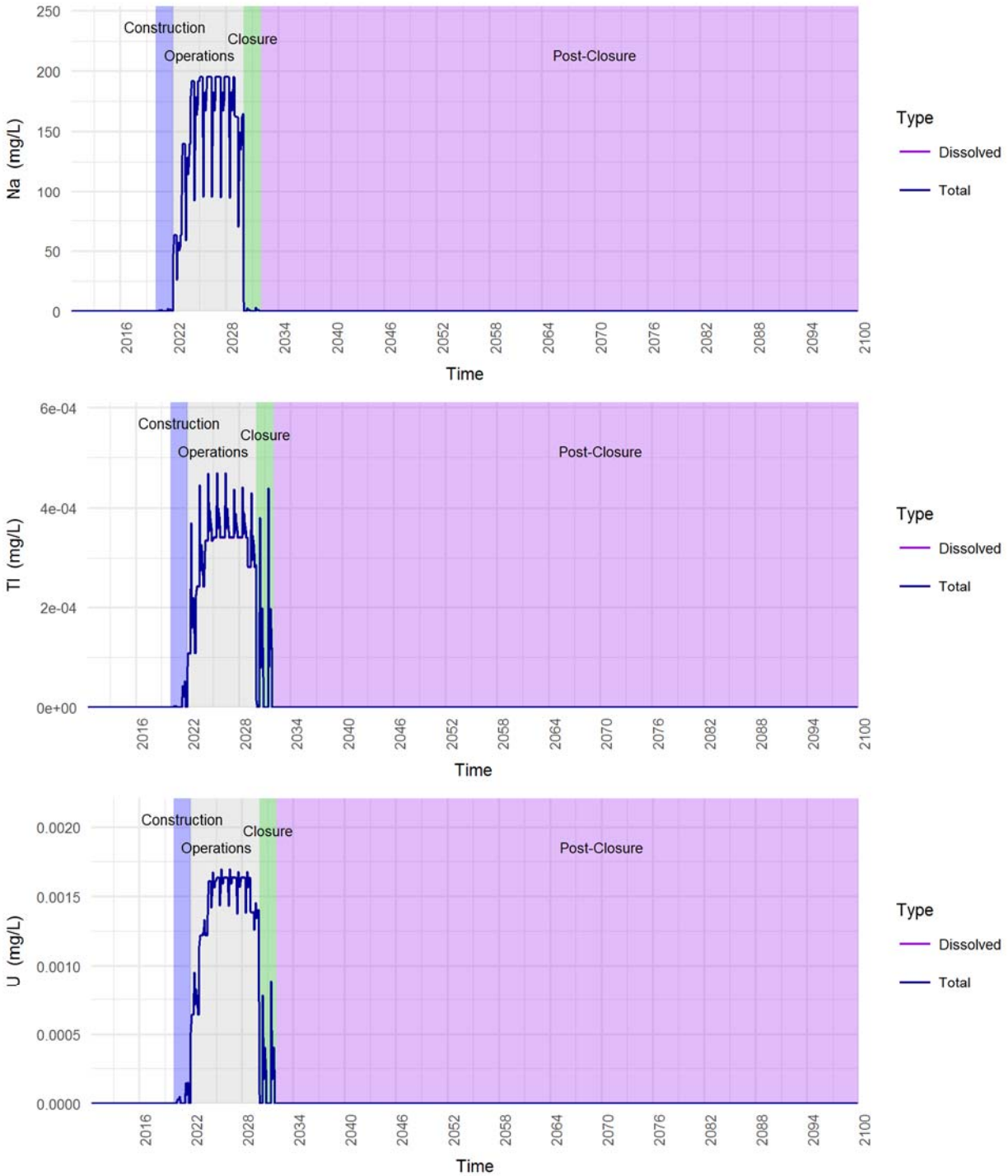

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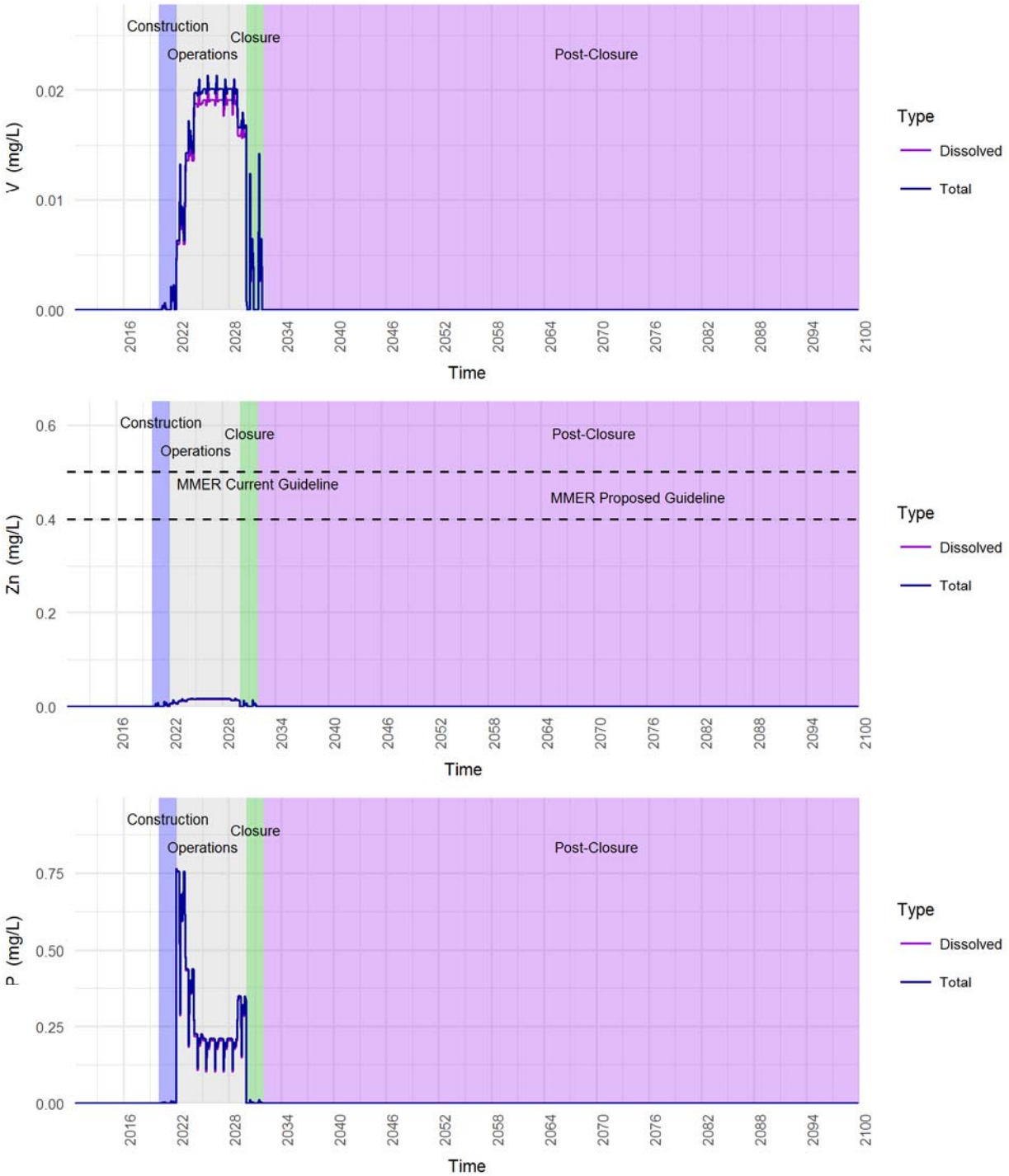

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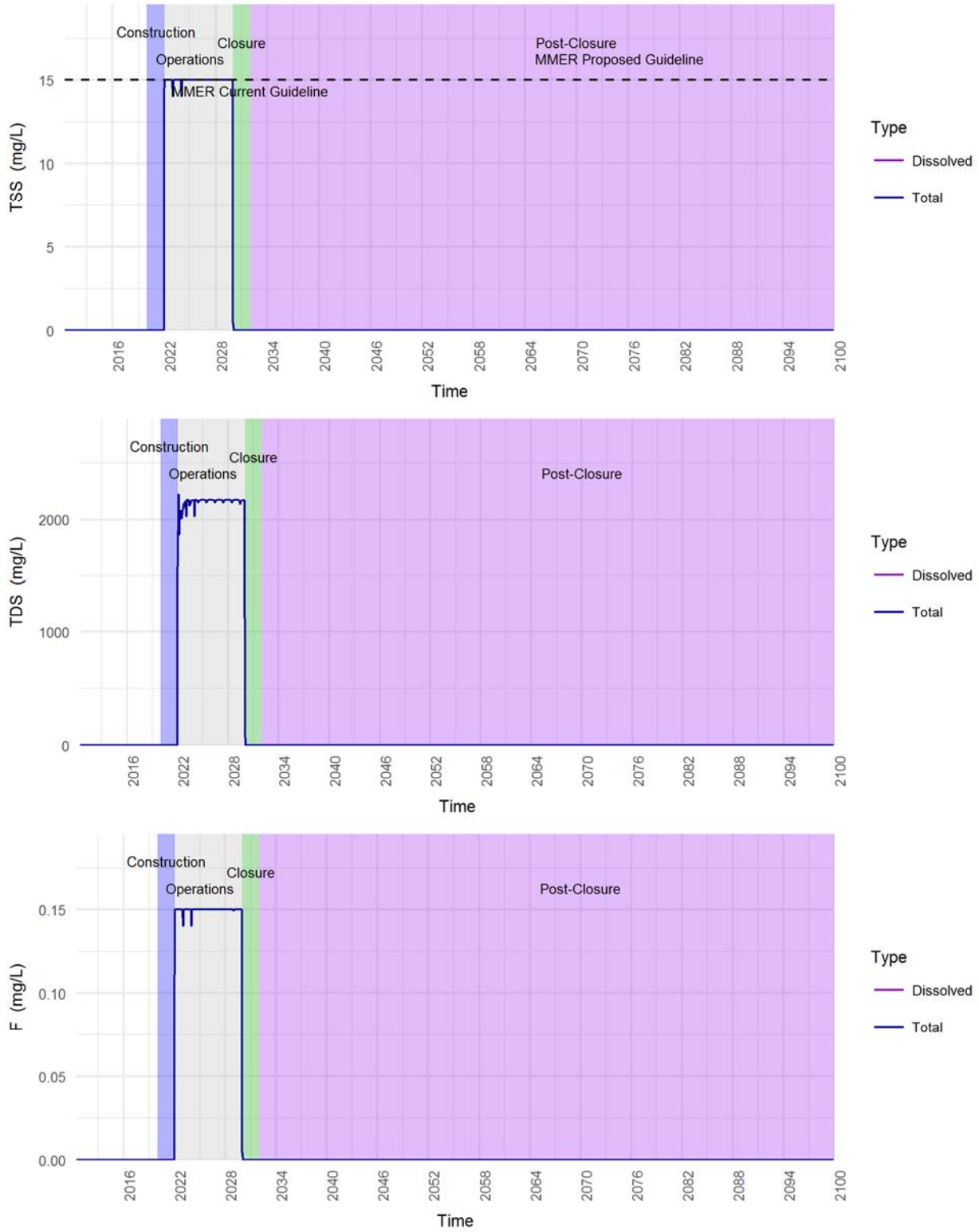

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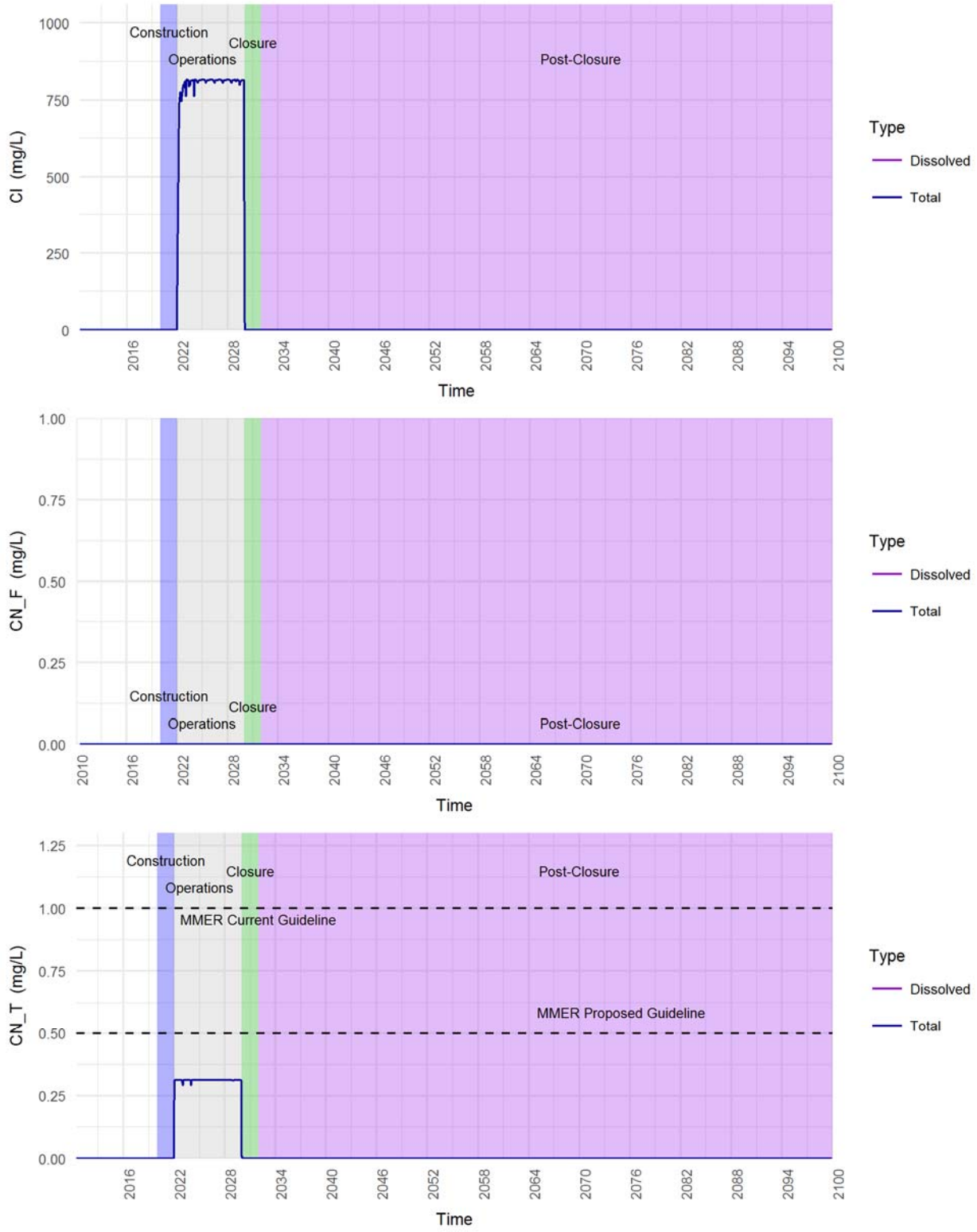

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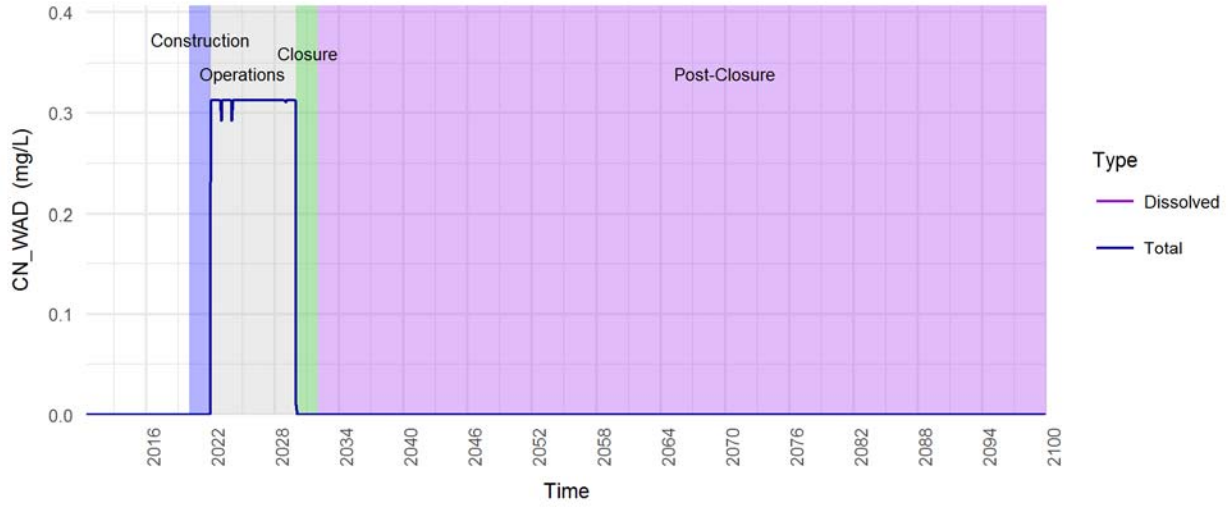

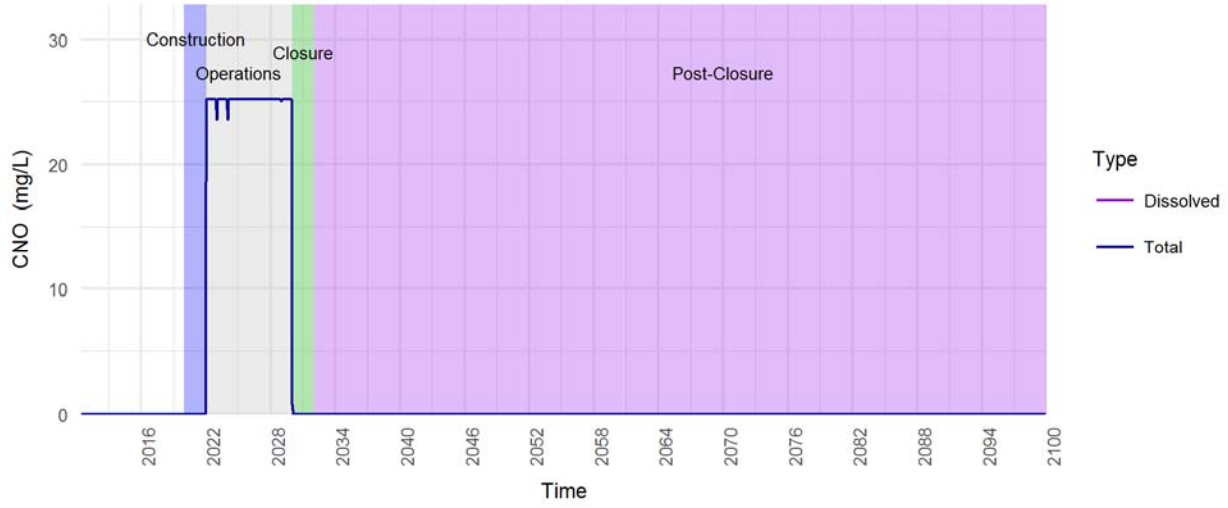

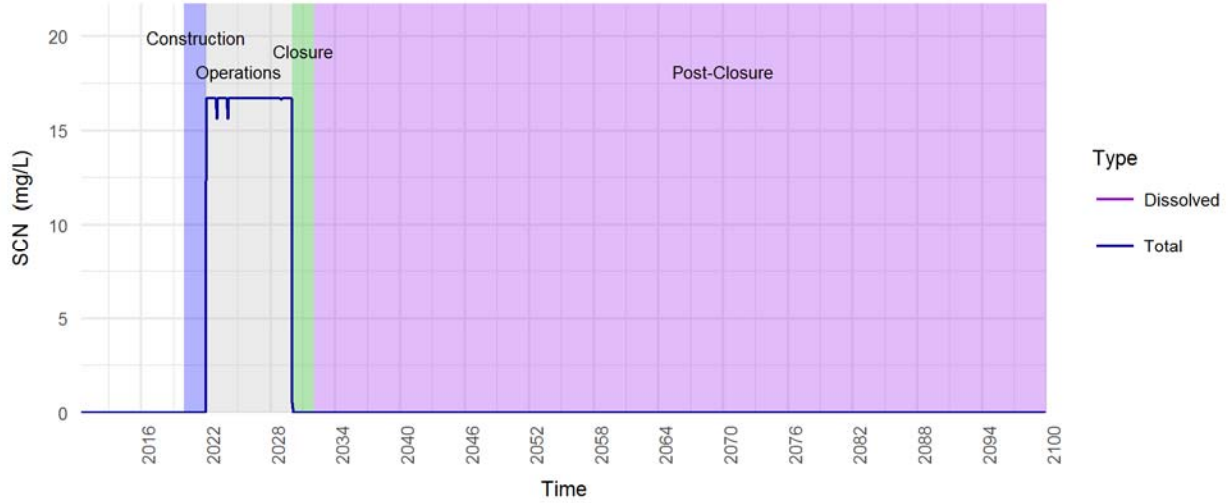

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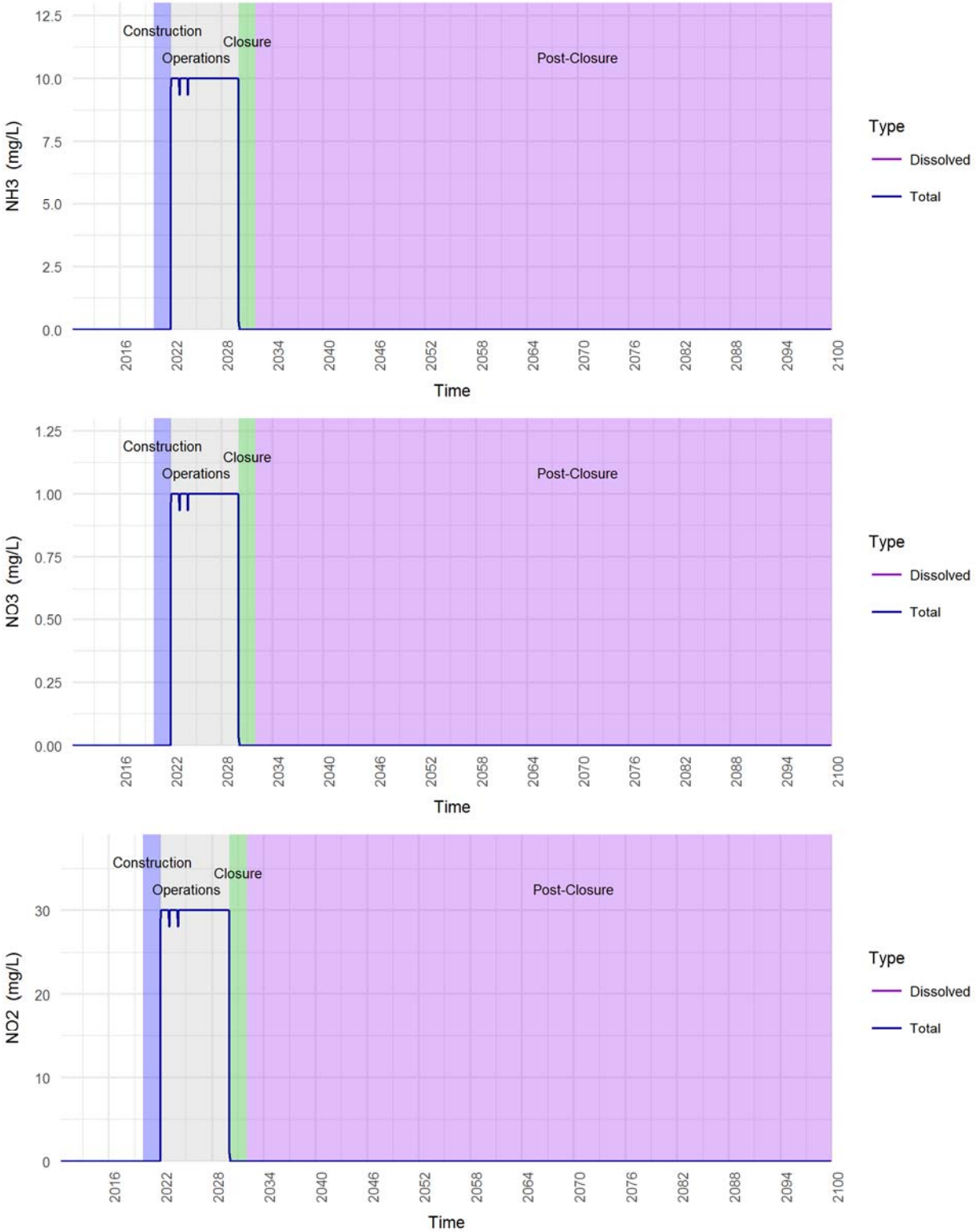

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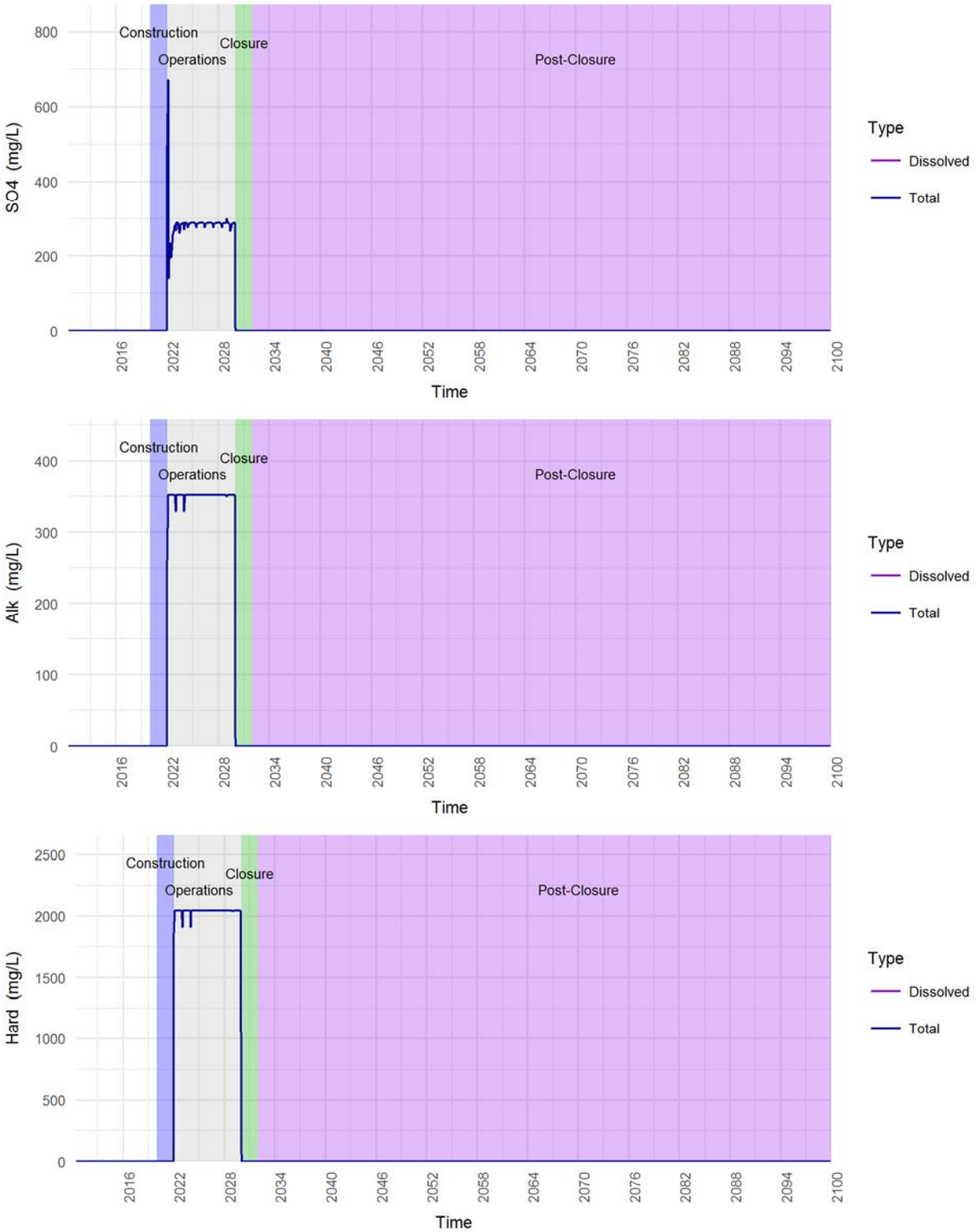

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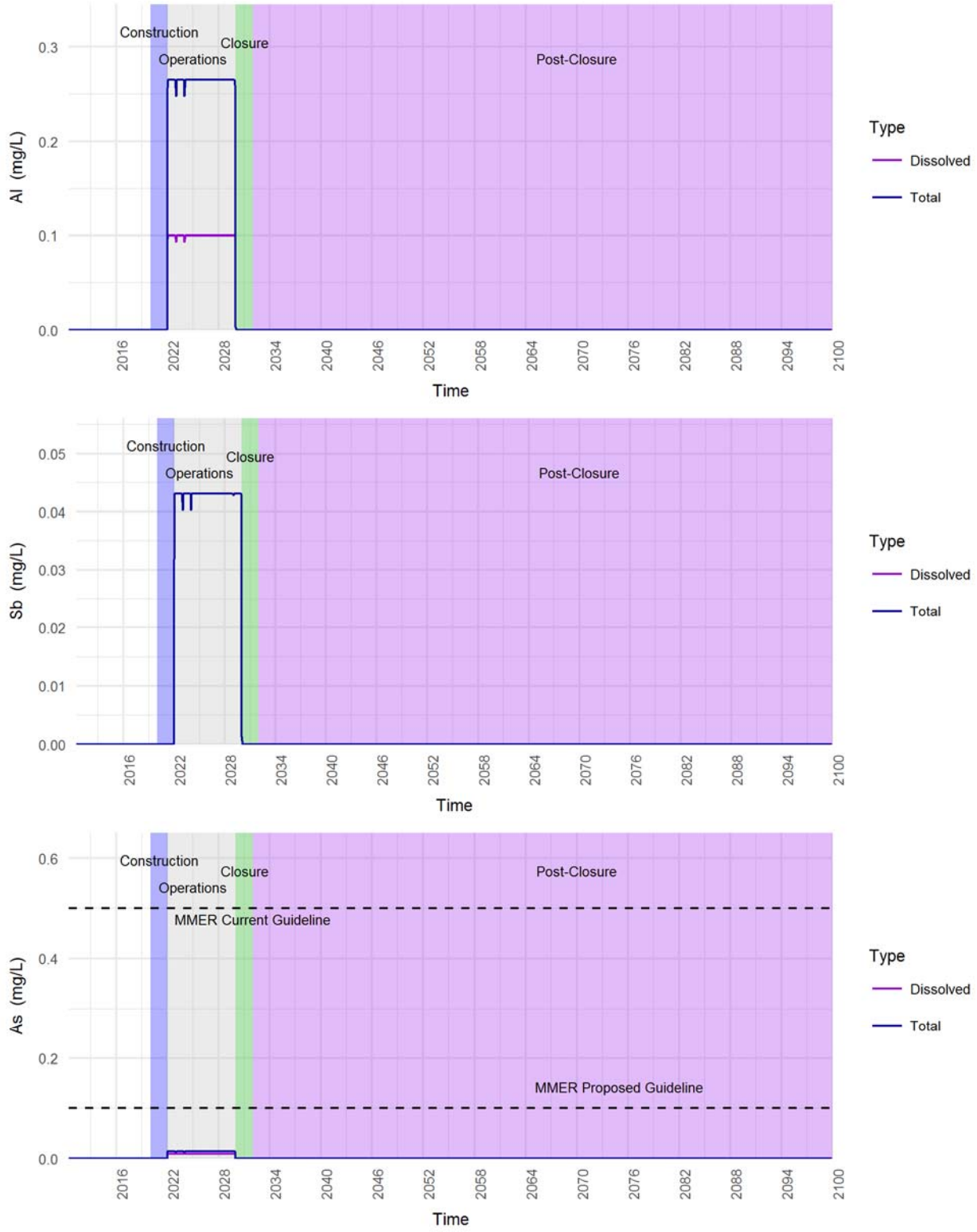

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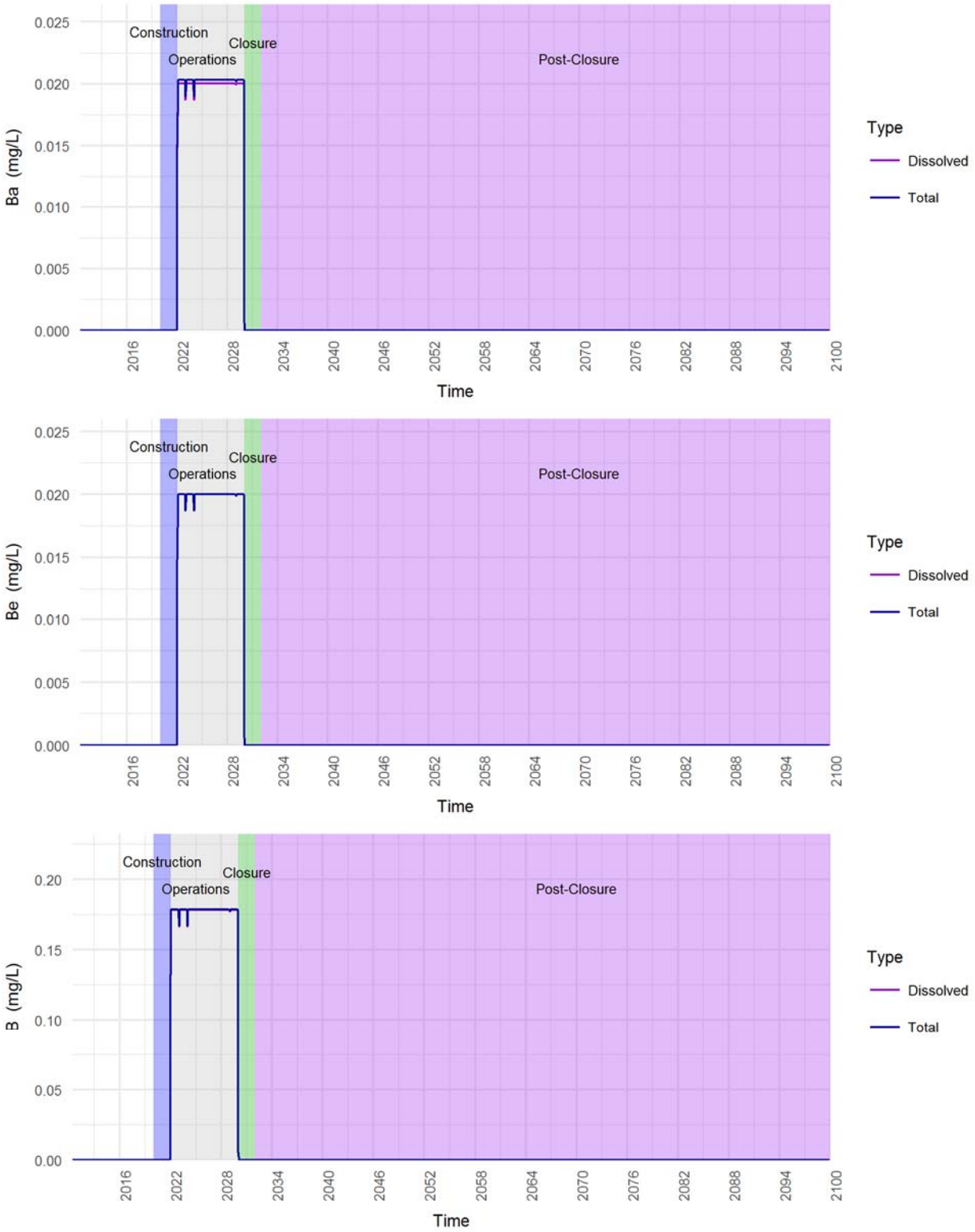

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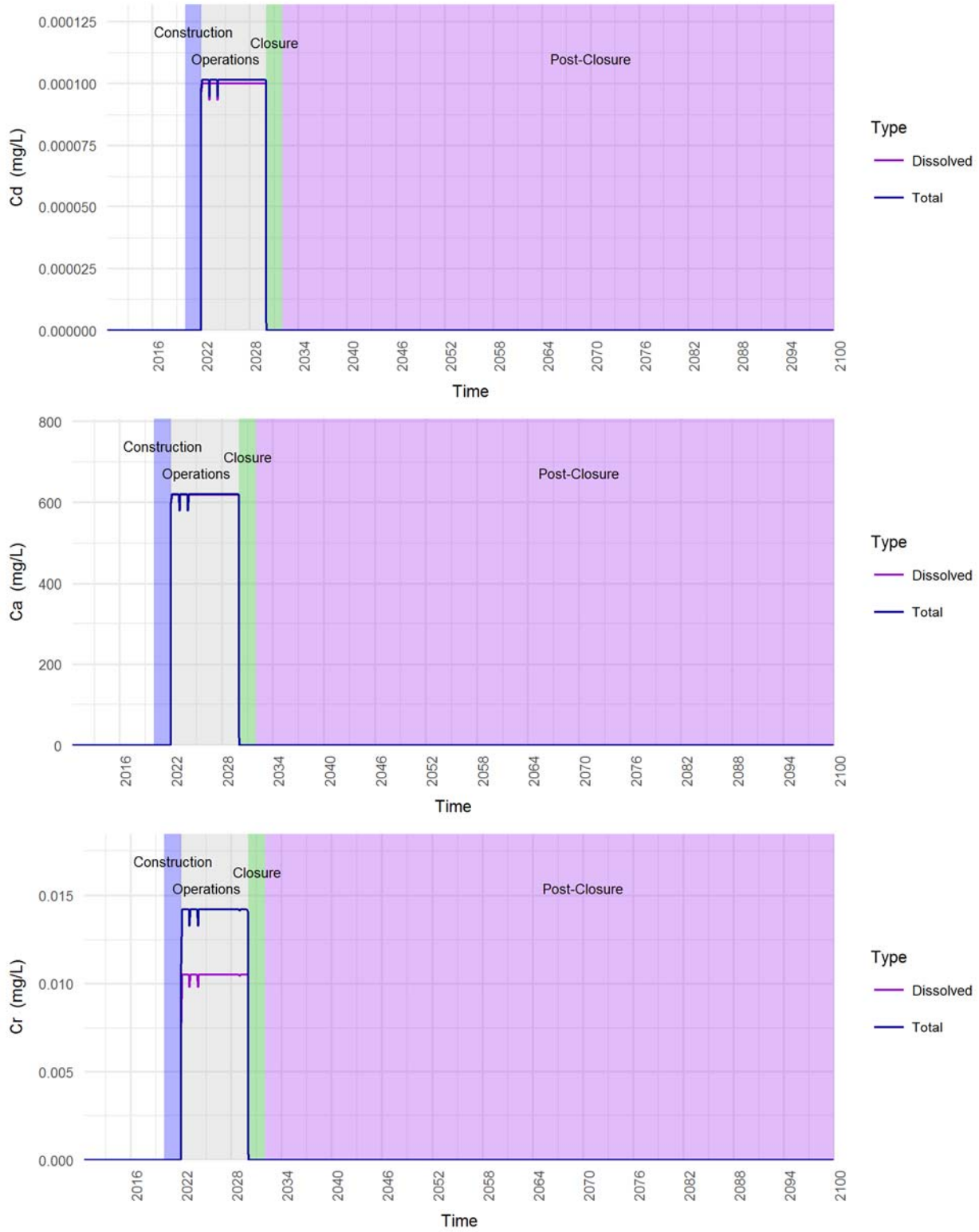

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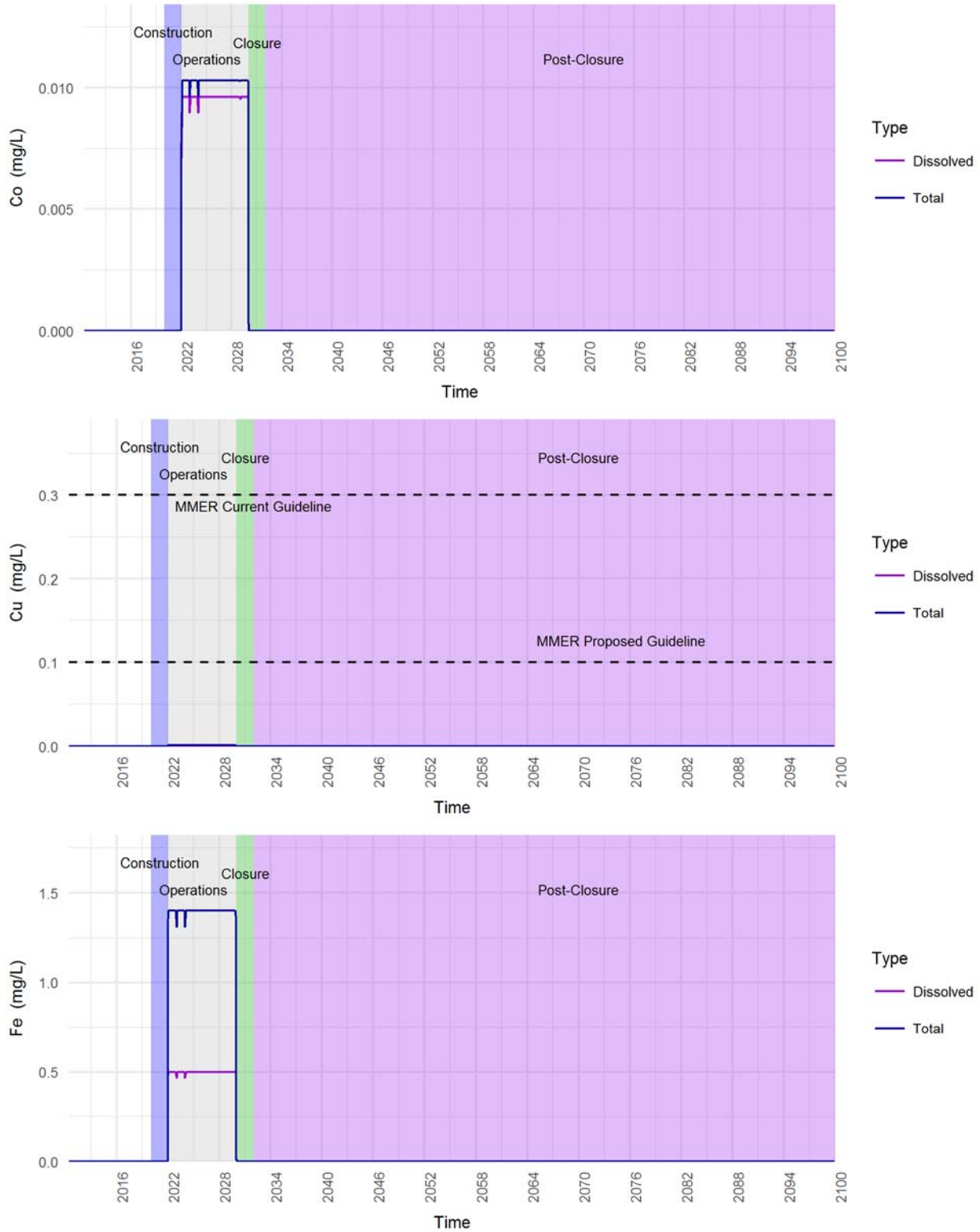

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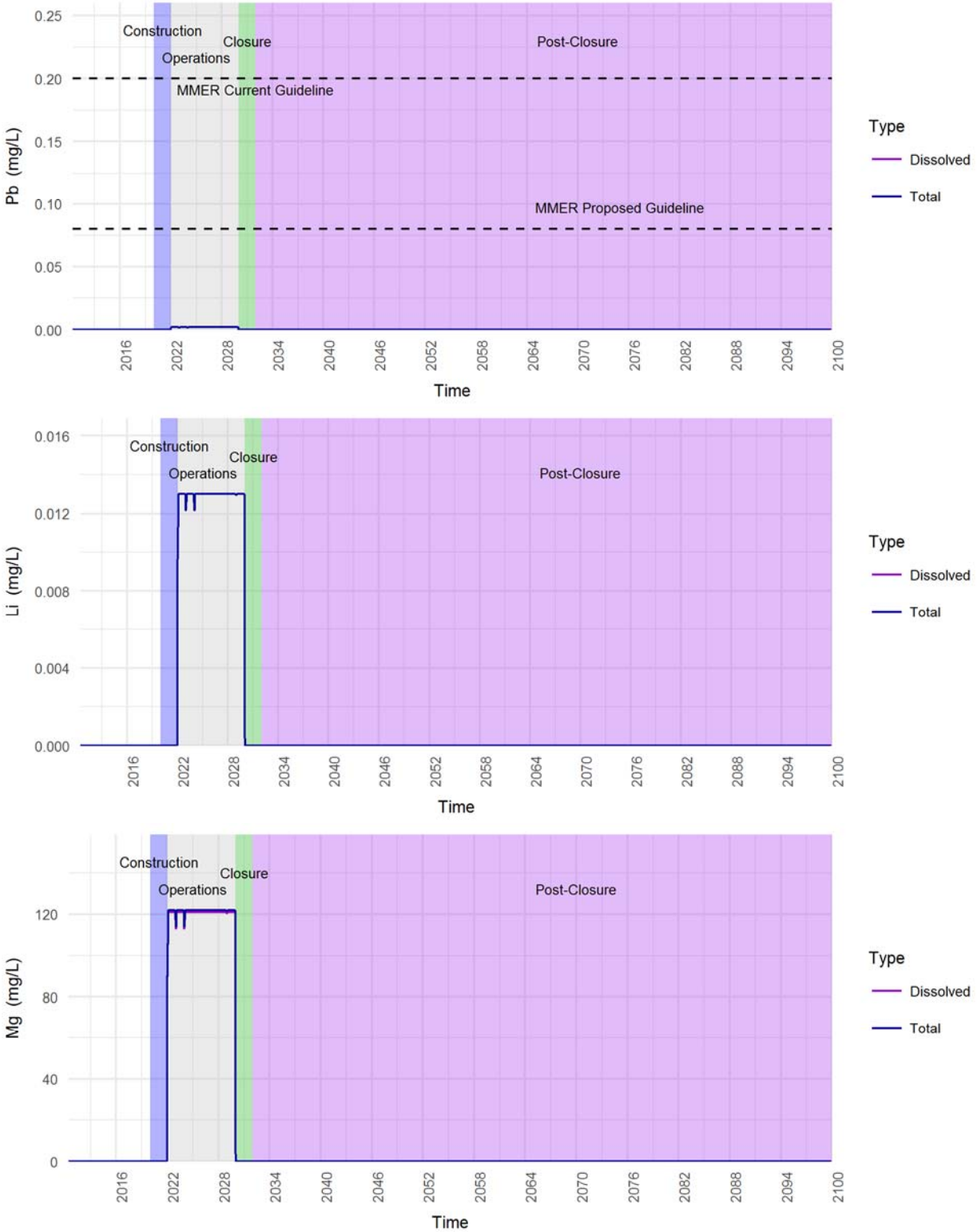

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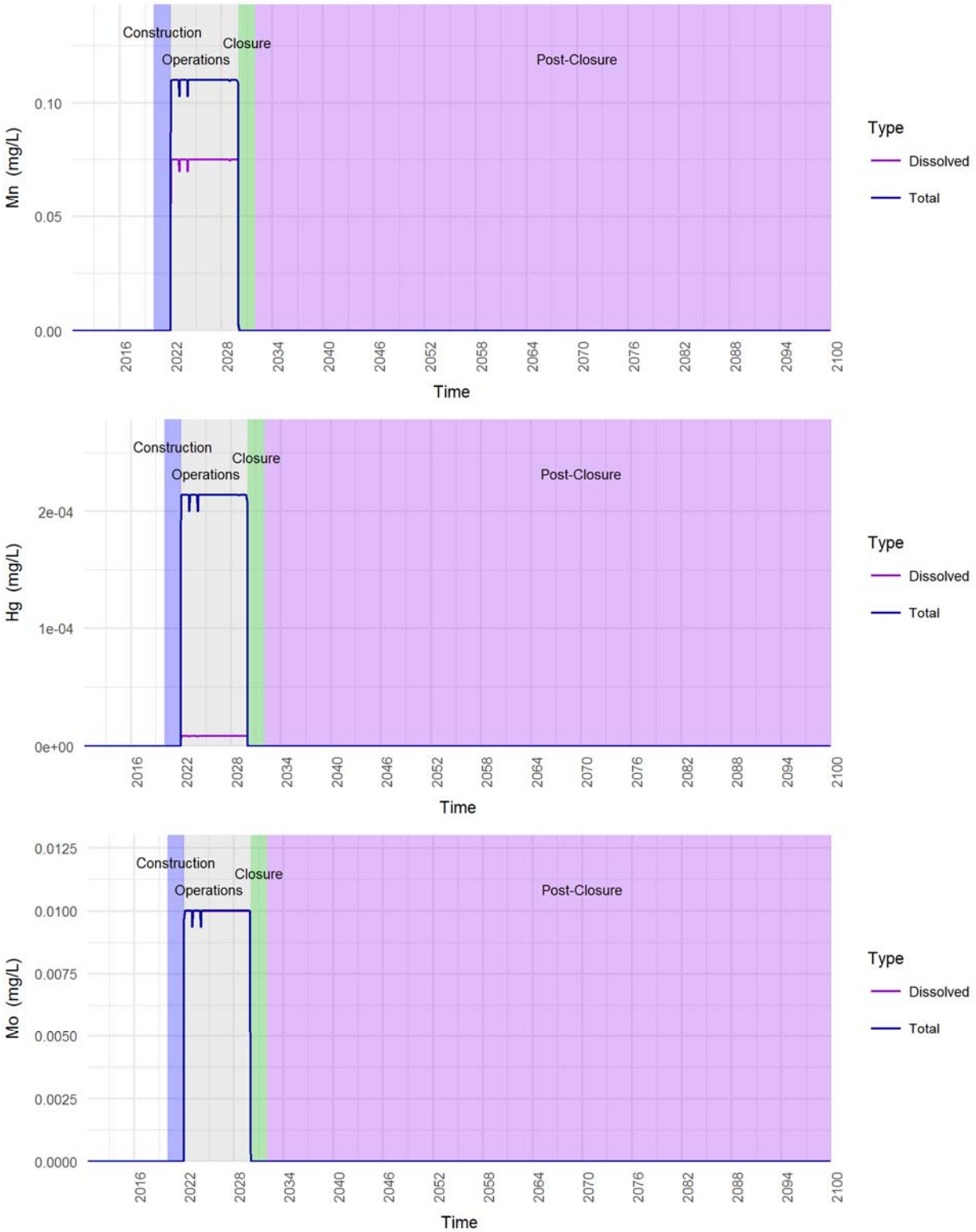

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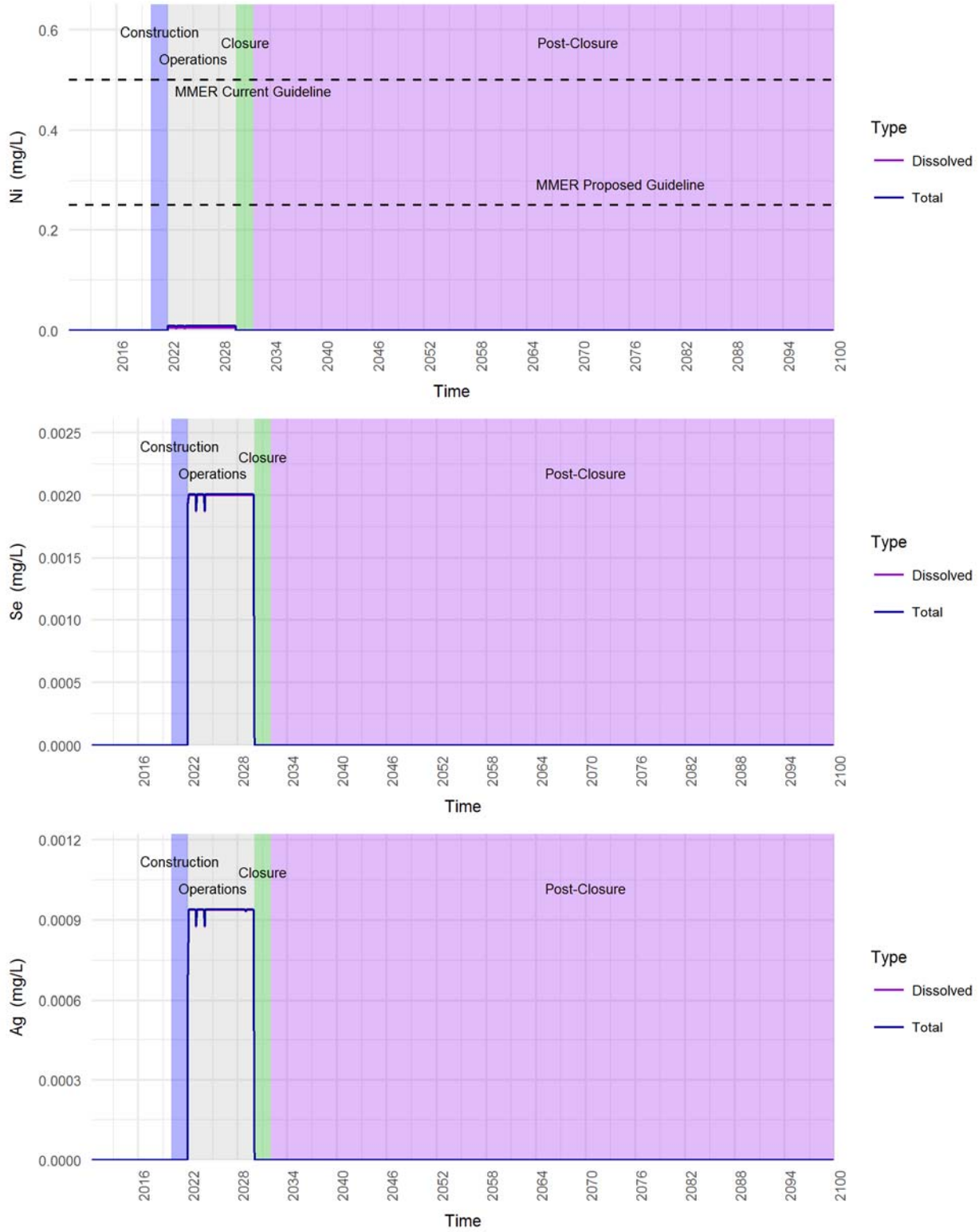

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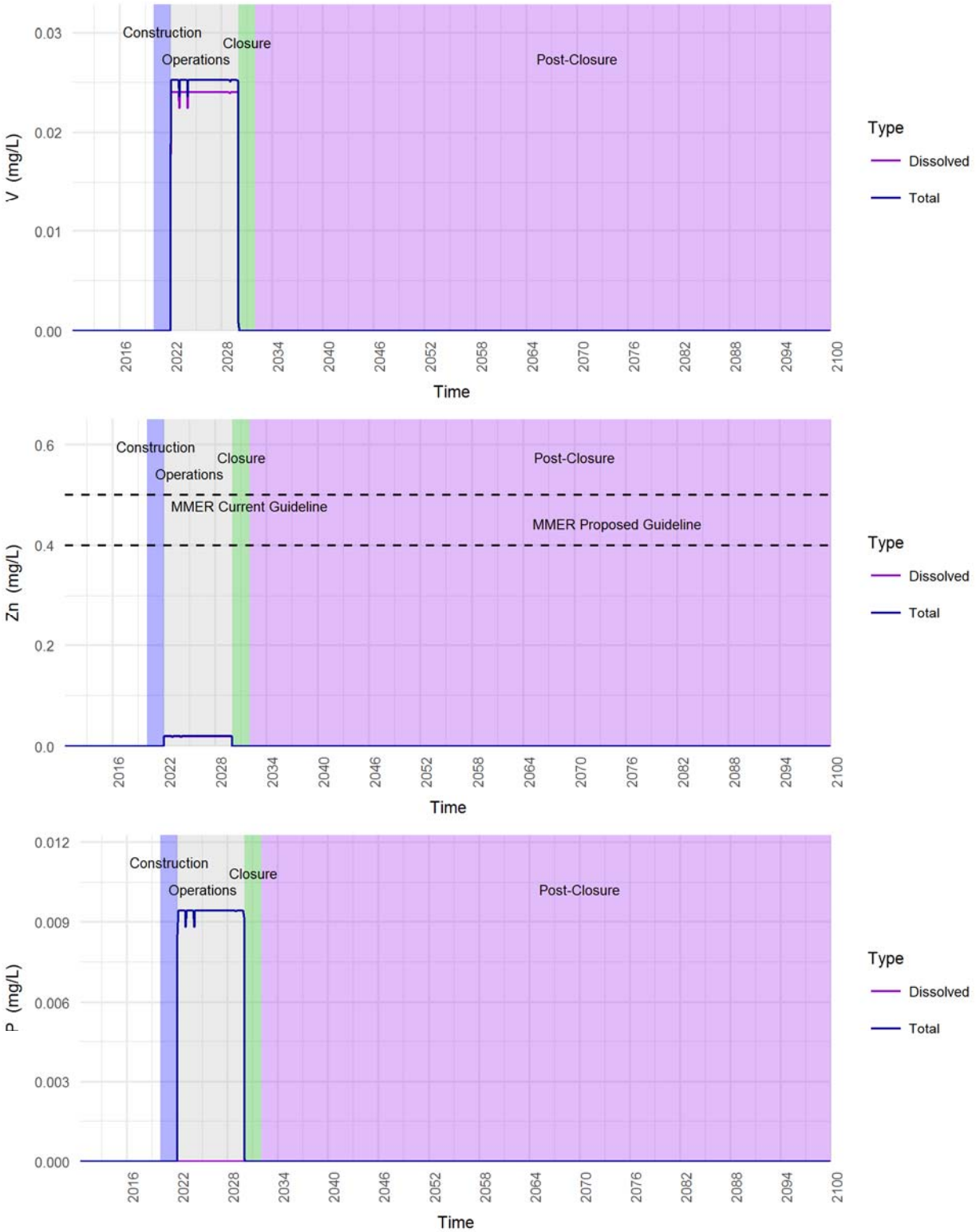

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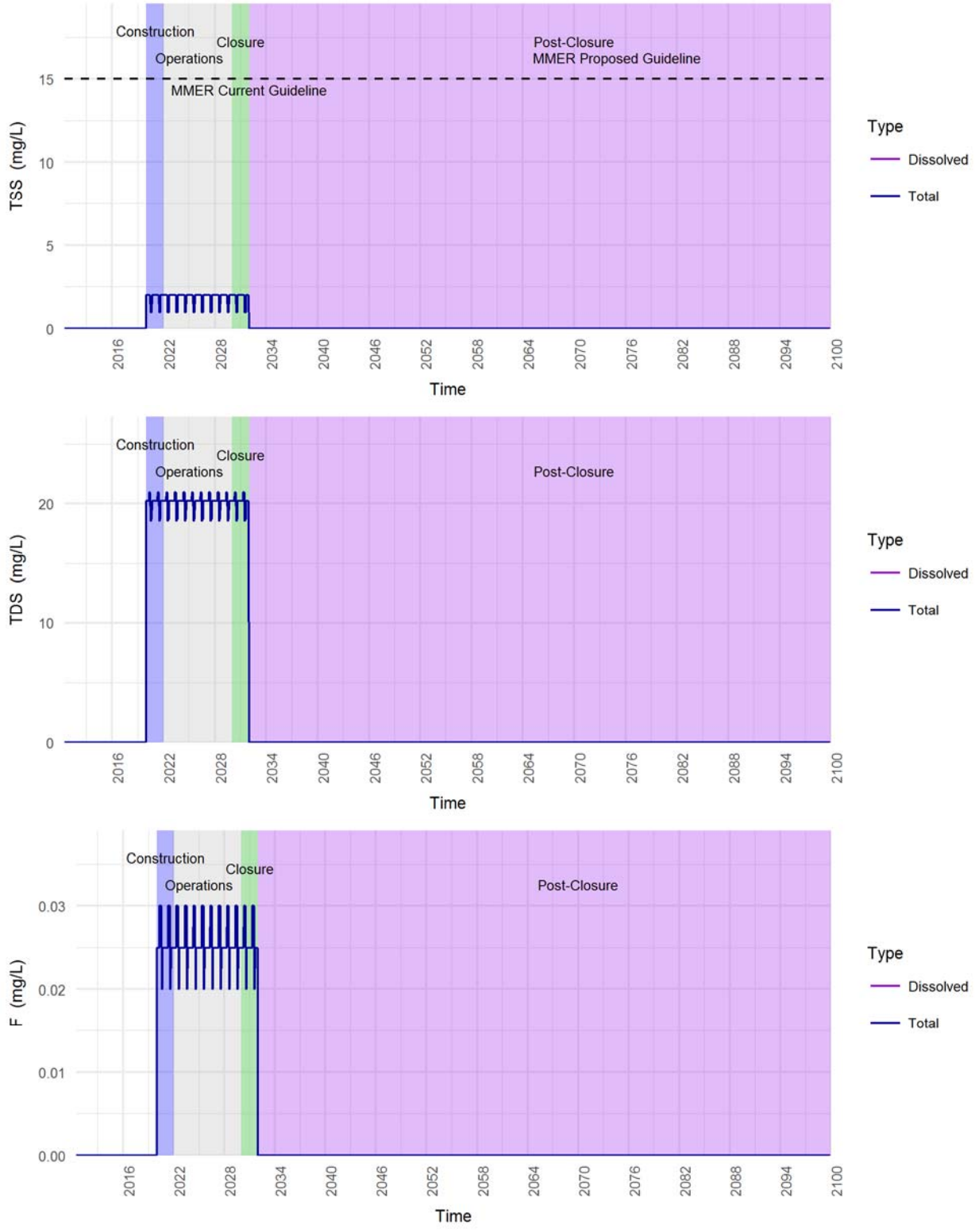

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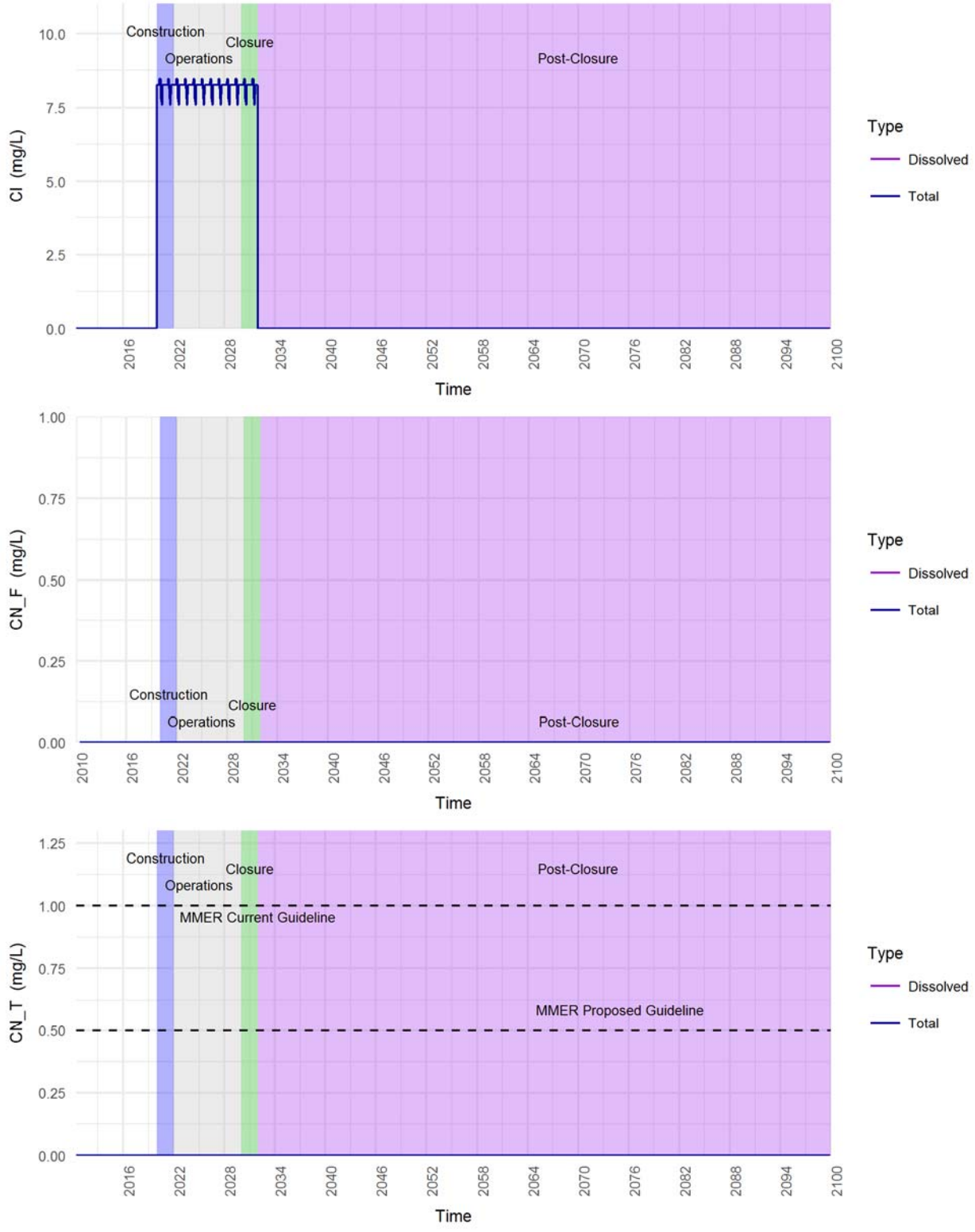

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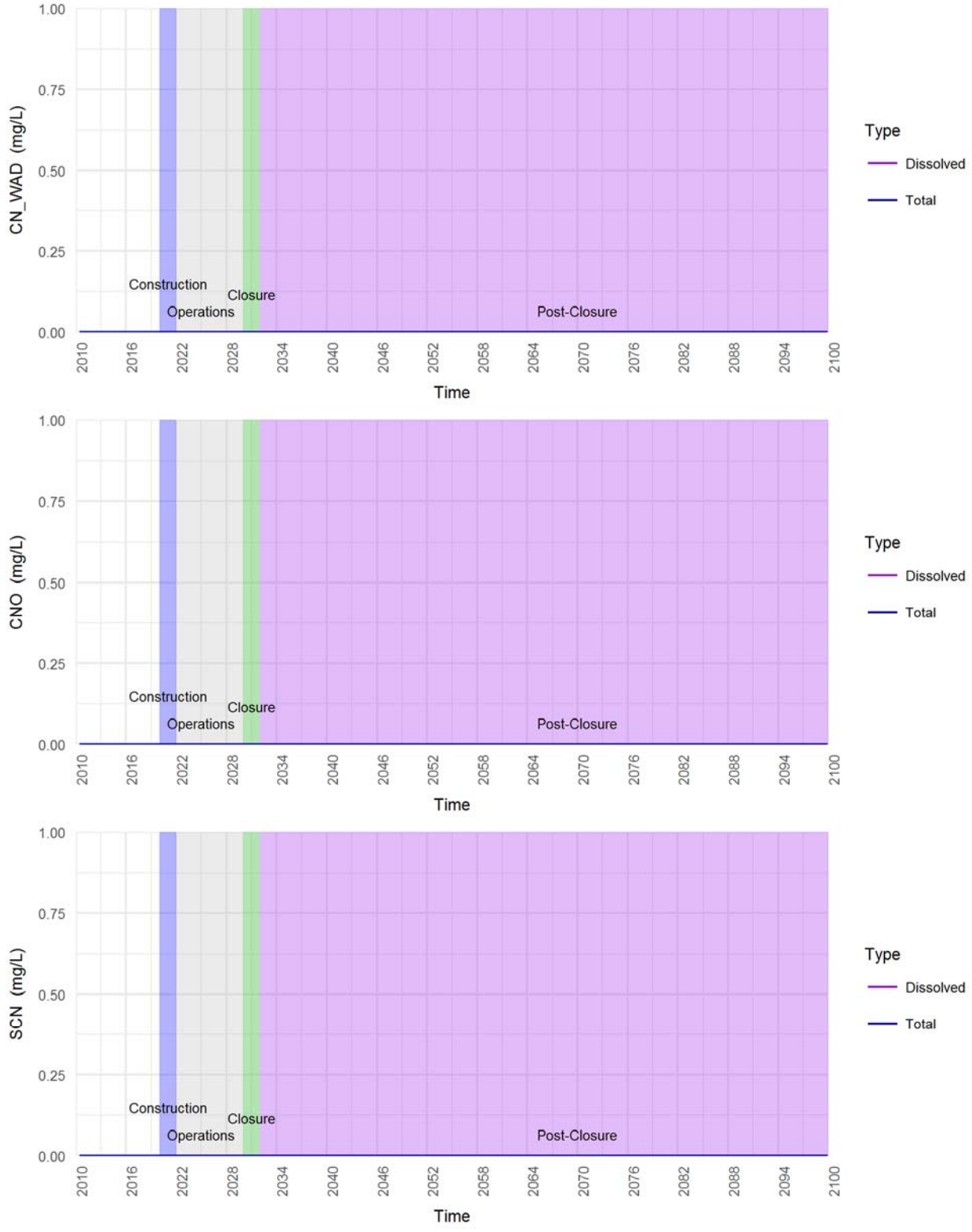

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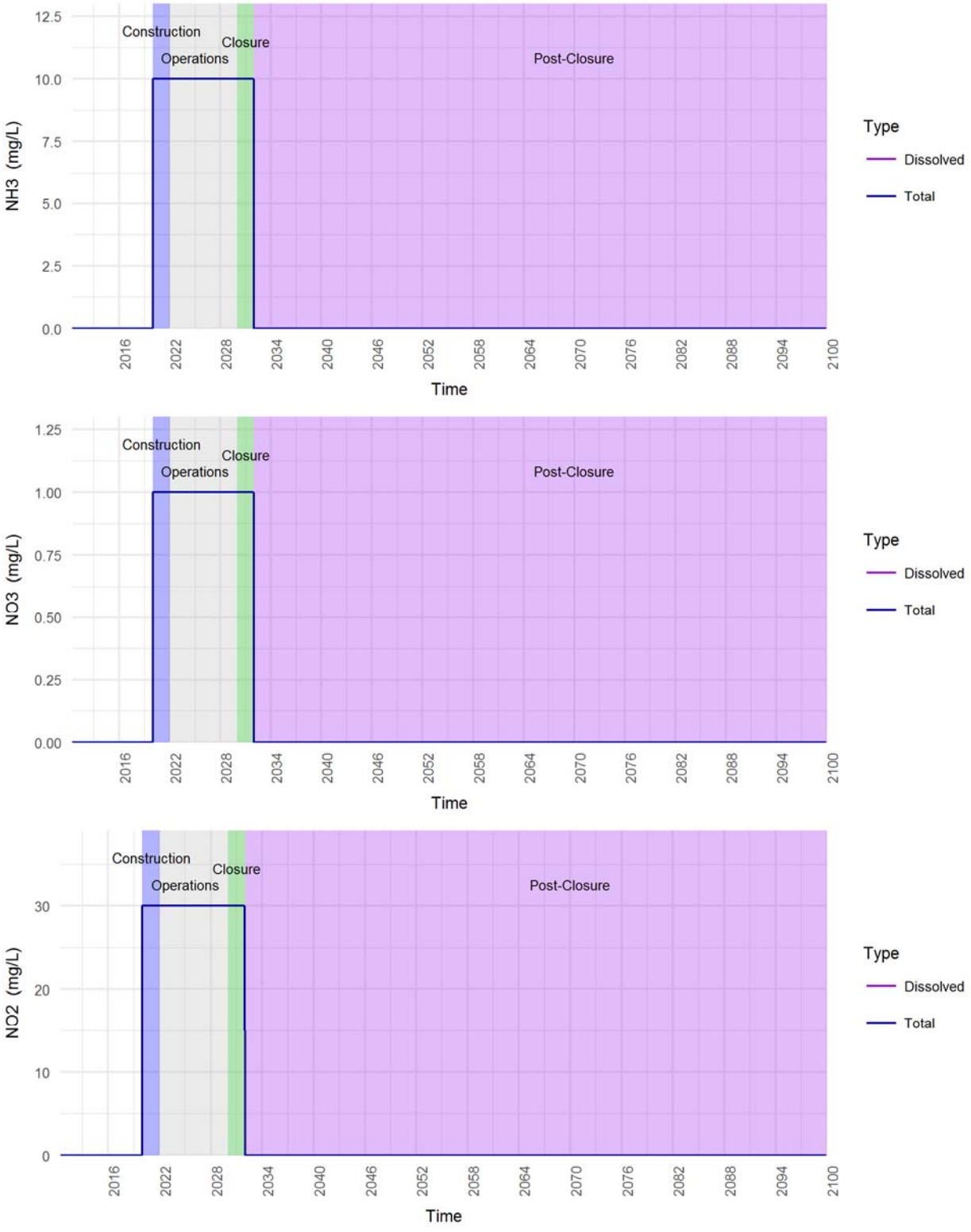

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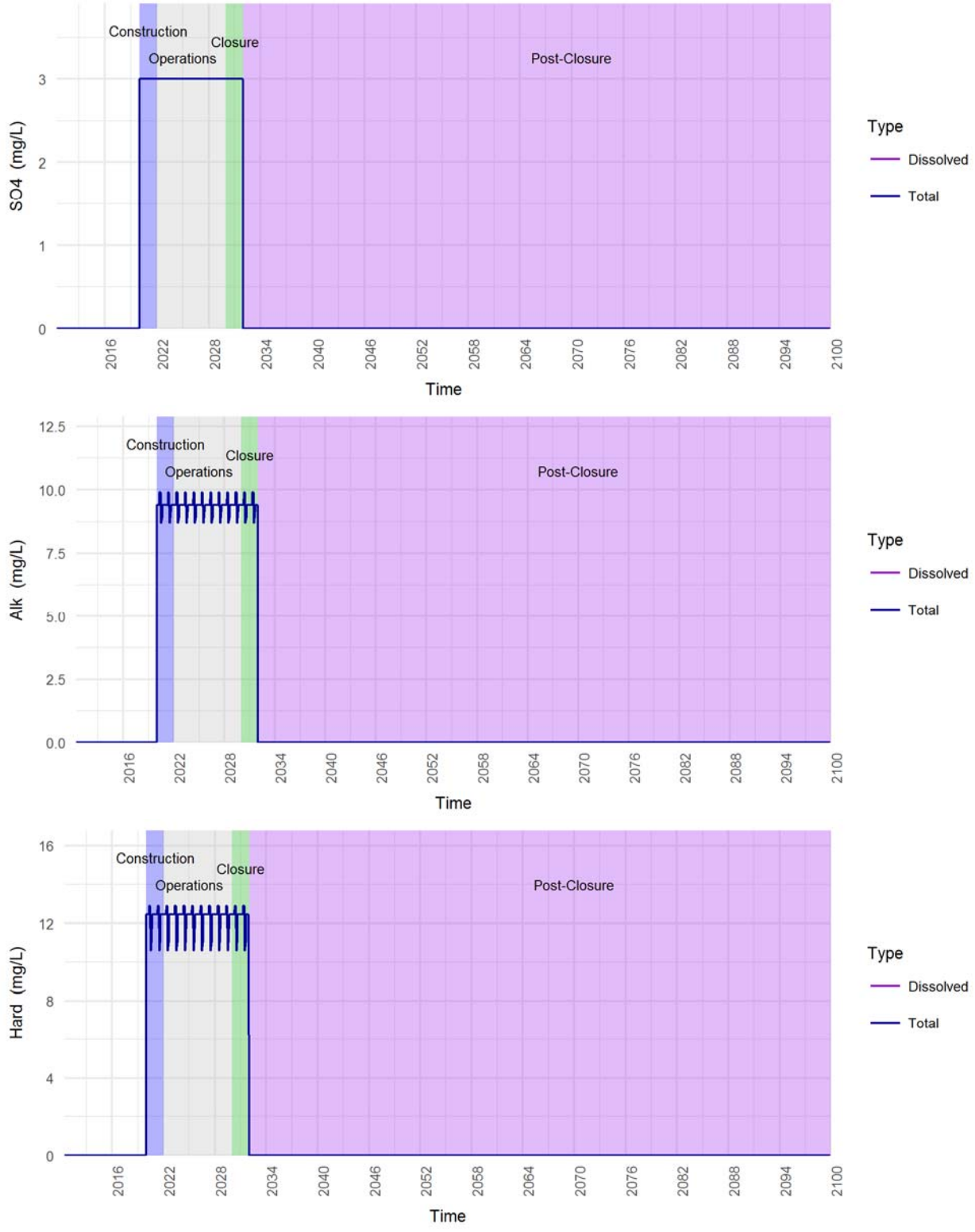

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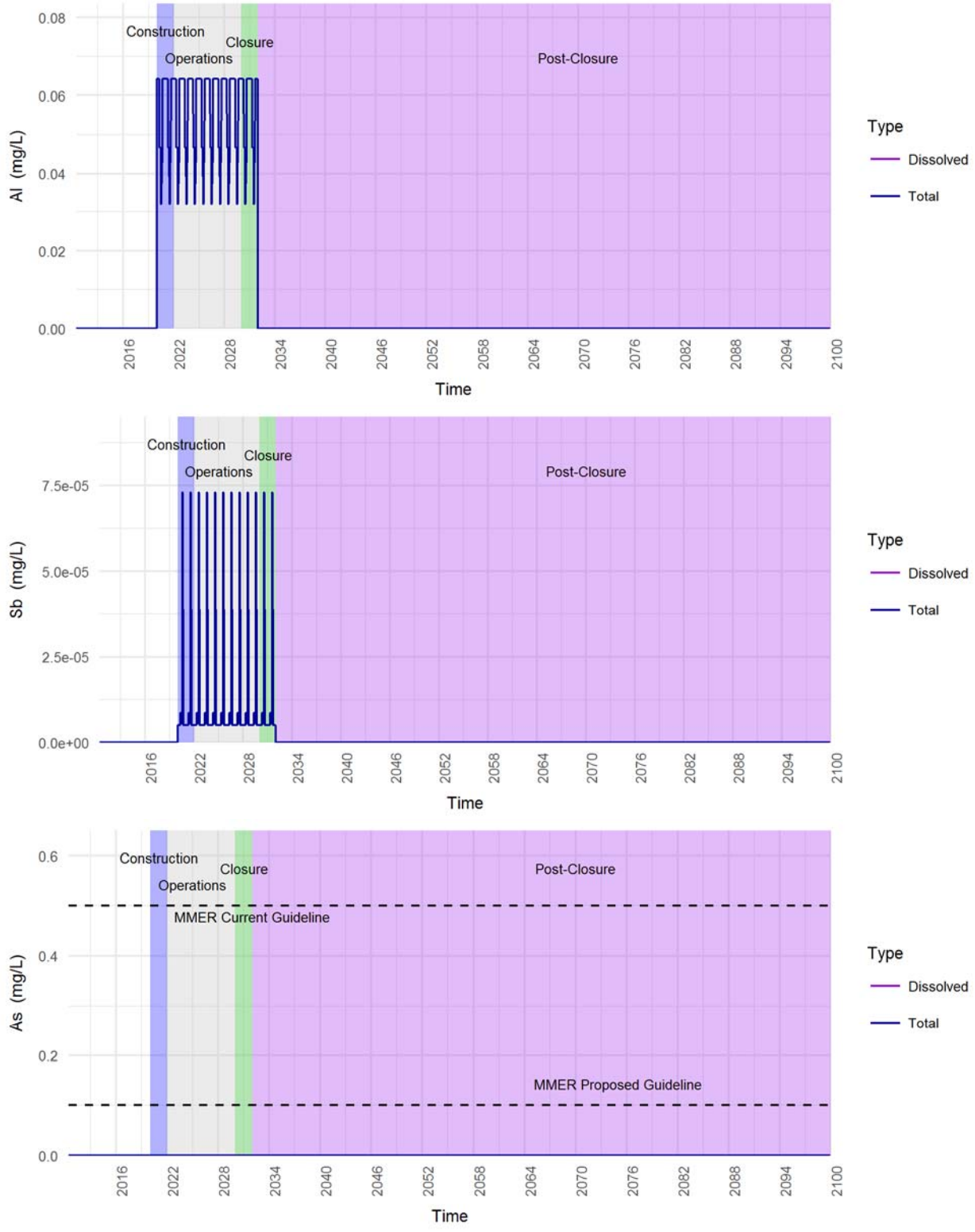

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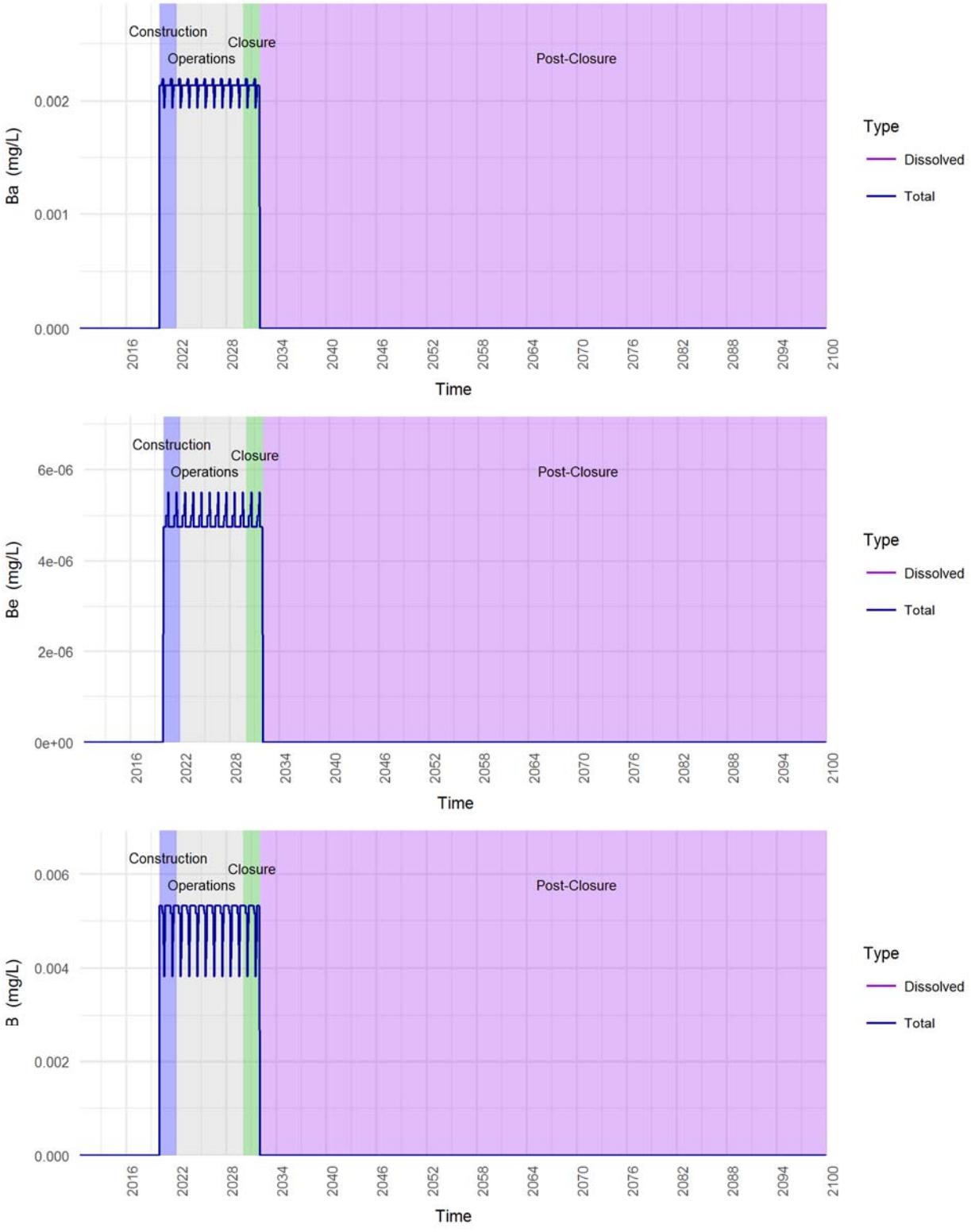

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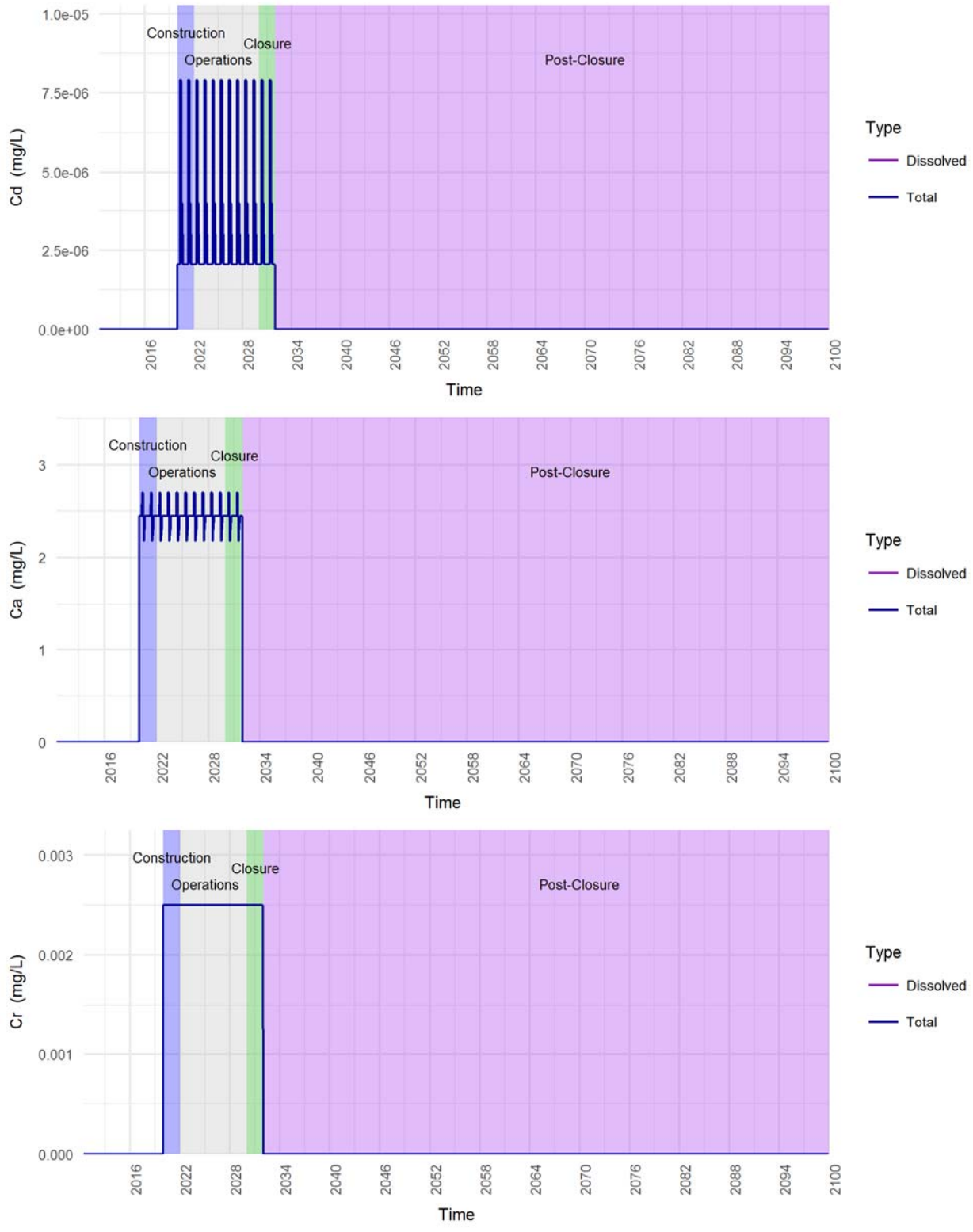

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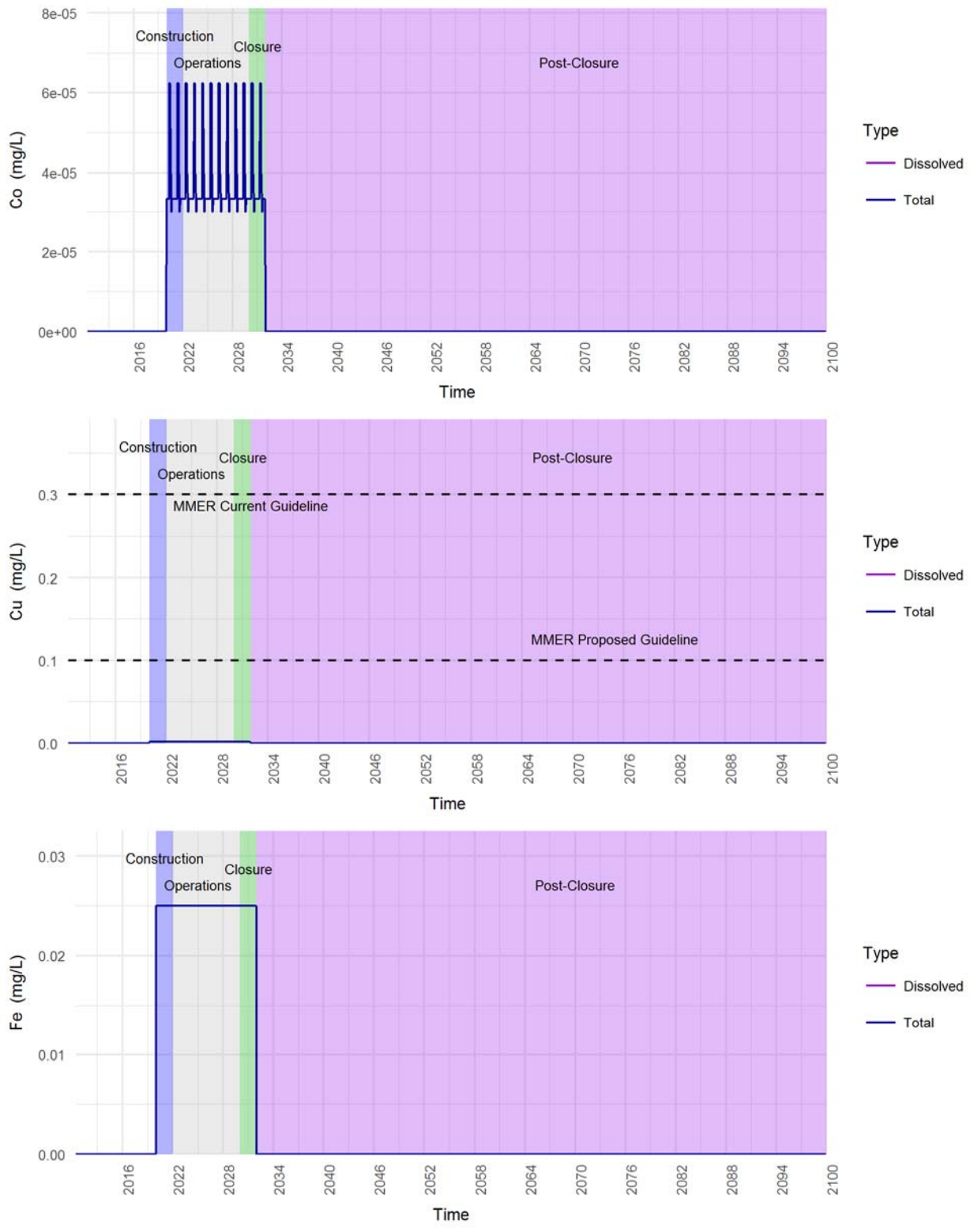

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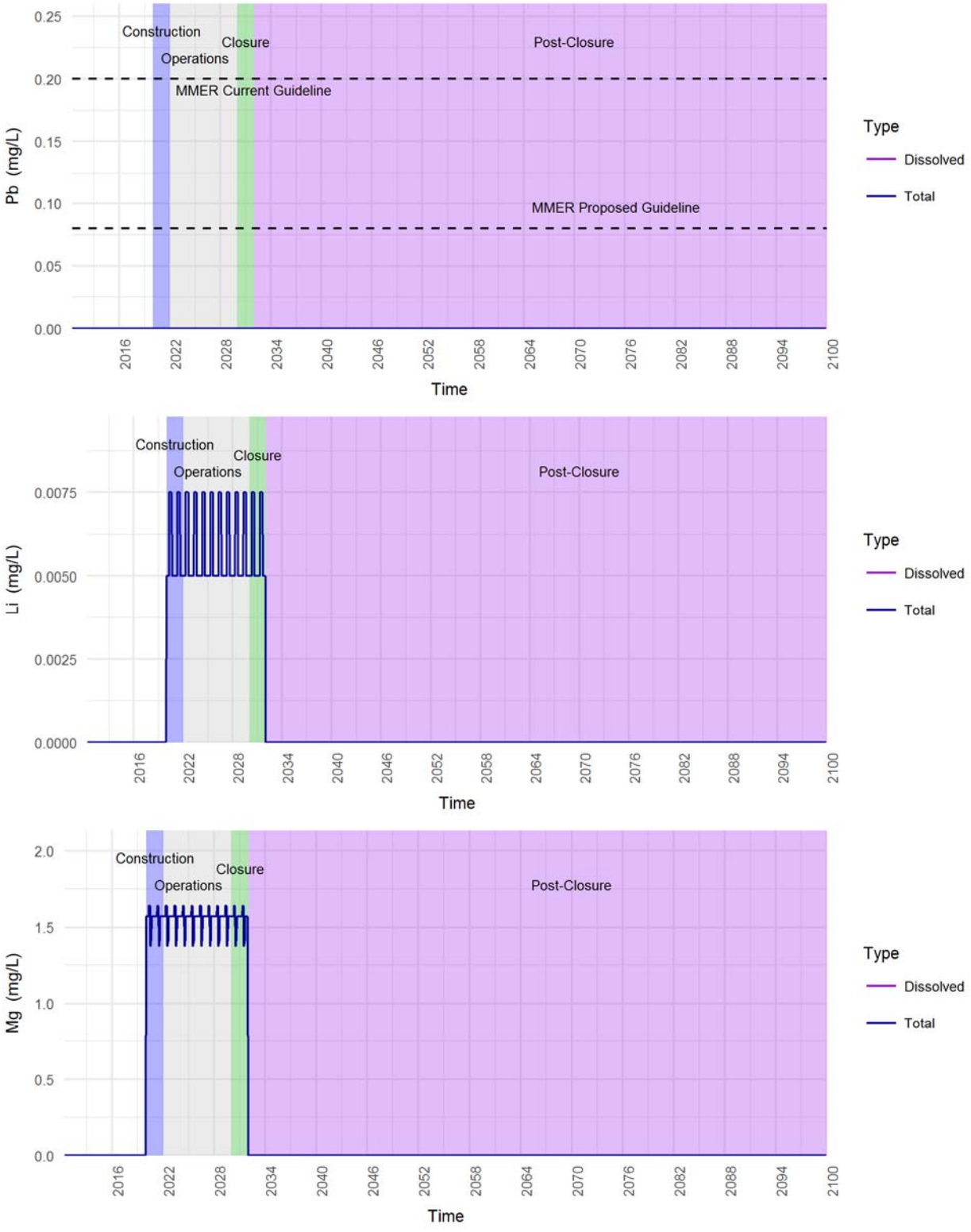

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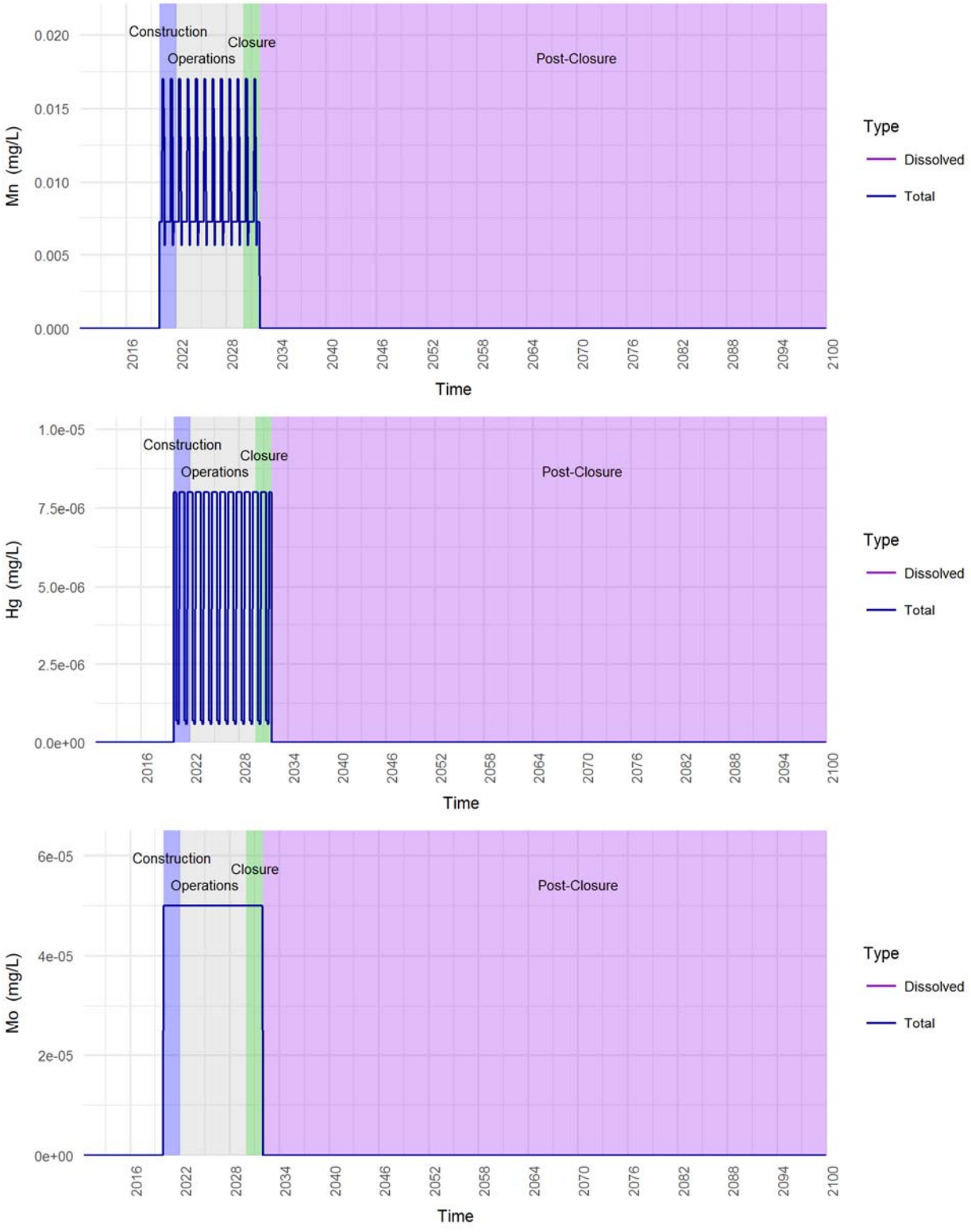

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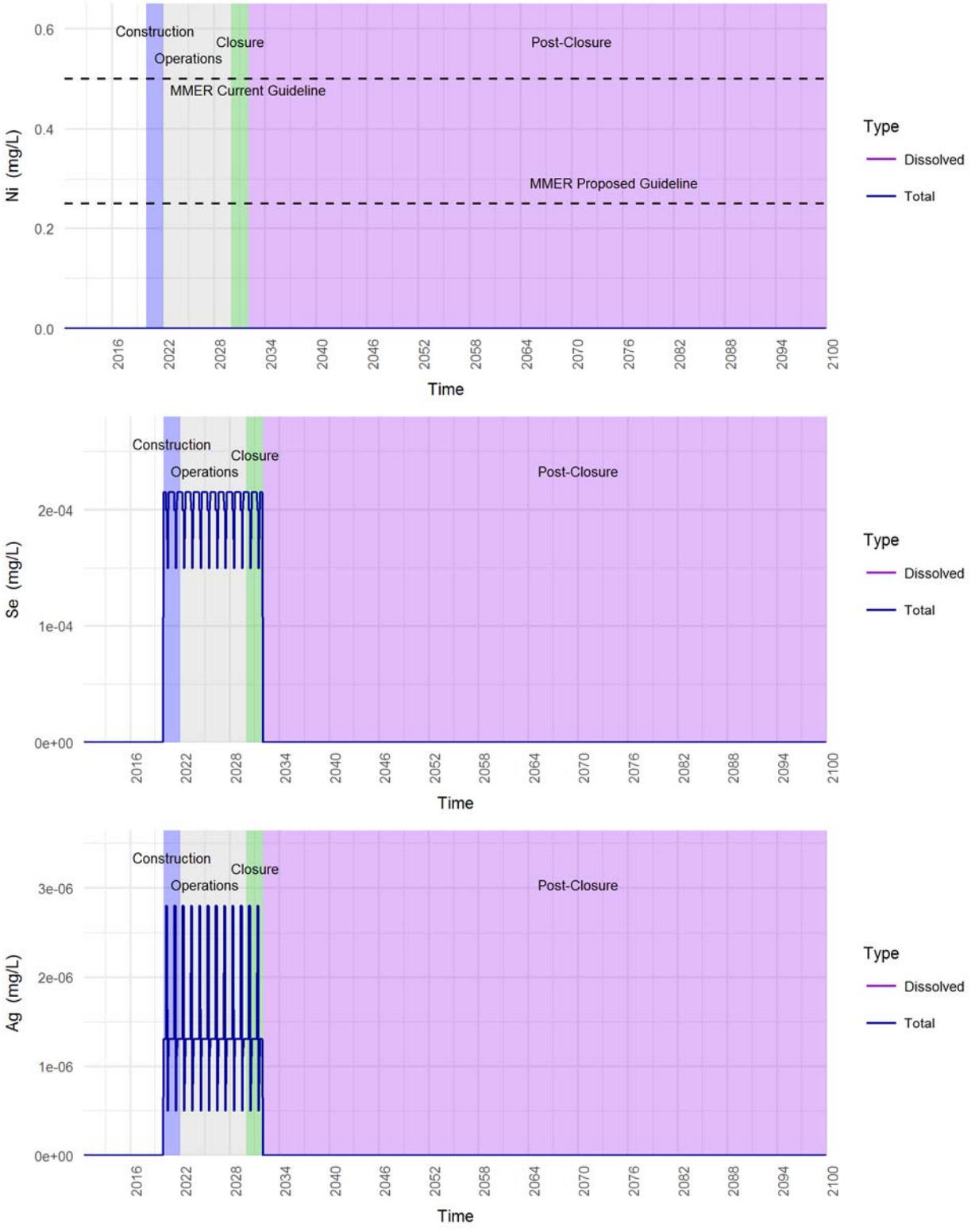

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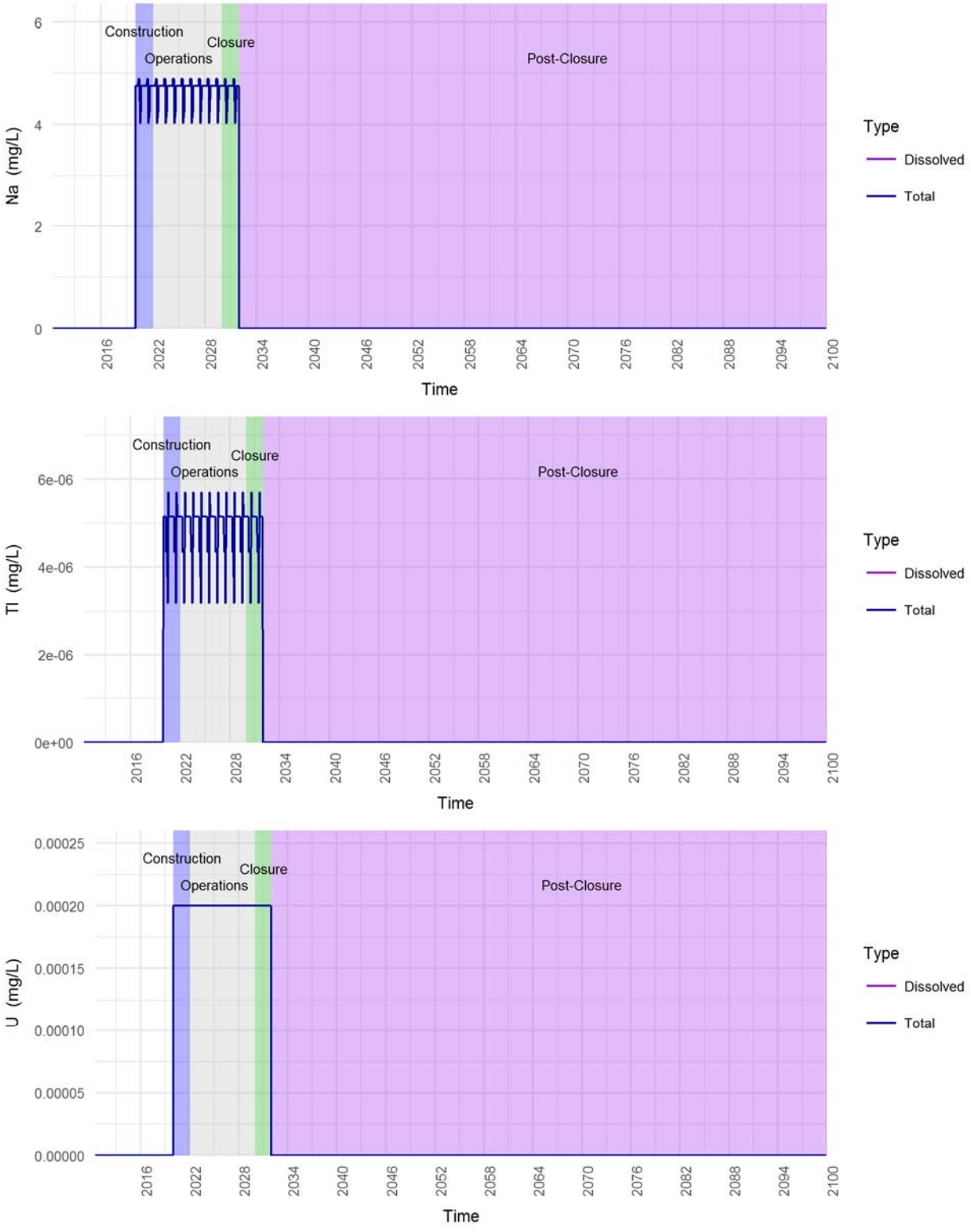

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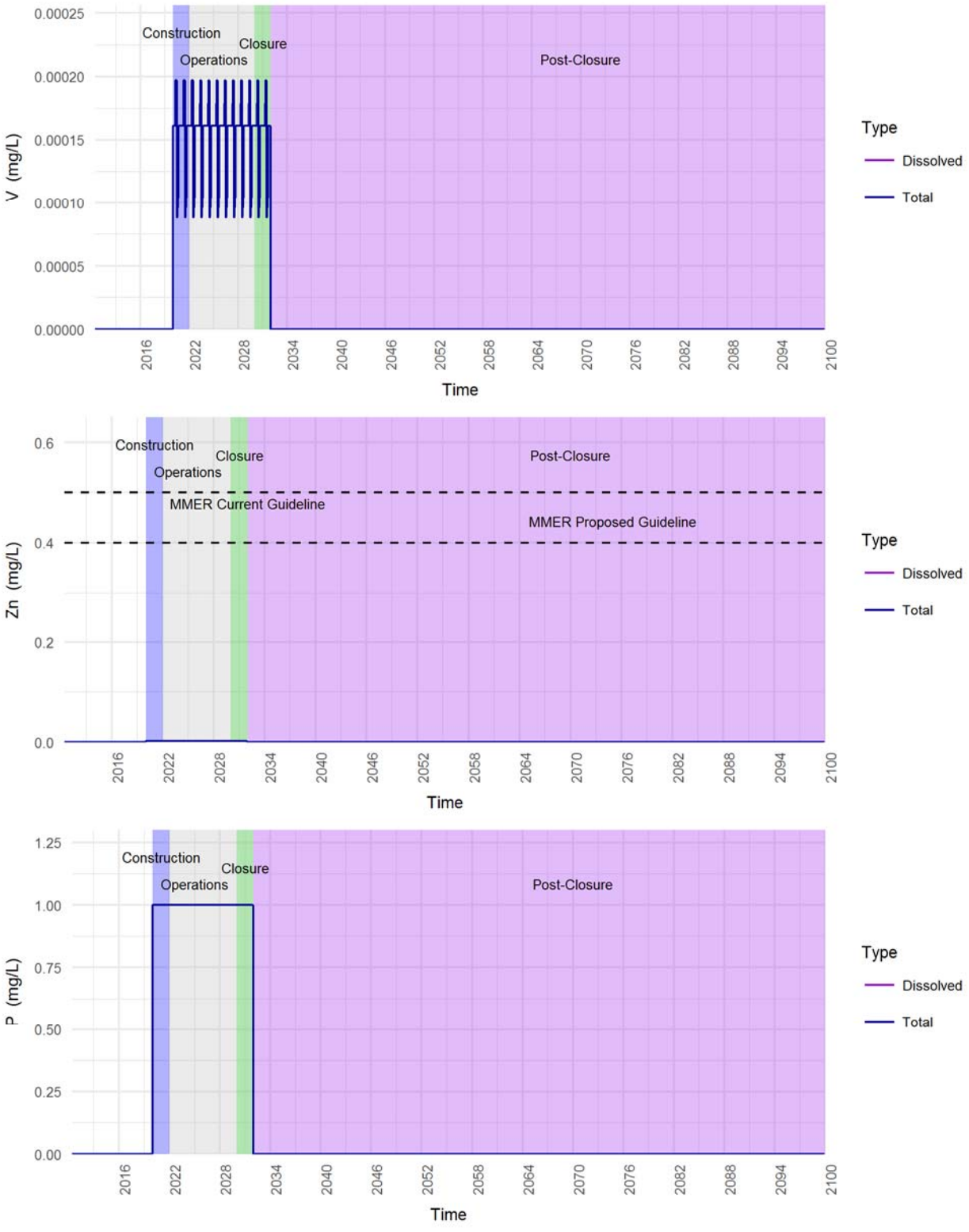

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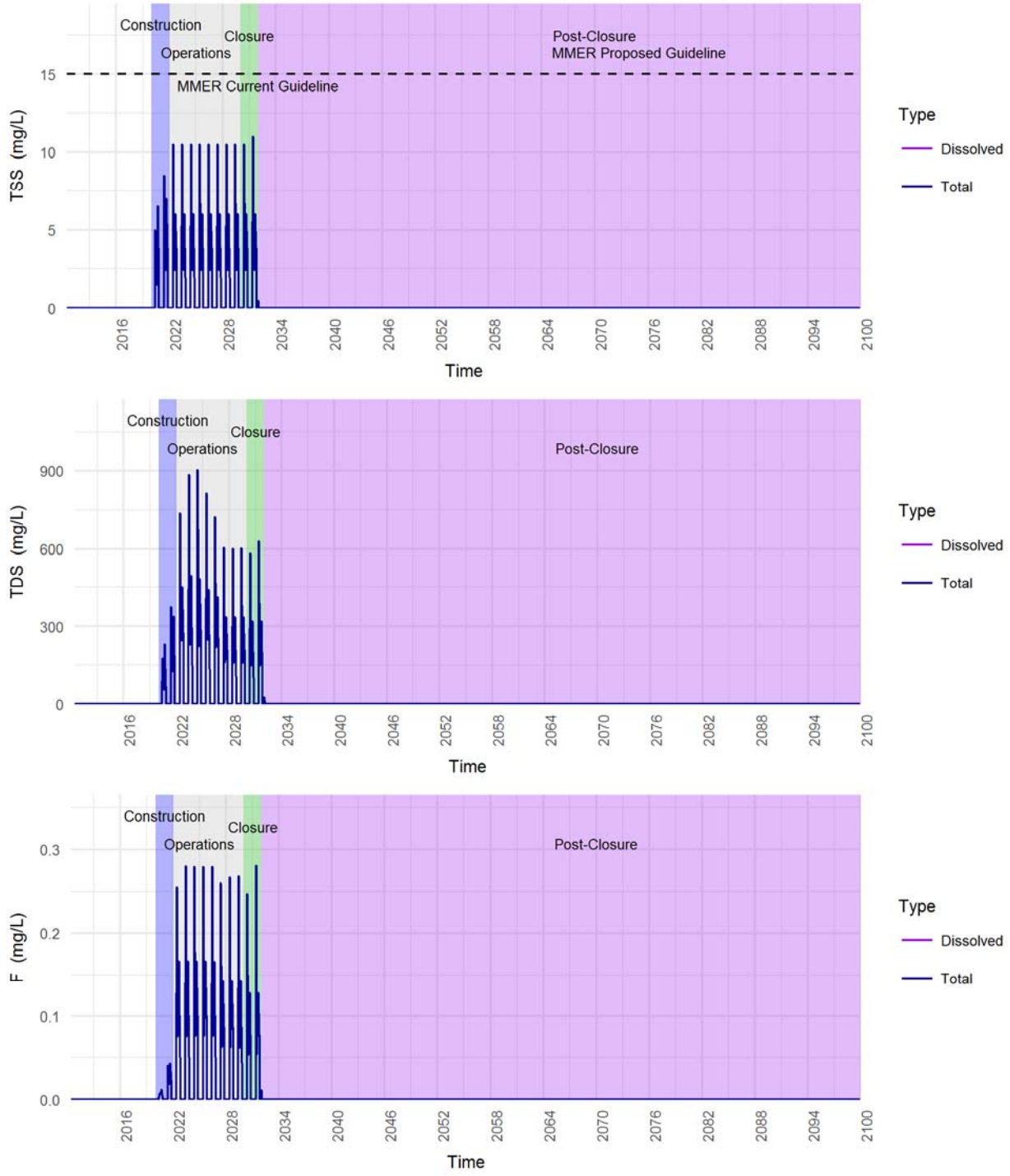

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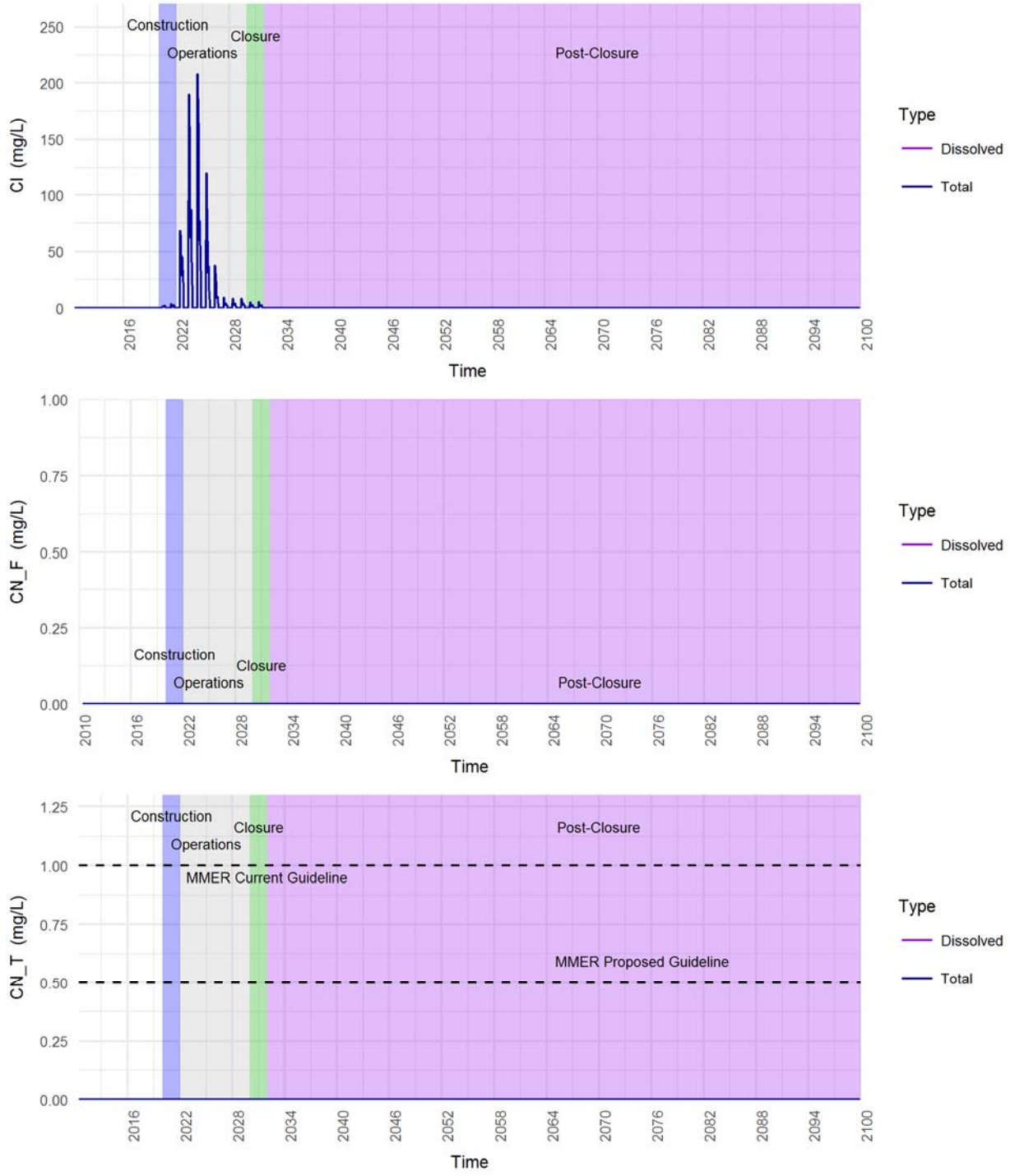

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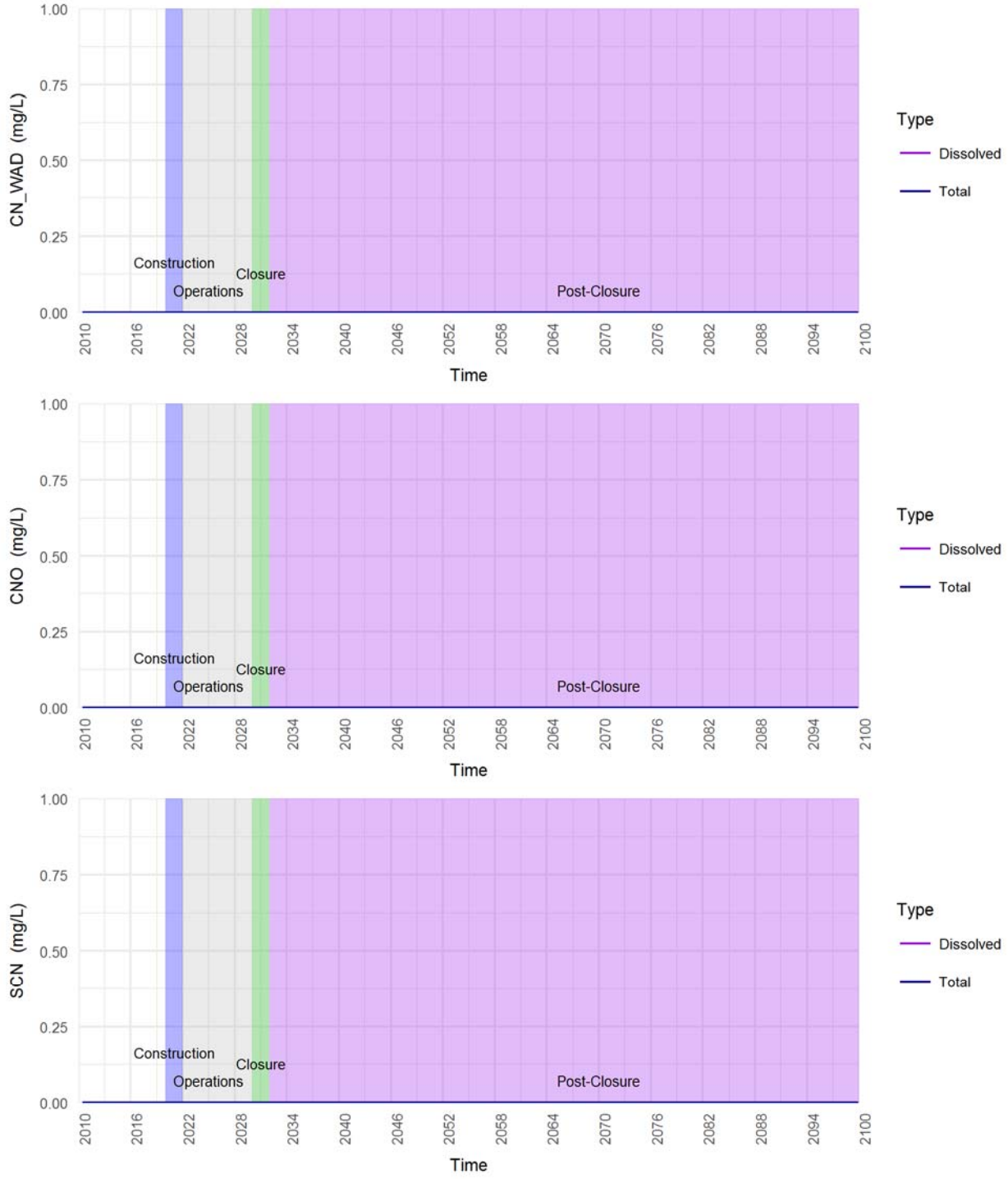

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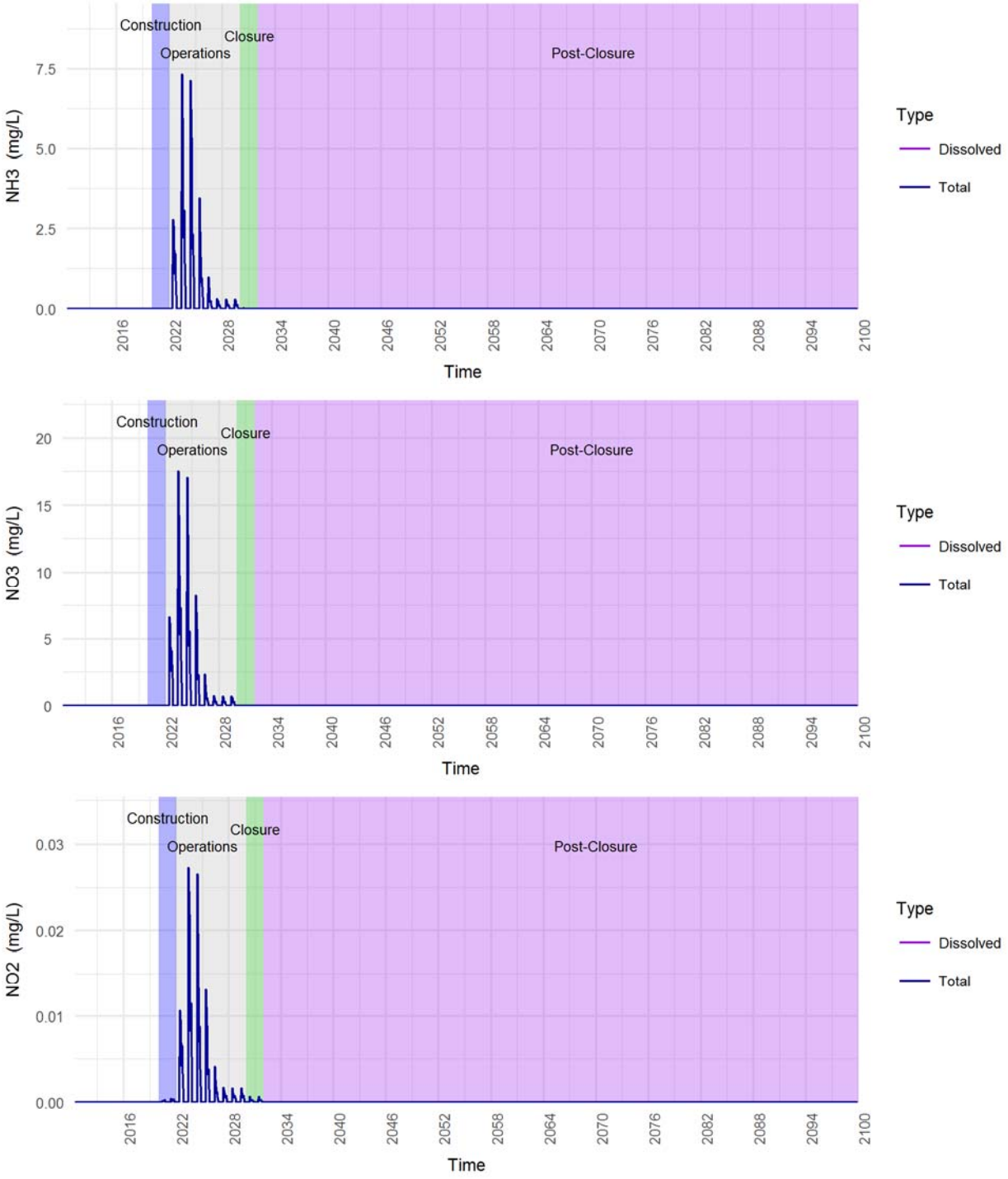

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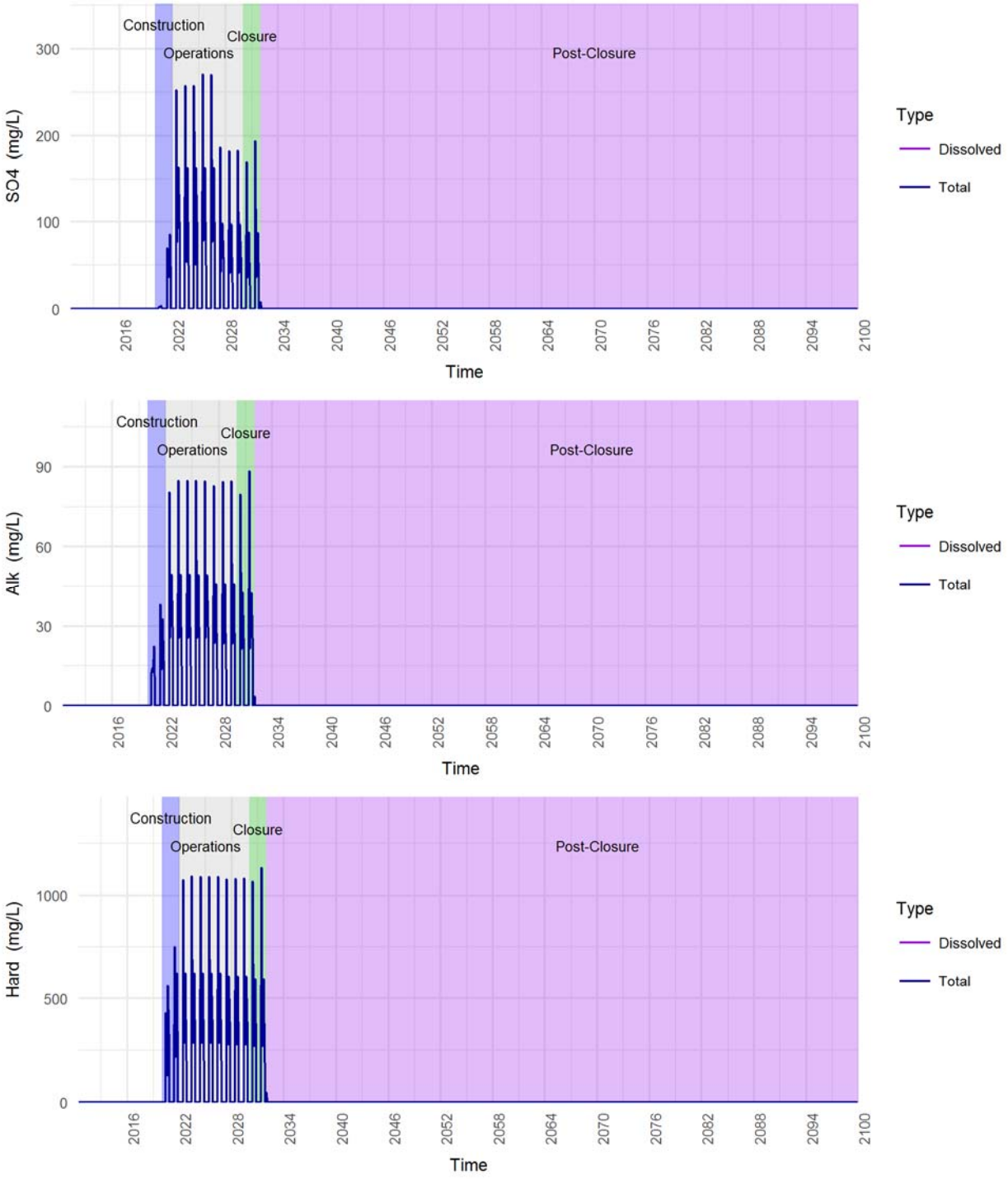

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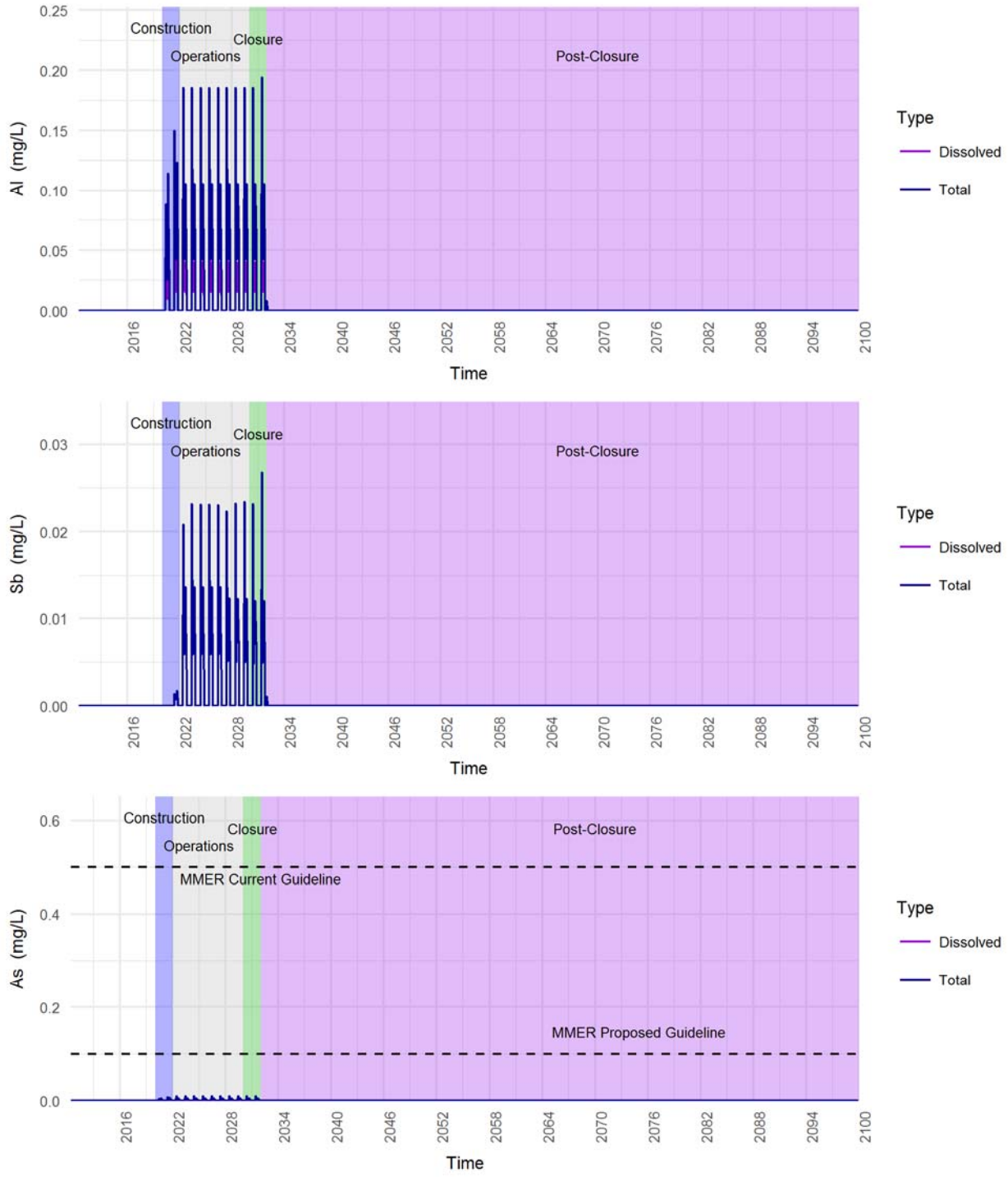

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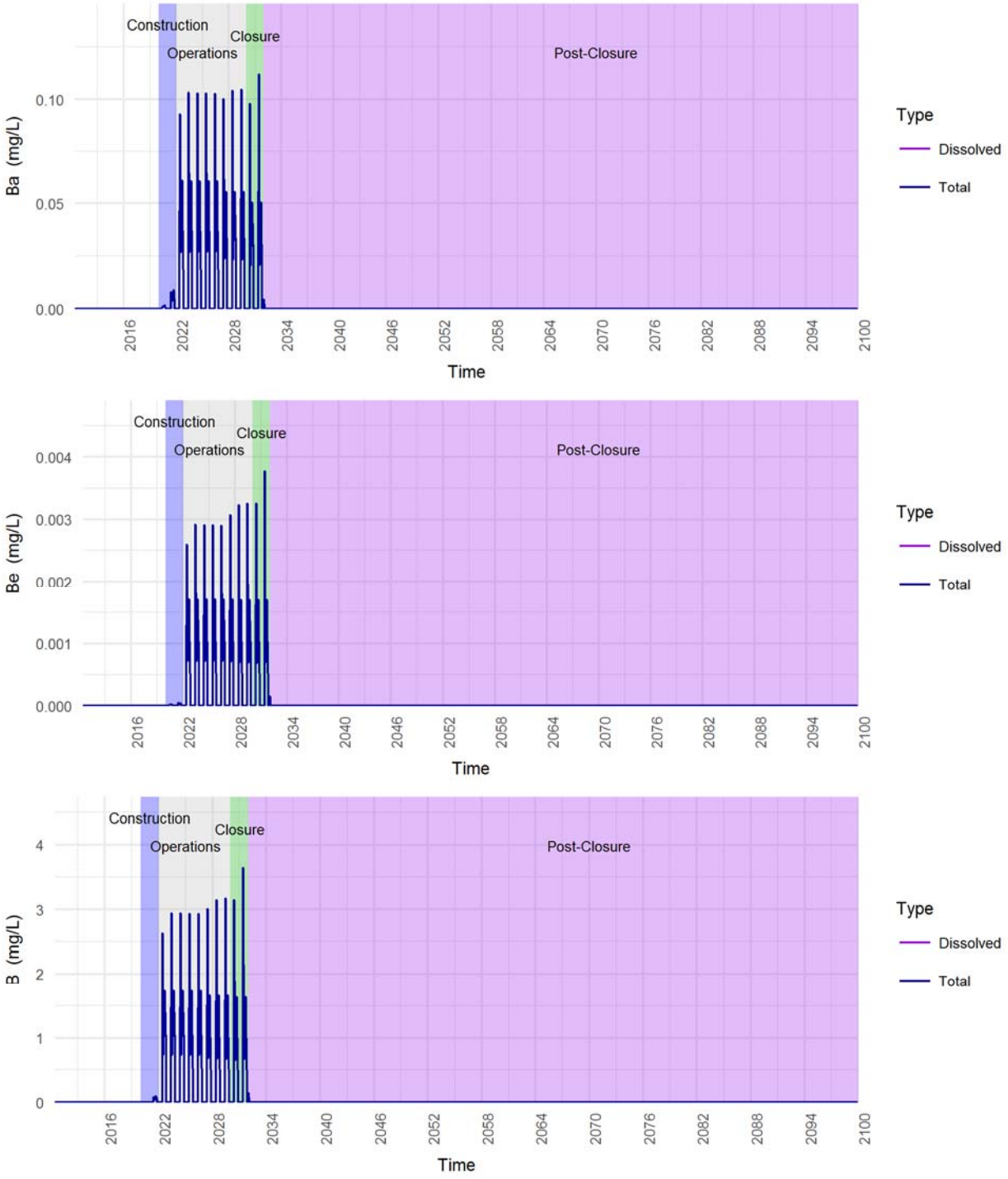

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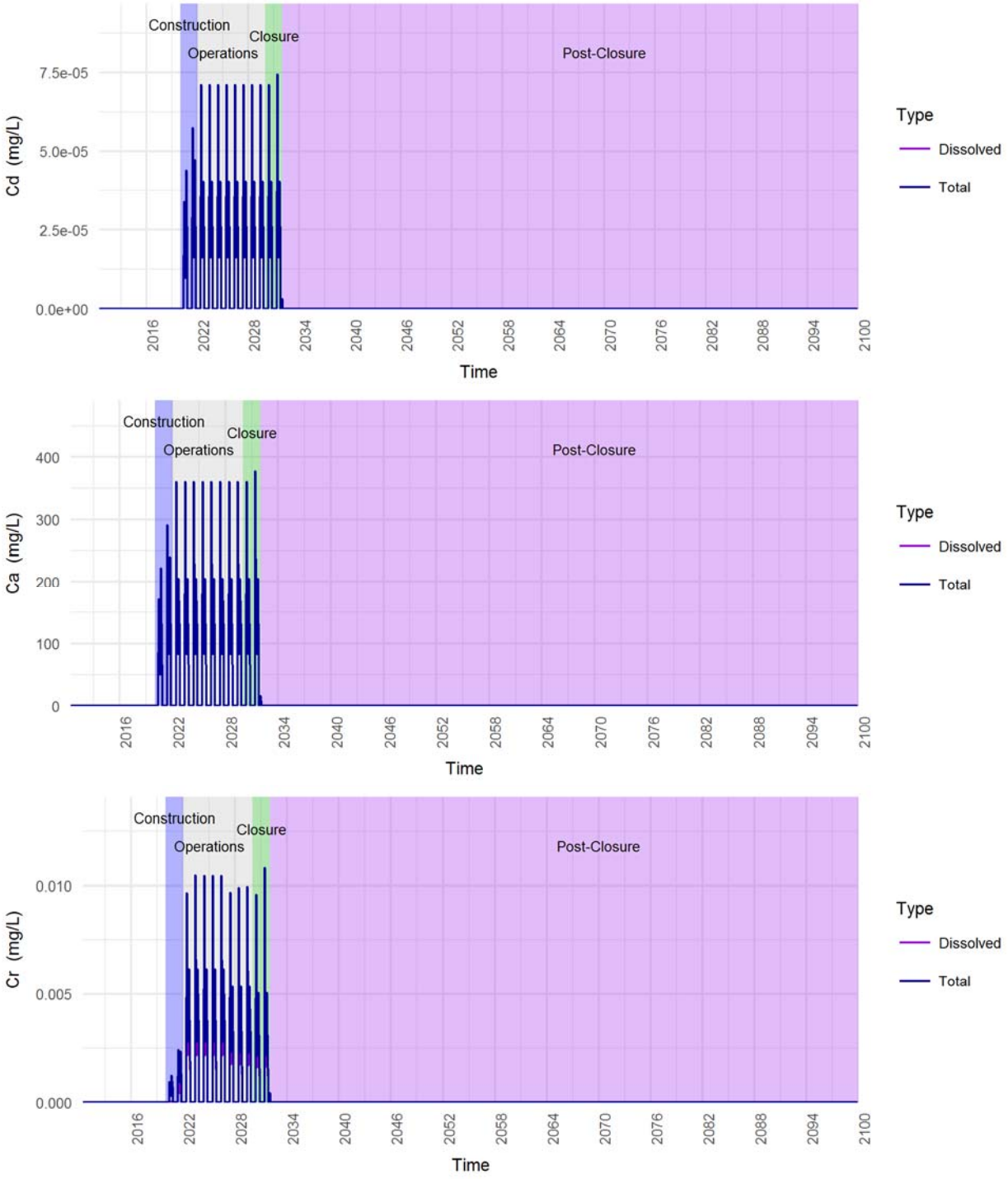

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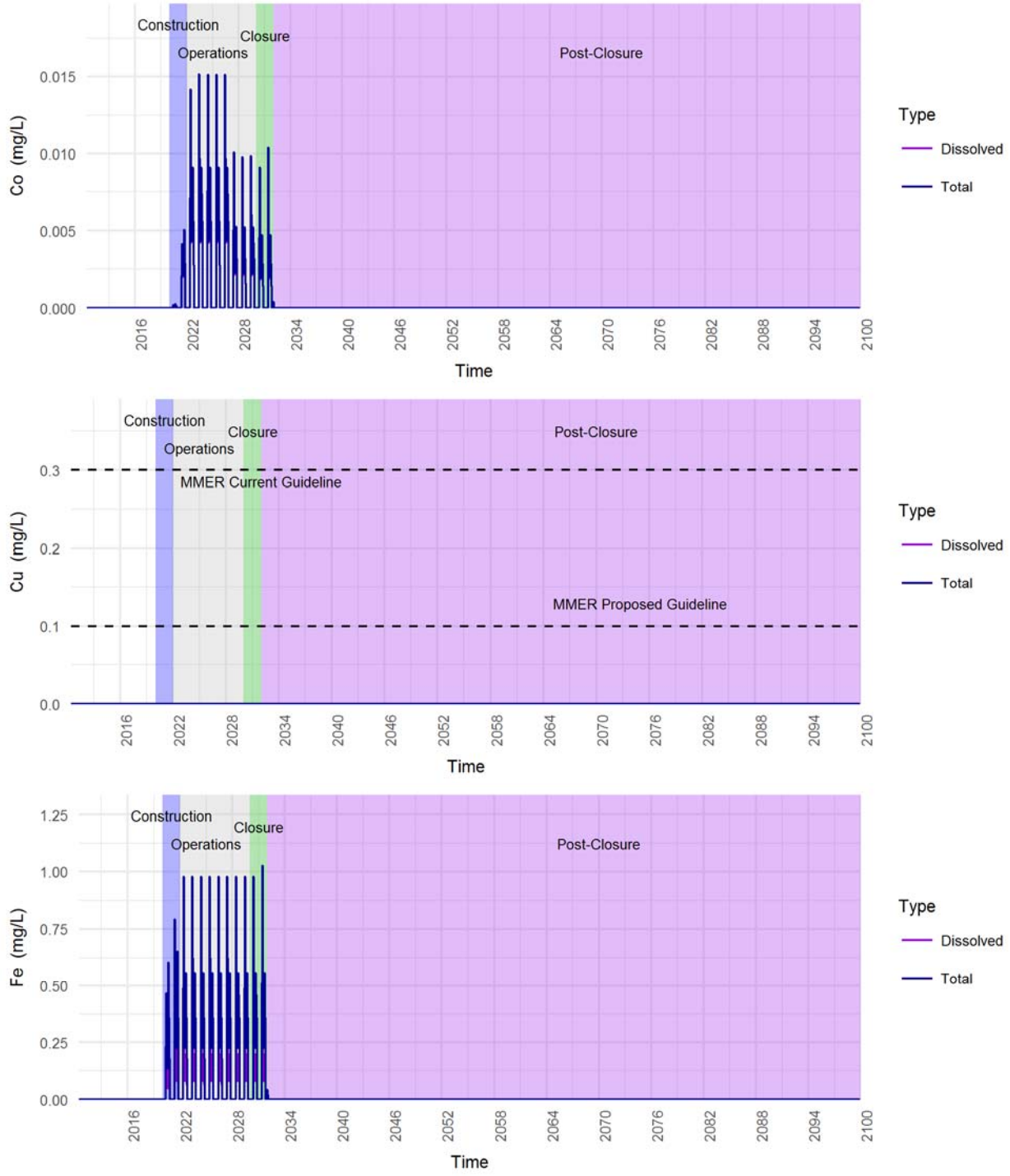

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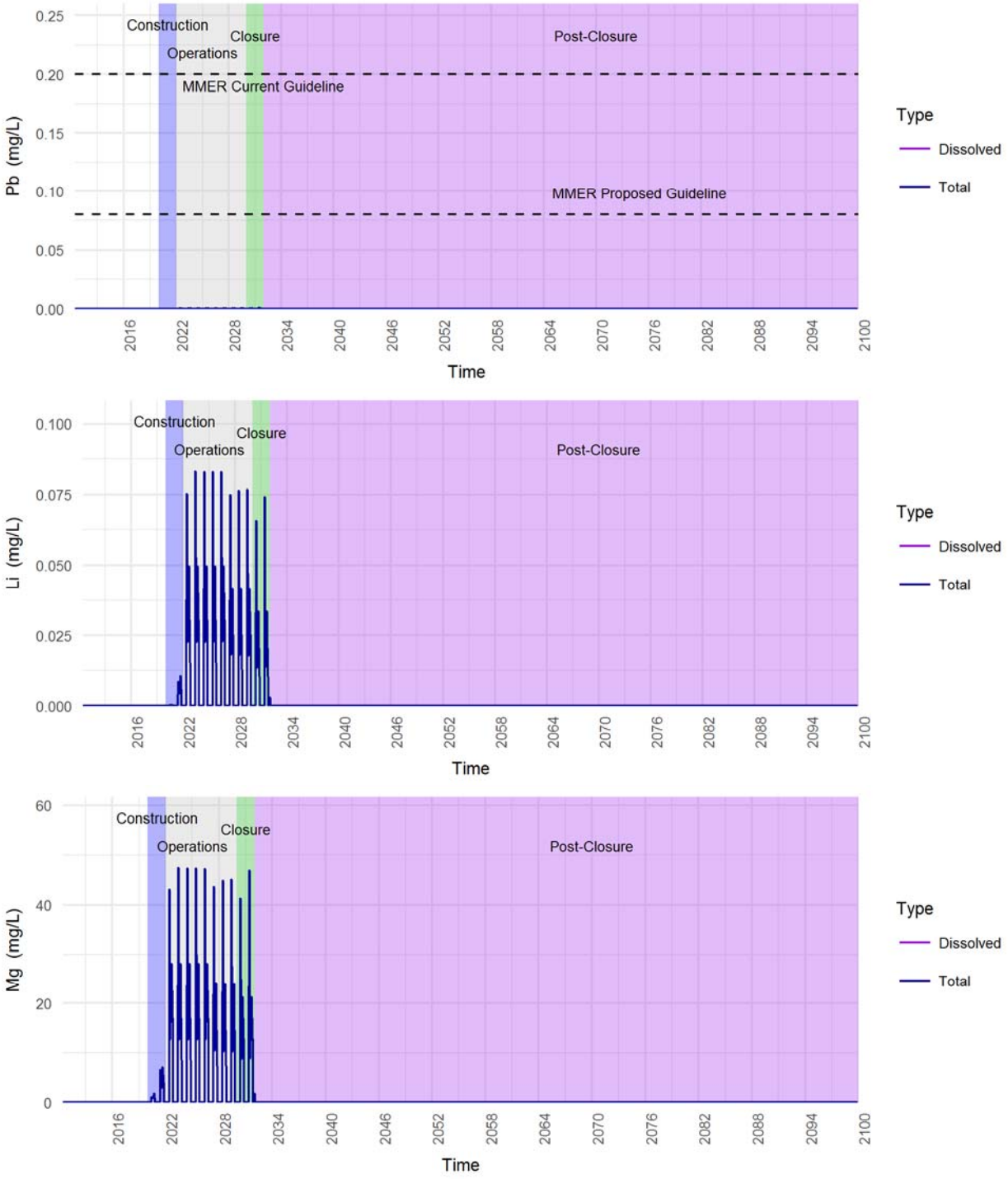

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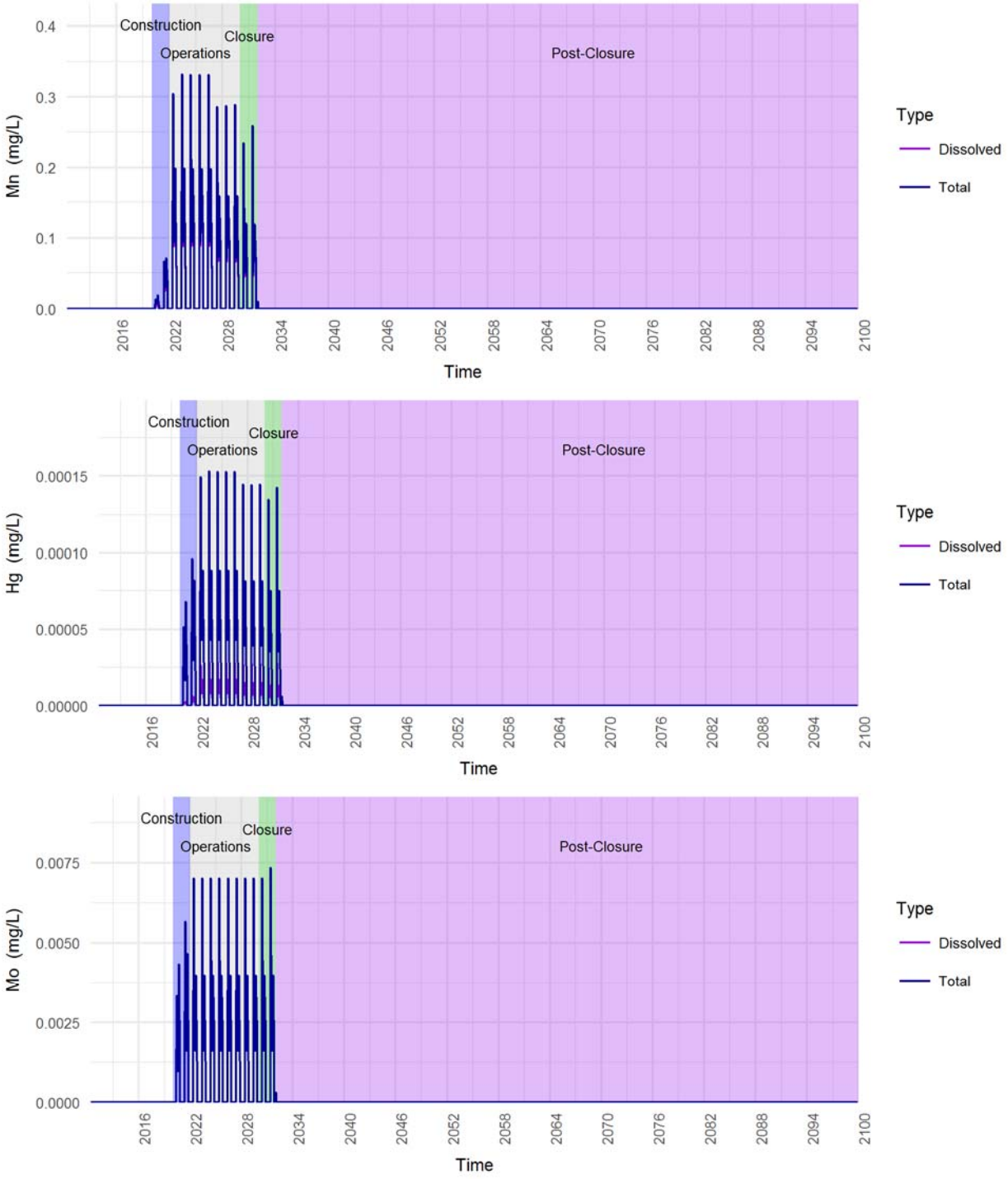

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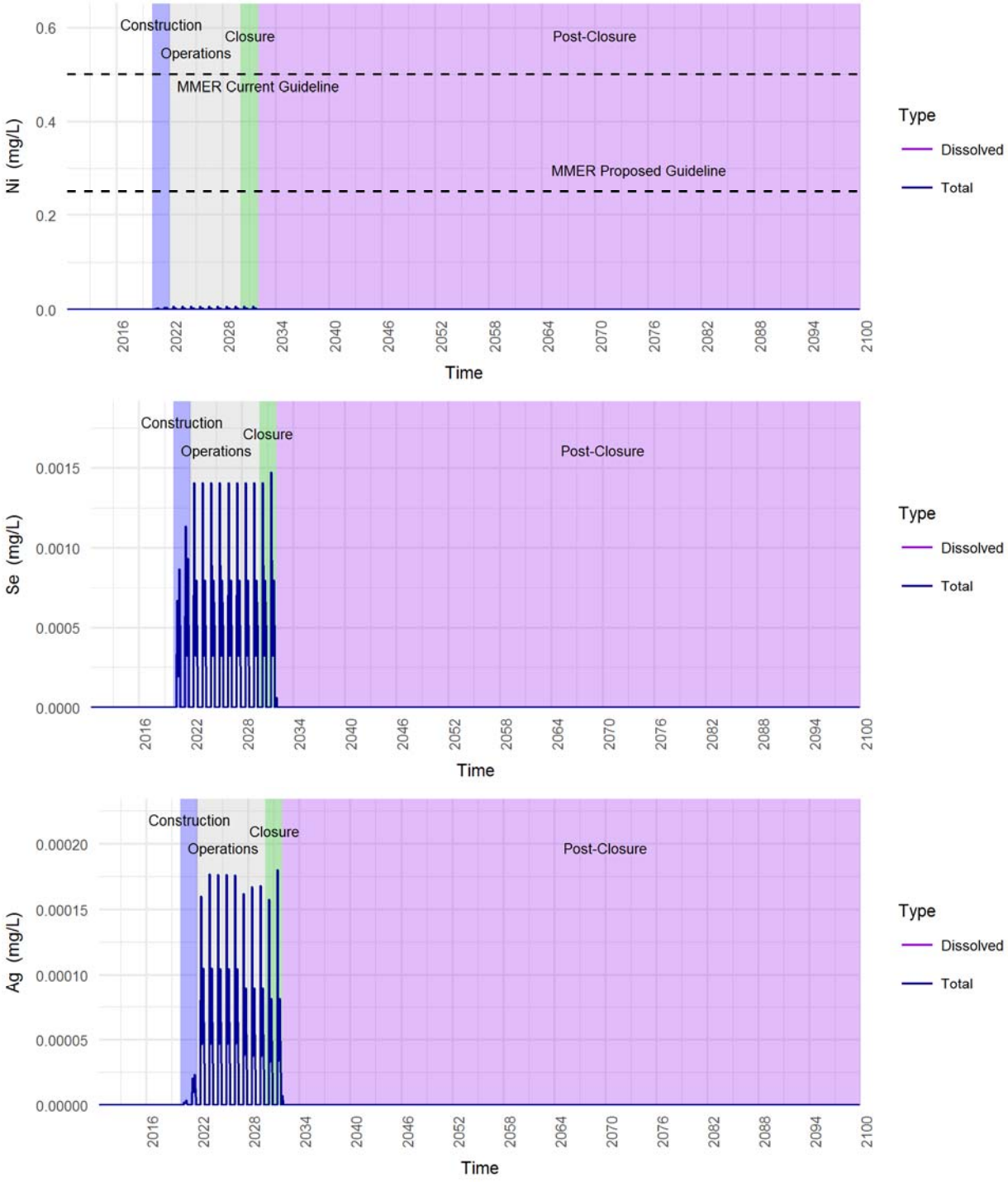

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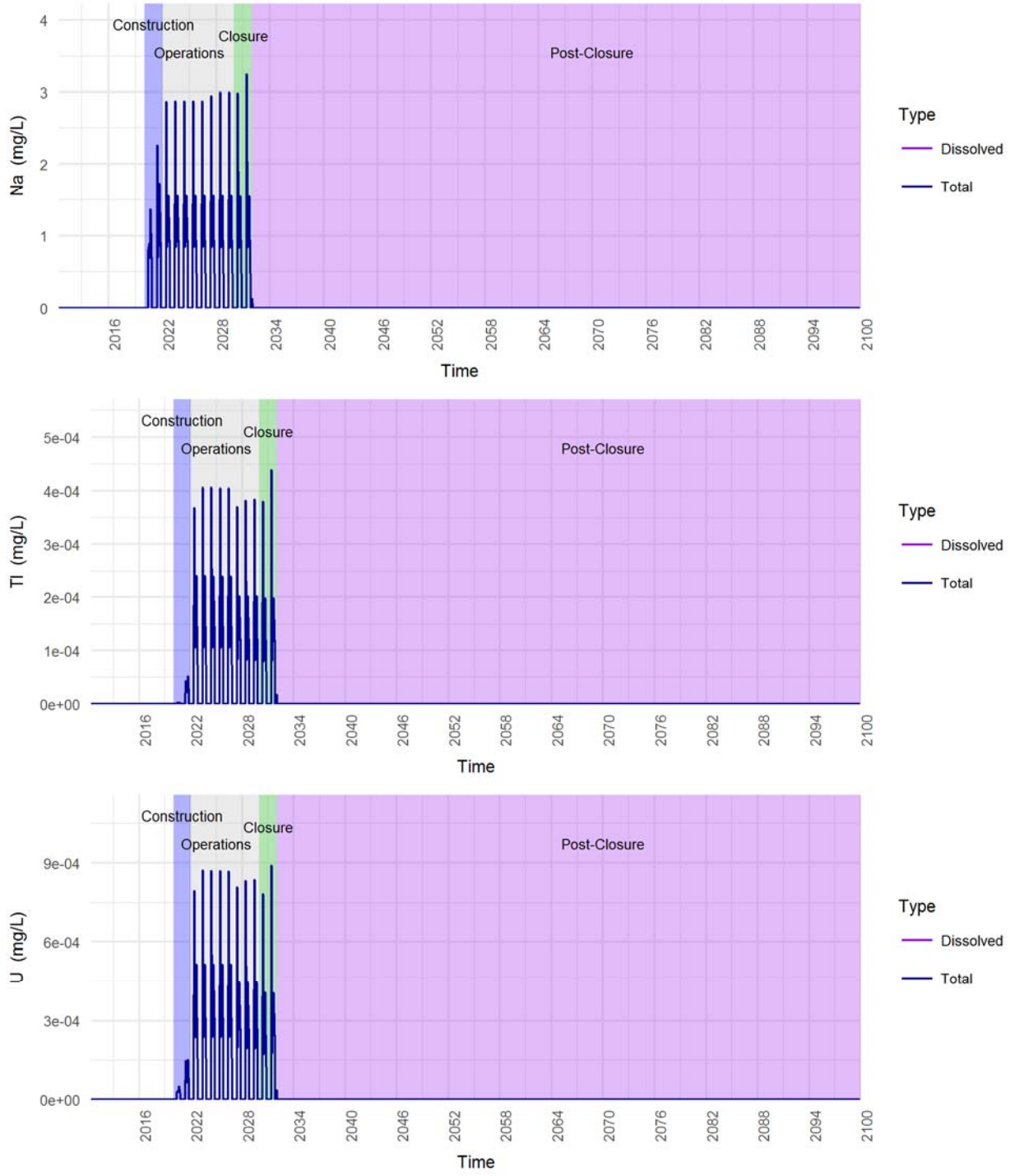

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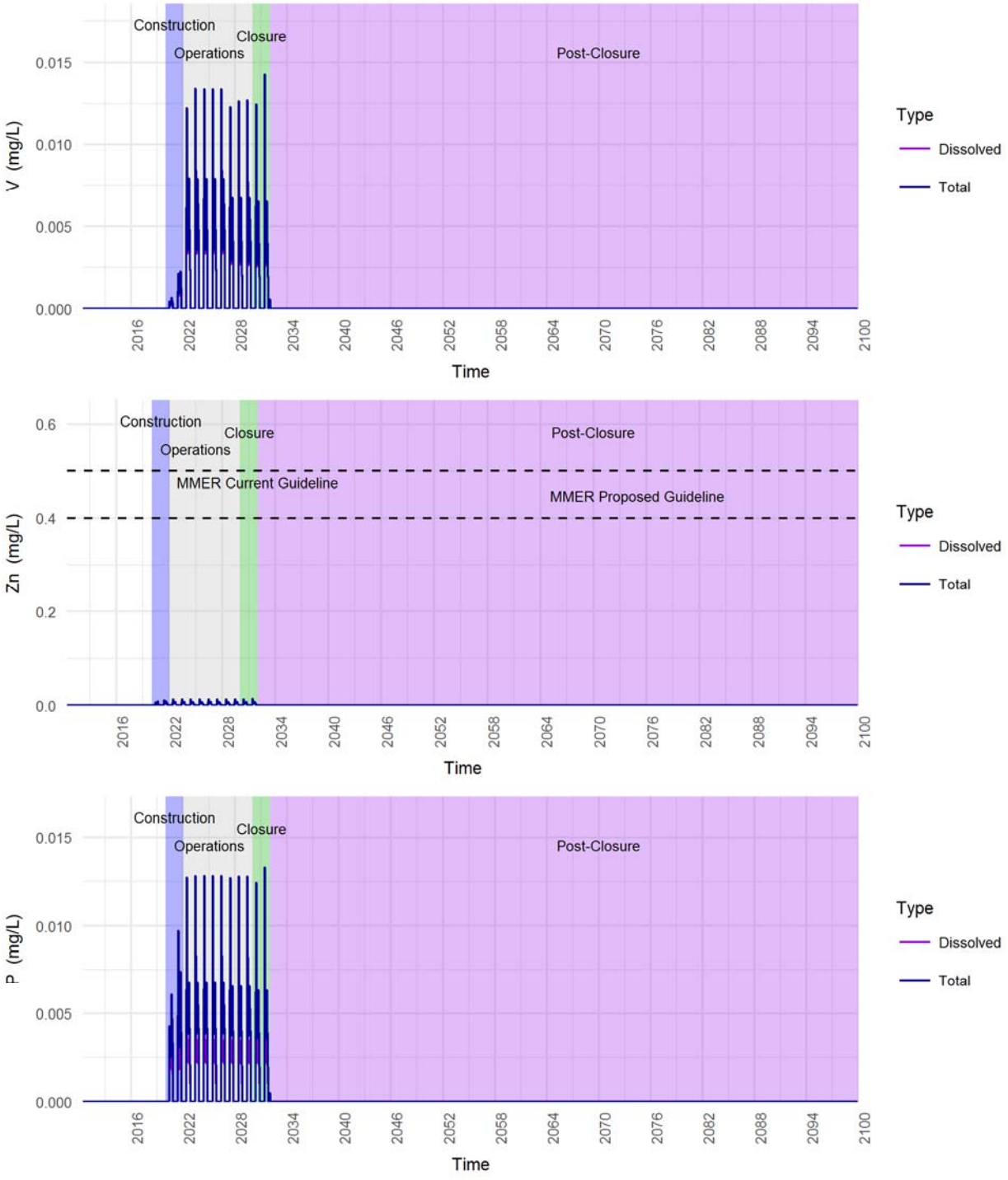

Boston TMA Post-closure Flow

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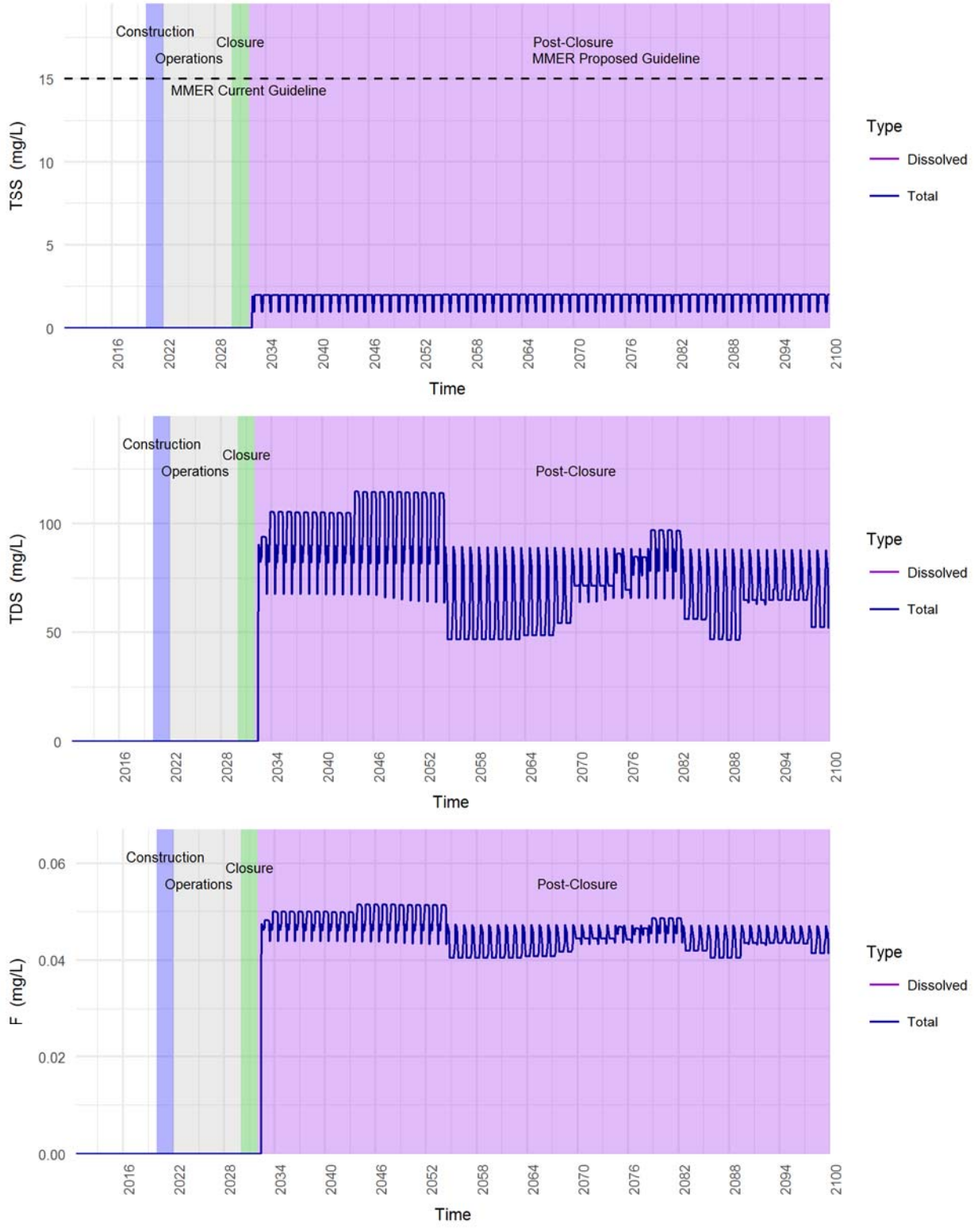

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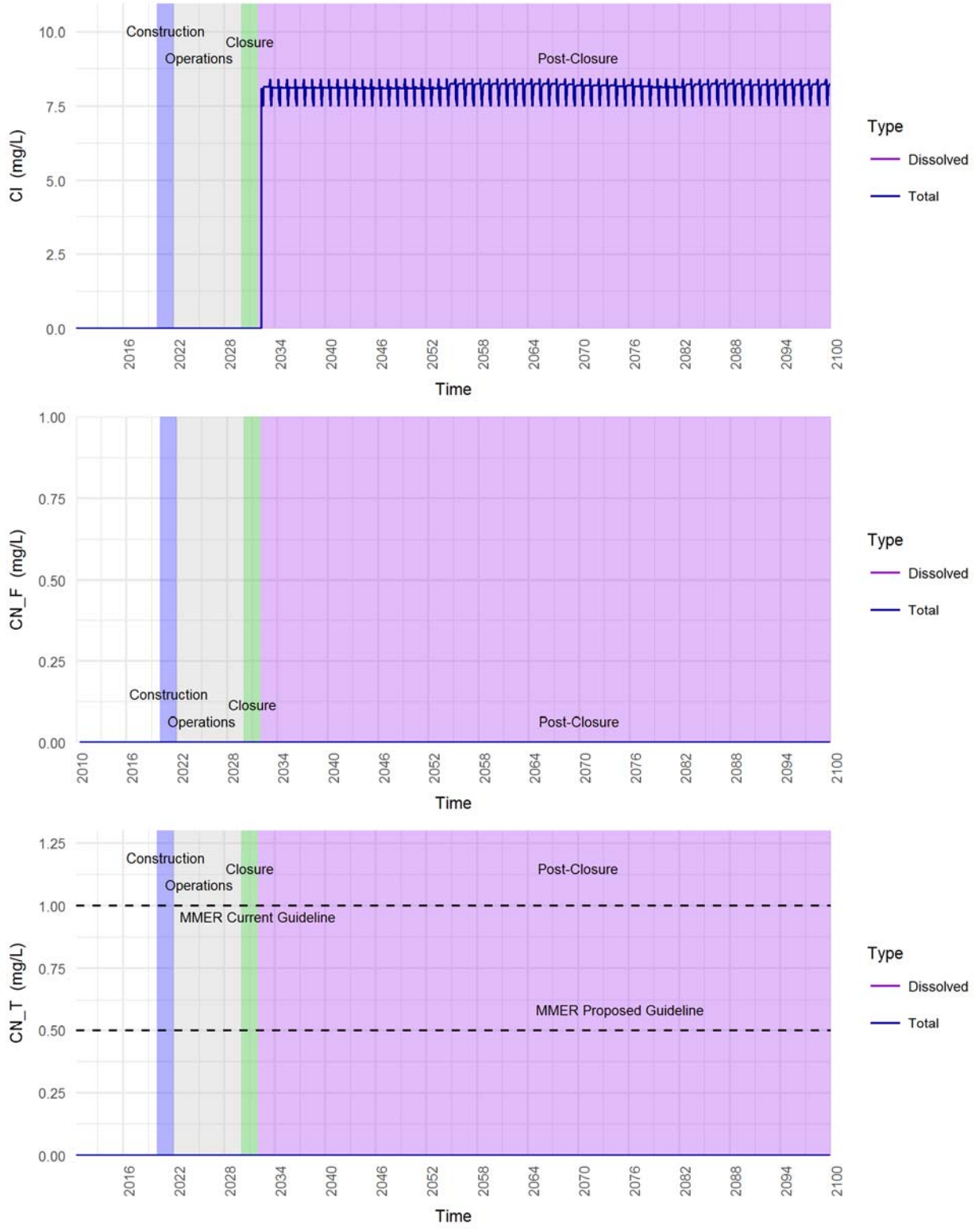

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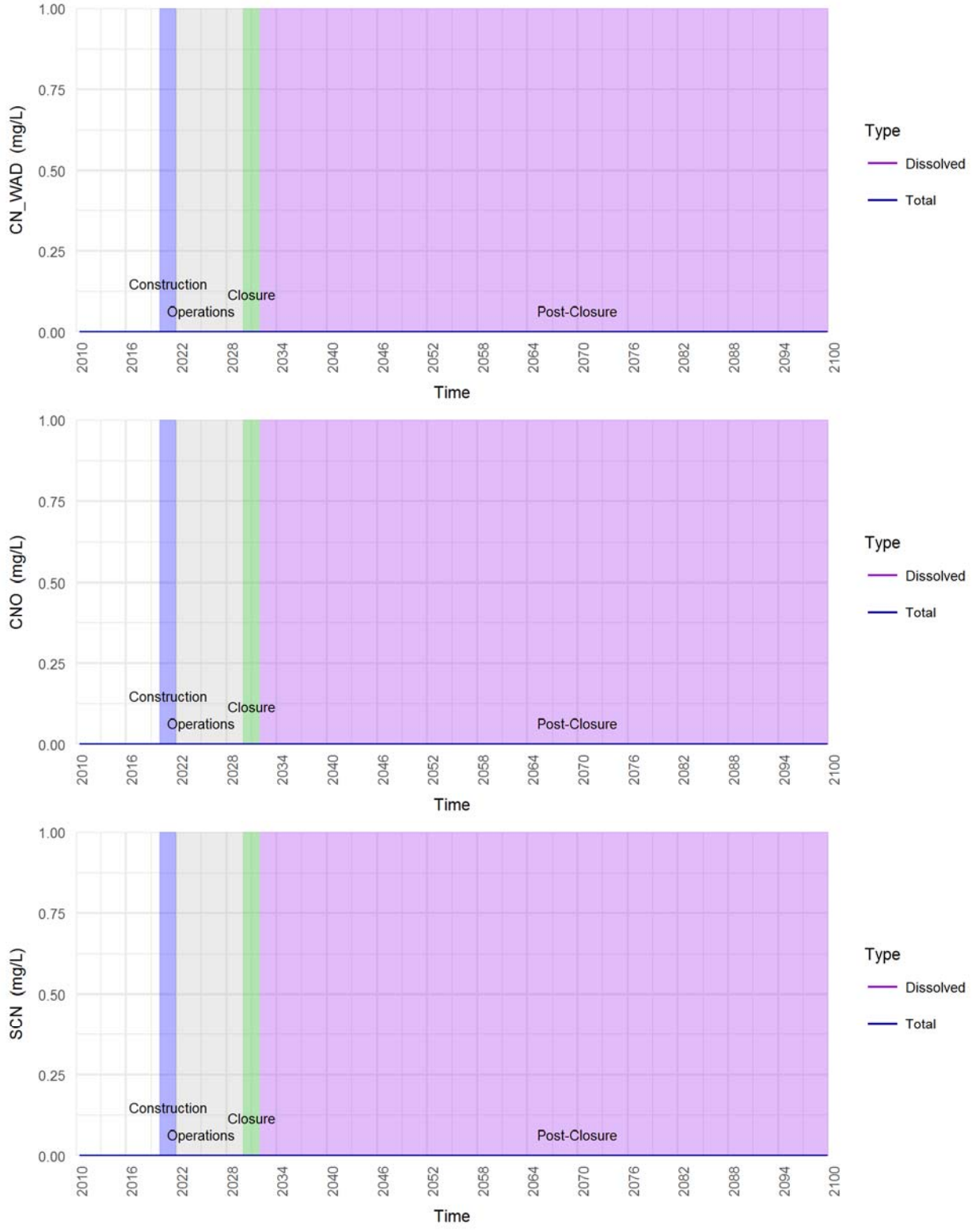

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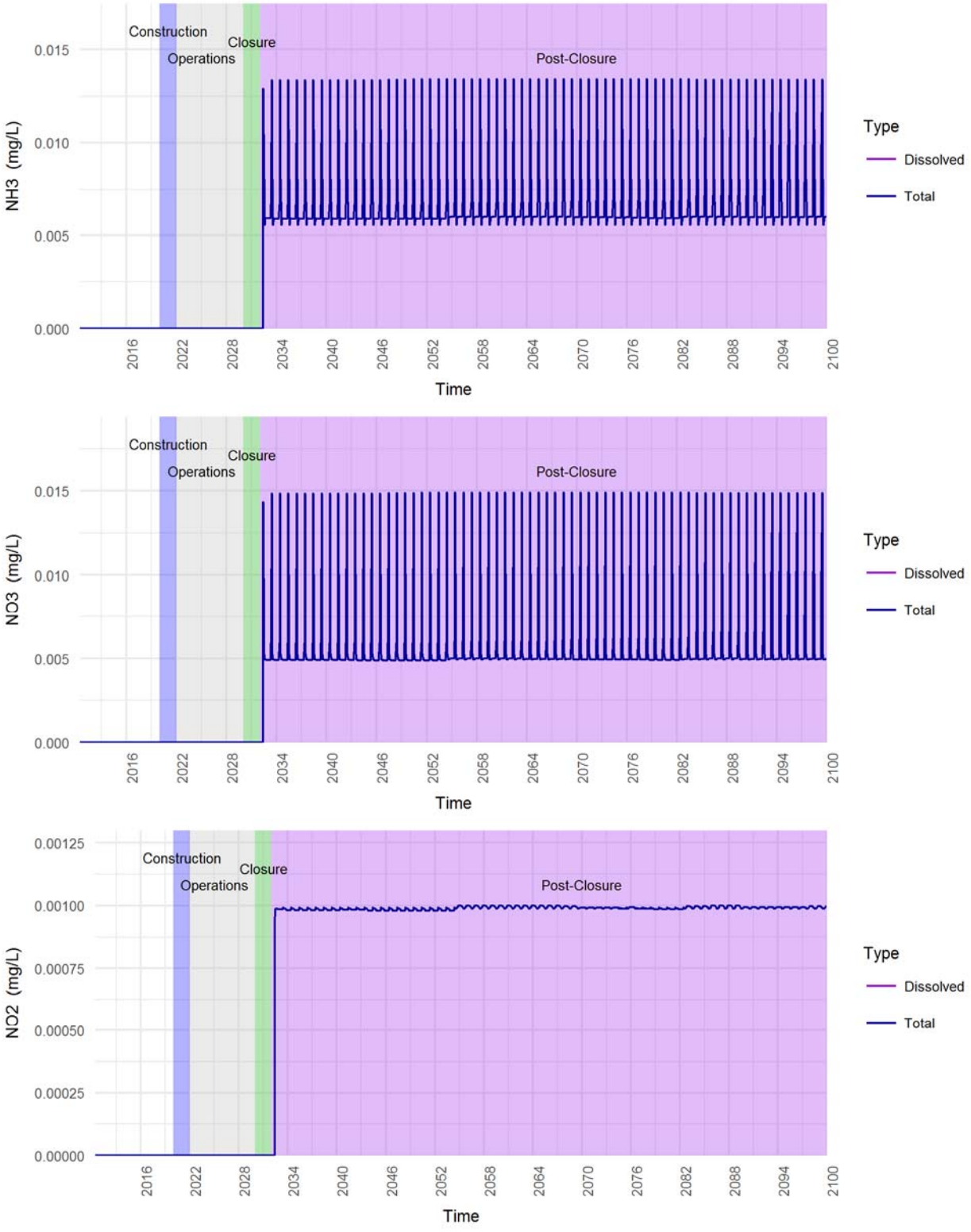

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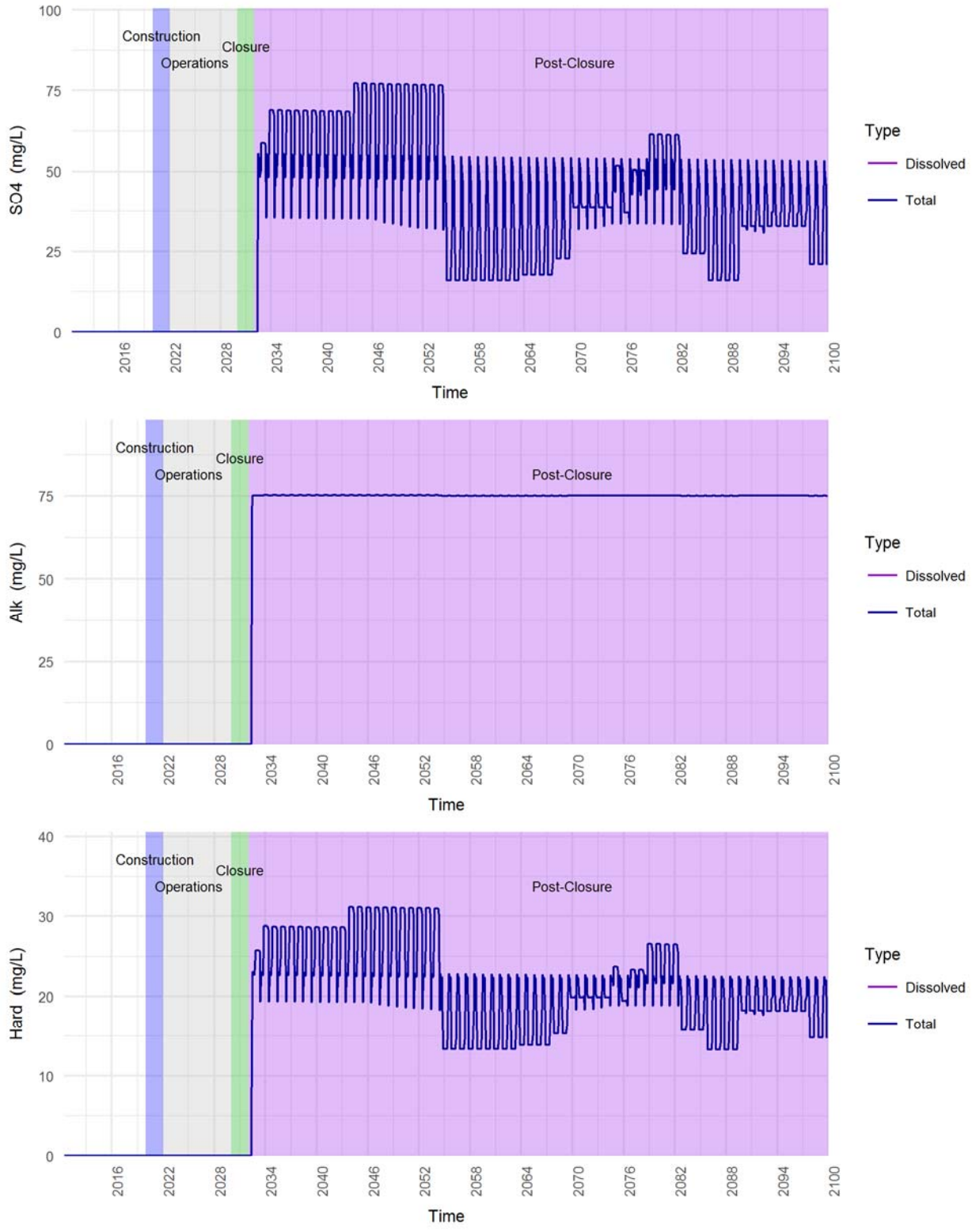

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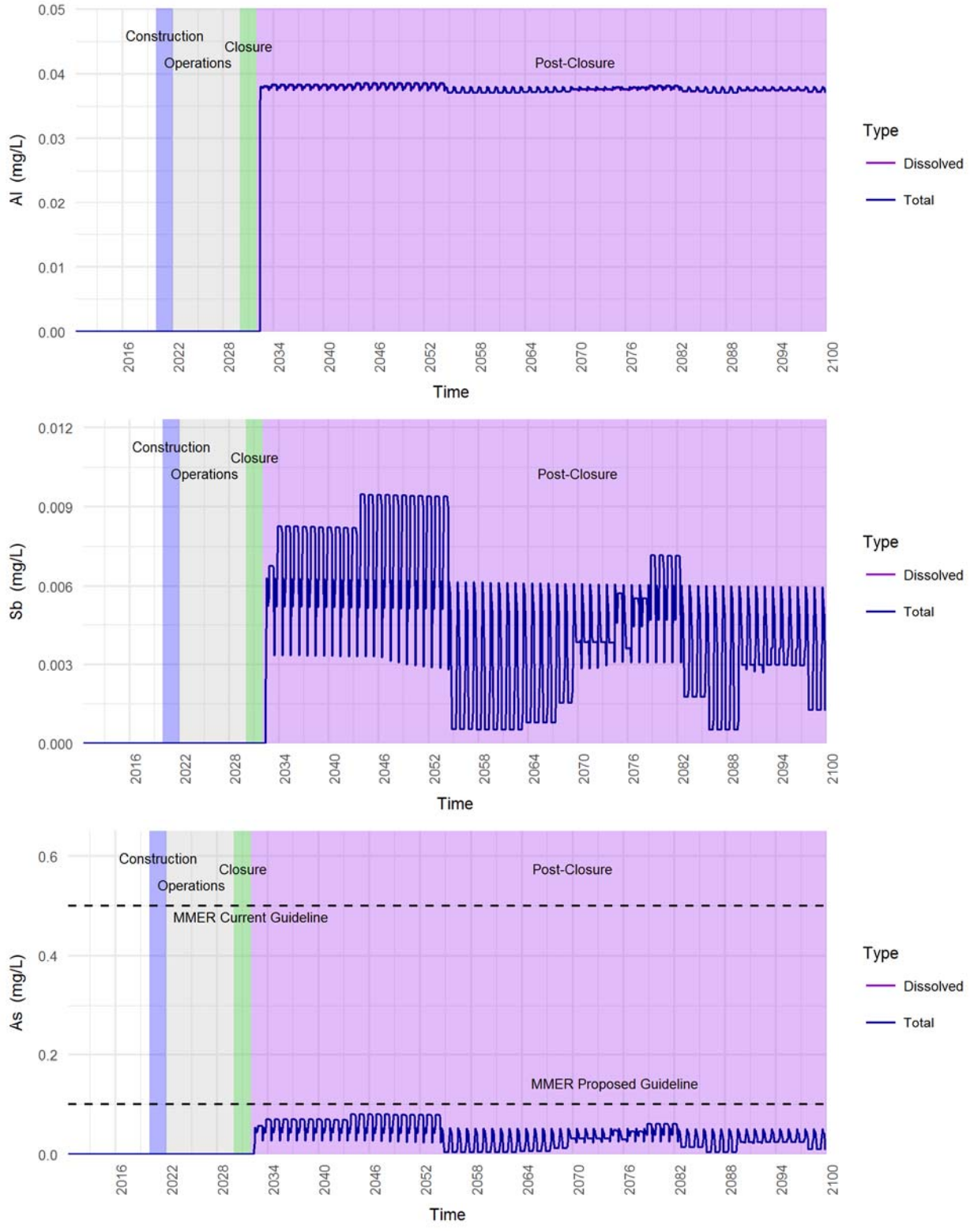

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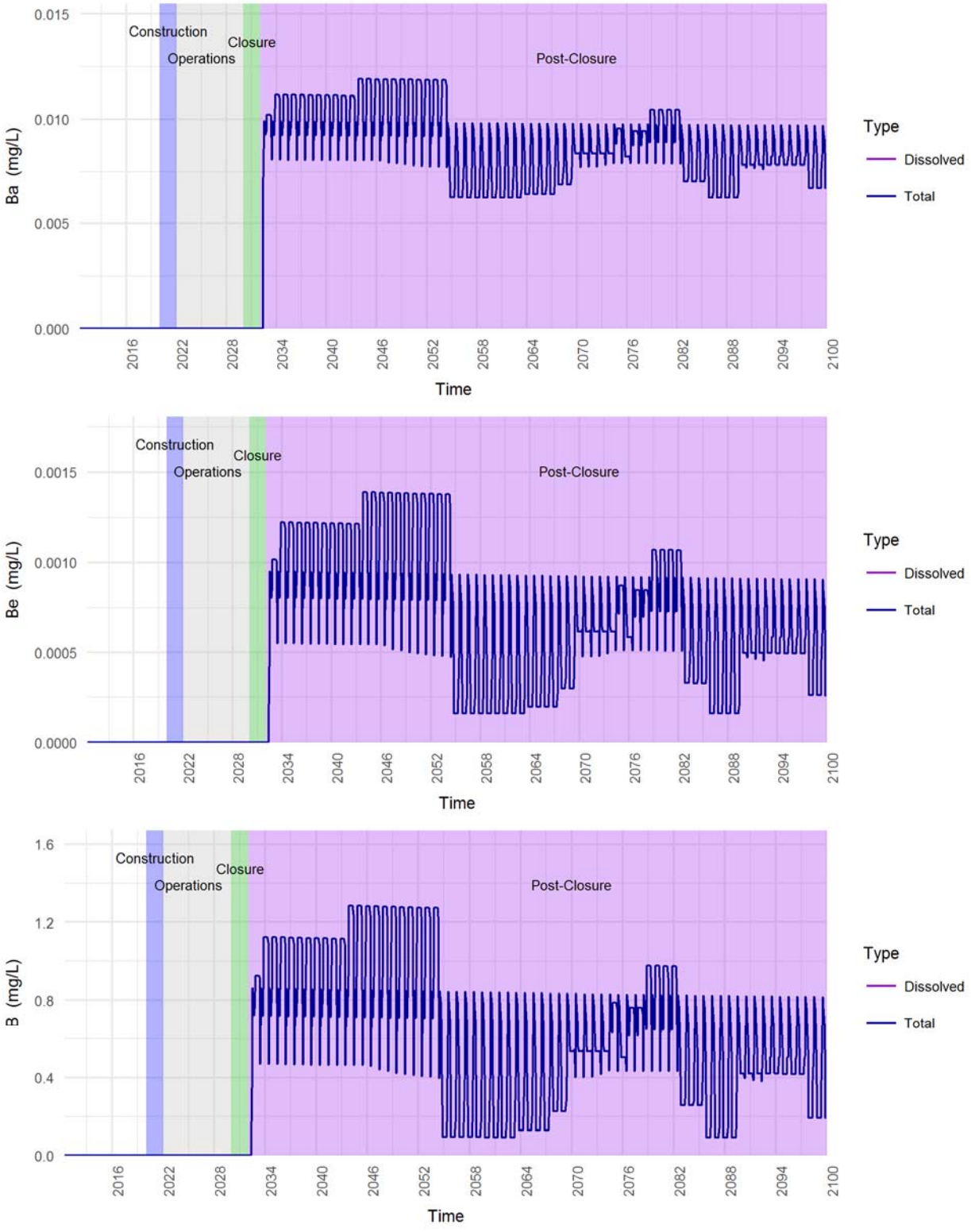

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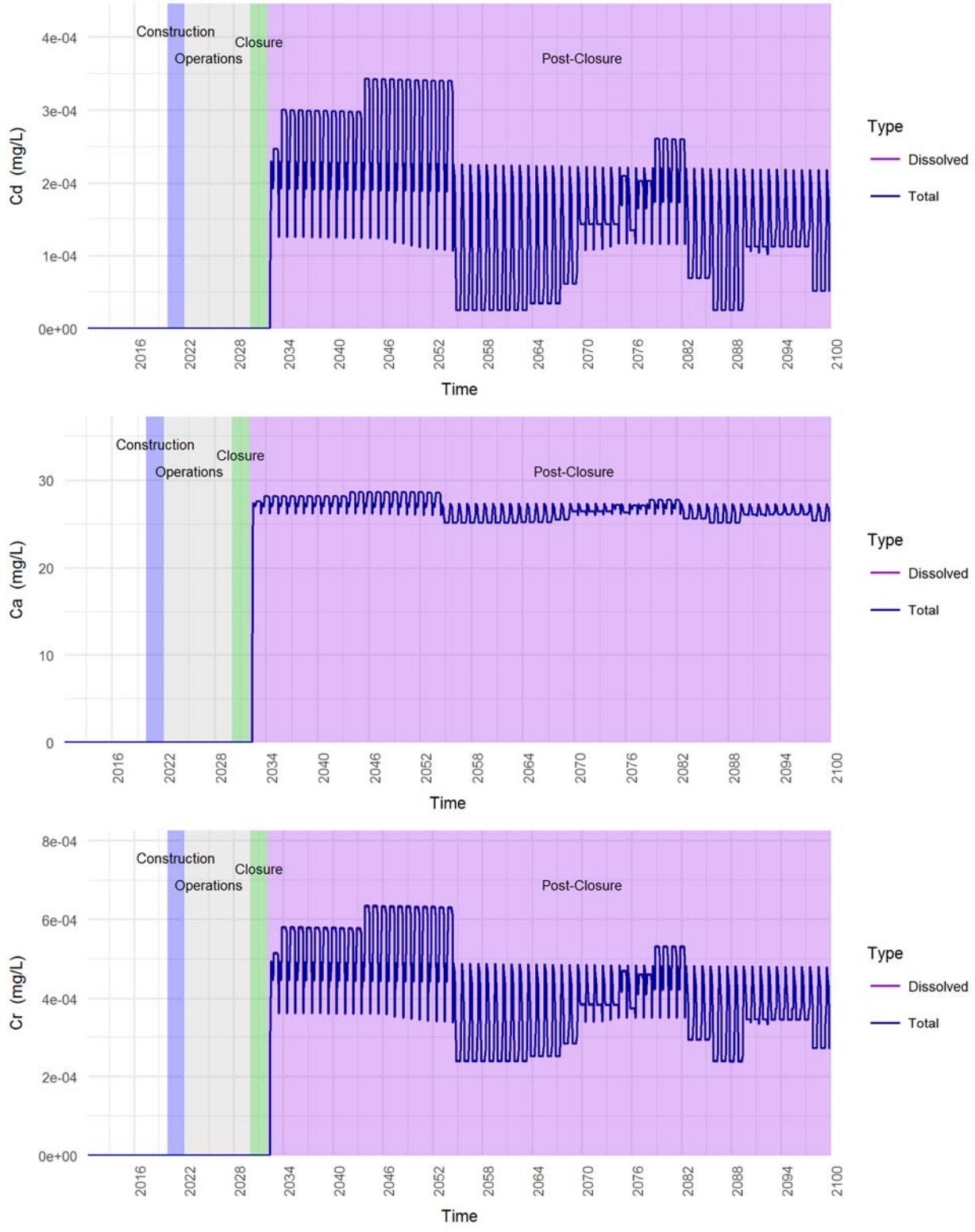

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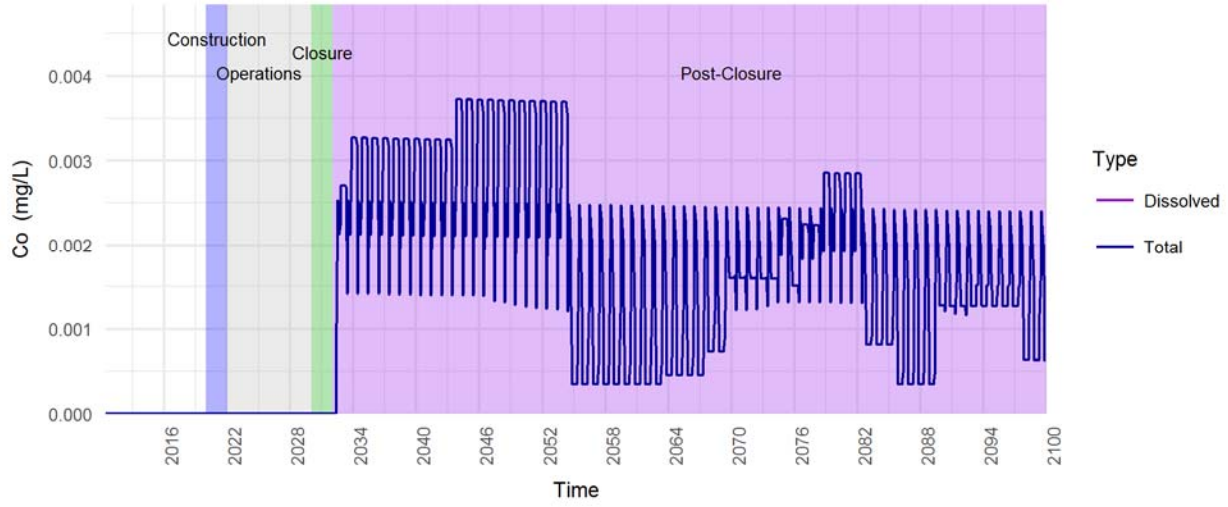

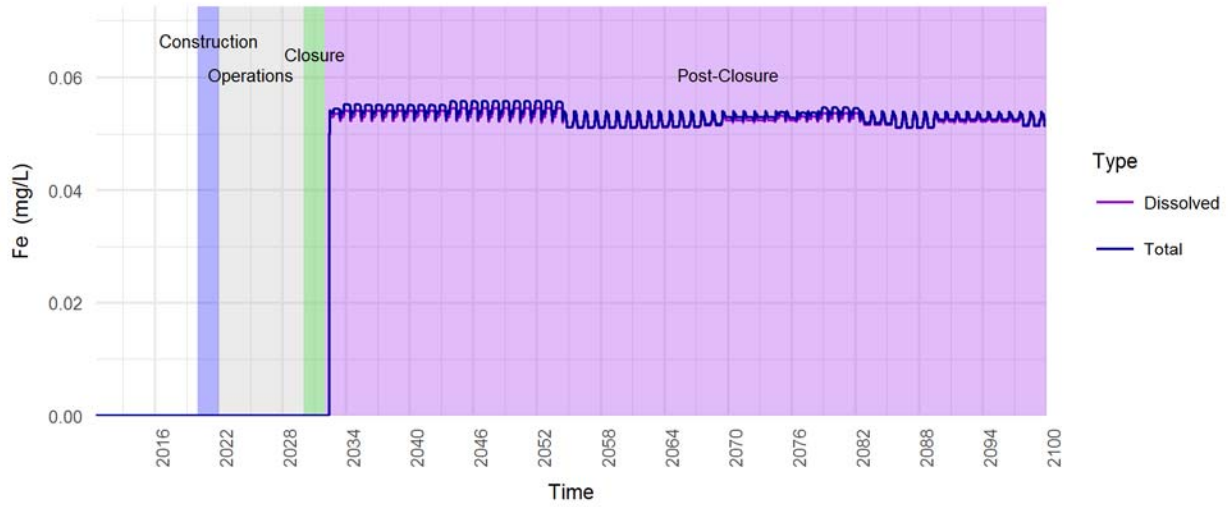

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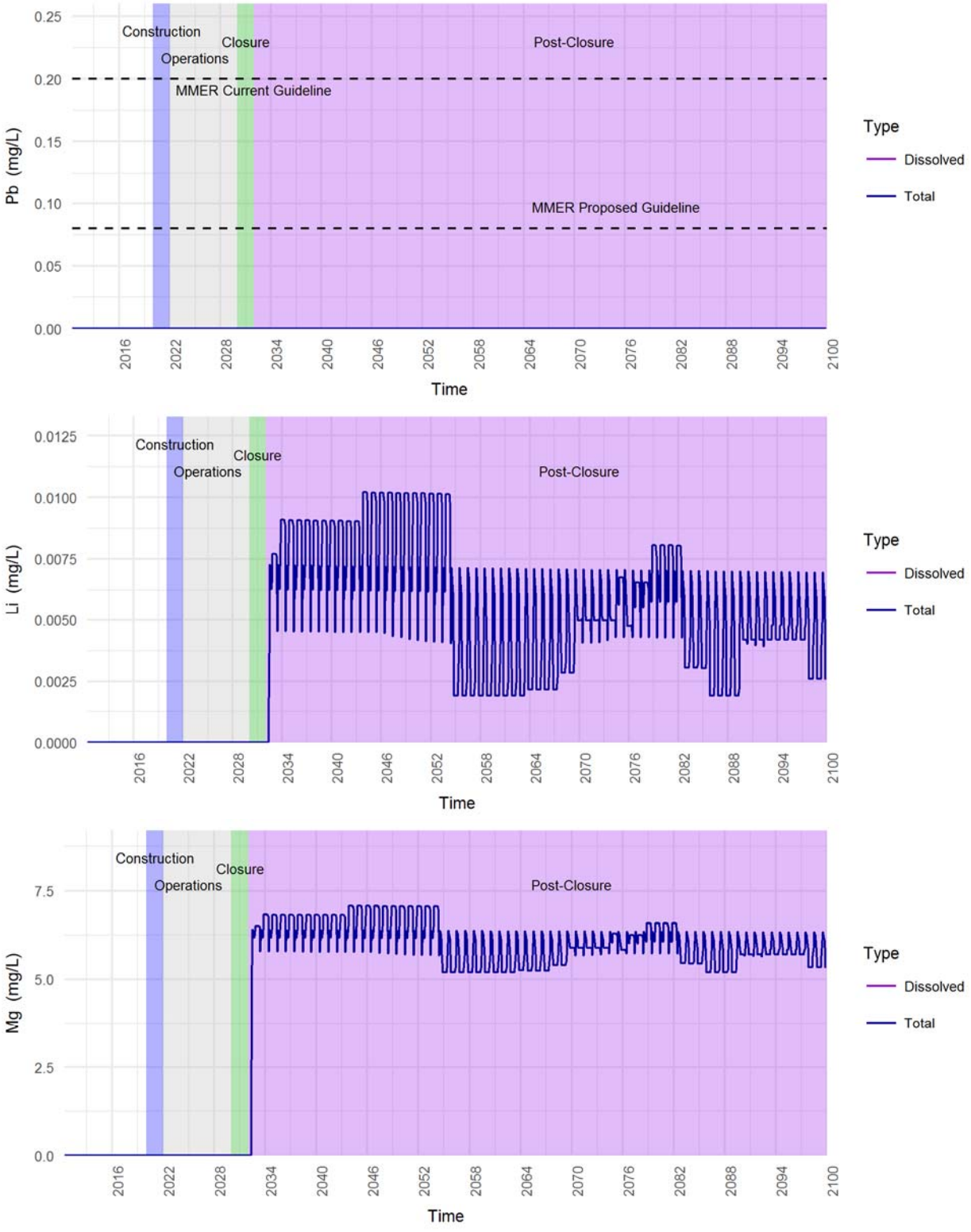

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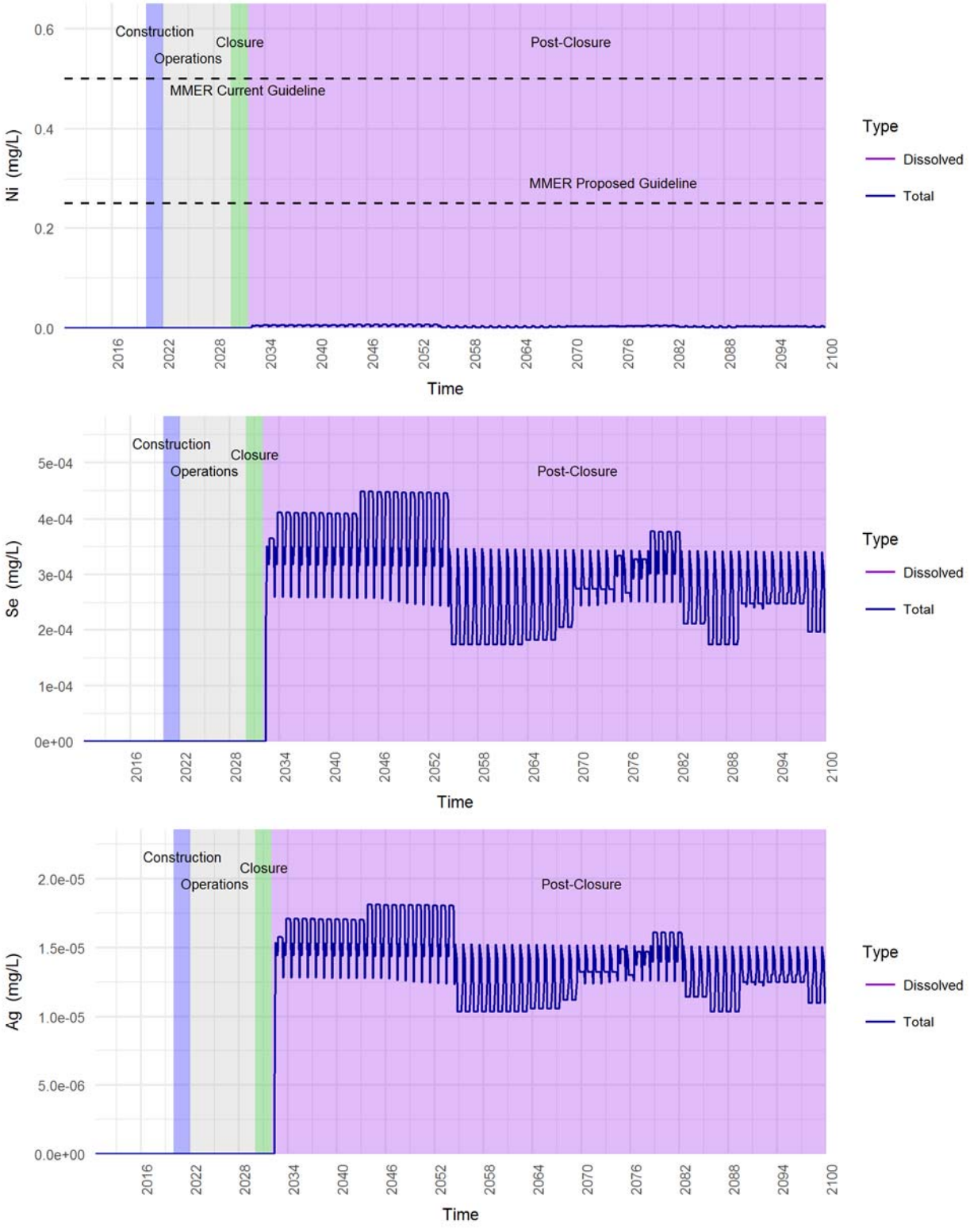

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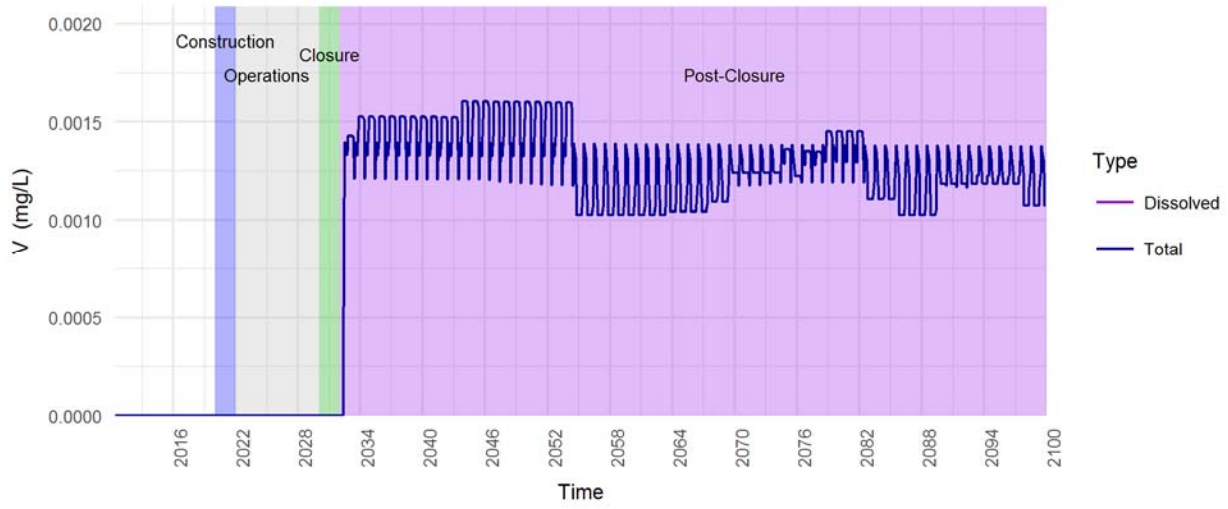
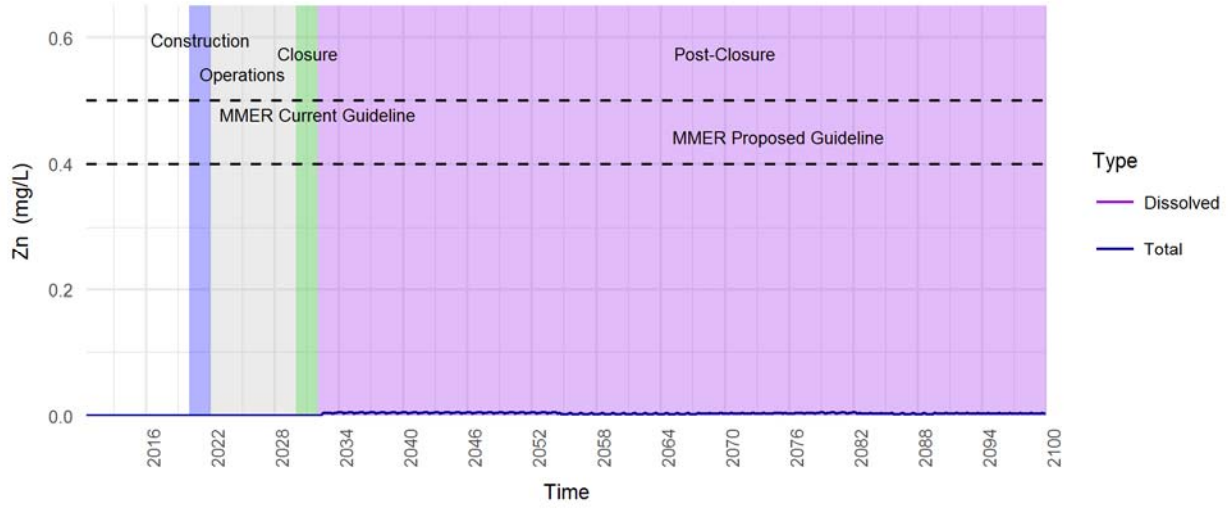
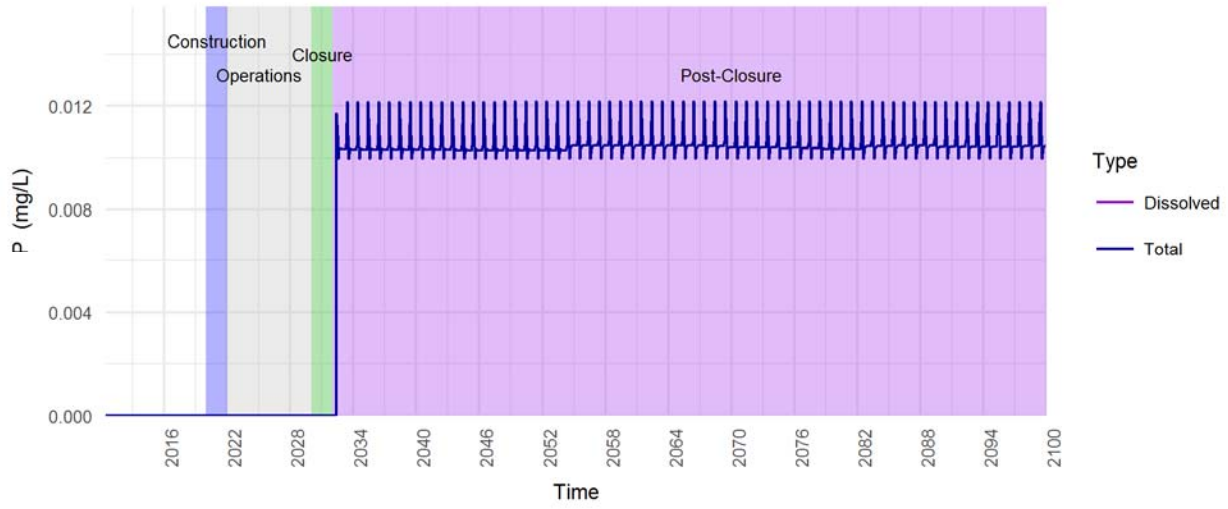


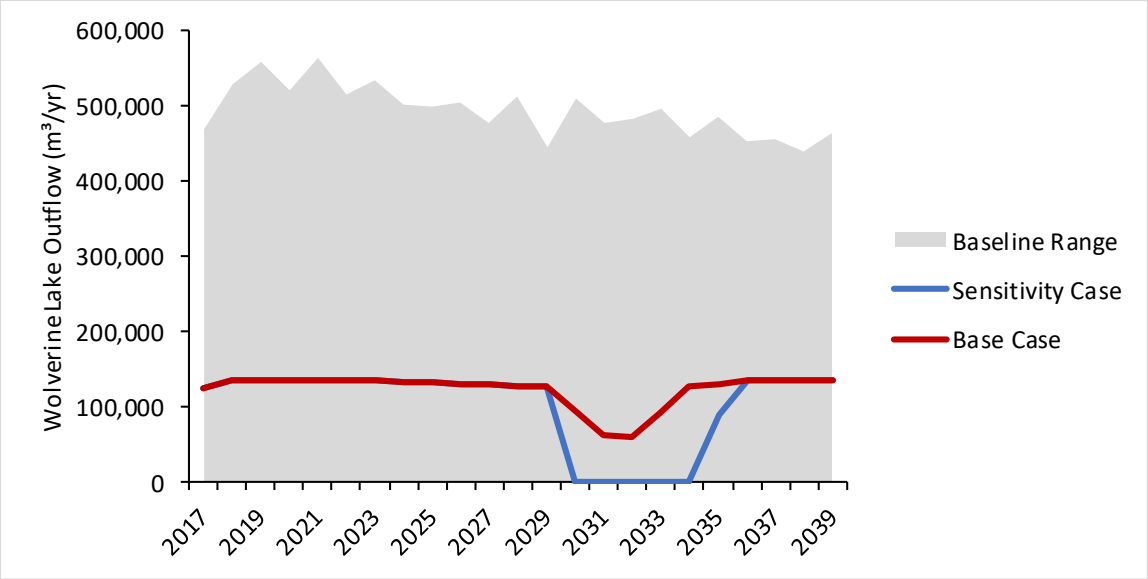




Appendix D: Higher Groundwater Inflows to the Madrid Mine Sensitivity Results

Appendix D1: Results Time Series for Flows

Doris Watershed



\\VAN-SVR0\Projects\01_SITES\Hope.Bay\1CT022.013_Phase_2_FEIS_Water_Licence_Submission\!080_Deliverables\Water & Load Balance\020_Tables\HopeBay_WBReport_HFGWTables_1CT022-013_R01_aw.xlsx

Figure 1: Wolverine Lake Outflow – High Groundwater Inflow Sensitivity Case Comparison

Plotted values consist of annual averages.

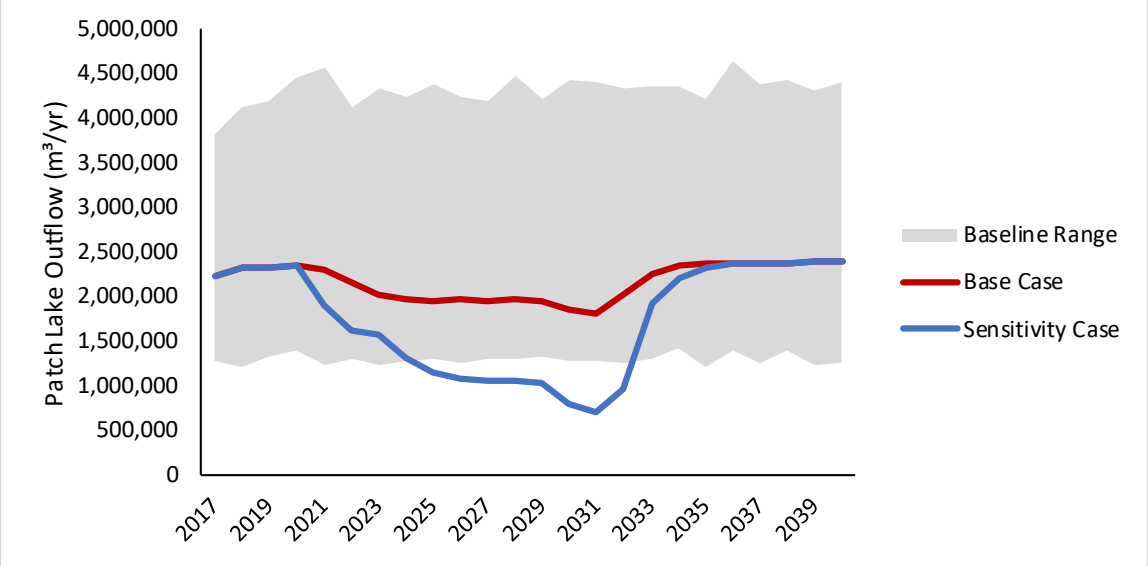


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Figure 2: Patch Lake Outflow – High Groundwater Inflow Sensitivity Case Comparison

Plotted values consist of annual averages.

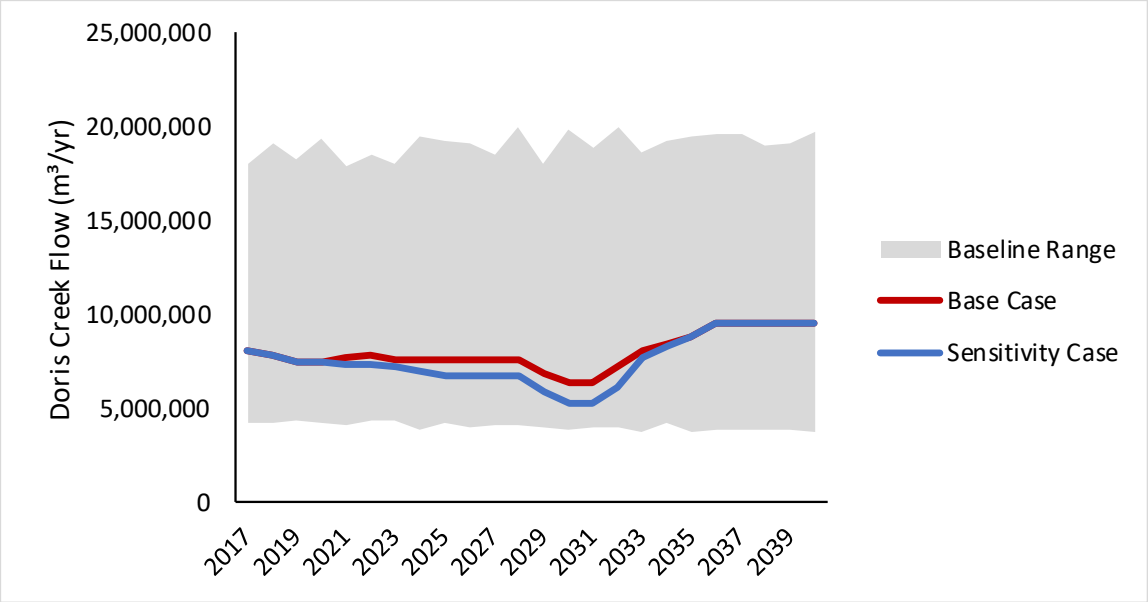

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Figure 3: Doris Creek (TL-2) – High Groundwater Inflow Sensitivity Case Comparison

Plotted values consist of annual averages.

Windy Watershed

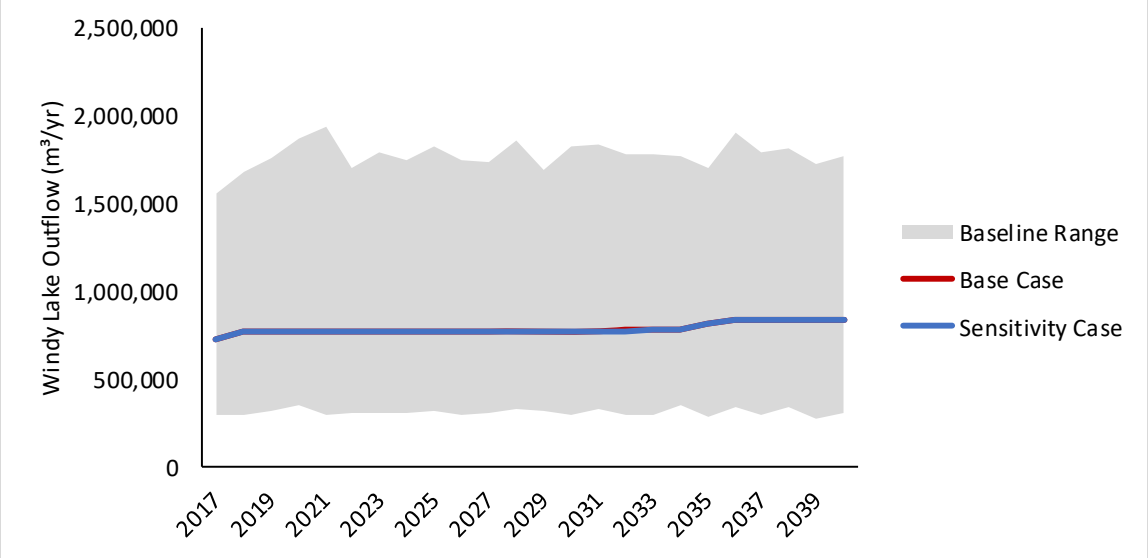

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Figure 4: Windy Lake Outflow – High Groundwater Inflow Sensitivity Case Comparison

Plotted values consist of annual averages.

Appendix D2: Results Time Series for Elevations

Doris Watershed

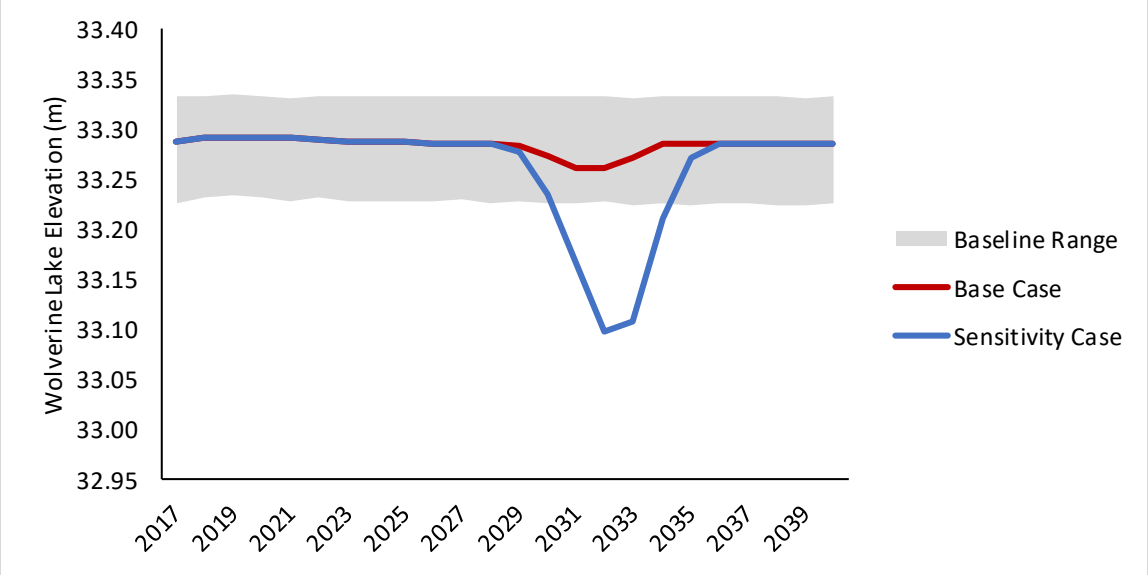

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Figure 5: Wolverine Lake Elevation – High Groundwater Inflow Sensitivity Case Comparison

Plotted values consist of annual averages.

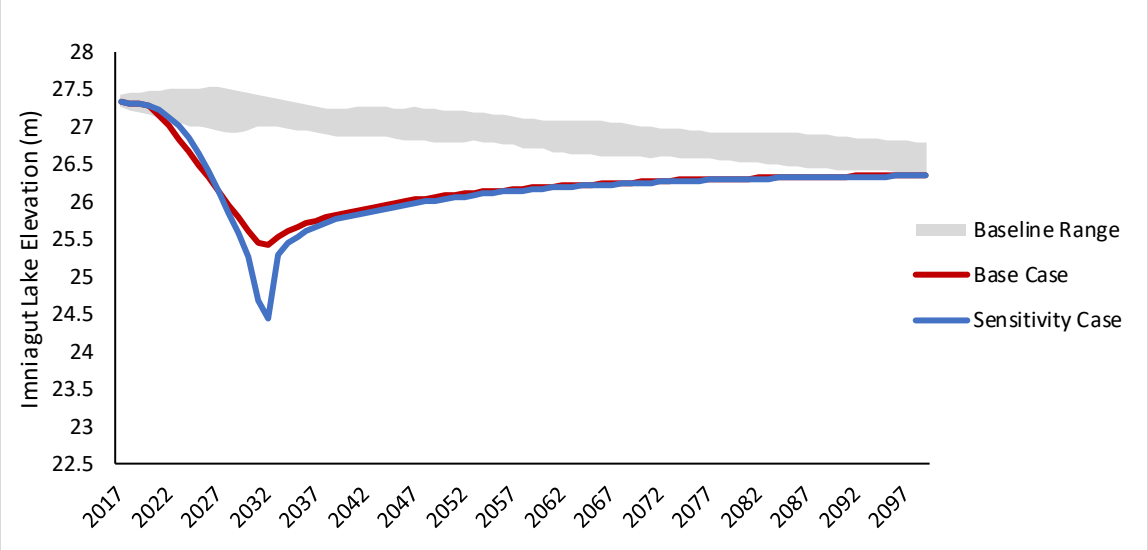

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Figure 6: Imniagut Lake Elevation – High Groundwater Inflow Sensitivity Case Comparison

Plotted values consist of annual averages.

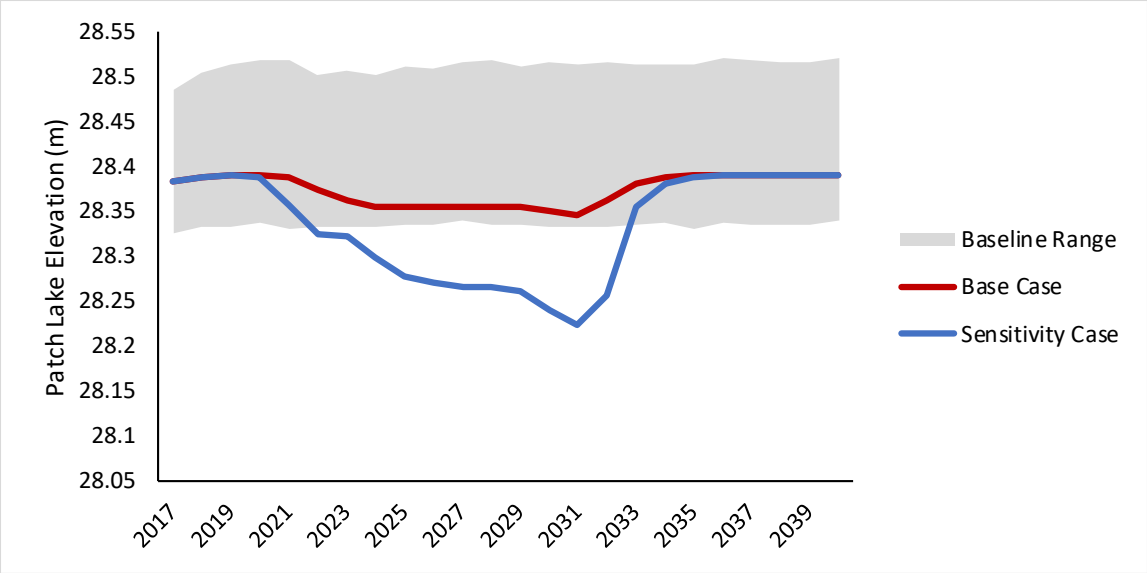

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Figure 7: Patch Lake Elevation – High Groundwater Inflow Sensitivity Case Comparison

Plotted values consist of annual averages.

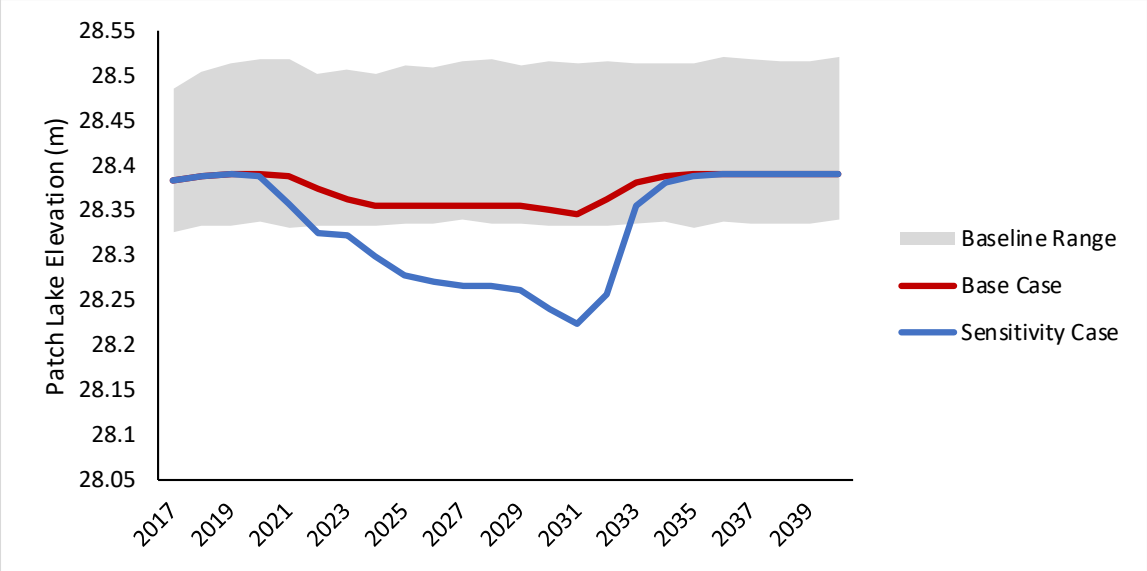

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Figure 8: Patch Lake Elevation – High Groundwater Inflow Sensitivity Case Comparison

Plotted values consist of annual averages.

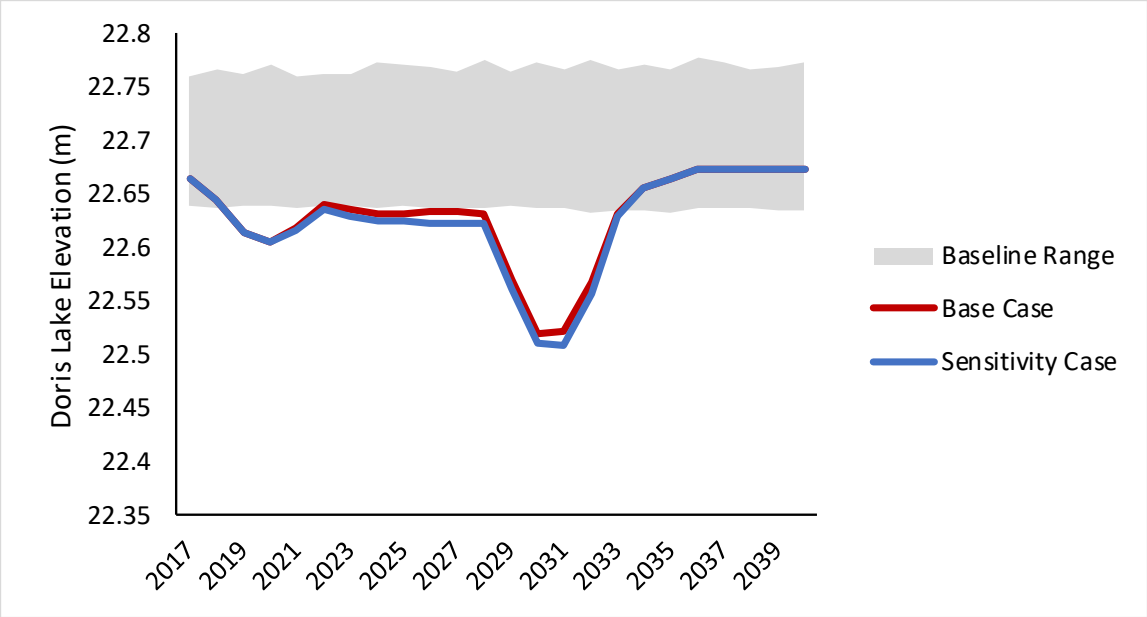

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Figure 9: Doris Lake Elevation – High Groundwater Inflow Sensitivity Case Comparison

Plotted values consist of annual averages.

Madrid Watershed

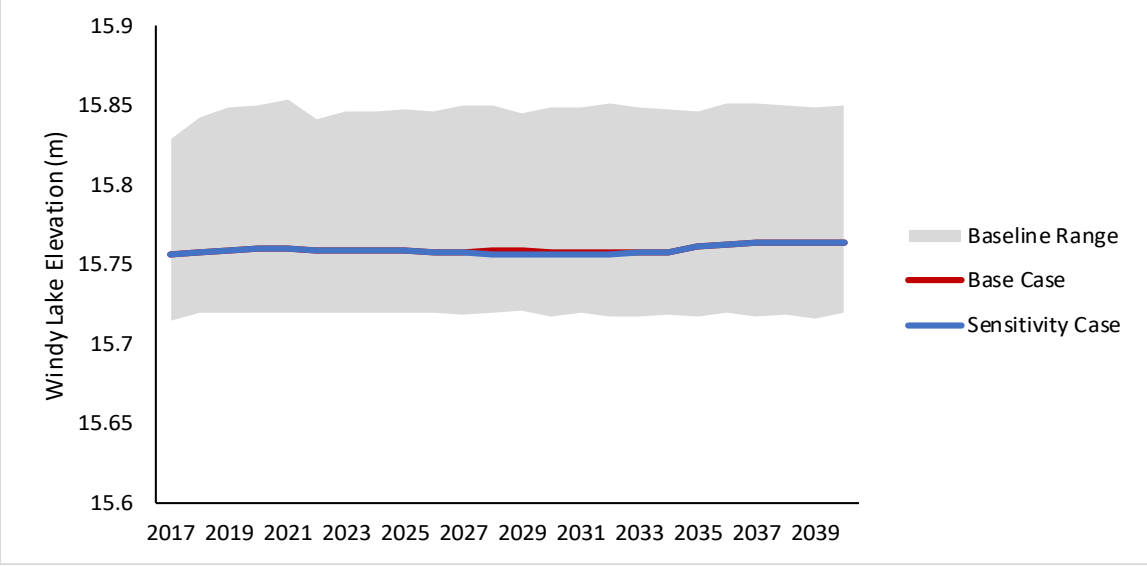

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Figure 10: Windy Lake Elevation – High Groundwater Inflow Sensitivity Case Comparison

Plotted values consist of annual averages.

Appendix D3: Results Tables for Water Quality

Wolverine Lake Average and Maximum Concentrations During Operations and Post-Closure - High Groundwater Flow Sensitivity Case														
Parameter	Units	Min CCME[1]	Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case
TSS	mg/L	Variable	5.8	5.7	1 x	14	14	n/a	7.3	7.2	1 x	17	17	n/a
TDS	mg/L	-	200	200	n/a	490	470	1 x	240	240	n/a	560	560	n/a
Fluoride	mg/L	0.12	0.069	0.068	1 x	***0.17***	***0.16***	0.9 x	0.085	0.083	1 x	***0.2***	***0.19***	1 x
Chloride	mg/L	120	80	79	1 x	***200***	***190***	1 x	100	98	1 x	***230***	***230***	n/a
Free Cyanide	mg/L	0.005	0.0013	0.0013	n/a	0.0032	0.0031	1 x	0.0016	0.0016	n/a	0.0037	0.0037	n/a
Total Cyanide	mg/L	0.005	0.0013	0.0013	n/a	0.0032	0.0031	1 x	0.0016	0.0016	n/a	0.0037	0.0037	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0065	0.0064	1 x	0.016	0.015	0.9 x	0.008	0.0079	1 x	0.019	0.018	0.9 x
Nitrate	mg/L as N	3	0.0065	0.0064	1 x	0.016	0.015	0.9 x	0.008	0.0079	1 x	0.019	0.018	0.9 x
Nitrite	mg/L as N	10	0.0013	0.0013	n/a	0.0032	0.0031	1 x	0.0016	0.0016	n/a	0.0037	0.0037	n/a
Sulphate	mg/L	1000	3.5	3.4	1 x	8.7	8.3	1 x	4.9	4.8	1 x	12	12	n/a
Alkalinity	mg/L	-	38	37	1 x	94	90	1 x	50	49	1 x	120	120	n/a
Hardness	mg/L	-	62	62	n/a	150	150	n/a	78	76	1 x	180	180	n/a
Dissolved Aluminum	mg/L	0.1	0.075	0.074	1 x	***0.18***	***0.18***	n/a	0.091	0.089	1 x	***0.21***	***0.21***	n/a
Dissolved Antimony	mg/L	-	0.00003	0.00003	n/a	0.000077	0.000073	0.9 x	0.000043	0.000042	1 x	0.0001	0.0001	n/a
Dissolved Arsenic	mg/L	0.005	0.00036	0.00036	n/a	0.00091	0.00087	1 x	0.00048	0.00048	n/a	0.0011	0.0011	n/a
Dissolved Barium	mg/L	-	0.0046	0.0045	1 x	0.011	0.011	n/a	0.0058	0.0057	1 x	0.013	0.013	n/a
Dissolved Beryllium	mg/L	0.1	0.0000067	0.0000066	1 x	0.000018	0.000017	0.9 x	0.000014	0.000013	0.9 x	0.000034	0.000034	n/a
Dissolved Boron	mg/L	0.5	0.04	0.04	n/a	0.1	0.096	1 x	0.05	0.05	n/a	0.12	0.12	n/a
Dissolved Cadmium	mg/L	0.00012	0.0000065	0.0000064	1 x	0.000016	0.000015	0.9 x	0.0000083	0.0000082	1 x	0.000019	0.000019	n/a
Dissolved Calcium	mg/L	-	11	11	n/a	28	27	1 x	15	15	n/a	35	35	n/a
Dissolved Chromium	mg/L	0.001	0.00065	0.00064	1 x	***0.0016***	***0.0015***	0.9 x	0.00079	0.00077	1 x	***0.0018***	***0.0018***	n/a
Dissolved Cobalt	mg/L	0.05	0.000065	0.000064	1 x	0.00016	0.00016	n/a	0.000089	0.000087	1 x	0.00021	0.00021	n/a
Dissolved Copper	mg/L	0.002	0.0018	0.0018	n/a	***0.0046***	***0.0043***	0.9 x	***0.0027***	***0.0026***	1 x	***0.0064***	***0.0063***	1 x
Dissolved Iron	mg/L	0.3	0.21	0.21	n/a	***0.5***	***0.49***	1 x	0.24	0.24	n/a	***0.56***	***0.55***	1 x
Dissolved Lead	mg/L	0.001	0.000065	0.000064	1 x	0.00016	0.00015	0.9 x	0.00008	0.000079	1 x	0.00019	0.00019	n/a
Dissolved Lithium	mg/L	2.5	0.0048	0.0047	1 x	0.012	0.011	0.9 x	0.0059	0.0058	1 x	0.014	0.013	0.9 x
Dissolved Magnesium	mg/L	-	8.3	8.2	1 x	21	20	1 x	10	10	n/a	24	24	n/a
Dissolved Manganese	mg/L	0.2	0.026	0.026	n/a	0.066	0.063	1 x	0.034	0.033	1 x	0.079	0.078	1 x
Dissolved Mercury	mg/L	0.000016	0.00000091	0.0000009	1 x	0.0000024	0.0000023	1 x	0.0000016	0.0000016	n/a	0.000004	0.000004	n/a
Dissolved Molybdenum	mg/L	0.01	0.00023	0.00022	1 x	0.00057	0.00055	1 x	0.00031	0.0003	1 x	0.00072	0.00072	n/a
Dissolved Nickel	mg/L	0.025	0.00069	0.00068	1 x	0.0017	0.0016	0.9 x	0.00089	0.00087	1 x	0.0021	0.0021	n/a
Dissolved Selenium	mg/L	0.001	0.00026	0.00025	1 x	0.00064	0.00062	1 x	0.00032	0.00031	1 x	0.00074	0.00073	1 x
Dissolved Silver	mg/L	0.00025	0.0000065	0.0000064	1 x	0.000016	0.000015	0.9 x	0.0000083	0.0000082	1 x	0.000019	0.000019	n/a
Dissolved Sodium	mg/L	-	42	42	n/a	100	100	n/a	53	52	1 x	120	120	n/a
Dissolved Thallium	mg/L	0.0008	0.0000026	0.0000026	n/a	0.0000066	0.0000062	0.9 x	0.0000037	0.0000036	1 x	0.0000087	0.0000087	n/a
Dissolved Uranium	mg/L	0.01	0.000044	0.000043	1 x	0.00011	0.00011	n/a	0.000063	0.000062	1 x	0.00015	0.00015	n/a
Dissolved Vanadium	mg/L	0.1	0.00023	0.00023	n/a	0.00059	0.00056	0.9 x	0.00034	0.00033	1 x	0.0008	0.00079	1 x
Dissolved Zinc	mg/L	0.03	0.0039	0.0038	1 x	0.0096	0.0093	1 x	0.0048	0.0047	1 x	0.011	0.011	n/a
Dissolved Phosphorous	mg/L	Variable	0.029	0.028	1 x	0.073	0.07	1 x	0.037	0.036	1 x	0.087	0.086	1 x
Total Aluminum	mg/L	0.1	0.075	0.074	1 x	***0.18***	***0.18***	n/a	0.091	0.09	1 x	***0.21***	***0.21***	n/a
Total Antimony	mg/L	-	0.00003	0.00003	n/a	0.000077	0.000073	0.9 x	0.000043	0.000042	1 x	0.0001	0.0001	n/a
Total Arsenic	mg/L	0.005	0.00036	0.00036	n/a	0.00092	0.00087	0.9 x	0.00051	0.0005	1 x	0.0012	0.0012	n/a
Total Barium	mg/L	-	0.0046	0.0045	1 x	0.011	0.011	n/a	0.0058	0.0057	1 x	0.013	0.013	n/a
Total Beryllium	mg/L	0.1	0.0000067	0.0000066	1 x	0.000018	0.000017	0.9 x	0.000014	0.000013	0.9 x	0.000034	0.000034	n/a
Total Boron	mg/L	0.5	0.04	0.04	n/a	0.1	0.096	1 x	0.05	0.05	n/a	0.12	0.12	n/a
Total Cadmium	mg/L	0.00012	0.0000065	0.0000064	1 x	0.000016	0.000015	0.9 x	0.0000084	0.0000082	1 x	0.00002	0.000019	1 x
Total Calcium	mg/L	-	11	11	n/a	28	27	1 x	15	15	n/a	35	35	n/a
Total Chromium	mg/L	0.001	0.00065	0.00064	1 x	***0.0016***	***0.0015***	0.9 x	0.00082	0.0008	1 x	***0.0019***	***0.0019***	n/a
Total Cobalt	mg/L	0.05	0.000065	0.000064	1 x	0.00016	0.00016	n/a	0.000092	0.000091	1 x	0.00022	0.00022	n/a
Total Copper	mg/L	0.002	0.0018	0.0018	n/a	***0.0046***	***0.0043***	0.9 x	***0.0027***	***0.0026***	1 x	***0.0064***	***0.0063***	1 x
Total Iron	mg/L	0.3	0.21	0.21	n/a	***0.51***	***0.49***	1 x	0.25	0.25	n/a	***0.59***	***0.58***	1 x
Total Lead	mg/L	0.001	0.000065	0.000064	1 x	0.00016	0.00015	0.9 x	0.000081	0.00008	1 x	0.00019	0.00019	n/a
Total Lithium	mg/L	2.5	0.0048	0.0047	1 x	0.012	0.011	0.9 x	0.0059	0.0058	1 x	0.014	0.013	0.9 x
Total Magnesium	mg/L	-	8.3	8.2	1 x	21	20	1 x	10	10	n/a	24	24	n/a
Total Manganese	mg/L	0.2	0.026	0.026	n/a	0.066	0.063	1 x	0.034	0.034	n/a	0.08	0.079	1 x
Total Mercury	mg/L	0.000016	0.000001	0.00000099	1 x	0.0000033	0.0000032	1 x	0.0000043	0.0000043	n/a	0.000012	0.000012	n/a
Total Molybdenum	mg/L	0.01	0.00023	0.00022	1 x	0.00057	0.00055	1 x	0.00031	0.0003	1 x	0.00072	0.00072	n/a
Total Nickel	mg/L	0.025	0.00069	0.00068	1 x	0.0017	0.0016	0.9 x	0.0009	0.00089	1 x	0.0021	0.0021	n/a
Total Selenium	mg/L	0.001	0.00026	0.00025	1 x	0.00064	0.00062	1 x	0.00032	0.00031	1 x	0.00074	0.00073	1 x
Total Silver	mg/L	0.00025	0.0000065	0.0000064	1 x	0.000016	0.000015	0.9 x	0.0000084	0.0000082	1 x	0.00002	0.000019	1 x
Total Sodium	mg/L	-	42	42	n/a	100	100	n/a	53	52	1 x	120	120	n/a
Total Thallium	mg/L	0.0008	0.0000026	0.0000026	n/a	0.0000066	0.0000062	0.9 x	0.0000037	0.0000037	n/a	0.0000088	0.0000087	1 x
Total Uranium	mg/L	0.01	0.000044	0.000043	1 x	0.00011	0.00011	n/a	0.000063	0.000062	1 x	0.00015	0.00015	n/a
Total Vanadium	mg/L	0.1	0.00023	0.00023	n/a	0.00059	0.00056	0.9 x	0.00034	0.00034	n/a	0.00081	0.00081	n/a
Total Zinc	mg/L	0.03	0.0039	0.0038	1 x	0.0096	0.0093	1 x	0.0048	0.0047	1 x	0.011	0.011	n/a
Total Phosphorous	mg/L	Variable	0.029	0.028	1 x	0.073	0.07	1 x	0.037	0.037	n/a	0.087	0.086	1 x

[1] ***CCME Exceedance shown in bold italics***

Doris Creek (TL-2) Average and Maximum Concentrations During Operations and Post-Closure - High Groundwater Flow Sensitivity Case

Parameter	Units	Min CCME[1]	Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case
TSS	mg/L	Variable	5.1	5.1	n/a	8.3	8.4	1 x	4.9	4.9	n/a	5.1	5.1	n/a
TDS	mg/L	-	170	170	n/a	280	280	n/a	170	170	n/a	170	170	n/a
Fluoride	mg/L	0.12	0.06	0.06	n/a	0.097	0.098	1 x	0.058	0.058	n/a	0.06	0.06	n/a
Chloride	mg/L	120	71	70	1 x	110	110	n/a	66	66	n/a	68	68	n/a
Free Cyanide	mg/L	0.005	0.0012	0.0012	n/a	0.0018	0.0018	n/a	0.0011	0.0011	n/a	0.0011	0.0011	n/a
Total Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0018	0.0018	n/a	0.0011	0.0011	n/a	0.0011	0.0011	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	0.0000046	0.0000045	1 x	0.000056	0.000056	n/a	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0057	0.0057	n/a	0.0091	0.0092	1 x	0.0053	0.0053	n/a	0.0055	0.0054	1 x
Nitrate	mg/L as N	3	0.022	0.021	1 x	0.28	0.28	n/a	0.0053	0.0053	n/a	0.0055	0.0054	1 x
Nitrite	mg/L as N	10	0.0016	0.0016	n/a	0.0072	0.0072	n/a	0.0011	0.0011	n/a	0.0011	0.0011	n/a
Sulphate	mg/L	1000	3.2	3.3	1 x	5.3	6.1	1.2 x	7.6	7.6	n/a	8.4	8.4	n/a
Alkalinity	mg/L	-	33	33	n/a	54	54	n/a	34	34	n/a	38	37	1 x
Hardness	mg/L	-	55	55	n/a	88	89	1 x	57	57	n/a	66	66	n/a
Dissolved Aluminum	mg/L	0.1	0.065	0.065	n/a	0.1	***0.11***	1.1 x	0.063	0.062	1 x	0.067	0.066	1 x
Dissolved Antimony	mg/L	-	0.000033	0.000035	1.1 x	0.00015	0.00015	n/a	0.000091	0.000091	n/a	0.00018	0.00018	n/a
Dissolved Arsenic	mg/L	0.005	0.00048	0.00063	1.3 x	***0.0084***	***0.0084***	n/a	0.0042	0.0042	n/a	***0.01***	***0.01***	n/a
Dissolved Barium	mg/L	-	0.0042	0.0043	1 x	0.01	0.0099	1 x	0.0068	0.0068	n/a	0.011	0.011	n/a
Dissolved Beryllium	mg/L	0.1	0.000015	0.000015	n/a	0.00012	0.00012	n/a	0.0000099	0.0000099	n/a	0.000013	0.000013	n/a
Dissolved Boron	mg/L	0.5	0.036	0.036	n/a	0.057	0.058	1 x	0.038	0.038	n/a	0.044	0.043	1 x
Dissolved Cadmium	mg/L	0.00012	0.0000058	0.0000058	n/a	0.0000092	0.0000093	1 x	0.0000068	0.0000068	n/a	0.0000078	0.0000078	n/a
Dissolved Calcium	mg/L	-	10	10	n/a	16	16	n/a	12	12	n/a	13	13	n/a
Dissolved Chromium	mg/L	0.001	0.00057	0.00057	n/a	0.00091	0.00092	1 x	0.00055	0.00055	n/a	0.00059	0.00059	n/a
Dissolved Cobalt	mg/L	0.05	0.000082	0.000088	1.1 x	0.00028	0.00028	n/a	0.0004	0.0004	n/a	0.00043	0.00043	n/a
Dissolved Copper	mg/L	0.002	0.0016	0.0016	n/a	***0.0026***	***0.0027***	1 x	0.0018	0.0018	n/a	***0.0021***	***0.0021***	n/a
Dissolved Iron	mg/L	0.3	0.18	0.18	n/a	0.28	0.28	n/a	0.16	0.16	n/a	0.17	0.17	n/a
Dissolved Lead	mg/L	0.001	0.000057	0.000057	n/a	0.000091	0.000092	1 x	0.000056	0.000056	n/a	0.00006	0.00006	n/a
Dissolved Lithium	mg/L	2.5	0.0043	0.0043	n/a	0.0068	0.0068	n/a	0.0043	0.0043	n/a	0.0045	0.0045	n/a
Dissolved Magnesium	mg/L	-	7.4	7.4	n/a	12	12	n/a	8.1	8.1	n/a	9.4	9.4	n/a
Dissolved Manganese	mg/L	0.2	0.024	0.024	n/a	0.038	0.038	n/a	0.03	0.03	n/a	0.031	0.031	n/a
Dissolved Mercury	mg/L	0.000016	0.000001	0.000001	n/a	0.0000031	0.0000031	n/a	0.0000012	0.0000012	n/a	0.0000015	0.0000015	n/a
Dissolved Molybdenum	mg/L	0.01	0.00025	0.00025	n/a	0.00072	0.00072	n/a	0.00029	0.00029	n/a	0.00041	0.00041	n/a
Dissolved Nickel	mg/L	0.025	0.00065	0.00067	1 x	0.0011	0.0013	1.2 x	0.0018	0.0018	n/a	0.002	0.002	n/a
Dissolved Selenium	mg/L	0.001	0.00023	0.00023	n/a	0.00036	0.00037	1 x	0.00036	0.00036	n/a	0.00039	0.00039	n/a
Dissolved Silver	mg/L	0.00025	0.0000059	0.0000058	1 x	0.0000092	0.0000093	1 x	0.0000059	0.0000059	n/a	0.0000066	0.0000066	n/a
Dissolved Sodium	mg/L	-	37	37	n/a	60	60	n/a	35	35	n/a	36	36	n/a
Dissolved Thallium	mg/L	0.0008	0.0000032	0.0000032	n/a	0.000013	0.000013	n/a	0.0000037	0.0000037	n/a	0.0000045	0.0000045	n/a
Dissolved Uranium	mg/L	0.01	0.000041	0.000041	n/a	0.000064	0.000065	1 x	0.000044	0.000044	n/a	0.00005	0.00005	n/a
Dissolved Vanadium	mg/L	0.1	0.00022	0.00022	n/a	0.00034	0.00034	n/a	0.00023	0.00023	n/a	0.00027	0.00027	n/a
Dissolved Zinc	mg/L	0.03	0.0034	0.0034	n/a	0.0055	0.0055	n/a	0.0034	0.0034	n/a	0.0035	0.0035	n/a
Dissolved Phosphorous	mg/L	Variable	0.026	0.026	n/a	0.042	0.042	n/a	0.025	0.025	n/a	0.026	0.026	n/a
Total Aluminum	mg/L	0.1	0.066	0.065	1 x	0.1	***0.11***	1.1 x	0.063	0.063	n/a	0.067	0.067	n/a
Total Antimony	mg/L	-	0.000033	0.000035	1.1 x	0.00015	0.00015	n/a	0.000091	0.000091	n/a	0.00018	0.00018	n/a
Total Arsenic	mg/L	0.005	0.00049	0.00064	1.3 x	***0.0084***	***0.0084***	n/a	0.0042	0.0042	n/a	***0.01***	***0.01***	n/a
Total Barium	mg/L	-	0.0042	0.0043	1 x	0.01	0.01	n/a	0.0068	0.0068	n/a	0.011	0.011	n/a
Total Beryllium	mg/L	0.1	0.000015	0.000015	n/a	0.00012	0.00012	n/a	0.0000099	0.0000099	n/a	0.000013	0.000013	n/a
Total Boron	mg/L	0.5	0.036	0.036	n/a	0.057	0.058	1 x	0.038	0.038	n/a	0.044	0.043	1 x
Total Cadmium	mg/L	0.00012	0.0000058	0.0000058	n/a	0.0000092	0.0000093	1 x	0.0000068	0.0000068	n/a	0.0000079	0.0000078	1 x
Total Calcium	mg/L	-	10	10	n/a	16	16	n/a	12	12	n/a	13	13	n/a
Total Chromium	mg/L	0.001	0.00058	0.00057	1 x	0.00091	0.00093	1 x	0.00057	0.00056	1 x	0.00061	0.0006	1 x
Total Cobalt	mg/L	0.05	0.000083	0.000089	1.1 x	0.00028	0.00028	n/a	0.0004	0.0004	n/a	0.00044	0.00044	n/a
Total Copper	mg/L	0.002	0.0016	0.0016	n/a	***0.0026***	***0.0027***	1 x	0.0018	0.0018	n/a	***0.0021***	***0.0021***	n/a
Total Iron	mg/L	0.3	0.18	0.18	n/a	0.28	0.29	1 x	0.17	0.17	n/a	0.18	0.17	0.9 x
Total Lead	mg/L	0.001	0.000058	0.000057	1 x	0.000091	0.000092	1 x	0.000056	0.000056	n/a	0.00006	0.00006	n/a
Total Lithium	mg/L	2.5	0.0043	0.0043	n/a	0.0068	0.0068	n/a	0.0043	0.0043	n/a	0.0045	0.0045	n/a
Total Magnesium	mg/L	-	7.4	7.4	n/a	12	12	n/a	8.1	8.1	n/a	9.4	9.4	n/a
Total Manganese	mg/L	0.2	0.024	0.024	n/a	0.038	0.038	n/a	0.03	0.03	n/a	0.032	0.031	1 x
Total Mercury	mg/L	0.000016	0.0000014	0.0000014	n/a	0.0000034	0.0000034	n/a	0.0000023	0.0000023	n/a	0.000003	0.000003	n/a
Total Molybdenum	mg/L	0.01	0.00025	0.00025	n/a	0.00072	0.00072	n/a	0.00029	0.00029	n/a	0.00041	0.00041	n/a
Total Nickel	mg/L	0.025	0.00065	0.00067	1 x	0.0011	0.0014	1.3 x	0.0018	0.0018	n/a	0.002	0.002	n/a
Total Selenium	mg/L	0.001	0.00023	0.00023	n/a	0.00036	0.00037	1 x	0.00036	0.00036	n/a	0.00039	0.00039	n/a
Total Silver	mg/L	0.00025	0.0000059	0.0000059	n/a	0.0000092	0.0000093	1 x	0.0000059	0.0000059	n/a	0.0000066	0.0000066	n/a
Total Sodium	mg/L	-	37	37	n/a	60	60	n/a	35	35	n/a	36	36	n/a
Total Thallium	mg/L	0.0008	0.0000032	0.0000032	n/a	0.000013	0.000013	n/a	0.0000037	0.0000037	n/a	0.0000045	0.0000045	n/a
Total Uranium	mg/L	0.01	0.000041	0.000041	n/a	0.000064	0.000065	1 x	0.000044	0.000044	n/a	0.00005	0.00005	n/a
Total Vanadium	mg/L	0.1	0.00022	0.00022	n/a	0.00034	0.00034	n/a	0.00023	0.00023	n/a	0.00027	0.00027	n/a
Total Zinc	mg/L	0.03	0.0034	0.0034	n/a	0.0055	0.0055	n/a	0.0034	0.0034	n/a	0.0035	0.0035	n/a
Total Phosphorous	mg/L	Variable	0.026	0.026	n/a	0.042	0.042	n/a	0.025	0.025	n/a	0.026	0.026	n/a

[1] ***CCME Exceedance shown in bold italics***

Patch Lake Average and Maximum Concentrations During Operations and Post-Closure - High Groundwater Flow Sensitivity Case

Parameter	Units	Min CCME[1]	Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case
TSS	mg/L	Variable	5	4.9	1 x	7.7	7.5	1 x	5.6	5.6	n/a	8.5	8.5	n/a
TDS	mg/L	-	170	170	n/a	260	250	1 x	190	190	n/a	280	280	n/a
Fluoride	mg/L	0.12	0.059	0.058	1 x	0.09	0.088	1 x	0.065	0.064	1 x	0.097	0.097	n/a
Chloride	mg/L	120	69	68	1 x	110	100	0.9 x	76	75	1 x	110	110	n/a
Free Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0017	0.0016	0.9 x	0.0012	0.0012	n/a	0.0018	0.0018	n/a
Total Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0017	0.0016	0.9 x	0.0012	0.0012	n/a	0.0018	0.0018	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0056	0.0055	1 x	0.0085	0.0082	1 x	0.0061	0.006	1 x	0.0092	0.0092	n/a
Nitrate	mg/L as N	3	0.0056	0.0055	1 x	0.0085	0.0082	1 x	0.0061	0.006	1 x	0.0092	0.0092	n/a
Nitrite	mg/L as N	10	0.0011	0.0011	n/a	0.0017	0.0016	0.9 x	0.0012	0.0012	n/a	0.0018	0.0018	n/a
Sulphate	mg/L	1000	3	3	n/a	4.6	4.5	1 x	3.4	3.4	n/a	5.1	5.1	n/a
Alkalinity	mg/L	-	32	32	n/a	50	48	1 x	36	36	n/a	55	55	n/a
Hardness	mg/L	-	54	53	1 x	82	80	1 x	59	58	1 x	89	89	n/a
Dissolved Aluminum	mg/L	0.1	0.064	0.064	n/a	0.097	0.096	1 x	0.069	0.069	n/a	0.1	0.1	n/a
Dissolved Antimony	mg/L	-	0.000026	0.000026	n/a	0.000042	0.00004	1 x	0.000032	0.000032	n/a	0.00005	0.00005	n/a
Dissolved Arsenic	mg/L	0.005	0.00032	0.00031	1 x	0.00054	0.00052	1 x	0.00071	0.00071	n/a	0.0011	0.0011	n/a
Dissolved Barium	mg/L	-	0.0039	0.0039	n/a	0.006	0.0058	1 x	0.0043	0.0043	n/a	0.0065	0.0064	1 x
Dissolved Beryllium	mg/L	0.1	0.0000058	0.0000058	n/a	0.0000094	0.0000091	1 x	0.0000072	0.0000072	n/a	0.000011	0.000011	n/a
Dissolved Boron	mg/L	0.5	0.035	0.034	1 x	0.053	0.051	1 x	0.038	0.038	n/a	0.058	0.058	n/a
Dissolved Cadmium	mg/L	0.00012	0.0000056	0.0000055	1 x	0.0000086	0.0000083	1 x	0.0000062	0.0000061	1 x	0.0000093	0.0000093	n/a
Dissolved Calcium	mg/L	-	9.7	9.6	1 x	15	14	0.9 x	11	11	n/a	16	16	n/a
Dissolved Chromium	mg/L	0.001	0.00056	0.00055	1 x	0.00085	0.00082	1 x	0.00061	0.0006	1 x	0.00091	0.00091	n/a
Dissolved Cobalt	mg/L	0.05	0.000056	0.000055	1 x	0.000087	0.000084	1 x	0.000068	0.000068	n/a	0.0001	0.0001	n/a
Dissolved Copper	mg/L	0.002	0.0016	0.0015	0.9 x	***0.0024***	***0.0024***	n/a	0.0018	0.0018	n/a	***0.0027***	***0.0027***	n/a
Dissolved Iron	mg/L	0.3	0.18	0.18	n/a	0.27	0.27	n/a	0.18	0.18	n/a	0.27	0.27	n/a
Dissolved Lead	mg/L	0.001	0.000056	0.000055	1 x	0.000085	0.000082	1 x	0.000061	0.000061	n/a	0.000092	0.000092	n/a
Dissolved Lithium	mg/L	2.5	0.0041	0.0041	n/a	0.0063	0.0061	1 x	0.0045	0.0045	n/a	0.0068	0.0068	n/a
Dissolved Magnesium	mg/L	-	7.2	7.1	1 x	11	11	n/a	7.8	7.8	n/a	12	12	n/a
Dissolved Manganese	mg/L	0.2	0.023	0.022	1 x	0.035	0.034	1 x	0.025	0.025	n/a	0.038	0.038	n/a
Dissolved Mercury	mg/L	0.000016	0.0000008	0.00000078	1 x	0.0000013	0.0000012	0.9 x	0.00000094	0.00000094	n/a	0.0000014	0.0000014	n/a
Dissolved Molybdenum	mg/L	0.01	0.0002	0.00019	1 x	0.00031	0.0003	1 x	0.00022	0.00022	n/a	0.00034	0.00034	n/a
Dissolved Nickel	mg/L	0.025	0.00059	0.00058	1 x	0.00091	0.00088	1 x	0.00066	0.00065	1 x	0.00099	0.00099	n/a
Dissolved Selenium	mg/L	0.001	0.00022	0.00022	n/a	0.00034	0.00033	1 x	0.00024	0.00024	n/a	0.00037	0.00037	n/a
Dissolved Silver	mg/L	0.00025	0.0000056	0.0000055	1 x	0.0000086	0.0000083	1 x	0.0000062	0.0000061	1 x	0.0000093	0.0000093	n/a
Dissolved Sodium	mg/L	-	37	36	1 x	56	54	1 x	40	39	1 x	60	60	n/a
Dissolved Thallium	mg/L	0.0008	0.0000023	0.0000022	1 x	0.0000035	0.0000034	1 x	0.0000025	0.0000025	n/a	0.0000039	0.0000038	1 x
Dissolved Uranium	mg/L	0.01	0.000038	0.000038	n/a	0.000059	0.000057	1 x	0.000044	0.000043	1 x	0.000066	0.000066	n/a
Dissolved Vanadium	mg/L	0.1	0.0002	0.0002	n/a	0.00031	0.0003	1 x	0.00023	0.00023	n/a	0.00035	0.00035	n/a
Dissolved Zinc	mg/L	0.03	0.0033	0.0033	n/a	0.0051	0.0049	1 x	0.0037	0.0036	1 x	0.0055	0.0055	n/a
Dissolved Phosphorous	mg/L	Variable	0.025	0.025	n/a	0.039	0.038	1 x	0.028	0.028	n/a	0.043	0.043	n/a
Total Aluminum	mg/L	0.1	0.065	0.064	1 x	0.097	0.096	1 x	0.069	0.069	n/a	0.1	0.1	n/a
Total Antimony	mg/L	-	0.000026	0.000026	n/a	0.000042	0.00004	1 x	0.000032	0.000032	n/a	0.00005	0.00005	n/a
Total Arsenic	mg/L	0.005	0.00032	0.00031	1 x	0.00054	0.00053	1 x	0.00071	0.00071	n/a	0.0012	0.0012	n/a
Total Barium	mg/L	-	0.0039	0.0039	n/a	0.006	0.0058	1 x	0.0043	0.0043	n/a	0.0065	0.0064	1 x
Total Beryllium	mg/L	0.1	0.0000058	0.0000058	n/a	0.0000094	0.0000091	1 x	0.0000072	0.0000072	n/a	0.000011	0.000011	n/a
Total Boron	mg/L	0.5	0.035	0.034	1 x	0.053	0.051	1 x	0.038	0.038	n/a	0.058	0.058	n/a
Total Cadmium	mg/L	0.00012	0.0000056	0.0000055	1 x	0.0000086	0.0000083	1 x	0.0000062	0.0000061	1 x	0.0000093	0.0000093	n/a
Total Calcium	mg/L	-	9.7	9.6	1 x	15	14	0.9 x	11	11	n/a	16	16	n/a
Total Chromium	mg/L	0.001	0.00056	0.00055	1 x	0.00085	0.00083	1 x	0.00061	0.00061	n/a	0.00092	0.00092	n/a
Total Cobalt	mg/L	0.05	0.000056	0.000055	1 x	0.000088	0.000085	1 x	0.000069	0.000068	1 x	0.00011	0.00011	n/a
Total Copper	mg/L	0.002	0.0016	0.0015	0.9 x	***0.0024***	***0.0024***	n/a	0.0018	0.0018	n/a	***0.0027***	***0.0027***	n/a
Total Iron	mg/L	0.3	0.18	0.18	n/a	0.27	0.27	n/a	0.19	0.19	n/a	0.28	0.28	n/a
Total Lead	mg/L	0.001	0.000056	0.000055	1 x	0.000085	0.000083	1 x	0.000061	0.000061	n/a	0.000092	0.000092	n/a
Total Lithium	mg/L	2.5	0.0041	0.0041	n/a	0.0063	0.0061	1 x	0.0045	0.0045	n/a	0.0068	0.0068	n/a
Total Magnesium	mg/L	-	7.2	7.1	1 x	11	11	n/a	7.8	7.8	n/a	12	12	n/a
Total Manganese	mg/L	0.2	0.023	0.022	1 x	0.035	0.034	1 x	0.025	0.025	n/a	0.038	0.038	n/a
Total Mercury	mg/L	0.000016	0.00000093	0.00000091	1 x	0.0000017	0.0000016	0.9 x	0.0000015	0.0000015	n/a	0.0000024	0.0000024	n/a
Total Molybdenum	mg/L	0.01	0.0002	0.00019	1 x	0.00031	0.0003	1 x	0.00022	0.00022	n/a	0.00034	0.00034	n/a
Total Nickel	mg/L	0.025	0.00059	0.00059	n/a	0.00091	0.00088	1 x	0.00066	0.00066	n/a	0.001	0.001	n/a
Total Selenium	mg/L	0.001	0.00022	0.00022	n/a	0.00034	0.00033	1 x	0.00024	0.00024	n/a	0.00037	0.00037	n/a
Total Silver	mg/L	0.00025	0.0000056	0.0000055	1 x	0.0000086	0.0000083	1 x	0.0000062	0.0000061	1 x	0.0000093	0.0000093	n/a
Total Sodium	mg/L	-	37	36	1 x	56	54	1 x	40	39	1 x	60	60	n/a
Total Thallium	mg/L	0.0008	0.0000023	0.0000022	1 x	0.0000035	0.0000034	1 x	0.0000025	0.0000025	n/a	0.0000039	0.0000039	n/a
Total Uranium	mg/L	0.01	0.000038	0.000038	n/a	0.000059	0.000057	1 x	0.000044	0.000043	1 x	0.000066	0.000066	n/a
Total Vanadium	mg/L	0.1	0.0002	0.0002	n/a	0.00031	0.0003	1 x	0.00023	0.00023	n/a	0.00035	0.00035	n/a
Total Zinc	mg/L	0.03	0.0033	0.0033	n/a	0.0051	0.0049	1 x	0.0037	0.0036	1 x	0.0055	0.0055	n/a
Total Phosphorous	mg/L	Variable	0.025	0.025	n/a	0.039	0.038	1 x	0.028	0.028	n/a	0.043	0.043	n/a

[1] ***CCME Exceedance shown in bold italics***

Windy Lake Average and Maximum Concentrations During Operations and Post-Closure - High Groundwater Flow Sensitivity Case											
Parameter	Units	Min CCME[1]	Operations						Post-Closure		
			Average Open Water			Maximum Under Ice			Steady State		
			Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case
TSS	mg/L	Variable	5.3	5.3	1 x	6.4	6.4	1 x	8.9	8.9	0.99 x
TDS	mg/L	-	180	180	1 x	210	210	1 x	250	250	0.99 x
Fluoride	mg/L	0.12	0.059	0.059	1 x	0.072	0.072	1 x	0.085	0.086	1 x
Chloride	mg/L	120	69	69	1 x	84	83	1 x	96	95	0.99 x
Free Cyanide	mg/L	0.005	0.0011	0.0011	1 x	0.0013	0.0013	n/a	0.0015	0.0015	0.99 x
Total Cyanide	mg/L	0.005	0.0011	0.0011	1 x	0.0013	0.0013	n/a	0.0015	0.0015	0.99 x
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0055	0.0055	1 x	0.0066	0.0066	1 x	0.0074	0.0074	0.99 x
Nitrate	mg/L as N	3	0.0055	0.0055	1 x	0.0066	0.0066	1 x	0.0074	0.0074	0.99 x
Nitrite	mg/L as N	10	0.0011	0.0011	1 x	0.0013	0.0013	n/a	0.0015	0.0015	0.99 x
Sulphate	mg/L	1000	2.9	3	1 x	3.5	3.7	1 x	4.2	9.4	2.3 x
Alkalinity	mg/L	-	32	32	1 x	39	39	1 x	46	48	1.1 x
Hardness	mg/L	-	54	54	1 x	65	65	1 x	75	74	0.99 x
Dissolved Aluminum	mg/L	0.1	0.085	0.085	1 x	0.1	0.1	1 x	0.098	***0.11***	1.1 x
Dissolved Antimony	mg/L	-	0.000033	0.000033	1 x	0.00004	0.00004	1 x	0.000046	0.00011	2.4 x
Dissolved Arsenic	mg/L	0.005	0.00034	0.00034	1 x	0.00041	0.0005	1.2 x	0.00059	***0.0064***	11 x
Dissolved Barium	mg/L	-	0.0043	0.0043	1 x	0.0051	0.0051	1 x	0.0051	0.0052	1 x
Dissolved Beryllium	mg/L	0.1	0.0000056	0.0000058	1 x	0.000007	0.0000074	1.1 x	0.0000093	0.000013	1.4 x
Dissolved Boron	mg/L	0.5	0.037	0.037	1 x	0.045	0.045	1 x	0.066	0.07	1.1 x
Dissolved Cadmium	mg/L	0.00012	0.0000055	0.0000055	1 x	0.0000066	0.0000067	1 x	0.0000074	0.000013	1.8 x
Dissolved Calcium	mg/L	-	9.9	9.9	1 x	12	12	1 x	14	15	1.1 x
Dissolved Chromium	mg/L	0.001	0.00055	0.00055	1 x	0.00066	0.00066	1 x	0.00074	0.00078	1.1 x
Dissolved Cobalt	mg/L	0.05	0.000061	0.000062	1 x	0.000074	0.000078	1.1 x	0.000074	0.0005	6.7 x
Dissolved Copper	mg/L	0.002	0.0016	0.0016	1 x	0.002	0.002	1 x	***0.0024***	***0.0027***	1.1 x
Dissolved Iron	mg/L	0.3	0.22	0.22	1 x	0.25	0.25	1 x	0.17	0.19	1.1 x
Dissolved Lead	mg/L	0.001	0.000074	0.000074	1 x	0.000089	0.000089	1 x	0.00017	0.0002	1.2 x
Dissolved Lithium	mg/L	2.5	0.0044	0.0044	1 x	0.0053	0.0053	1 x	0.006	0.0063	1 x
Dissolved Magnesium	mg/L	-	7.2	7.2	1 x	8.7	8.7	1 x	10	10	1 x
Dissolved Manganese	mg/L	0.2	0.03	0.03	1 x	0.036	0.036	1 x	0.039	0.046	1.2 x
Dissolved Mercury	mg/L	0.000016	0.00000097	0.00000099	1 x	0.0000012	0.0000012	1 x	0.00000085	0.0000018	2.1 x
Dissolved Molybdenum	mg/L	0.01	0.00019	0.00019	1 x	0.00023	0.00024	1 x	0.00033	0.00036	1.1 x
Dissolved Nickel	mg/L	0.025	0.00073	0.00073	1 x	0.00088	0.00089	1 x	0.00098	0.0024	2.5 x
Dissolved Selenium	mg/L	0.001	0.00022	0.00022	1 x	0.00026	0.00026	1 x	0.0003	0.00031	1.1 x
Dissolved Silver	mg/L	0.00025	0.0000055	0.0000055	1 x	0.0000066	0.0000066	1 x	0.0000074	0.0000083	1.1 x
Dissolved Sodium	mg/L	-	37	37	1 x	44	44	1 x	49	48	0.99 x
Dissolved Thallium	mg/L	0.0008	0.0000024	0.0000025	1 x	0.0000029	0.000003	1 x	0.0000041	0.0000056	1.4 x
Dissolved Uranium	mg/L	0.01	0.000041	0.000042	1 x	0.00005	0.000051	1 x	0.000054	0.000059	1.1 x
Dissolved Vanadium	mg/L	0.1	0.00025	0.00025	1 x	0.0003	0.0003	1 x	0.00029	0.00038	1.3 x
Dissolved Zinc	mg/L	0.03	0.0033	0.0033	1 x	0.004	0.004	1 x	0.0045	0.0052	1.2 x
Dissolved Phosphorous	mg/L	Variable	0.027	0.027	1 x	0.033	0.033	1 x	0.032	0.032	0.99 x
Total Aluminum	mg/L	0.1	0.085	0.085	1 x	0.1	0.1	n/a	0.098	***0.11***	1.1 x
Total Antimony	mg/L	-	0.000033	0.000033	1 x	0.00004	0.00004	1 x	0.000046	0.00011	2.4 x
Total Arsenic	mg/L	0.005	0.00034	0.00034	1 x	0.00041	0.0005	1.2 x	0.00059	***0.0064***	11 x
Total Barium	mg/L	-	0.0043	0.0043	1 x	0.0051	0.0051	1 x	0.0051	0.0052	1 x
Total Beryllium	mg/L	0.1	0.0000056	0.0000058	1 x	0.000007	0.0000074	1.1 x	0.0000093	0.000013	1.4 x
Total Boron	mg/L	0.5	0.037	0.037	1 x	0.045	0.045	1 x	0.066	0.07	1.1 x
Total Cadmium	mg/L	0.00012	0.0000055	0.0000055	1 x	0.0000066	0.0000067	1 x	0.0000074	0.000013	1.8 x
Total Calcium	mg/L	-	9.9	9.9	1 x	12	12	1 x	14	15	1.1 x
Total Chromium	mg/L	0.001	0.00055	0.00055	1 x	0.00066	0.00066	1 x	0.00074	0.00078	1.1 x
Total Cobalt	mg/L	0.05	0.000061	0.000062	1 x	0.000074	0.000079	1.1 x	0.000074	0.0005	6.7 x
Total Copper	mg/L	0.002	0.0016	0.0016	1 x	0.002	0.002	1 x	***0.0024***	***0.0027***	1.1 x
Total Iron	mg/L	0.3	0.22	0.22	1 x	0.25	0.26	1 x	0.17	0.19	1.1 x
Total Lead	mg/L	0.001	0.000074	0.000074	1 x	0.000089	0.000089	1 x	0.00017	0.0002	1.2 x
Total Lithium	mg/L	2.5	0.0044	0.0044	1 x	0.0053	0.0053	1 x	0.006	0.0063	1 x
Total Magnesium	mg/L	-	7.2	7.2	1 x	8.7	8.7	1 x	10	10	1 x
Total Manganese	mg/L	0.2	0.03	0.03	1 x	0.036	0.036	1 x	0.039	0.046	1.2 x
Total Mercury	mg/L	0.000016	0.00000097	0.0000011	1.1 x	0.0000012	0.0000014	1.2 x	0.00000085	0.0000018	2.1 x
Total Molybdenum	mg/L	0.01	0.00019	0.00019	1 x	0.00023	0.00024	1 x	0.00033	0.00036	1.1 x
Total Nickel	mg/L	0.025	0.00073	0.00074	1 x	0.00088	0.00089	1 x	0.00098	0.0024	2.5 x
Total Selenium	mg/L	0.001	0.00022	0.00022	1 x	0.00026	0.00026	1 x	0.0003	0.00031	1.1 x
Total Silver	mg/L	0.00025	0.0000055	0.0000055	1 x	0.0000066	0.0000066	1 x	0.0000074	0.0000083	1.1 x
Total Sodium	mg/L	-	37	37	1 x	44	44	1 x	49	48	0.99 x
Total Thallium	mg/L	0.0008	0.0000024	0.0000025	1 x	0.0000029	0.000003	1 x	0.0000041	0.0000056	1.4 x
Total Uranium	mg/L	0.01	0.000041	0.000042	1 x	0.00005	0.000051	1 x	0.000054	0.000059	1.1 x
Total Vanadium	mg/L	0.1	0.00025	0.00025	1 x	0.0003	0.0003	1 x	0.00029	0.00038	1.3 x
Total Zinc	mg/L	0.03	0.0033	0.0033	1 x	0.004	0.004	1 x	0.0045	0.0052	1.2 x
Total Phosphorous	mg/L	Variable	0.027	0.027	1 x	0.033	0.033	1 x	0.032	0.032	0.99 x

[1] ***CCME Exceedance shown in bold italics***

Marine Mixing Box Average and Maximum Concentrations During Operations and Post-Closure - High Groundwater Flow Sensitivity Case															
Parameter	Units	MMER		Operations (2017-2032)						Closure (2033-2036)					
				Average			Maximum			Average			Maximum		
		Current[1]	Proposed[2]	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case
TSS	mg/L	15	15	15	15	n/a	15	15	n/a	12	12	n/a	15	15	n/a
TDS	mg/L	-	-	8800	7500	0.85 x	32000	32000	1 x	310	330	1.1 x	1200	1500	1.3 x
Fluoride	mg/L	-	-	0.29	0.23	0.82 x	0.74	0.74	1 x	0.057	0.057	1 x	0.093	0.1	1.1 x
Chloride	mg/L	-	-	4800	4100	0.87 x	18000	18000	1 x	94	110	1.2 x	490	690	1.4 x
Free Cyanide	mg/L	-	-	0.00072	0.00078	1.1 x	0.0012	0.0012	n/a	0.00048	0.00048	1 x	0.00077	0.00077	n/a
Total Cyanide	mg/L	1	0.5	0.024	0.017	0.7 x	0.23	0.17	0.74 x	0.0011	0.00071	0.64 x	0.0092	0.0035	0.38 x
WAD Cyanide	mg/L	-	-	0.1	0.079	0.75 x	0.3	0.22	0.74 x	0.029	0.028	0.97 x	0.087	0.078	0.9 x
Cyanate	mg/L	-	-	0.95	0.65	0.69 x	5.4	3.7	0.67 x	0.15	0.12	0.8 x	2.1	1.7	0.79 x
Thiocyanate	mg/L	-	-	1.2	0.83	0.7 x	6.2	4.2	0.67 x	0.041	0.02	0.5 x	0.56	0.27	0.49 x
Ammonia	mg/L as N	-	Variable	8.7	4.9	0.57 x	14	10	0.76 x	1.5	1.3	0.85 x	11	8	0.72 x
Nitrate	mg/L as N	-	-	16	8	0.5 x	32	18	0.56 x	1.6	1.1	0.73 x	9.1	3.1	0.34 x
Nitrite	mg/L as N	-	-	0.24	0.18	0.76 x	0.91	0.68	0.74 x	0.2	0.2	0.97 x	0.61	0.54	0.89 x
Sulphate	mg/L	-	-	800	580	0.73 x	2000	2000	1 x	77	78	1 x	230	240	1 x
Alkalinity	mg/L	-	-	100	79	0.78 x	260	200	0.77 x	71	70	0.99 x	130	120	0.92 x
Hardness	mg/L	-	-	2900	2600	0.87 x	11000	11000	n/a	200	210	1.1 x	510	650	1.3 x
Dissolved Aluminum	mg/L	-	-	0.11	0.086	0.78 x	0.32	0.22	0.67 x	0.15	0.15	0.98 x	0.35	0.31	0.9 x
Dissolved Antimony	mg/L	-	-	0.0076	0.0051	0.67 x	0.032	0.024	0.74 x	0.005	0.0049	0.98 x	0.013	0.012	0.91 x
Dissolved Arsenic	mg/L	0.5	0.1	0.01	0.01	n/a	0.01	0.01	n/a	0.0081	0.0081	n/a	0.01	0.01	n/a
Dissolved Barium	mg/L	-	-	0.047	0.039	0.85 x	0.12	0.13	1 x	0.039	0.039	1 x	0.057	0.057	n/a
Dissolved Beryllium	mg/L	-	-	0.001	0.00075	0.73 x	0.0047	0.0032	0.68 x	0.0018	0.0018	0.98 x	0.0054	0.0049	0.9 x
Dissolved Boron	mg/L	-	-	0.85	0.7	0.82 x	2.8	2.8	1 x	0.098	0.1	1 x	0.18	0.22	1.2 x
Dissolved Cadmium	mg/L	-	-	0.00012	0.000091	0.74 x	0.00037	0.00027	0.75 x	0.000057	0.000056	0.98 x	0.00015	0.00013	0.9 x
Dissolved Calcium	mg/L	-	-	640	510	0.79 x	2000	2000	1 x	61	59	0.97 x	200	180	0.87 x
Dissolved Chromium	mg/L	-	-	0.003	0.0023	0.75 x	0.014	0.01	0.75 x	0.0017	0.0017	0.98 x	0.0037	0.0035	0.94 x
Dissolved Cobalt	mg/L	-	-	0.02	0.0089	0.44 x	0.058	0.017	0.3 x	0.0021	0.002	0.99 x	0.0043	0.004	0.93 x
Dissolved Copper	mg/L	0.3	0.1	0.008	0.0058	0.72 x	0.03	0.023	0.75 x	0.0051	0.0051	0.99 x	0.0084	0.0081	0.96 x
Dissolved Iron	mg/L	-	-	0.5	0.5	n/a	0.5	0.5	n/a	0.4	0.4	n/a	0.5	0.5	n/a
Dissolved Lead	mg/L	0.2	0.08	0.00036	0.00026	0.72 x	0.00087	0.00087	1 x	0.00026	0.00026	0.98 x	0.00064	0.00058	0.91 x
Dissolved Lithium	mg/L	-	-	0.095	0.082	0.86 x	0.34	0.35	1 x	0.0067	0.007	1.1 x	0.014	0.019	1.3 x
Dissolved Magnesium	mg/L	-	-	380	320	0.85 x	1300	1300	1 x	26	27	1.1 x	67	84	1.3 x
Dissolved Manganese	mg/L	-	-	0.58	0.46	0.79 x	1.8	1.8	1 x	0.04	0.042	1 x	0.08	0.1	1.3 x
Dissolved Mercury	mg/L	-	-	0.000036	0.000025	0.7 x	0.000075	0.000057	0.75 x	0.0000054	0.0000054	1 x	0.0000085	0.0000087	1 x
Dissolved Molybdenum	mg/L	-	-	0.033	0.025	0.76 x	0.15	0.11	0.74 x	0.016	0.016	0.98 x	0.046	0.041	0.9 x
Dissolved Nickel	mg/L	0.5	0.25	0.072	0.033	0.45 x	0.2	0.07	0.35 x	0.0055	0.0054	0.98 x	0.013	0.012	0.93 x
Dissolved Selenium	mg/L	-	-	0.0043	0.0029	0.68 x	0.014	0.01	0.75 x	0.0014	0.0013	0.98 x	0.0034	0.0031	0.91 x
Dissolved Silver	mg/L	-	-	0.00023	0.00018	0.77 x	0.00085	0.00075	0.88 x	0.000099	0.000097	0.98 x	0.00027	0.00025	0.9 x
Dissolved Sodium	mg/L	-	-	2200	1900	0.88 x	8700	8700	n/a	47	57	1.2 x	210	340	1.6 x
Dissolved Thallium	mg/L	-	-	0.00011	0.000072	0.68 x	0.00032	0.00024	0.74 x	0.000057	0.000056	0.98 x	0.00014	0.00013	0.93 x
Dissolved Uranium	mg/L	-	-	0.00029	0.00021	0.71 x	0.0011	0.00084	0.75 x	0.00027	0.00026	0.98 x	0.00064	0.00057	0.9 x
Dissolved Vanadium	mg/L	-	-	0.004	0.0024	0.6 x	0.012	0.0091	0.74 x	0.0029	0.0029	0.98 x	0.0074	0.0067	0.92 x
Dissolved Zinc	mg/L	0.5	0.4	0.05	0.041	0.83 x	0.15	0.16	1 x	0.0092	0.0093	1 x	0.022	0.022	1 x
Dissolved Phosphorous	mg/L	-	-	0.26	0.23	0.89 x	0.97	0.97	n/a	0.018	0.019	1.1 x	0.04	0.054	1.4 x
Total Aluminum	mg/L	-	-	0.35	0.33	0.96 x	0.55	0.46	0.85 x	0.15	0.15	0.99 x	0.36	0.33	0.91 x
Total Antimony	mg/L	-	-	0.0076	0.0051	0.67 x	0.033	0.024	0.74 x	0.005	0.0049	0.98 x	0.013	0.012	0.91 x
Total Arsenic	mg/L	0.5	0.1	0.014	0.014	n/a	0.015	0.015	n/a	0.0081	0.0081	n/a	0.01	0.01	n/a
Total Barium	mg/L	-	-	0.047	0.04	0.85 x	0.12	0.13	1 x	0.039	0.039	1 x	0.057	0.057	n/a
Total Beryllium	mg/L	-	-	0.001	0.00075	0.73 x	0.0047	0.0032	0.68 x	0.0018	0.0018	0.98 x	0.0054	0.0049	0.9 x
Total Boron	mg/L	-	-	0.85	0.7	0.82 x	2.8	2.8	1 x	0.098	0.1	1 x	0.18	0.22	1.2 x
Total Cadmium	mg/L	-	-	0.00012	0.000093	0.75 x	0.00037	0.00028	0.75 x	0.000057	0.000056	0.98 x	0.00015	0.00013	0.9 x
Total Calcium	mg/L	-	-	640	510	0.79 x	2000	2000	1 x	61	60	0.97 x	200	180	0.87 x
Total Chromium	mg/L	-	-	0.0062	0.0055	0.89 x	0.017	0.014	0.81 x	0.0018	0.0018	0.99 x	0.0039	0.0037	0.94 x
Total Cobalt	mg/L	-	-	0.021	0.0097	0.46 x	0.059	0.018	0.31 x	0.0021	0.0021	0.99 x	0.0044	0.0041	0.93 x
Total Copper	mg/L	0.3	0.1	0.0093	0.0072	0.77 x	0.031	0.024	0.77 x	0.0052	0.0051	0.99 x	0.0085	0.0082	0.95 x
Total Iron	mg/L	-	-	1.3	1.3	n/a	1.4	1.4	n/a	0.4	0.4	n/a	0.5	0.5	n/a
Total Lead	mg/L	0.2	0.08	0.00042	0.00033	0.77 x	0.00092	0.00092	1 x	0.00027	0.00026	0.98 x	0.00064	0.00058	0.91 x
Total Lithium	mg/L	-	-	0.095	0.082	0.86 x	0.34	0.35	1 x	0.0067	0.007	1.1 x	0.014	0.019	1.3 x
Total Magnesium	mg/L	-	-	380	320	0.85 x	1300	1300	1 x	26	28	1.1 x	67	84	1.3 x
Total Manganese	mg/L	-	-	0.61	0.49	0.8 x	1.8	1.8	1 x	0.042	0.044	1 x	0.083	0.11	1.3 x
Total Mercury	mg/L	-	-	0.00025	0.00024	0.98 x	0.0003	0.00029	0.96 x	0.000018	0.000018	1 x	0.000034	0.000035	1 x
Total Molybdenum	mg/L	-	-	0.033	0.025	0.76 x	0.15	0.11	0.74 x	0.016	0.016	0.98 x	0.046	0.041	0.9 x
Total Nickel	mg/L	0.5	0.25	0.077	0.038	0.49 x	0.2	0.075	0.37 x	0.0056	0.0055	0.98 x	0.013	0.012	0.93 x
Total Selenium	mg/L	-	-	0.0043	0.0029	0.68 x	0.014	0.01	0.75 x	0.0014	0.0013	0.98 x	0.0034	0.0031	0.91 x
Total Silver	mg/L	-	-	0.00024	0.00018	0.77 x	0.00085	0.00075	0.88 x	0.000099	0.000097	0.98 x	0.00027	0.00025	0.9 x
Total Sodium	mg/L	-	-	2200	1900	0.88 x	8700	8700	n/a	47	57	1.2 x	210	340	1.6 x
Total Thallium	mg/L	-	-	0.00011	0.000074	0.69 x	0.00032	0.00024	0.75 x	0.000057	0.000056	0.98 x	0.00014	0.00013	0.93 x
Total Uranium	mg/L	-	-	0.0003	0.00021	0.71 x	0.0011	0.00085	0.75 x	0.00027	0.00026	0.98 x	0.00064	0.00057	0.9 x
Total Vanadium	mg/L	-	-	0.0052	0.0037	0.71 x	0.013	0.01	0.78 x	0.0029	0.0029	0.98 x	0.0074	0.0068	0.91 x
Total Zinc	mg/L	0.5	0.4	0.051	0.042	0.83 x	0.16	0.16	1 x	0.0093	0.0094	1 x	0.022	0.022	1 x
Total Phosphorous	mg/L	-	-	0.27	0.24	0.89 x	0.98	0.98	n/a	0.018	0.019	1.1 x	0.04	0.054	1.3 x

[1] ***Current MMER Exceedance Shown in bold italics***

[2] Proposed MMER Exceedance shown in grey highlight

Doris TIA Average and Maximum Concentrations During Operations and Post-Closure - High Groundwater Flow Sensitivity Case															
Parameter	Units	MMER		Operations						Post-Closure					
				Average			Maximum			Average			Maximum		
		Current[1]	Proposed[2]	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case
TSS	mg/L	15	15	2.8	2.8	n/a	11	11	n/a	3.3	3.3	n/a	3.9	3.9	n/a
TDS	mg/L	-	-	540	540	n/a	3100	3100	n/a	130	130	n/a	130	130	n/a
Fluoride	mg/L	-	-	0.091	0.091	n/a	0.33	0.33	n/a	0.049	0.049	n/a	0.051	0.051	n/a
Chloride	mg/L	-	-	190	190	n/a	1700	1700	n/a	39	39	n/a	39	39	n/a
Free Cyanide	mg/L	-	-	0.0015	0.0015	n/a	0.0096	0.0096	n/a	0.00062	0.00062	n/a	0.00062	0.00062	n/a
Total Cyanide	mg/L	1	0.5	0.0054	0.0054	n/a	0.42	0.42	n/a	0.00062	0.00062	n/a	0.00062	0.00062	n/a
WAD Cyanide	mg/L	-	-	0.081	0.081	n/a	0.45	0.45	n/a	-	-	n/a	-	-	n/a
Cyanate	mg/L	-	-	0.24	0.24	n/a	19	19	n/a	-	-	n/a	-	-	n/a
Thiocyanate	mg/L	-	-	0.22	0.22	n/a	15	15	n/a	-	-	n/a	-	-	n/a
Ammonia	mg/L as N	-	Variable	3.8	3.8	n/a	35	35	n/a	0.0031	0.0031	n/a	0.0031	0.0031	n/a
Nitrate	mg/L as N	-	-	4.3	4.3	n/a	18	18	n/a	0.0031	0.0031	n/a	0.0031	0.0031	n/a
Nitrite	mg/L as N	-	-	0.35	0.35	n/a	3.1	3.1	n/a	0.00062	0.00062	n/a	0.00062	0.00062	n/a
Sulphate	mg/L	-	-	140	140	n/a	1000	1000	n/a	6.8	6.8	n/a	6.9	6.9	n/a
Alkalinity	mg/L	-	-	89	89	n/a	570	570	n/a	53	53	n/a	54	54	n/a
Hardness	mg/L	-	-	310	310	n/a	1500	1500	n/a	130	130	n/a	130	130	n/a
Dissolved Aluminum	mg/L	-	-	0.13	0.13	n/a	1.6	1.6	n/a	0.071	0.071	n/a	0.073	0.073	n/a
Dissolved Antimony	mg/L	-	-	0.0087	0.0087	n/a	0.064	0.064	n/a	0.00095	0.00095	n/a	0.00096	0.00096	n/a
Dissolved Arsenic	mg/L	0.5	0.1	0.19	0.19	n/a	**1.2**	**1.2**	n/a	0.064	0.064	n/a	0.064	0.064	n/a
Dissolved Barium	mg/L	-	-	0.033	0.033	n/a	0.15	0.15	n/a	0.051	0.051	n/a	0.051	0.051	n/a
Dissolved Beryllium	mg/L	-	-	0.0017	0.0017	n/a	0.028	0.028	n/a	0.000043	0.000043	n/a	0.000043	0.000043	n/a
Dissolved Boron	mg/L	-	-	0.12	0.12	n/a	0.44	0.44	n/a	0.083	0.083	n/a	0.084	0.084	n/a
Dissolved Cadmium	mg/L	-	-	0.00012	0.00012	n/a	0.00072	0.00072	n/a	0.000014	0.000014	n/a	0.000014	0.000014	n/a
Dissolved Calcium	mg/L	-	-	82	82	n/a	620	620	n/a	22	22	n/a	22	22	n/a
Dissolved Chromium	mg/L	-	-	0.0038	0.0038	n/a	0.019	0.019	n/a	0.00068	0.00068	n/a	0.00068	0.00068	n/a
Dissolved Cobalt	mg/L	-	-	0.0041	0.0041	n/a	0.018	0.018	n/a	0.00015	0.00015	n/a	0.00015	0.00015	n/a
Dissolved Copper	mg/L	0.3	0.1	0.0092	0.0092	n/a	0.041	0.041	n/a	0.0042	0.0042	n/a	0.0043	0.0043	n/a
Dissolved Iron	mg/L	-	-	0.48	0.48	n/a	2.8	2.8	n/a	0.1	0.1	n/a	0.12	0.12	n/a
Dissolved Lead	mg/L	0.2	0.08	0.00035	0.00035	n/a	0.003	0.003	n/a	0.000072	0.000072	n/a	0.000072	0.000072	n/a
Dissolved Lithium	mg/L	-	-	0.013	0.013	n/a	0.05	0.05	n/a	0.0037	0.0037	n/a	0.0038	0.0038	n/a
Dissolved Magnesium	mg/L	-	-	41	41	n/a	210	210	n/a	18	18	n/a	18	18	n/a
Dissolved Manganese	mg/L	-	-	0.063	0.063	n/a	0.28	0.28	n/a	0.027	0.027	n/a	0.029	0.029	n/a
Dissolved Mercury	mg/L	-	-	0.000025	0.000025	1 x	0.000096	0.000096	n/a	0.0000044	0.0000044	n/a	0.0000045	0.0000045	n/a
Dissolved Molybdenum	mg/L	-	-	0.041	0.041	n/a	0.23	0.23	n/a	0.0015	0.0015	n/a	0.0015	0.0015	n/a
Dissolved Nickel	mg/L	0.5	0.25	0.016	0.016	n/a	0.088	0.088	n/a	0.00087	0.00087	n/a	0.00088	0.00088	n/a
Dissolved Selenium	mg/L	-	-	0.0033	0.0033	n/a	0.018	0.018	n/a	0.00032	0.00032	n/a	0.00032	0.00032	n/a
Dissolved Silver	mg/L	-	-	0.00032	0.00032	n/a	0.0016	0.0016	n/a	0.000011	0.000011	n/a	0.000011	0.000011	n/a
Dissolved Sodium	mg/L	-	-	110	110	n/a	760	760	n/a	20	20	n/a	21	21	n/a
Dissolved Thallium	mg/L	-	-	0.00013	0.00013	n/a	0.00065	0.00065	n/a	0.00001	0.00001	n/a	0.00001	0.00001	n/a
Dissolved Uranium	mg/L	-	-	0.00036	0.00036	n/a	0.003	0.003	n/a	0.000089	0.000089	n/a	0.00009	0.00009	n/a
Dissolved Vanadium	mg/L	-	-	0.0036	0.0036	n/a	0.036	0.036	n/a	0.00051	0.00051	n/a	0.00051	0.00051	n/a
Dissolved Zinc	mg/L	0.5	0.4	0.013	0.013	n/a	0.091	0.091	n/a	0.0031	0.0031	n/a	0.0031	0.0031	n/a
Dissolved Phosphorous	mg/L	-	-	0.028	0.028	n/a	0.13	0.13	n/a	0.015	0.015	n/a	0.017	0.017	n/a
Total Aluminum	mg/L	-	-	0.13	0.13	n/a	1.7	1.7	n/a	0.073	0.073	n/a	0.075	0.075	n/a
Total Antimony	mg/L	-	-	0.0087	0.0087	n/a	0.064	0.064	n/a	0.00095	0.00095	n/a	0.00096	0.00096	n/a
Total Arsenic	mg/L	0.5	0.1	0.19	0.19	n/a	**1.2**	**1.2**	n/a	0.064	0.064	n/a	0.064	0.064	n/a
Total Barium	mg/L	-	-	0.033	0.033	n/a	0.15	0.15	n/a	0.051	0.051	n/a	0.051	0.051	n/a
Total Beryllium	mg/L	-	-	0.0017	0.0017	n/a	0.028	0.028	n/a	0.000043	0.000043	n/a	0.000043	0.000043	n/a
Total Boron	mg/L	-	-	0.12	0.12	n/a	0.44	0.44	n/a	0.083	0.083	n/a	0.084	0.084	n/a
Total Cadmium	mg/L	-	-	0.00012	0.00012	n/a	0.00072	0.00072	n/a	0.000014	0.000014	n/a	0.000014	0.000014	n/a
Total Calcium	mg/L	-	-	83	83	n/a	620	620	n/a	22	22	n/a	22	22	n/a
Total Chromium	mg/L	-	-	0.004	0.004	n/a	0.02	0.02	n/a	0.00073	0.00073	n/a	0.00074	0.00074	n/a
Total Cobalt	mg/L	-	-	0.0041	0.0041	n/a	0.018	0.018	n/a	0.00016	0.00016	n/a	0.00016	0.00016	n/a
Total Copper	mg/L	0.3	0.1	0.0093	0.0093	n/a	0.041	0.041	n/a	0.0042	0.0042	n/a	0.0043	0.0043	n/a
Total Iron	mg/L	-	-	0.57	0.57	n/a	3.1	3.1	n/a	0.13	0.13	n/a	0.15	0.15	n/a
Total Lead	mg/L	0.2	0.08	0.00036	0.00036	n/a	0.003	0.003	n/a	0.000074	0.000074	n/a	0.000074	0.000074	n/a
Total Lithium	mg/L	-	-	0.013	0.013	n/a	0.05	0.05	n/a	0.0037	0.0037	n/a	0.0038	0.0038	n/a
Total Magnesium	mg/L	-	-	41	41	n/a	210	210	n/a	18	18	n/a	18	18	n/a
Total Manganese	mg/L	-	-	0.066	0.066	n/a	0.29	0.29	n/a	0.027	0.027	n/a	0.03	0.03	n/a
Total Mercury	mg/L	-	-	0.000044	0.000044	n/a	0.00017	0.00017	n/a	0.0000095	0.0000095	n/a	0.0000097	0.0000097	n/a
Total Molybdenum	mg/L	-	-	0.041	0.041	n/a	0.23	0.23	n/a	0.0015	0.0015	n/a	0.0015	0.0015	n/a
Total Nickel	mg/L	0.5	0.25	0.016	0.016	n/a	0.089	0.089	n/a	0.00091	0.00091	n/a	0.00092	0.00092	n/a
Total Selenium	mg/L	-	-	0.0033	0.0033	n/a	0.018	0.018	n/a	0.00032	0.00032	n/a	0.00032	0.00032	n/a
Total Silver	mg/L	-	-	0.00032	0.00032	n/a	0.0016	0.0016	n/a	0.000011	0.000011	n/a	0.000011	0.000011	n/a
Total Sodium	mg/L	-	-	110	110	n/a	760	760	n/a	20	20	n/a	21	21	n/a
Total Thallium	mg/L	-	-	0.00013	0.00013	n/a	0.00065	0.00065	n/a	0.00001	0.00001	n/a	0.00001	0.00001	n/a
Total Uranium	mg/L	-	-	0.00036	0.00036	n/a	0.003	0.003	n/a	0.000089	0.000089	n/a	0.00009	0.00009	n/a
Total Vanadium	mg/L	-	-	0.0036	0.0036	n/a	0.036	0.036	n/a	0.00052	0.00052	n/a	0.00052	0.00052	n/a
Total Zinc	mg/L	0.5	0.4	0.013	0.013	n/a	0.091	0.091	n/a	0.0031	0.0031	n/a	0.0031	0.0031	n/a
Total Phosphorous	mg/L	-	-	0.028	0.028	n/a	0.13	0.13	n/a	0.015	0.015	n/a	0.017	0.017	n/a

[1] ***Current MMER Exceedance Shown in bold italics***

[2] Proposed MMER Exceedance shown in grey highlight

PO Lake Average and Maximum Concenrations During Operations and Post-Closure - High Groundwater Flow Sensitivity Case														
Parameter	Units	Min CCME[2]	Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case
TSS	mg/L	Variable	5.1	5	1 x	14	14	n/a	5.6	5.6	n/a	15	15	n/a
TDS	mg/L	-	170	170	n/a	480	460	1 x	190	190	n/a	510	510	n/a
Fluoride	mg/L	0.12	0.06	0.059	1 x	***0.16***	***0.16***	n/a	0.065	0.064	1 x	***0.17***	***0.17***	n/a
Chloride	mg/L	120	70	69	1 x	***190***	***190***	n/a	76	75	1 x	***200***	***200***	n/a
Free Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0031	0.003	1 x	0.0012	0.0012	n/a	0.0033	0.0033	n/a
Total Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0031	0.003	1 x	0.0012	0.0012	n/a	0.0033	0.0033	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0056	0.0056	n/a	0.015	0.015	n/a	0.0061	0.0061	n/a	0.016	0.016	n/a
Nitrate	mg/L as N	3	0.0056	0.0056	n/a	0.015	0.015	n/a	0.0061	0.0061	n/a	0.016	0.016	n/a
Nitrite	mg/L as N	10	0.0011	0.0011	n/a	0.0031	0.003	1 x	0.0012	0.0012	n/a	0.0033	0.0033	n/a
Sulphate	mg/L	1000	3	3	n/a	8.4	8.1	1 x	3.4	3.3	1 x	9.2	9.2	n/a
Alkalinity	mg/L	-	33	32	1 x	91	88	1 x	36	36	n/a	98	98	n/a
Hardness	mg/L	-	54	54	n/a	150	150	n/a	59	59	n/a	160	160	n/a
Dissolved Aluminum	mg/L	0.1	0.065	0.064	1 x	***0.18***	***0.17***	0.9 x	0.069	0.069	n/a	***0.19***	***0.19***	n/a
Dissolved Antimony	mg/L	-	0.000027	0.000026	1 x	0.000075	0.000073	1 x	0.000032	0.000032	n/a	0.000089	0.000089	n/a
Dissolved Arsenic	mg/L	0.005	0.00032	0.00031	1 x	0.00092	0.00089	1 x	0.00066	0.00066	n/a	0.0019	0.0019	n/a
Dissolved Barium	mg/L	-	0.004	0.0039	1 x	0.011	0.011	n/a	0.0043	0.0043	n/a	0.012	0.012	n/a
Dissolved Beryllium	mg/L	0.1	0.0000058	0.0000058	n/a	0.000017	0.000016	0.9 x	0.0000071	0.0000071	n/a	0.00002	0.00002	n/a
Dissolved Boron	mg/L	0.5	0.035	0.035	n/a	0.097	0.094	1 x	0.038	0.038	n/a	0.1	0.1	n/a
Dissolved Cadmium	mg/L	0.00012	0.0000056	0.0000056	n/a	0.000016	0.000015	0.9 x	0.0000062	0.0000061	1 x	0.000017	0.000017	n/a
Dissolved Calcium	mg/L	-	9.8	9.7	1 x	27	26	1 x	11	11	n/a	29	29	n/a
Dissolved Chromium	mg/L	0.001	0.00056	0.00056	n/a	***0.0015***	***0.0015***	n/a	0.00061	0.0006	1 x	***0.0016***	***0.0016***	n/a
Dissolved Cobalt	mg/L	0.05	0.000057	0.000056	1 x	0.00016	0.00015	0.9 x	0.000067	0.000067	n/a	0.00018	0.00018	n/a
Dissolved Copper	mg/L	0.002	0.0016	0.0016	n/a	***0.0044***	***0.0043***	1 x	0.0018	0.0018	n/a	***0.0049***	***0.0049***	n/a
Dissolved Iron	mg/L	0.3	0.18	0.18	n/a	***0.48***	***0.48***	n/a	0.18	0.18	n/a	***0.48***	***0.48***	n/a
Dissolved Lead	mg/L	0.001	0.000056	0.000056	n/a	0.00015	0.00015	n/a	0.000061	0.000061	n/a	0.00017	0.00017	n/a
Dissolved Lithium	mg/L	2.5	0.0042	0.0041	1 x	0.011	0.011	n/a	0.0045	0.0045	n/a	0.012	0.012	n/a
Dissolved Magnesium	mg/L	-	7.2	7.2	n/a	20	19	1 x	7.9	7.8	1 x	21	21	n/a
Dissolved Manganese	mg/L	0.2	0.023	0.023	n/a	0.064	0.062	1 x	0.025	0.025	n/a	0.069	0.069	n/a
Dissolved Mercury	mg/L	0.000016	0.0000008	0.00000079	1 x	0.0000022	0.0000022	n/a	0.00000093	0.00000092	1 x	0.0000025	0.0000025	n/a
Dissolved Molybdenum	mg/L	0.01	0.0002	0.0002	n/a	0.00056	0.00054	1 x	0.00022	0.00022	n/a	0.00062	0.00062	n/a
Dissolved Nickel	mg/L	0.025	0.0006	0.00059	1 x	0.0017	0.0016	0.9 x	0.00066	0.00065	1 x	0.0018	0.0018	n/a
Dissolved Selenium	mg/L	0.001	0.00023	0.00022	1 x	0.00062	0.0006	1 x	0.00024	0.00024	n/a	0.00066	0.00066	n/a
Dissolved Silver	mg/L	0.00025	0.0000056	0.0000056	n/a	0.000016	0.000015	0.9 x	0.0000062	0.0000061	1 x	0.000017	0.000017	n/a
Dissolved Sodium	mg/L	-	37	36	1 x	100	99	1 x	40	40	n/a	110	110	n/a
Dissolved Thallium	mg/L	0.0008	0.0000023	0.0000022	1 x	0.0000063	0.0000061	1 x	0.0000025	0.0000025	n/a	0.0000069	0.0000069	n/a
Dissolved Uranium	mg/L	0.01	0.000039	0.000038	1 x	0.00011	0.0001	0.9 x	0.000043	0.000043	n/a	0.00012	0.00012	n/a
Dissolved Vanadium	mg/L	0.1	0.0002	0.0002	n/a	0.00056	0.00055	1 x	0.00023	0.00023	n/a	0.00062	0.00062	n/a
Dissolved Zinc	mg/L	0.03	0.0034	0.0033	1 x	0.0093	0.009	1 x	0.0037	0.0036	1 x	0.0099	0.0099	n/a
Dissolved Phosphorous	mg/L	Variable	0.025	0.025	n/a	0.071	0.069	1 x	0.028	0.028	n/a	0.078	0.078	n/a
Total Aluminum	mg/L	0.1	0.065	0.064	1 x	***0.18***	***0.17***	0.9 x	0.07	0.069	1 x	***0.19***	***0.19***	n/a
Total Antimony	mg/L	-	0.000027	0.000026	1 x	0.000075	0.000073	1 x	0.000032	0.000032	n/a	0.000089	0.000089	n/a
Total Arsenic	mg/L	0.005	0.00032	0.00032	n/a	0.00093	0.0009	1 x	0.00067	0.00066	1 x	0.0019	0.0019	n/a
Total Barium	mg/L	-	0.004	0.0039	1 x	0.011	0.011	n/a	0.0043	0.0043	n/a	0.012	0.012	n/a
Total Beryllium	mg/L	0.1	0.0000058	0.0000058	n/a	0.000017	0.000016	0.9 x	0.0000071	0.0000071	n/a	0.00002	0.00002	n/a
Total Boron	mg/L	0.5	0.035	0.035	n/a	0.097	0.094	1 x	0.038	0.038	n/a	0.1	0.1	n/a
Total Cadmium	mg/L	0.00012	0.0000056	0.0000056	n/a	0.000016	0.000015	0.9 x	0.0000062	0.0000061	1 x	0.000017	0.000017	n/a
Total Calcium	mg/L	-	9.8	9.7	1 x	27	26	1 x	11	11	n/a	29	29	n/a
Total Chromium	mg/L	0.001	0.00056	0.00056	n/a	***0.0015***	***0.0015***	n/a	0.00061	0.00061	n/a	***0.0017***	***0.0017***	n/a
Total Cobalt	mg/L	0.05	0.000057	0.000056	1 x	0.00016	0.00015	0.9 x	0.000068	0.000067	1 x	0.00019	0.00018	0.9 x
Total Copper	mg/L	0.002	0.0016	0.0016	n/a	***0.0044***	***0.0043***	1 x	0.0018	0.0018	n/a	***0.0049***	***0.0049***	n/a
Total Iron	mg/L	0.3	0.18	0.18	n/a	***0.48***	***0.48***	n/a	0.19	0.19	n/a	***0.49***	***0.49***	n/a
Total Lead	mg/L	0.001	0.000056	0.000056	n/a	0.00015	0.00015	n/a	0.000061	0.000061	n/a	0.00017	0.00017	n/a
Total Lithium	mg/L	2.5	0.0042	0.0041	1 x	0.011	0.011	n/a	0.0045	0.0045	n/a	0.012	0.012	n/a
Total Magnesium	mg/L	-	7.2	7.2	n/a	20	19	1 x	7.9	7.8	1 x	21	21	n/a
Total Manganese	mg/L	0.2	0.023	0.023	n/a	0.064	0.062	1 x	0.025	0.025	n/a	0.069	0.069	n/a
Total Mercury	mg/L	0.000016	0.0000009	0.00000088	1 x	0.0000029	0.0000028	1 x	0.0000014	0.0000014	n/a	0.000004	0.000004	n/a
Total Molybdenum	mg/L	0.01	0.0002	0.0002	n/a	0.00056	0.00054	1 x	0.00022	0.00022	n/a	0.00062	0.00062	n/a
Total Nickel	mg/L	0.025	0.0006	0.00059	1 x	0.0017	0.0016	0.9 x	0.00066	0.00066	n/a	0.0018	0.0018	n/a
Total Selenium	mg/L	0.001	0.00023	0.00022	1 x	0.00062	0.0006	1 x	0.00024	0.00024	n/a	0.00066	0.00066	n/a
Total Silver	mg/L	0.00025	0.0000056	0.0000056	n/a	0.000016	0.000015	0.9 x	0.0000062	0.0000061	1 x	0.000017	0.000017	n/a
Total Sodium	mg/L	-	37	36	1 x	100	99	1 x	40	40	n/a	110	110	n/a
Total Thallium	mg/L	0.0008	0.0000023	0.0000022	1 x	0.0000063	0.0000061	1 x	0.0000025	0.0000025	n/a	0.0000069	0.0000069	n/a
Total Uranium	mg/L	0.01	0.000039	0.000038	1 x	0.00011	0.0001	0.9 x	0.000043	0.000043	n/a	0.00012	0.00012	n/a
Total Vanadium	mg/L	0.1	0.0002	0.0002	n/a	0.00057	0.00055	1 x	0.00023	0.00023	n/a	0.00062	0.00062	n/a
Total Zinc	mg/L	0.03	0.0034	0.0033	1 x	0.0093	0.009	1 x	0.0037	0.0036	1 x	0.0099	0.0099	n/a
Total Phosphorous	mg/L	Variable	0.025	0.025	n/a	0.071	0.069	1 x	0.028	0.028	n/a	0.078	0.078	n/a

[1] ***CCME Exceedance shown in bold italics***

Ogama Lake Average and Maximum Concentrations During Operations and Post-Closure - High Groundwater Flow Sensitivity Case														
Parameter	Units	Min CCME[2]	Operations						Post-Closure					
			Average Open Water			Maximum Under Ice			Average Open Water			Maximum Under Ice		
			Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case	Base Case	High Flow Case	Increase from Base Case
TSS	mg/L	Variable	4.9	4.8	1 x	13	13	n/a	5.1	5.1	n/a	13	13	n/a
TDS	mg/L	-	170	170	n/a	430	430	n/a	170	170	n/a	440	440	n/a
Fluoride	mg/L	0.12	0.058	0.057	1 x	***0.15***	***0.15***	n/a	0.059	0.059	n/a	***0.15***	***0.15***	n/a
Chloride	mg/L	120	67	67	n/a	***170***	***170***	n/a	69	68	1 x	***180***	***170***	0.9 x
Free Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0028	0.0028	n/a	0.0011	0.0011	n/a	0.0028	0.0028	n/a
Total Cyanide	mg/L	0.005	0.0011	0.0011	n/a	0.0028	0.0028	n/a	0.0011	0.0011	n/a	0.0028	0.0028	n/a
WAD Cyanide	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Thiocyanate	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-
Ammonia	mg/L as N	1.54	0.0054	0.0054	n/a	0.014	0.014	n/a	0.0055	0.0055	n/a	0.014	0.014	n/a
Nitrate	mg/L as N	3	0.0054	0.0054	n/a	0.014	0.014	n/a	0.0055	0.0055	n/a	0.014	0.014	n/a
Nitrite	mg/L as N	10	0.0011	0.0011	n/a	0.0028	0.0028	n/a	0.0011	0.0011	n/a	0.0028	0.0028	n/a
Sulphate	mg/L	1000	2.9	2.9	n/a	7.5	7.4	1 x	3	3	n/a	7.7	7.7	n/a
Alkalinity	mg/L	-	31	31	n/a	82	81	1 x	33	32	1 x	84	84	n/a
Hardness	mg/L	-	52	52	n/a	130	130	n/a	54	53	1 x	140	140	n/a
Dissolved Aluminum	mg/L	0.1	0.062	0.062	n/a	***0.16***	***0.16***	n/a	0.063	0.063	n/a	***0.16***	***0.16***	n/a
Dissolved Antimony	mg/L	-	0.000026	0.000025	1 x	0.000068	0.000067	1 x	0.000028	0.000028	n/a	0.000073	0.000073	n/a
Dissolved Arsenic	mg/L	0.005	0.00031	0.0003	1 x	0.00081	0.0008	1 x	0.00044	0.00044	n/a	0.0012	0.0012	n/a
Dissolved Barium	mg/L	-	0.0038	0.0038	n/a	0.0097	0.0096	1 x	0.0039	0.0039	n/a	0.0098	0.0098	n/a
Dissolved Beryllium	mg/L	0.1	0.0000055	0.0000054	1 x	0.000014	0.000014	n/a	0.0000059	0.0000059	n/a	0.000015	0.000015	n/a
Dissolved Boron	mg/L	0.5	0.034	0.033	1 x	0.087	0.086	1 x	0.035	0.035	n/a	0.089	0.089	n/a
Dissolved Cadmium	mg/L	0.00012	0.0000054	0.0000054	n/a	0.000014	0.000014	n/a	0.0000056	0.0000055	1 x	0.000014	0.000014	n/a
Dissolved Calcium	mg/L	-	9.4	9.4	n/a	24	24	n/a	9.7	9.7	n/a	25	25	n/a
Dissolved Chromium	mg/L	0.001	0.00054	0.00054	n/a	***0.0014***	***0.0014***	n/a	0.00055	0.00055	n/a	***0.0014***	***0.0014***	n/a
Dissolved Cobalt	mg/L	0.05	0.000054	0.000054	n/a	0.00014	0.00014	n/a	0.000058	0.000058	n/a	0.00015	0.00015	n/a
Dissolved Copper	mg/L	0.002	0.0015	0.0015	n/a	***0.004***	***0.0039***	1 x	0.0016	0.0016	n/a	***0.0041***	***0.0041***	n/a
Dissolved Iron	mg/L	0.3	0.17	0.17	n/a	***0.43***	***0.43***	n/a	0.17	0.17	n/a	***0.42***	***0.41***	1 x
Dissolved Lead	mg/L	0.001	0.000054	0.000054	n/a	0.00014	0.00014	n/a	0.000055	0.000055	n/a	0.00014	0.00014	n/a
Dissolved Lithium	mg/L	2.5	0.004	0.004	n/a	0.01	0.01	n/a	0.0041	0.0041	n/a	0.011	0.011	n/a
Dissolved Magnesium	mg/L	-	7	6.9	1 x	18	18	n/a	7.1	7.1	n/a	18	18	n/a
Dissolved Manganese	mg/L	0.2	0.022	0.022	n/a	0.058	0.058	n/a	0.023	0.023	n/a	0.06	0.059	1 x
Dissolved Mercury	mg/L	0.000016	0.00000075	0.00000074	1 x	0.0000019	0.0000019	n/a	0.00000079	0.00000079	n/a	0.000002	0.000002	n/a
Dissolved Molybdenum	mg/L	0.01	0.00019	0.00019	n/a	0.00051	0.0005	1 x	0.0002	0.0002	n/a	0.00053	0.00053	n/a
Dissolved Nickel	mg/L	0.025	0.00057	0.00057	n/a	0.0015	0.0015	n/a	0.00059	0.00059	n/a	0.0015	0.0015	n/a
Dissolved Selenium	mg/L	0.001	0.00022	0.00021	1 x	0.00056	0.00055	1 x	0.00022	0.00022	n/a	0.00057	0.00057	n/a
Dissolved Silver	mg/L	0.00025	0.0000054	0.0000054	n/a	0.000014	0.000014	n/a	0.0000056	0.0000055	1 x	0.000014	0.000014	n/a
Dissolved Sodium	mg/L	-	35	35	n/a	91	90	1 x	36	36	n/a	92	92	n/a
Dissolved Thallium	mg/L	0.0008	0.0000022	0.0000022	n/a	0.0000056	0.0000055	1 x	0.0000022	0.0000022	n/a	0.0000057	0.0000057	n/a
Dissolved Uranium	mg/L	0.01	0.000037	0.000037	n/a	0.000097	0.000095	1 x	0.000039	0.000038	1 x	0.000099	0.000099	n/a
Dissolved Vanadium	mg/L	0.1	0.00019	0.00019	n/a	0.0005	0.00049	1 x	0.0002	0.0002	n/a	0.00051	0.00051	n/a
Dissolved Zinc	mg/L	0.03	0.0032	0.0032	n/a	0.0084	0.0083	1 x	0.0033	0.0033	n/a	0.0085	0.0085	n/a
Dissolved Phosphorous	mg/L	Variable	0.025	0.025	n/a	0.066	0.065	1 x	0.026	0.026	n/a	0.068	0.068	n/a
Total Aluminum	mg/L	0.1	0.062	0.062	n/a	***0.16***	***0.16***	n/a	0.063	0.063	n/a	***0.16***	***0.16***	n/a
Total Antimony	mg/L	-	0.000026	0.000025	1 x	0.000068	0.000067	1 x	0.000028	0.000028	n/a	0.000073	0.000073	n/a
Total Arsenic	mg/L	0.005	0.00031	0.0003	1 x	0.00081	0.0008	1 x	0.00044	0.00044	n/a	0.0012	0.0012	n/a
Total Barium	mg/L	-	0.0038	0.0038	n/a	0.0097	0.0096	1 x	0.0039	0.0039	n/a	0.0098	0.0098	n/a
Total Beryllium	mg/L	0.1	0.0000055	0.0000054	1 x	0.000014	0.000014	n/a	0.0000059	0.0000059	n/a	0.000015	0.000015	n/a
Total Boron	mg/L	0.5	0.034	0.033	1 x	0.087	0.086	1 x	0.035	0.035	n/a	0.089	0.089	n/a
Total Cadmium	mg/L	0.00012	0.0000054	0.0000054	n/a	0.000014	0.000014	n/a	0.0000056	0.0000055	1 x	0.000014	0.000014	n/a
Total Calcium	mg/L	-	9.4	9.4	n/a	24	24	n/a	9.7	9.7	n/a	25	25	n/a
Total Chromium	mg/L	0.001	0.00054	0.00054	n/a	***0.0014***	***0.0014***	n/a	0.00055	0.00055	n/a	***0.0014***	***0.0014***	n/a
Total Cobalt	mg/L	0.05	0.000054	0.000054	n/a	0.00014	0.00014	n/a	0.000058	0.000058	n/a	0.00015	0.00015	n/a
Total Copper	mg/L	0.002	0.0015	0.0015	n/a	***0.004***	***0.0039***	1 x	0.0016	0.0016	n/a	***0.0041***	***0.0041***	n/a
Total Iron	mg/L	0.3	0.17	0.17	n/a	***0.43***	***0.43***	n/a	0.17	0.17	n/a	***0.42***	***0.41***	1 x
Total Lead	mg/L	0.001	0.000054	0.000054	n/a	0.00014	0.00014	n/a	0.000055	0.000055	n/a	0.00014	0.00014	n/a
Total Lithium	mg/L	2.5	0.004	0.004	n/a	0.01	0.01	n/a	0.0041	0.0041	n/a	0.011	0.011	n/a
Total Magnesium	mg/L	-	7	6.9	1 x	18	18	n/a	7.1	7.1	n/a	18	18	n/a
Total Manganese	mg/L	0.2	0.022	0.022	n/a	0.058	0.058	n/a	0.023	0.023	n/a	0.06	0.059	1 x
Total Mercury	mg/L	0.000016	0.00000079	0.00000077	1 x	0.0000022	0.0000021	1 x	0.00000098	0.00000097	1 x	0.0000025	0.0000025	n/a
Total Molybdenum	mg/L	0.01	0.00019	0.00019	n/a	0.00051	0.0005	1 x	0.0002	0.0002	n/a	0.00053	0.00053	n/a
Total Nickel	mg/L	0.025	0.00058	0.00057	1 x	0.0015	0.0015	n/a	0.00059	0.00059	n/a	0.0015	0.0015	n/a
Total Selenium	mg/L	0.001	0.00022	0.00021	1 x	0.00056	0.00055	1 x	0.00022	0.00022	n/a	0.00057	0.00057	n/a
Total Silver	mg/L	0.00025	0.0000054	0.0000054	n/a	0.000014	0.000014	n/a	0.0000056	0.0000055	1 x	0.000014	0.000014	n/a
Total Sodium	mg/L	-	35	35	n/a	91	90	1 x	36	36	n/a	92	92	n/a
Total Thallium	mg/L	0.0008	0.0000022	0.0000022	n/a	0.0000056	0.0000055	1 x	0.0000023	0.0000022	1 x	0.0000058	0.0000057	1 x
Total Uranium	mg/L	0.01	0.000037	0.000037	n/a	0.000097	0.000095	1 x	0.000039	0.000038	1 x	0.000099	0.000099	n/a
Total Vanadium	mg/L	0.1	0.00019	0.00019	n/a	0.0005	0.00049	1 x	0.0002	0.0002	n/a	0.00051	0.00051	n/a
Total Zinc	mg/L	0.03	0.0032	0.0032	n/a	0.0084	0.0083	1 x	0.0033	0.0033	n/a	0.0085	0.0085	n/a
Total Phosphorous	mg/L	Variable	0.025	0.025	n/a	0.066	0.065	1 x	0.026	0.026	n/a	0.068	0.068	n/a

[1] ***CCME Exceedance shown in bold italics***