

APPENDIX 7.II

Site Water Quality Predictions

FORTUNE MINERALS LIMITED DEVELOPER'S ASSESSMENT REPORT

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APPENDICES

Appendix 7.II

Site Water Quality Predictions

Attachment 7.II.1

List of Flows and Water Qualities – Operations, Closure, and Post-Closure Water Quality Predictions

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Attachment 7.II.II

Water Balance - Deterministic Water Balances for Operations, Closure, and Post-closure

Attachment 7.II.III

Input Water Qualities - Operations, Closure, and Post-Closure Water Quality Predictions

Attachment 7.II.IV

Results of Water Quality Predictions – Operations, Closure, and Post-Closure

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List of Flows and Water Qualities – Flooded Open Pit Water Quality Predictions

Attachment 7.II.VI

Water Balance - Summary of Post-Closure Flooded Open Pit Water Balance

Attachment 7.II.VII

Input Water Qualities – Flooded Open Pit Water Quality Predictions

Attachment 7.II.VIII

Flooded Open Pit Water Quality Predictions, Assuming Complete Mixing in the Flooded Open Pit

7.II.1 INTRODUCTION

The results of water quality modelling are often used as a tool to estimate influences on and changes to water quality that could result from proposed mining operations. A site water quality model, to the extent practicable, should include both the natural processes and processes related to mining that could affect site water quality during the key stages of a project.

Three water quality models were developed for the NICO Project, specifically operations, closure, and post-closure. The site water quality model was used to determine the range of site water quality that could be realized from the key site facilities, based on the proposed tailings and mine rock management and water management plans for the NICO Project. Site water quality predictions were completed for the construction, operations, closure, and post-closure periods of the proposed NICO Project. The results of the operations site water quality model form the basis of the estimates of water quality during construction. A hydrodynamic model was used to simulate the physical and chemical processes in the post-closure Flooded Open Pit, for the purpose of determining the potential for stratification of water in the post-closure Flooded Open Pit. A Flooded Open Pit water quality model was developed, based on the results of the hydrodynamic model, to estimate metal concentrations in the post-closure Flooded Open Pit water.

The results of the site water quality predictions formed inputs to the water quality assessment and design of the water management plan and Effluent Treatment Facility (ETF) for the NICO Project. This appendix presents an overview of the model approach (including methods, inputs, and assumptions) for the site water quality predictions for the NICO Project. A summary of the main model results is provided.

7.II.2 BACKGROUND

This section provides an overview of the key information relating to the NICO Project and site layout as understood at the time of model development. The information presented in this section provides the basis for the site water quality predictions. Minor changes to the site layout or model input parameters are not expected to materially change the results of the water quality predictions.

7.II.2.1 Physiographic Setting

The NICO Project is located within the Marian River drainage basin, approximately 10 km east of Hislop Lake at a latitude of 63°33' North and a longitude of 116°45' West. The site has a continental-subarctic climate, marked by short summers. July is the warmest month with a mean temperature of 16.8 °C (Environment Canada; Yellowknife A Weather Station 2010). January is typically the coldest month with a mean temperature of -26.8°C. Winter temperatures range from -15 to -30 °C, with periodic lows of up to -45 °C. Geotechnical investigations at the site have identified zones of discontinuous permafrost.

The NICO Project site has rugged topography. Absolute elevations at the NICO Project site range from 150 to 350 meters above sea level (masl). The NICO ore body is located on the northern slope of a bowl-shaped depression referred to as the "Bowl Zone". The south end of the proposed mine is located on a ridge of exposed bedrock, which slopes down towards the north end of the proposed mine in the Grid Stream depression.

7.II.2.2 Site Layout

Figure 7.II.2-1 presents the proposed site layout. Facilities required to develop the proposed NICO Project include the following:

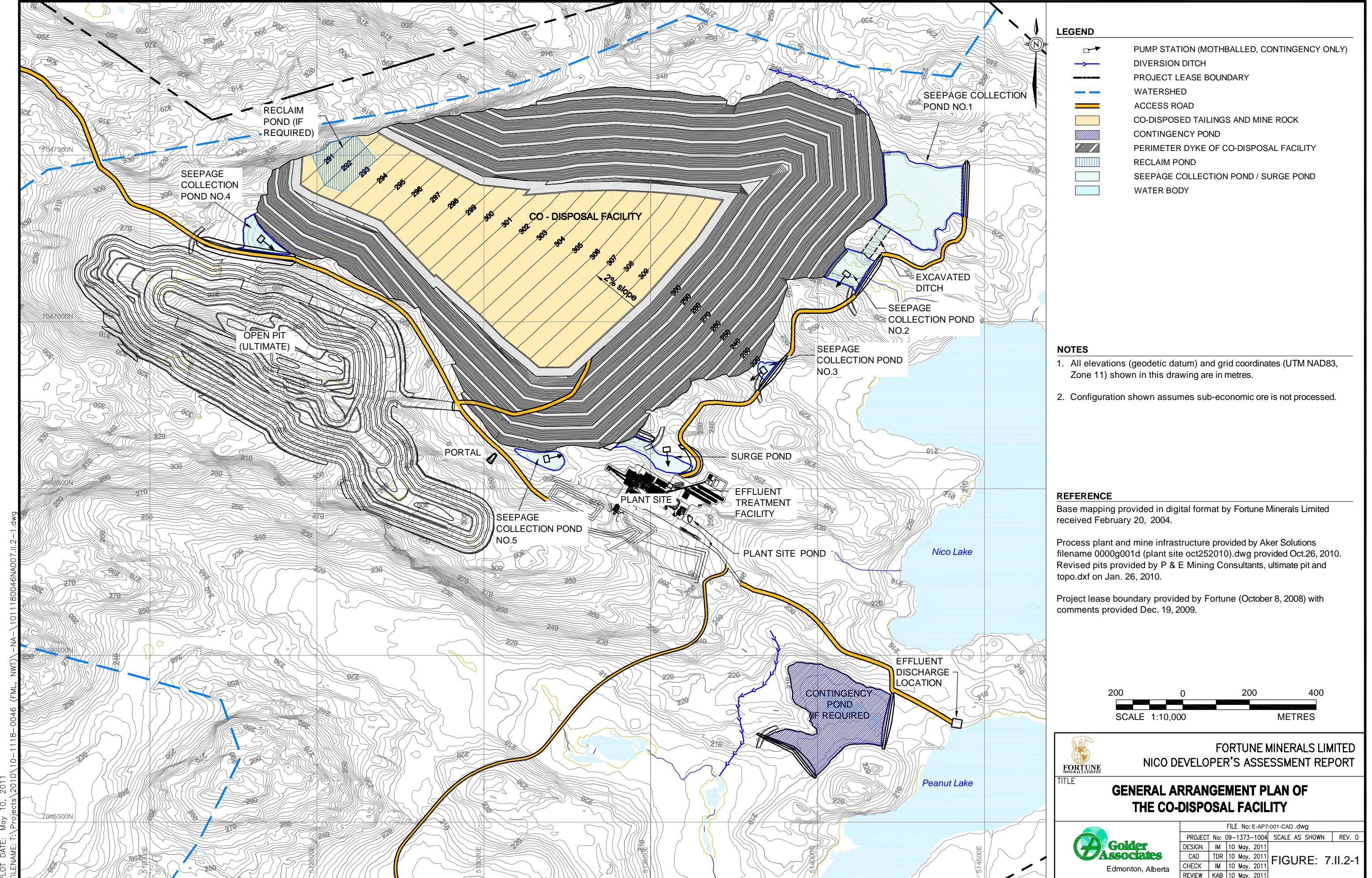
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- Open Pit and underground mine;
- Tailings and Mine Rock Co-Disposal Facility (CDF);
- thickened tailings distribution system;
- Seepage Collection Ponds (SCP);
- Mineral Processing Plant (the Plant);
- Plant site;
- Plant site pond;
- Surge Pond;
- ETF;
- Sewage treatment plant (STP);
- internal access and haul roads;
- drainage control systems;
- pump house and fresh water intake on Lou Lake;
- fuel and chemical storage facilities;
- powder magazine;
- mine access road; and
- borrow areas.

7.II.2.3 Mine Plan

The ore deposit consists of mineralization is hosted in 3 sub-parallel zones in a polymetallic, IOGC type deposit, also referred to as an “Olympic Dam” type deposit. Open pit and underground mining methods will be used to mine ore from the ore deposit.

Underground mining will take place during the first 2 years of mining. Open pit mining will commence at the same time as underground mining. Open pit mining will take place in 3 stages (Phase 1a and Phase 1, Phase 2, and Phase 3). The ultimate depth of the underground mine workings at the termination of underground mining will be approximately 170 m below ground surface. At the end of operations, the Open Pit will be approximately 1450 m long by 500 m wide by 230 m deep (Figure 7.II.2-1).



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A 31 million tonnes (Mt) of ore will be mined over an 18 year mine life. Approximately 6.5 Mt of sub-economic ore and 90.3 Mt of mine rock will be produced during mining. The nominal milling rate is about 1.7 million tonnes per year (Mt/y). The life of mine is estimated at approximately 18 years at the nominal production rate of 4650 tonnes per day (t/day).

7.II.2.4 Water Management

Figures 7.II.2-1 through 7.II.2-4 present the layout of the water management facilities during each phase of mining. A brief overview of the key components of the water management plan for each facility is presented below.

7.II.2.4.1 Water Management during Construction

Key activities that will take place during the construction period will include site construction, dewatering of the underground mine, start of underground mining, pre-stripping of the Open Pit, and Plant start-up. Water management facilities that will need to be completed early in the construction period to impound water that cannot be released without treatment in the ETF are as follows:

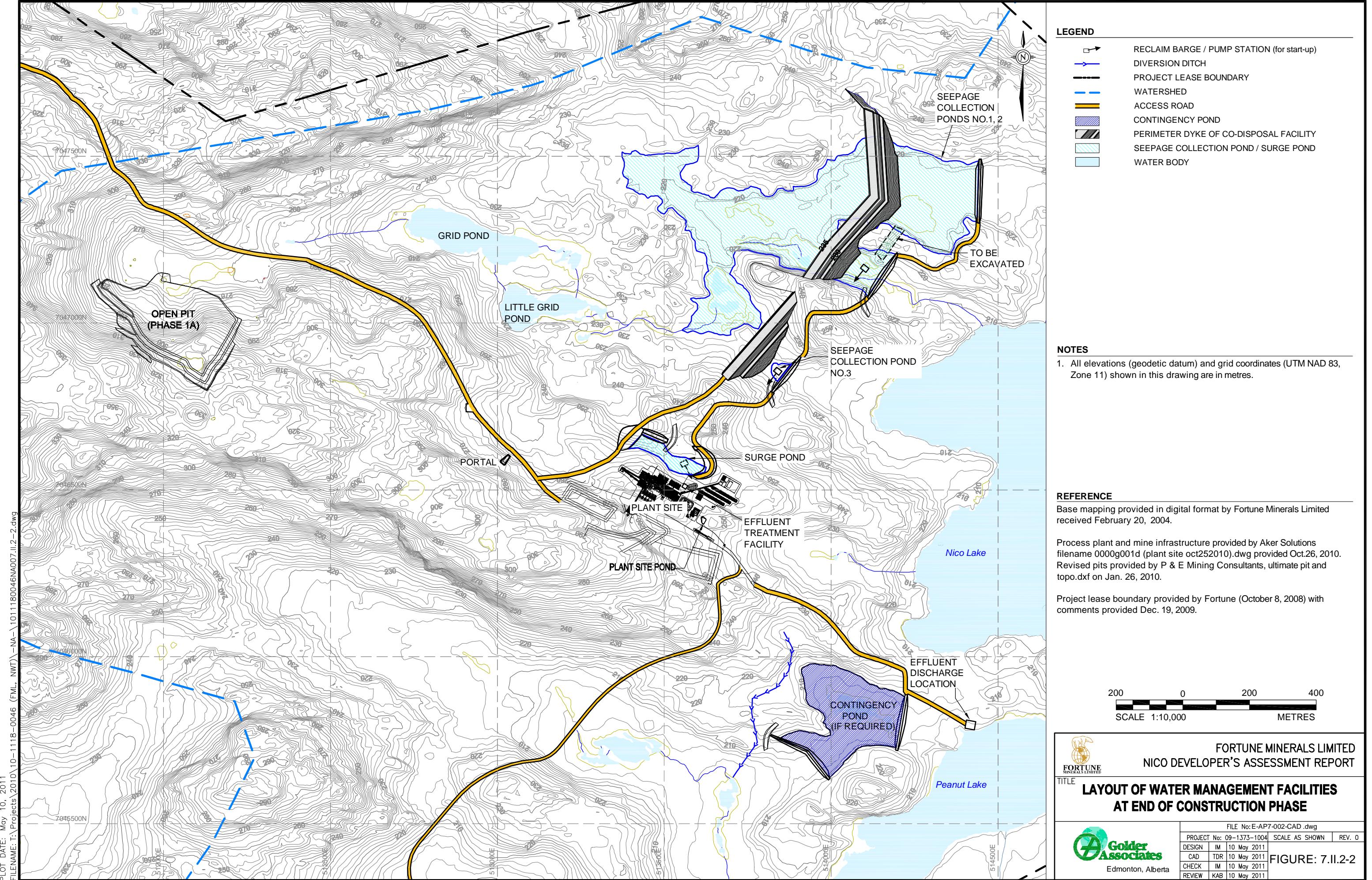
- the Surge Pond;
- SCP No. 3; and
- SCP No. 1 and SCP No. 2, which will be initially combined into a single pond (Figure 7.II.2-2).

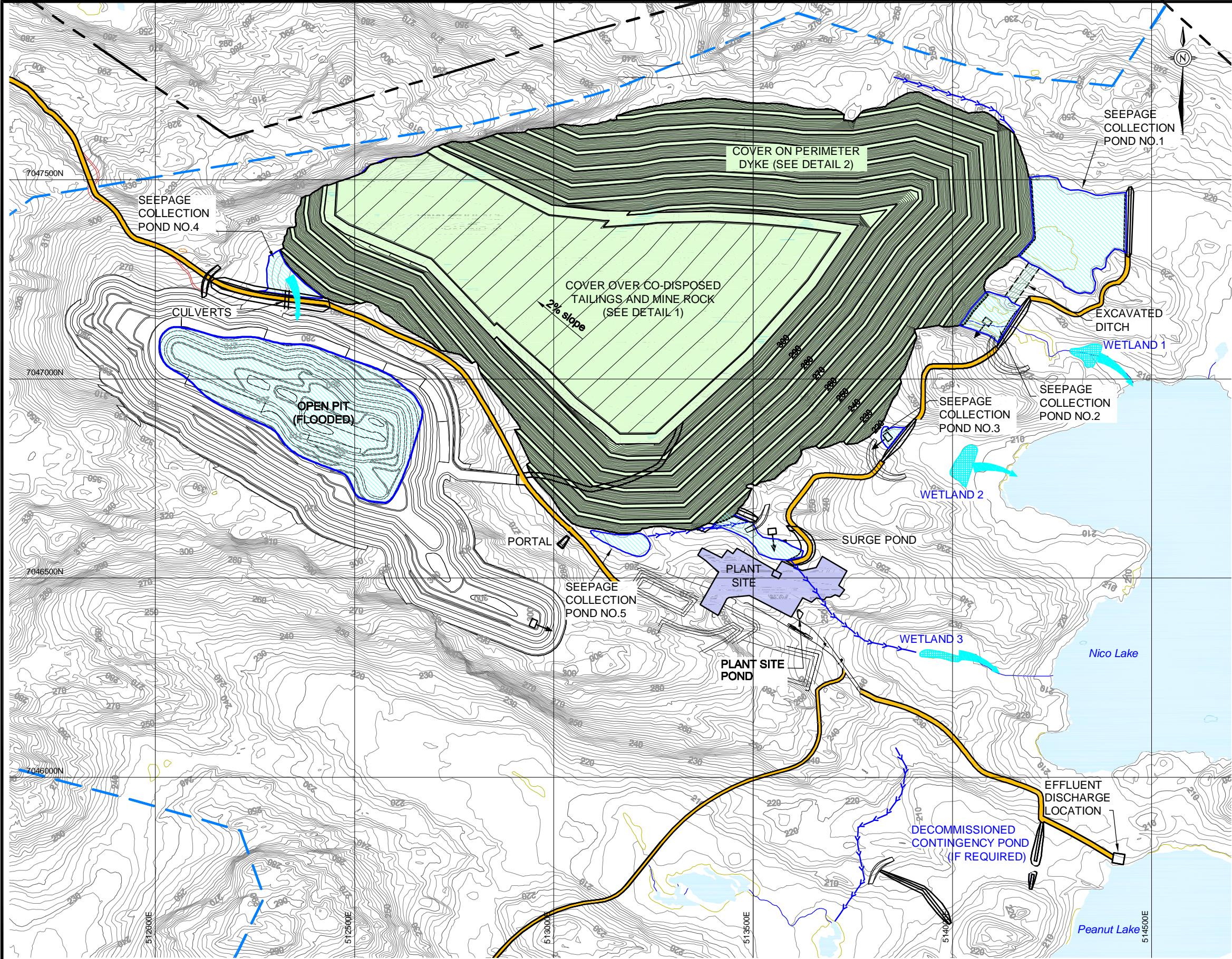
Once the SCP dams have been constructed, water will be impounded in the Grid Ponds. Contact water from the NICO Project will be stored until the ETF is operational. Water that will be impounded may include the following:

- Plant site contact water;
- water pumped from the underground mine workings (underground mine water will be discharged to Peanut Lake if routine monitoring confirms that the composition of mine water meets the site-specific water quality objectives (SSWQO), but any water that does not meet the SSWQO will be impounded until the ETF is operational); and
- contact water collected in sumps during the pre-stripping of the Open Pit.

By start-up, an estimated 160 000 cubic metres (m^3) will be impounded within the Grid Pond area by the CDF Perimeter Dyke. The progressive co-disposal of tailings and Mine Rock upstream of the Perimeter Dyke will displace the impounded water. The pond of impounded water will act as the Reclaim Pond. This initial 160 000 m^3 can be drawn down gradually from the Reclaim Pond over the life of the mine. Therefore, there is no need to design the ETF to treat the Grid Pond water immediately upon start-up. The ETF capacity can be based on the design flows occurring during operations.

Potable water will be withdrawn from Lou Lake during the construction period. Sewage and grey water from the construction camp will be treated with a rotary biologic contractor and discharged to Peanut Lake if the effluent ammonia levels are below the SSWQO. If effluent ammonia levels are above the SSWQO, the flow will be held until the ETF is operational.



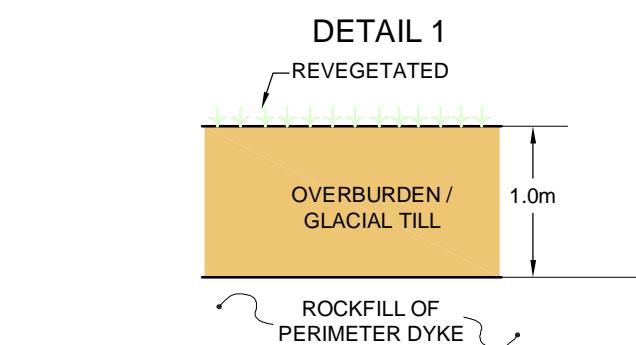
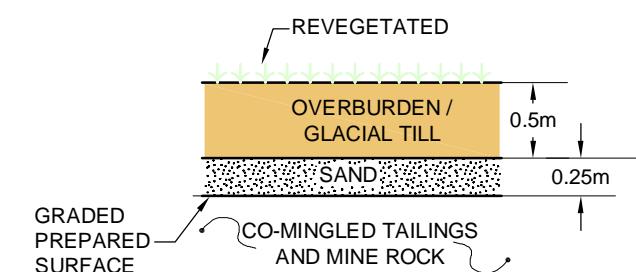


NOTES

- All elevations (geodetic datum) and grid coordinates (UTM NAD 83, Zone 11) shown in this drawing are in metres.
- Water which accumulates in seepage collection ponds 1, 2, 3, and 5 and the surge pond will be passively treated in wetlands and released directly to Nico lake. This is subjected to demonstration of the technical feasibility of wetland treatment. If not feasible, the water will be pumped to the open pit.

LEGEND

	PUMP STATION (MOTHBALLED FOR 10 YEARS THEN REMOVED)
	DIVERSION DITCH
	PROJECT LEASE BOUNDARY
	WATERSHED
	ACCESS ROAD
	CONSTRUCTED WETLAND TREATMENT SYSTEM
	DEMOLISHED AND REVEGETATED
	OVERBURDEN COVER
	WATER BODY



REFERENCE

Base mapping provided in digital format by Fortune Minerals Limited received February 20, 2004.

Process plant and mine infrastructure provided by Aker Solutions filename 0000g001d (plant site oct252010.dwg provided Oct.26, 2010. Revised pits provided by P & E Mining Consultants, ultimate pit and topo.dxf on Jan. 26, 2010.

Project lease boundary provided by Fortune (October 8, 2008) with comments provided Dec. 19, 2009.

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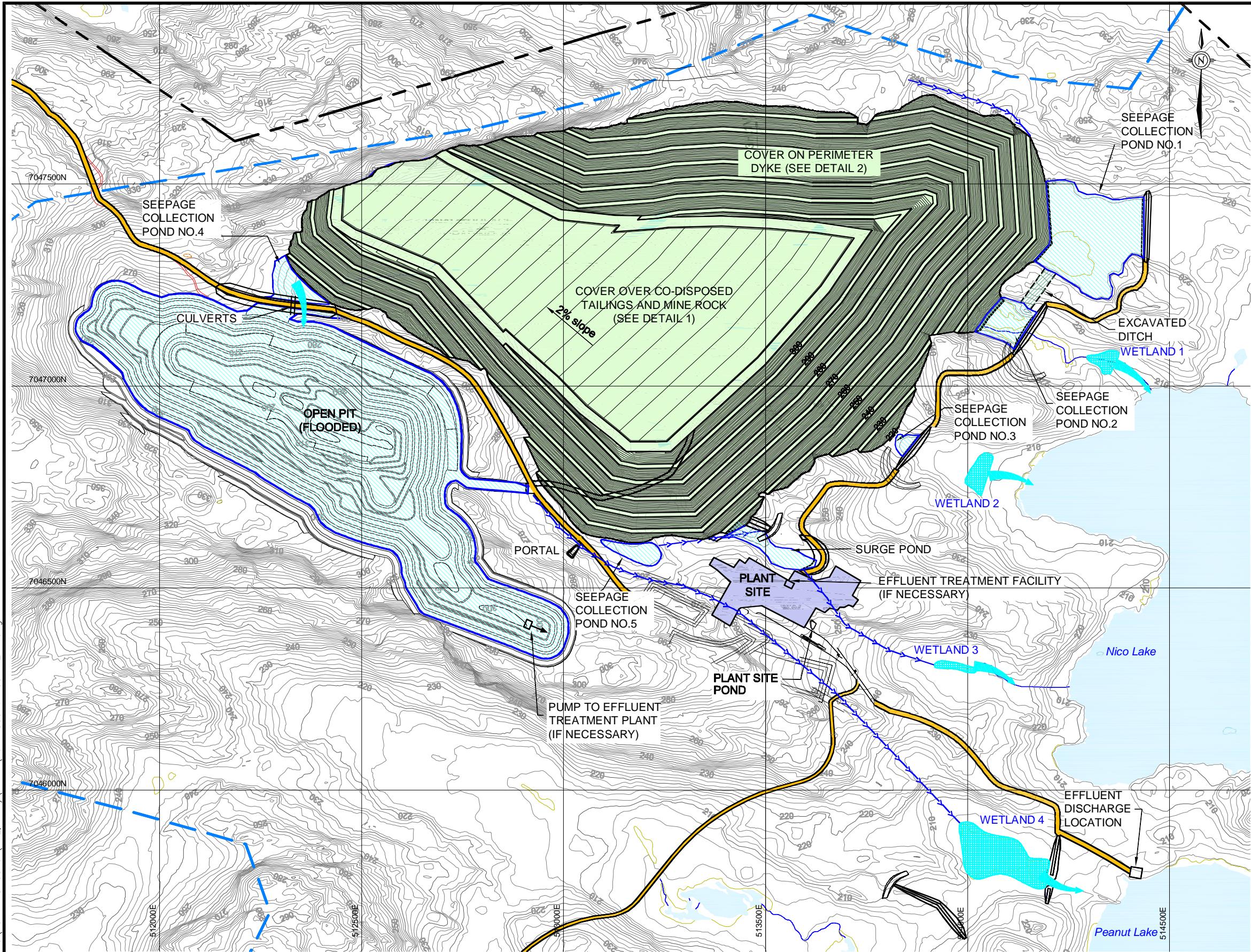


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TITLE

LAYOUT OF POST-CLOSURE WATER MANAGEMENT BEFORE PIT OVERFLOW

FILE No: E-AP7-003-CAD.dwg		
PROJECT No:	09-1373-1004	SCALE AS SHOWN
DESIGN	IM	10 May 2011
CAD	TDR	10 May 2011
CHECK	IM	10 May 2011
REVIEW	KAB	10 May 2011

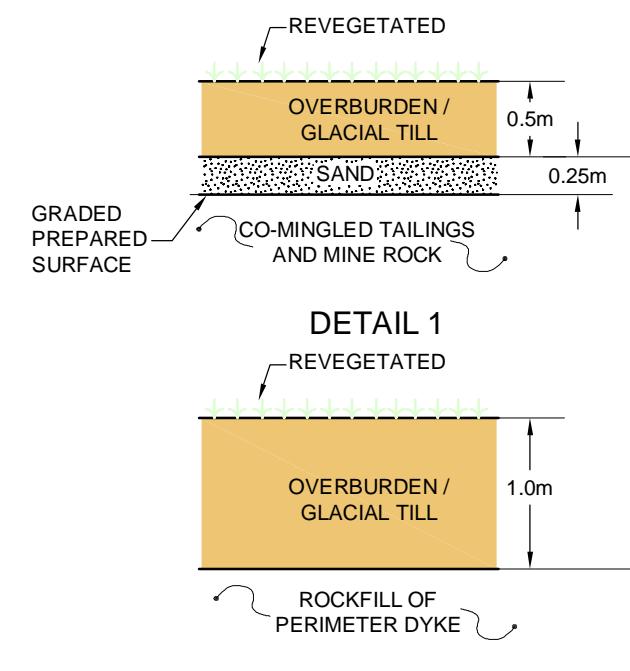


NOTES

1. All elevations (geodetic datum) and grid coordinates (UTM NAD 83, Zone 11) shown in this drawing are in metres.
2. Water which overflows from the open pit together with water which collects in seepage collection ponds 1, 2, 3, and 5 and the surge pond, will be passively treated in wetlands and released directly to Nico lake. This is subject to demonstration of the technical feasibility of wetland treatment. If not feasible, the water will be pumped to the surge pond and then to the effluent treatment facility for treatment and release through the polishing pond to Peanut Lake.
3. Once wetland treatment is demonstrated, the effluent treatment facility and the polishing pond will be decommissioned and removed.

LEGEND

	DIVERSION DITCH
	PROJECT LEASE BOUNDARY
	WATERSHED
	ACCESS ROAD
	CONSTRUCTED WETLAND TREATMENT SYSTEM
	DEMOLISHED AND REVEGETATED
	OVERBURDEN COVER
	WATER BODY



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Project lease boundary provided by Fortune (October 8, 2008) with comments provided Dec. 19, 2009.

SCALE 1:10,000 METRES



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NICO DEVELOPER'S ASSESSMENT REPORT

TITLE

LAYOUT OF POST-CLOSURE WATER MANAGEMENT AFTER PIT OVERFLOW

FILE No: E-AP7-004-CAD.dwg			
PROJECT No:	09-1373-1004	SCALE AS SHOWN	REV. 0
DESIGN	IM	10 May 2011	
CAD	TDR	10 May 2011	
CHECK	IM	10 May 2011	
REVIEW	KAB	10 May 2011	

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7.II.2.4.2 Water Management during Operations

Watersheds were delineated for each facility based on the extent of their proposed footprint in relation to site topography. Non-contact (i.e., background runoff) and mine contact water will be collected at each of the main site facilities. Water collected from each area will be pumped to the ETF at the Plant site for treatment. Water collected may also be recycled to the mill based on the process plant water requirements. Treated effluent will be discharged to Peanut Lake during operations.

Figure 7.II.2-1 presents the site layout and key components of the water management system during operations. Non-contact water and water that comes into contact with the mine facilities will be collected in sums at each of the main site facilities. During operations, key site water management facilities will include the following:

- Lou Lake:** ■ Water withdrawn from Lou Lake will be used for the Plant make-up water, dust control, and potable water as necessary.
- Plant Site Sump (F1):** ■ The Plant site sump will collect runoff from the Type 1 rock used to construct the roads, building foundations, and rock pads at the Plant site. The sump will also collect direct precipitation and runoff from the local catchment.
- CDF SCPs (F2):** ■ As presented in Figure 7.II.2-1, 5 SCPs will be located around the perimeter of the CDF. The SCPs are divided into 2 sources of flow for the purpose of the site water balance:
- **F2a: SCPs No. 4 and 5** will be located on the southern perimeter of the CDF. SCP No. 4 is found to the north of the Open Pit, and SCP No. 5 to the southeast of the Open Pit. SCPs No. 4 and 5 are designed to collect runoff from the CDF and surrounding watersheds. Some seepage from the CDF will likely report to SCPs No. 4 and 5. Other contributions to SCPs No. 4 and 5 will include direct precipitation and local runoff.
 - **F2b: SCPs No. 1, 2, and 3** will be located in topographic lows adjacent to the east end of the CDF. SCPs No. 1, 2, and 3 are designed to intercept seepage from the CDF which would otherwise flow into Nico Lake. The key flows to SCPs No. 1, 2, and 3 will be seepage from the co-disposed tailings and mine rock, and infiltration through the Type 2 rock used to construct the perimeter embankments of the CDF. Direct precipitation and local runoff will also report to SCPs No. 1, 2, and 3.
- Open Pit Sump (F3):** ■ During operations, the Open Pit sump will collect runoff from the pit walls and groundwater seepage into the Open Pit. Local runoff and precipitation will also report to the Open Pit sump.
- Surge Pond (F4):** ■ The Surge Pond will be located directly south of the CDF. Inputs to the Surge Pond will include water pumped from the plant site sump, SCPs and Open Pit sums, direct precipitation, and local runoff. To the extent possible, water from the Surge Pond will be recycled to the Plant to reduce the freshwater intake from Lou Lake.
- ETF:** ■ Under normal conditions, treated water from the ETF will be pumped through a diffuser directly into Peanut Lake. Treated water from the ETF will be discharged into the contingency pond only if it becomes necessary to provide additional settling, polishing, or treatment to the effluent prior to its release to Peanut Lake.

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7.II.2.4.3 Water Management during Closure and Post-closure

The site layout and key components of the water management system during the closure and post-closure periods are presented in Figure 7.II.2-3 and Figure 7.II.2-4, respectively. At closure, water management facilities will include:

- Plant Site (F1):** ■ The building foundations, rock pads, and roads to the site will be removed as part of the closure and reclamation plan for the site. Runoff from natural ground will be the only flow in the Plant site area at closure.
- CDF SCPs (F2):** ■ Flows into SCPs No. 1, 2, 3, and 5 will include seepage from CDF, direct precipitation, and local runoff. Flow from SCPs No. 1, 2, 3, and 5 will be directed to constructed wetlands downgradient of the CDF, including Wetland Treatment Systems No. 1 and 2.
- SCP No. 4 will be used to divert runoff from the CDF into the Open Pit.
- Open Pit (F3):** ■ A post-closure Flooded Open Pit will form over a period of approximately 120 years. Flows into the Open Pit will include direct precipitation onto the surface of the Open Pit, precipitation into the pit walls (i.e., pit wall runoff), groundwater seepage, runoff from the local catchment, and runoff from the CDF closure cover.
- During the period of Open Pit filling, there will be no discharges from the Open Pit. After the Open Pit fills, overflow will be directed to Wetland Treatment System No. 4. Effluent from the wetland will flow into Peanut Lake.
- Surge Pond (F4):** ■ The only flows reporting to the Surge Pond during the closure / post-closure periods will be local runoff and precipitation, as well as water which collects in SCP No. 5. The Surge Pond will be used for excess storage capacity, if necessary. Flows from the Surge Pond will be directed into a treatment wetland (Wetland Treatment System No.3).
- Treatment Wetlands:** ■ Wetland Treatment System No. 1 and 2 are located downgradient from the CDF, and will receive from SCPs No. 1, 2, 3 and 5.
- Wetland Treatment System No.3 will include overflow from the Surge Pond, and natural background runoff.
- After the Flooded Open Pit overflows, water will be directed to Wetland Treatment System No. 4. If it cannot be demonstrated that the treatment wetland can produce water quality that is acceptable for release into Peanut Lake then other options will be considered, including biological or chemical treatment or commissioning a new ETF.

7.II.3 SITE WATER QUALITY PREDICTIONS

This section presents an overview of the methods, assumptions, inputs, and results of the site water quality model during operations, closure, and post-closure. The results of the operations site water quality model form the basis of the estimates of water quality during construction, which are summarized in Section 7.II.4. Flooded Open Pit water quality predictions are discussed in Section 7.II.5.

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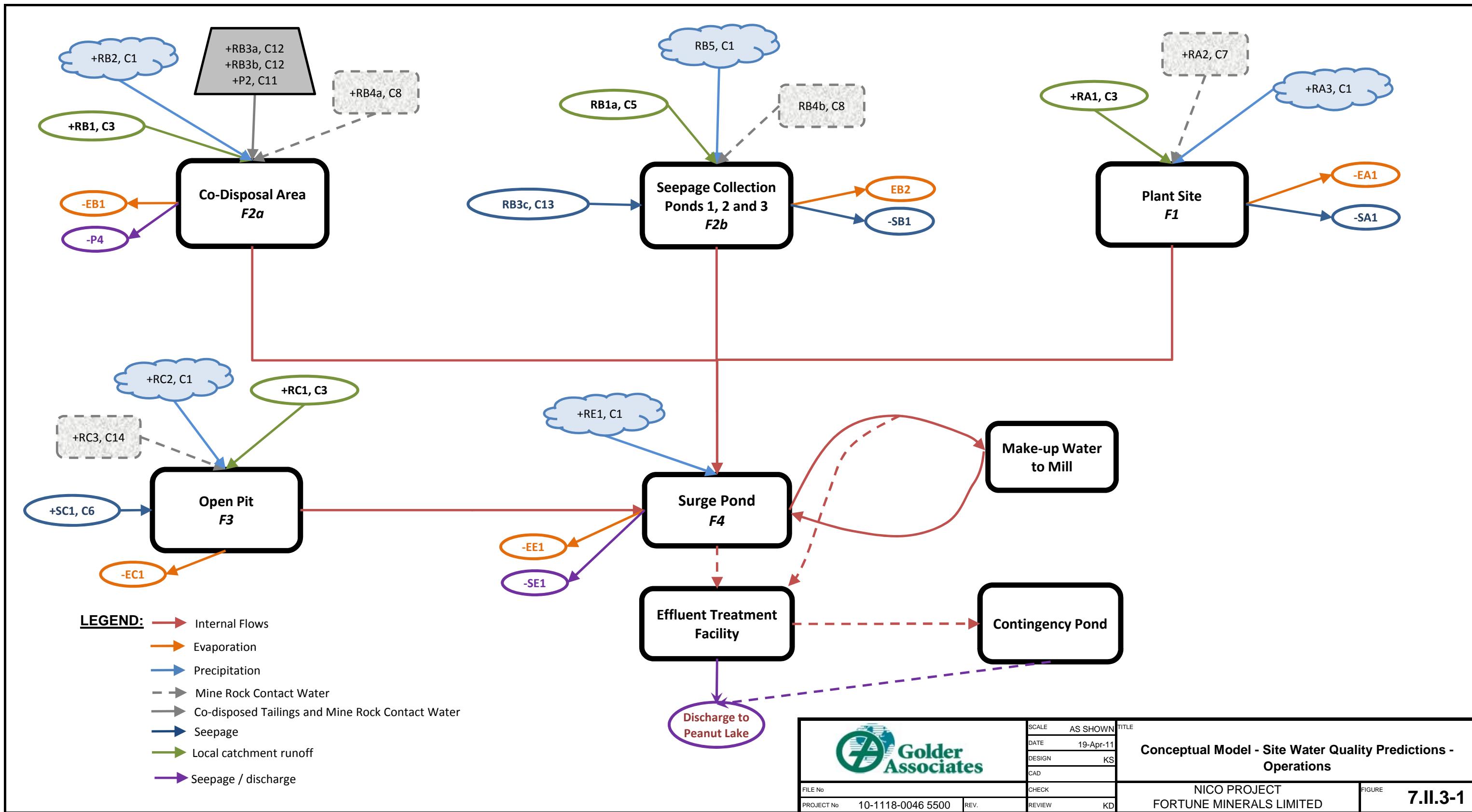
7.II.3.1 Conceptual Model

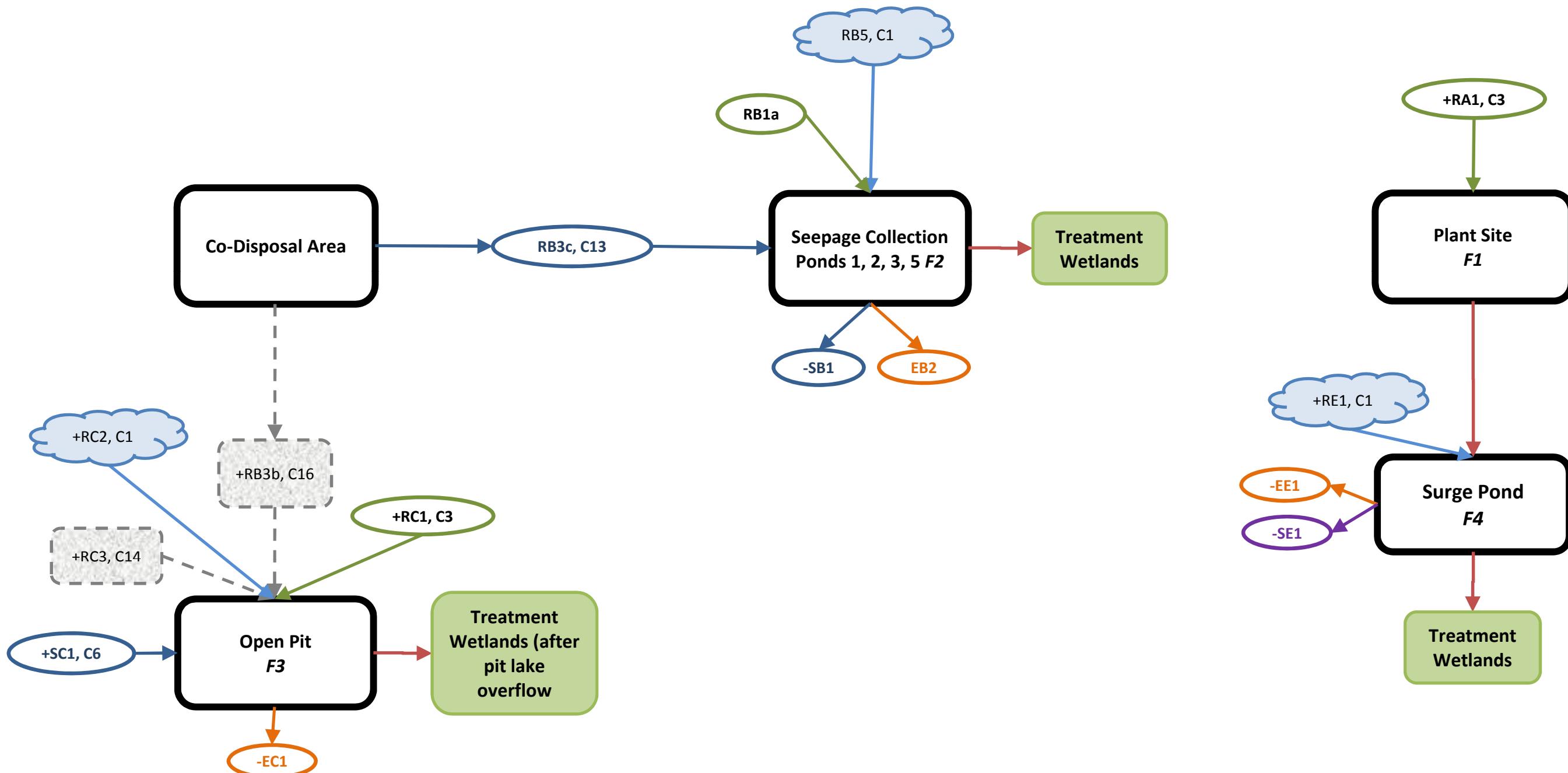
The conceptual model is based on the site water management plan and closure concepts Section 3.1.2. The key flows and water quality source terms associated with each of the main site facilities were defined based on the water management plan for the NICO Project. Water quality source terms were mixed in proportions, or mixing ratios, defined based on the relative proportion of each inflow at a given site location and time step. Figure 7.II.3-1 presents the conceptual model for site water quality predictions during operations, which is annotated according to flow and water quality associated with each of the key site facilities (Attachment 7.II.I-1). The conceptual model for site water quality predictions at closure is presented in Figure 7.II.3-2; Attachment 7.II.I-2 provides a list of corresponding flows and water qualities during closure.

The deterministic site water balances presented in Attachment 7.II.II form the basis of the site water quality predictions during operations, closure, and post-closure. Deterministic water balances were developed on a monthly time step based on the maximum extent of the proposed footprint each of the proposed mine facilities during operations and at closure. Mixing ratios were developed for each watershed and the ETF:

- **Watershed mixing proportions:** For the Plant site sump (F1) and CDF, SCPs (F2), and Open Pit sums (F3), the relative proportion of each flow into the watershed collection pond (sump) was determined relative to the total volume of water entering the ponds during each month.
- **ETF influent mixing proportions:** ETF influent mixing proportions were based on the relative volume of water pumped from the Plant site sump (F1) and CDF, SCPs (F2), and Open Pit sump (F3) to the Surge Pond (F4), which is then pumped to the ETF during operations and closure.

The effects of water loss, including evaporation, seepage from the sums, and recycling were considered as a part of the deterministic water balances and water quality predictions.





LEGEND:

- Internal Flows
- Evaporation
- Precipitation
- Mine Rock Contact Water
- Co-disposed Tailings and Mine Rock Contact Water
- Seepage
- Local catchment runoff



FILE No
PROJECT No 10-1118-0046 5500

CHECK
REV.

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SCALE AS SHOWN
DATE 19-Apr-11
DESIGN KS
CAD

TITLE

Conceptual Model - Site Water Quality Predictions - Closure and Post-closure

NICO PROJECT
FORTUNE MINERALS LIMITED

FIGURE
7.II.3-2

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7.II.3.2 Model Framework

The water quality assessment was conducted by mathematically mixing the assigned water qualities in the proportions defined by the deterministic water balances. Mathematical mixing simulations were conducted using the geochemical modeling code PHREEQC Version 2.17.2, an equilibrium speciation and mass-transfer code developed by the United States Geological Survey (Parkhurst and Appelo 1999; USGS 2009). PHREEQC has the ability to simulate mathematical mixing of input solutions, while accounting for thermodynamic constraints that could effect the composition of natural waters, such as atmospheric interaction, precipitation/dissolution of geochemically-credible mineral phases, and adsorption of metals onto iron oxide minerals (i.e., ferrihydrite [FeOH_3]). Mixing simulations were conducted in a conservative manner, such that mineral precipitation and metal sorption were not permitted. Estimated concentrations may therefore be biased high for certain constituents.

7.II.3.3 Input Water Quality

Water qualities were assigned to each source of water as defined in the deterministic water balance. Attachment 7.II.III defines the composition of each water quality input in the site water quality predictions. The following sections discuss the main sources of non-contact and contact water at the NICO Project.

7.II.3.4 Non-Contact Water Quality

Non-contact water is defined as a source of water that enters a sump or collection pond without contacting mine facilities. Non-contact water includes direct precipitation into sumps and ponds, direct flow of upgradient flows into collection ponds, and groundwater seepage into the Open Pit. Non-contact water quality inputs were defined using the results of baseline surface water quality monitoring and baseline groundwater quality monitoring:

- **Precipitation:** The composition of local precipitation was calculated using the average composition of samples in the Environment Canada CapMon Snare Lake precipitation monitoring station dataset.
- **Upgradient flows from existing watersheds:** The surface water quality baseline for the NICO Project was used to define input water qualities for Nico Lake, Peanut Lake, and the Little Grid / Grid ponds. Water quality inputs were calculated using the average composition (plus one standard deviation) for the dataset at each location in June, July, and August, respectively.
- **Groundwater:** The composition of groundwater seepage into the Open Pit was assumed to equal the average plus one standard deviation composition of groundwater quality samples collected from monitoring well 03-281 in 2004, 2009, and 2010. Monitoring well 03-281 is installed within the lateral and vertical perimeter of the Open Pit.

Input alkalinites were calculated based on the range of measured data in the site water quality database.

7.II.3.5 Contact Water Quality

Contact water includes all flows that contact disturbed rock (i.e., Mine Rock) and/or tailings in mine facilities. Contact water quality inputs were defined using the range of results of geochemical characterization of mine rock and tailings (Section 3, Annex A). Input alkalinites were calculated based on the composition of the contact water qualities assumed from the results of geochemical characterization.

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Tailings Process Water

Tailings process water will be discharged to the CDF as a component of the tailings slurry. The composition of process water was assigned based on the maximum concentration measured in process water samples collected during the most recent pilot plant test. Samples of recycled water from the pilot plant were collected at the end of each pilot plant test run. The mass load in process water samples is considered to be a reasonable representation of the mass that could accumulate during the cycling of water through the mill.

Co-Disposal Facility Runoff

The composition of CDF runoff was assigned based on the results of humidity cell testing of tailings samples BRT and PP#14. Runoff from wet and dry tailings was considered:

- **Runoff from wet tailings:** The composition of runoff from wet tailings was assigned based on the maximum concentration measured during the first week of humidity cell testing of BRT and PP#14. The composition of runoff from dry tailings was varied according to whether the runoff occurred during the spring freshet (assigned to water quality predictions for May and June) or the summer months.
- **Runoff from dry tailings:** Runoff from dry tailings during the spring freshet was assigned based on the results of the initial flushing of humidity cell tests BRT and PP#14 (i.e., average composition during the first five weeks of testing). The maximum concentrations measured during the initial flushing of BRT and PP#14, respectively, was used to represent the composition of runoff during the spring freshet. Runoff during July, August, and September was defined based on the long-term concentrations measured in BRT and PP#14. Long-term chemistries were calculated for both BRT and PP#14 (i.e., average of the last 5 weeks of testing), and the maximum long-term concentrations were used to define the water quality input for runoff from dry tailings during the summer months.
- **Runoff from the closure cover:** It is assumed that the CDF closure cover will be constructed with a cover made with construction material from the NICO Project site. The composition of runoff from the CDF was defined based on the average results of short-term leach tests carried out on samples of borrow material samples collected from the site.

Mine Rock Runoff and Infiltration

The results of geochemical characterization of Mine Rock were divided into 4 categories, based on the Mine Rock classification criteria for the NICO Project. The samples in the humidity cell and field test dataset were classified according to the mine rock classification criteria. First flush and long-term water quality inputs were calculated for each sample, to define water quality inputs specific to the spring freshet (i.e., May and June) and summer (i.e., July, August, and September) periods. Input water qualities were then defined for each Mine Rock type. The following assumptions are related to Mine Rock runoff and infiltration water quality, specifically:

- **Type 1 water quality:** Assigned to runoff from disturbed ground (i.e., roads, rock pads, building foundations, etc.) at the plant site. Type 1 water quality could also be generated from non-point source runoff from site facilities that is not captured in the Plant Site Sump. Type 1 water quality was calculated based on the results of humidity cell tests 100863, 100872, and 100859.
- **Type 2 water quality:** Assigned to runoff from the perimeter embankments of the CDF. Type 2 water quality was calculated using the results of humidity cell tests 100925, 100802, 100913, 100914, 100881, and field cell test FC-2.

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- **Type 3 and sub-economic mine rock water qualities:** Defined based on the results of humidity cell testing and field testing:
 - Type 3 contact water was calculated based on the results of humidity cell tests 100890, 100977, 100907, and 100932, and field cell tests FC-1, FC-3, and FC-4.
 - Sub-economic mine rock water quality was based on the results of field cell tests FC-1, FC-3, and FC-4, FC-5, and non-acid generating tests conducted on samples of Type 3 mine rock and sub-economic mine rock.
 - For the purpose of the site water quality predictions, it was assumed that all Type 3/sub-economic mine rock will be encapsulated within the CDF. The model assumes that the rock management plan will be effective at ensuring that Type 3/sub-economic mine rock is encapsulated within the footprint of the CDF since non-point source contact water from Type 3/sub-economic mine rock represents a potential source of metal loading.

Pit Wall Runoff

Rock exposed in the reactive zone (i.e., outer, fractured shell) of the Open Pit is subject to physical and chemical weathering over time. The composition of pit wall runoff was calculated by using the relative proportion of each rock type or lithology exposed in the pit wall during the early stages of Open Pit development, and later stages of mining. At closure, rock types above the water level in the Open Pit were used to define the exposed surface area of each lithology. Water quality inputs were assigned based on the results of geochemical characterization, including a further breakdown of the lithological inputs by acid generation potential:

- Potentially acid generating (PAG) inputs are assigned based on the proportion of flow expected to interact with rock that has a high potential for long-term acid generation potential.
- Non-PAG inputs are assigned based on the proportion of flow expected to interact with rock that has low sulphide content with a low potential for long-term acid generation potential.

Potentially acid generating and Non-PAG water quality inputs were generated for each mine rock lithology, based on the range of results measured in short-term geochemical test leachates, laboratory kinetic test leachates, and field kinetic test leachates. Potentially acid generating water quality inputs are represented by the maximum concentration measured in all available leach test data for each lithology. Non-PAG water quality inputs are represented by the minimum concentration measured in all available long-term leach test data for each lithology (i.e., results of humidity cell tests and field scale tests).

Ore exposed in the pit walls was assigned a water quality representative of the sub-economic mine rock. This assumption was made on the basis that most high grade mineralized rock will be removed from the Open Pit during mining.

7.II.3.6 Results

Detailed results of water quality predictions are presented in Attachment 7.II.IV. The following sections present a summary of the key findings of the site water quality predictions completed for 4 key periods during mining, early operations, late operations, closure, and post-closure.

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7.II.3.6.1 Operations

During operations, non-contact water and water that comes into contact with the mine facilities will be collected in sumps at each of the main site facilities, including the Plant site sump (F1), CDF SCPs (F2a and F2b) and Open Pit sump (F3). Water collected in the sumps will be pumped to the Surge Pond (F4), from where water will be recycled to the Plant to reduce the freshwater intake from Lou Lake (to the extent practicable). Excess water in the Surge Pond will be pumped to the ETF.

Water quality predictions were completed for 2 periods during operations: early operations (assumed to be Year 1 water balance) and late operations (assumed to be Year 18 water balance). Table 7.II.3-1 summarizes the maximum concentrations predicted in the various site ponds during operations. Figure 7.II.3-3 demonstrates the variability in water quality in each of the main site facilities by month during early and late operations, respectively. Detailed results are presented in Attachment 7.II.IV-1.

The site water quality predictions account for the effects of concentrating mass in site waters as pure water evaporates from the system (i.e., evapoconcentration). The results in Figure 7.II.3-3 demonstrate the effect of evapoconcentration on site water quality. The highest concentrations were predicted in July; the month of July is assumed to have the greatest evaporation rate based on the results of the hydrological assessment for the NICO Project.

It should be noted that Table 7.II.3-1 presents a range of water quality predictions for the Surge Pond (F4) during operations. The Surge Pond water quality predictions were initially calculated assuming that water recycled from the Surge Pond to the mill does not incrementally add mass to the process water (i.e. recycled process water collected from the recent metallurgical pilot plant adequately accounts for use of water from the Surge Pond). Following the initial calculation (as defined above) an upper bound water quality was calculated by incrementally adding a mass load equivalent to the difference between the initial Surge Pond Water quality and the process water quality (as measured in the test work), accounting for volumes of water used and volumes of water loss to the system.

Based on the results of the site water quality predictions, the following parameters occur at concentrations in excess of the SSWQOs during operations:

- **Plant site sump (F1):** arsenic and cadmium;
- **SCPs 4 and 5 (F2a):** antimony (late operations only), arsenic, cadmium, selenium, and uranium;
- **Seepage collection ponds 1, 2 and 3 (F2b):** aluminum, arsenic, cadmium, cobalt (late operations only), iron, lead, and uranium;
- **Open Pit sump (F3):** aluminum, arsenic, cadmium (late operations only), cobalt, copper, iron (early operations only), lead (late operations only), selenium and zinc (early operations only); and
- **Surge pond (F4):** aluminum, antimony (late operations only), arsenic, cadmium, cobalt, copper, iron, lead (late operations only), selenium, uranium, and zinc (late operations only).

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Table 7.II.3-1: Summary of Results of Site Water Quality Predictions – Operations

Parameter	Units	Site Specific Water Quality Objectives	F1 - Plant Site Sump		F2a - Seepage Collection Ponds 4 and 5		F2b - Seepage Collection Ponds 1, 2 and 3		F3 - Open Pit Sump		F4 - Surge Pond ^a		F4 - Surge Pond - Upper Bound ^b	
			Year 1	Year 18	Year 1	Year 18	Year 1	Year 18	Year 1	Year 18	Year 1	Year 18	Year 1	Year 18
			Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum	Maximum
pH	pH units	-	7.4	7.4	7.4	7.2	7.0	6.3	5.4	6.9	6.7	6.7	6.7	6.7
Aluminum	mg/L	0.41	0.098	0.13	0.11	0.34	1.5	3.5	3.4	6.0	1.5	3.6	2.4	5.8
Antimony	mg/L	0.03	0.018	0.022	0.021	0.086	0.0089	0.028	0.029	0.0097	0.018	0.032	0.028	0.051
Arsenic	mg/L	0.05	0.19	0.23	0.093	0.28	0.15	0.23	0.65	0.75	0.26	0.45	0.41	0.72
Boron	mg/L	-	0.033	0.029	0.13	0.87	0.1	0.35	0.22	0.15	0.14	0.37	0.22	0.59
Barium	mg/L	-	0.0058	0.0054	0.026	0.22	0.046	0.14	0.28	0.093	0.1	0.13	0.16	0.21
Beryllium	mg/L	-	0.0022	0.003	0.00049	0.003	0.00077	0.0014	0.0011	0.0018	0.00082	0.002	0.0013	0.0031
Calcium	mg/L	-	6.9	7.5	30	114	20	42	11	17	21	46	33	73
Cadmium	mg/L	0.00015	0.00039	0.00032	0.00053	0.00068	0.00064	0.00031	0.00014	0.00029	0.00046	0.00033	0.00073	0.00052
Chloride	mg/L	353	15	13	54	121	33	23	26	87	37	68	58	107
Cobalt	mg/L	0.01	0.0056	0.0078	0.0028	0.0087	0.01	0.023	1.1	0.7	0.28	0.3	0.45	0.47
Chromium	mg/L	-	0.0028	0.0023	0.0038	0.0039	0.0052	0.0045	0.0048	0.0037	0.0041	0.004	0.0066	0.0063
Copper	mg/L	0.022	0.0022	0.0021	0.0033	0.011	0.007	0.013	0.054	0.036	0.018	0.02	0.028	0.032
Iron	mg/L	1.5	0.86	0.79	1.0	1.2	7.7	15	4.7	1.0	4.7	5.9	7.5	9.3
Mercury	mg/L	-	0.0001	0.00011	0.00013	0.00025	0.00014	0.000084	0.00011	0.00007	0.00012	0.000098	0.00019	0.00016
Potassium	mg/L	-	196	281	135	924	67	224	355	137	167	333	265	527
Magnesium	mg/L	-	2.1	1.8	10	31	8.0	14	5.8	10	8.0	16	13	25
Manganese	mg/L	-	0.1	0.1	0.11	0.2	0.24	0.28	0.1	0.081	0.17	0.18	0.26	0.28
Molybdenum	mg/L	-	0.017	0.02	0.069	0.2	0.014	0.034	0.03	0.034	0.035	0.069	0.055	0.11
Sodium	mg/L	-	2.3	2.4	35	165	15	54	19	58	22	76	35	120
Nickel	mg/L	-	0.0017	0.0016	0.0031	0.0096	0.0033	0.0051	0.038	0.042	0.012	0.021	0.019	0.034
Phosphorous	mg/L	-	0.079	0.092	0.084	0.24	0.085	0.059	0.082	0.23	0.085	0.17	0.13	0.26
Lead	mg/L	0.0076	0.0017	0.0015	0.0024	0.0036	0.0049	0.0065	0.0069	0.017	0.0046	0.0097	0.0072	0.015
Selenium	mg/L	0.005	0.002	0.0029	0.059	0.24	0.018	0.069	0.02	0.012	0.031	0.08	0.049	0.13
Silver	mg/L	-	0.0014	0.0013	0.0016	0.0019	0.0025	0.00078	0.00021	0.00043	0.0016	0.00089	0.0026	0.0014
Sulfate	mg/L	-	3.3	3.0	164	699	70	233	71	88	98	266	156	421
Strontium	mg/L	-	0.026	0.026	0.094	0.48	0.092	0.24	0.031	0.068	0.076	0.21	0.12	0.33
Tin	mg/L	-	0.029	0.023	0.041	0.039	0.045	0.019	0.0087	0.026	0.033	0.022	0.052	0.035
Vanadium	mg/L	-	0.0011	0.0011	0.0013	0.0039	0.0018	0.003	0.005	0.0026	0.0022	0.003	0.0035	0.0047
Thallium	mg/L	-	0.014	0.012	0.016	0.016	0.025	0.0071	0.0023	0.004	0.016	0.0081	0.026	0.013
Uranium	mg/L	0.027	0.027	0.026	0.033	0.11	0.079	0.15	0.0043	0.011	0.044	0.077	0.07	0.12
Zinc	mg/L	0.11	0.0079	0.008	0.014	0.039	0.051	0.10	0.14	0.084	0.063	0.073	0.10	0.12

^a Calculated based on mixing of inputs from various site facilities in Surge Pond. Assumes minimal mass added from water using in mill as process water (i.e., freshwater or treated water used for make-up water in the mill).

^b Calculated to evaluate the effect of accumulation of mass from recycled water from the Surge Pond through the mill as process water.

1.0 - Denotes values greater than site-specific water quality guidelines.

Figure 7.II.3-3
Detailed Site Water Quality Predictions - Approximately 2013

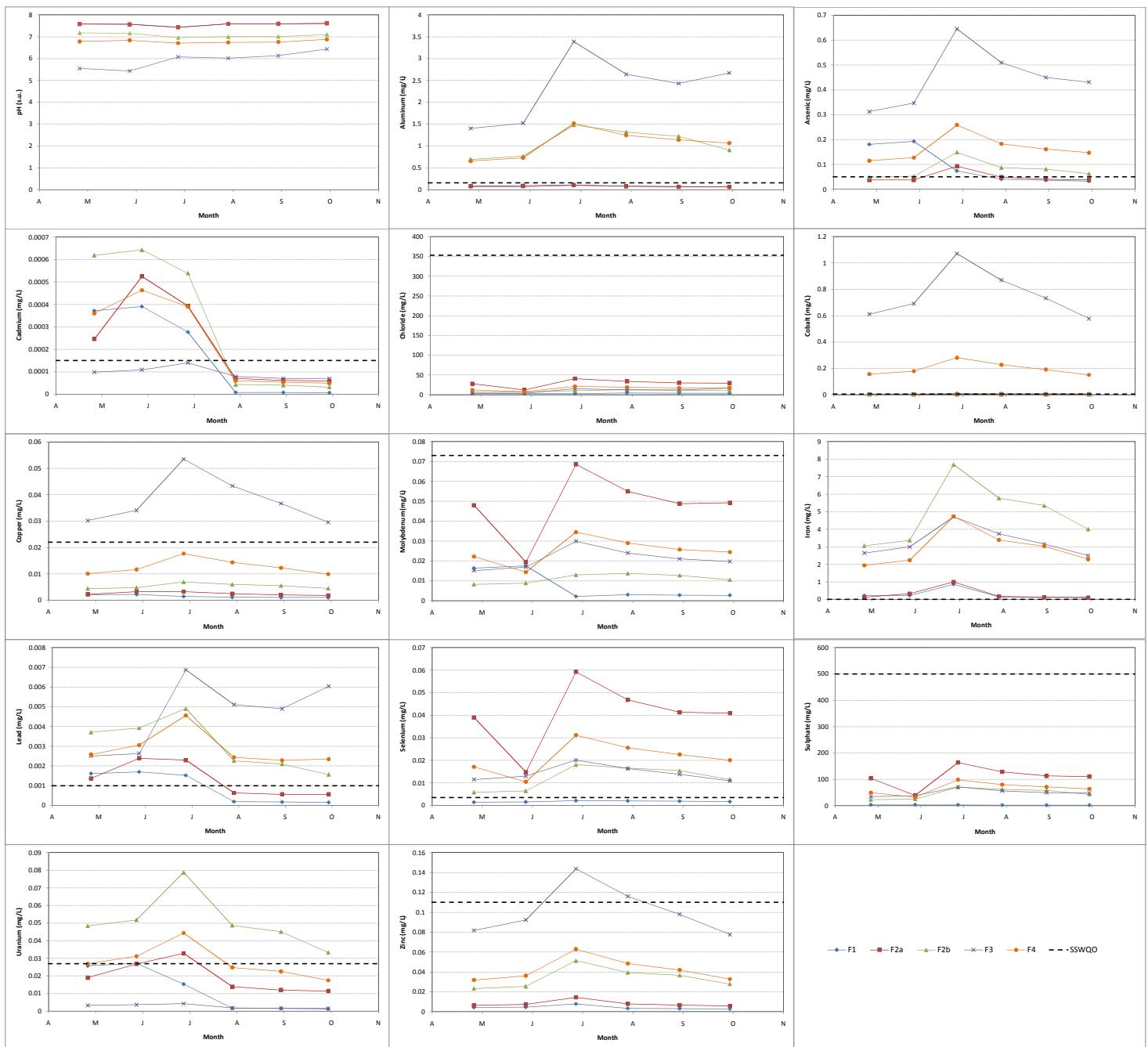
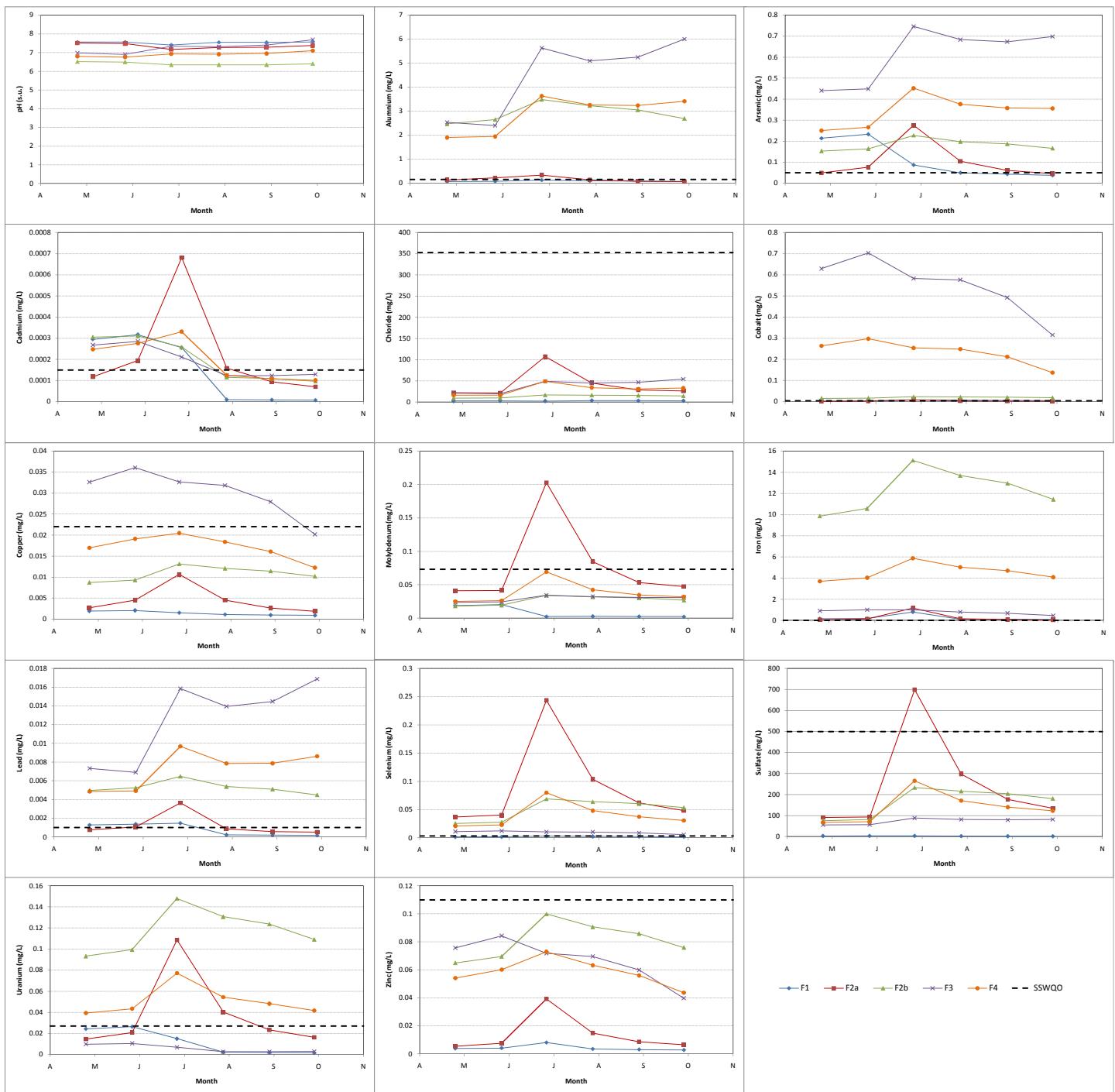


Figure 7.II.3-4
Detailed Site Water Quality Predictions - Late Operations Stage



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The results of the site water quality predictions formed the basis of the treatment options evaluation for the NICO Project. All site waters will ultimately be pumped to the Surge Pond, and will either be recycled through the Plant or directed to the ETF for treatment. Treated water will be discharged to Peanut Lake.

7.II.3.6.2 Closure and Post-Closure

The closure and post-closure water balances were developed based on the closure concepts for the NICO Project. At closure, the Plant site will be removed and the only flows at the former Plant site will be local runoff. A cover constructed with surface layer of glacial till underlain with sand will be installed on the CDF. Seepage from the CDF will be directed to constructed Wetland Treatment Systems No. 1 and 2. The Surge Pond will be used for excess storage capacity, if necessary; flows from the Surge Pond will be directed into Wetland Treatment System No. 3.

Runoff from the CDF closure cover will be directed into the Open Pit. Based on the most recent site water balances and updated pit alignments, the Flooded Open Pit will form over a period of approximately 120 years. During the period of Open Pit filling (i.e., the closure period), there will be no discharges from the Flooded Open Pit. When the Flooded Open Pit reaches the spill point elevation of 260 m, overflow will be direct to Wetland Treatment System No. 4. The point in time where the Flooded Open Pit overflows into the Wetland Treatment System No. 4 marks the change from the closure to the post-closure period for water quality modelling.

The closure and post-closure water balances are the same for all facilities on site except the Open Pit and Wetland Treatment System No. 4. The results of water quality predictions completed for the closure period are presented in Attachment 7.II.IV-2. Table 7.II.3-2 provides a summary of the maximum concentrations predicted at key water management facilities during closure and post-closure. Figure 7.II.3-5 presents the variability in the results of water quality predictions over time during the closure and post-closure periods.

Based on the results of the site water quality predictions, the following parameters could occur at concentrations in excess of the SSWQOs during the closure and post-closure periods:

- **Plant site:** the only source of flow at the Plant site at closure is natural background runoff, which is diluted by rainwater.
- **SCPs 4 and 5 (F2a):** the main sources of flow into SCPs No. 4 and 5 at closure are natural background runoff, and runoff from the closure cover. Aluminum occurs at concentrations greater than the SSWQOs at closure. This flow reports directly into the Open Pit.
- **SCPs 1, 2 and 3 (F2b):** the main sources of flow into SCPs No. 1, 2, and 3 at closure are seepage from the CDF and natural background runoff. Parameters that occur at concentrations greater than the SSWQOs at closure include aluminum, arsenic, cadmium, cobalt, lead, selenium, uranium, and zinc.
- **Open Pit sump (F3):** the composition of Flooded Open Pit water during the closure and post-closure periods is discussed in Section 3.I.5.
- **Surge Pond (F4):** the Surge Pond will serve as excess storage capacity at closure. Parameters that occur at concentrations in excess of the SSWQOs at closure include aluminum, arsenic, cadmium, cobalt, lead, and uranium.

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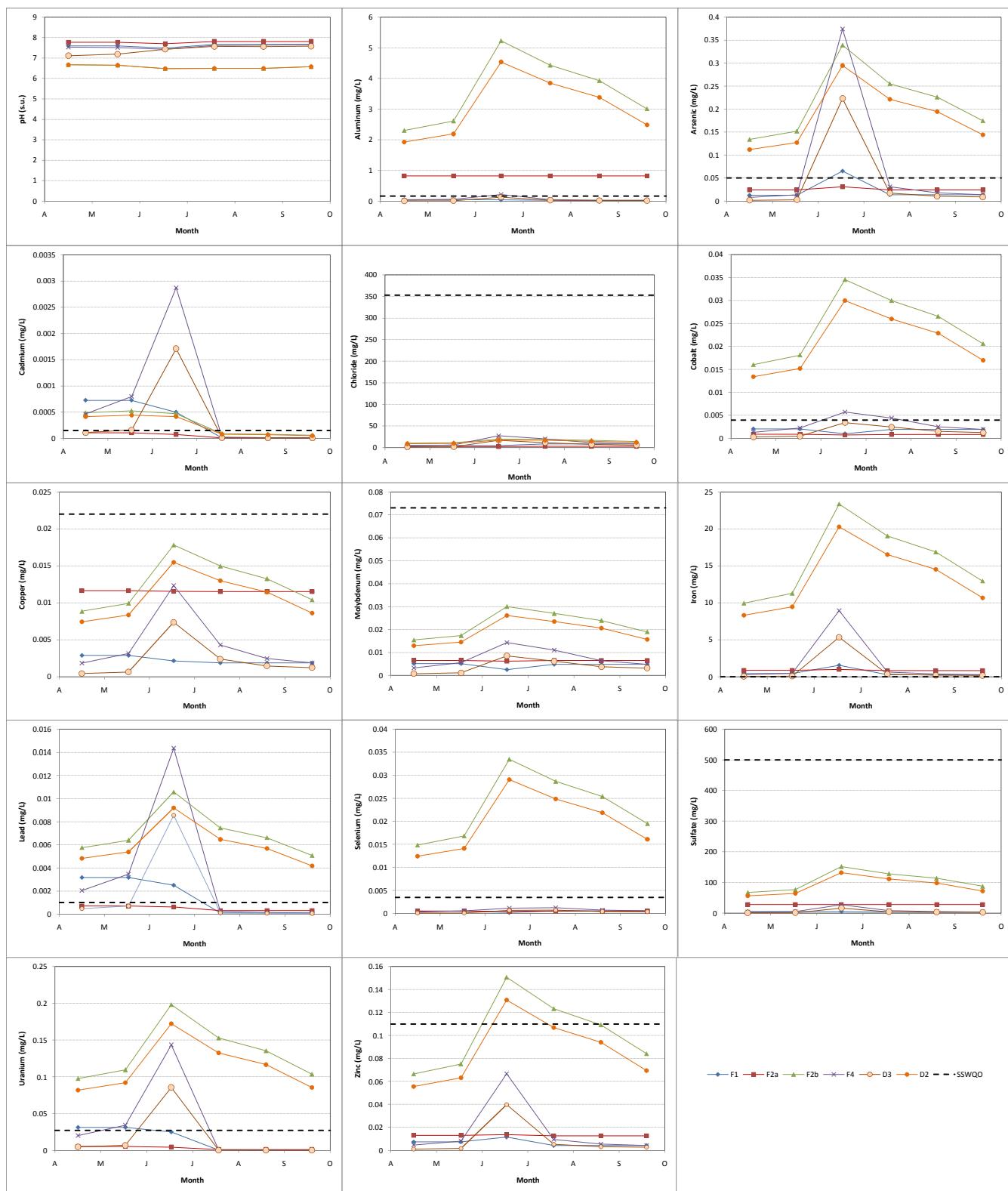
Table 7.II.3-2: Summary of Results of Site Water Quality Predictions – Closure and Post-Closure

Parameter	Units	Site Specific Water Quality Objectives	F2a - Seepage Collection Ponds 4 and 5	F2b - Seepage Collection Ponds 1, 2, and 3	F4 - Surge Pond	D2 - Wetland 1, 2 to Nico Lake	D3 - Wetland 3 to Nico Lake
			Maximum	Maximum	Maximum	Maximum	Maximum
pH	pH units	-	8	6	7	6	7
Aluminum	mg/L	0.41	0.82	5.2	0.21	4.5	0.13
Antimony	mg/L	0.03	0.0016	0.02	0.0033	0.018	0.002
Arsenic	mg/L	0.05	0.031	0.34	0.37	0.29	0.22
Boron	mg/L	-	0.081	0.1	0.14	0.09	0.086
Barium	mg/L	-	0.001	0.093	0.038	0.081	0.023
Beryllium	mg/L	-	0.000092	0.00055	0.0029	0.00048	0.0017
Calcium	mg/L	-	3.8	38	47	33	28
Cadmium	mg/L	0.00015	0.0001	0.00052	0.0029	0.00044	0.0017
Chloride	mg/L	353	5.9	36	152	32	91
Cobalt	mg/L	0.01	0.00088	0.035	0.0057	0.03	0.0034
Chromium	mg/L	-	0.0012	0.0072	0.014	0.0063	0.0086
Copper	mg/L	0.022	0.012	0.018	0.012	0.015	0.0073
Iron	mg/L	1.5	1.0	23	9.0	20	5.3
Mercury	mg/L	-	0.00012	0.00012	0.00057	0.000098	0.00034
Potassium	mg/L	-	7.8	160	5.8	139	3.4
Magnesium	mg/L	-	1.5	17	20	14	12
Manganese	mg/L	-	0.034	0.44	0.87	0.38	0.52
Molybdenum	mg/L	-	0.0066	0.03	0.014	0.026	0.0086
Sodium	mg/L	-	5.8	20	15	17	9.1
Nickel	mg/L	-	0.015	0.0061	0.0057	0.0053	0.0034
Phosphorous	mg/L	-	0.0098	0.079	0.42	0.069	0.25
Lead	mg/L	0.0076	0.00071	0.011	0.014	0.0092	0.0086
Selenium	mg/L	0.005	0.00051	0.033	0.0013	0.029	0.0007
Silver	mg/L	-	0.00034	0.0019	0.014	0.0017	0.0086
Sulfate	mg/L	-	28	152	27	132	16
Strontium	mg/L	-	0.022	0.17	0.15	0.15	0.09
Tin	mg/L	-	0.007	0.034	0.14	0.029	0.086
Vanadium	mg/L	-	0.002	0.0035	0.0029	0.0031	0.0017
Thallium	mg/L	-	0.0033	0.019	0.14	0.017	0.086
Uranium	mg/L	0.027	0.0053	0.2	0.14	0.17	0.086
Zinc	mg/L	0.11	0.014	0.15	0.067	0.13	0.04

1.0

- Denotes values greater than site-specific water quality guidelines.

Figure 7.II.3-5
Site Water Quality Predictions - Closure and Post Closure



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- **Wetland Treatment System No. 1 and 2 (D2):** Wetland Treatment System No. 1 and 2 are located downgradient from the CDF. Flows into Wetland Treatment System No. 1 and 2 will include flows from SCPs No. 1, 2, and 3, and natural background runoff. Parameters that occur at concentrations greater than the SSWQOs at closure include aluminum, arsenic, cadmium, cobalt, iron, lead, selenium, uranium, and zinc.
- **Wetland Treatment System No. 3 (D3):** flows into Wetland Treatment System No. 3 will include overflow from the Surge Pond, and natural background runoff. Parameters that occur at concentrations in excess of the SSWQOs at closure include arsenic, cadmium, iron, lead, and uranium.

Wetland Treatment System No. 4 is not included in Table 7.II.3-2. The composition of the water that will overtop the post-closure Flooded Open Pit and flow into Wetland Treatment System No. 4 is discussed in Section 3.I.5.

The water quality predictions for the closure and post-closure period are based on the assumptions in the closure water balance. Changes to the water balance, such as changes in the main sources of flow during closure resulting from changes in the closure plan made during operations, could affect the results of the closure water quality predictions. Water quality monitoring will be required during closure and post-closure to verify that water released from the site meets the closure objectives. Water will not be released from the site unless it meets an acceptable water quality. It is assumed that passive treatment in the wetlands will result in a reduction of metal concentrations. Passive treatment in wetlands will be tested during operations; if the technical feasibility of wetland treatment is not demonstrated prior to closure, the contingency will be to pump water from the SCPs and Surge Pond into the Open Pit.

7.II.3.7 Explosives Usage

Explosive agents, including ammonium nitrate/fuel oil (ANFO) and emulsion will be used during Open Pit and underground mining. The dissolution of waste explosives or residual explosives from blasting activities results in the release of nitrate (NO_3^-) and ammonia (NH_4^+) to mine contact waters. The potential influence of nitrate and ammonia mass release associated with mining activities was estimated based on the mining schedule and projected explosive use rate for the NICO Project.

Undetonated explosives (i.e., ANFO and emulsion) will be the main source of nitrate and ammonia at the NICO Project during mining. Values used to calculate nitrate and ammonia concentrations in mine water were as follows:

Influencing Factor	ammonium nitrate/fuel oil (ANFO)	Emulsion
Percent of Explosives and Timing	70 percent for 9 months of the year; 30 percent during the spring freshet (3 months of the year)	30 percent for 9 months of the year; 70 percent during the spring freshet (3 months of the year)
Explosive usage rate (powder factor)	0.27 kg per tonne waste rock and ore	0.27 kg per tonne waste rock and ore
Fraction of residues (waste rate)	1.5 percent	1.5 percent
Composition	94 percent ANFO, 6 percent Fuel Oil	63 percent ANFO, 18 percent NaNO_3 , 9 percent water, 6 percent fuel oil, 4 percent microballoons

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The mass of nitrate and ammonia that could be released on an annual basis was predicted based on the mine plan, and the assumed values as listed above. Rock containing residual explosives will be used for site construction, including roads, rock pads and laydowns, and construction of the CDF perimeter embankments.

Residual explosives will also leach from the wall rocks in the Open Pit and underground mine workings. The fraction of explosive residues remaining after blasting (i.e., “waste rate”) was assumed based on Fortune’s commitment to development of a rigorous explosive management program for the NICO Project. Typical explosive waste rates vary from 0.2 to 28% in some case studies (e.g., Morin and Hutt 2009; Forsyth et al 1995). A waste rate of 1.5% is considered reasonable based on a review of these case studies where a rigorous explosive management plan is developed and adhered to in an open pit operation.

Water from the sumps at the various site facilities will be pumped to the Surge Pond. Ultimately, water in the Surge Pond will reach a steady state composition as it is recycled through the Plant and discharged as a component of the tailings slurry. The mass balance for the site will be achieved when the rate of mass loss from the system is equal to the rate of mass loading. As such, the steady state concentrations of nitrate and ammonia will be dictated by the volume of water (and associated mass) lost to pore water retention in the tailings (approximately 446 000 m³/year) and water (and associated mass) pumped to the ETF (approximately 227 000 m³/year), assuming a known mass input per unit time. An upper bound nitrogen species concentration was calculated assuming that the only source of water and mass loss from the system was pore water retention in the tailings.

Table 7.II.3-3 summarizes the predicted concentrations of nitrate and ammonia by year during the predicted 20 year mine life. The maximum steady state nitrogen species loadings of 9 milligrams per litre (mg/L) as nitrogen (as N) nitrate and 9 mg/L as N ammonia (upper bound concentrations of 15 mg/L as N nitration and 16 mg/L as N ammonia) could be realized during year 5 of mining, since this is the year over which the most blasting will occur. Predicted nitrogen species concentrations decrease through the latter years of mining as the total mined tonnage of rock and ore decreases.

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**Table 7.II.3-3: Summary of Nitrate and Ammonia Concentrations in the Surge Pond by Year of Mining,
Assuming a 1.5% Explosive Usage Waste Rate**

Year	Total Tonnage of Mine Rock and Ore	Steady State ^a		Upper Bound ^b	
		NH4+	NO3	NH4+	NO3
		mg/L as N	mg/L as N	mg/L as N	mg/L as N
1	1,568,500	1.2	1.2	2.0	2.0
2	6,653,884	5.2	5.3	8.6	8.7
3	10,874,263	8.5	8.6	14	14
4	11,570,081	9.1	9.1	15	15
5	11,888,856	9.3	9.4	15	16
6	8,492,040	6.7	6.7	11	11
7	7,642,836	6.0	6.0	10	10
8	7,642,836	6.0	6.0	10	10
9	7,642,836	6.0	6.0	10	10
10	6,370,576	5.0	5.0	8.3	8.3
11	7,642,836	6.0	6.0	10	10
12	6,793,632	5.3	5.4	8.8	8.9
13	6,793,632	5.3	5.4	8.8	8.9
14	6,453,950	5.1	5.1	8.4	8.4
15	5,944,428	4.7	4.7	7.7	7.8
16	3,362,848	2.6	2.7	4.4	4.4
17	3,362,848	2.6	2.7	4.4	4.4
18	3,362,848	2.6	2.7	4.4	4.4
19	3,533,254	2.8	2.8	4.6	4.6
20	294,767	0.2	0.2	0.4	0.4

Note: Concentrations assume a 70% ANFO and 30% emulsion mixture is used for 9 months of the year, and a 30% ANFO and 70% emulsion mixture is used during the 3 month spring freshet.

^a Steady state conditions, assuming key water losses from system are water lost to the pore water of the tailings, and water pumped to the ETF for treatment and discharge.

^b Upper bound conditions, assuming key water losses from system are water lost to the pore water of the tailings.

7.II.4 WATER QUALITY DURING CONSTRUCTION

According to the Water Management Plan (Section 3, Appendix 3.III), contact water will be impounded in the Grid Ponds once the SCP dams have been constructed. This water will be stored until the ETF is operational. This section provides an overview of the composition of the various sources of water that may be impounded during the construction period, including the following:

- sewage effluent;
- Plant site contact water;
- contact water collected in sumps during the pre-stripping of the Open Pit; and

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- water pumped from the underground mine workings.

7.II.4.1 Sewage Effluent

Sewage from the construction camp will be treated using a rotary biologic contactor. The predicted composition of the RBC effluent is presented in Table 7.II.4-1. The predicted ammonia levels in the rotary biologic contactor effluent (2 mg/L) are less than the SSWQO of 4.16 mg/L. It is assumed that the rotary biologic contactor effluent flows will be collected until the ETF is operational. However, if the effluent ammonia levels are below the SSWQO, rotary biologic contactor effluent flows can be discharged.

7.II.4.2 Plant Site Contact Water

Type 1 Mine Rock will be used to construct all facilities at the Plant site. The composition of Plant site contact water during construction was conservatively assumed to be approximately the same as the composition of Plant site contact water during early operations. Table 7.II.4-1 presents a summary of the assumed composition of Plant site runoff during construction.

7.II.4.3 Open Pit Water

Once pre-stripping of the Open Pit begins, the water that collects in the Open Pit sump will contain elevated concentrations of ammonia and nitrate (from blasting residuals). Furthermore, metals, sulphate and acidity could be contributed to water that comes into contact with freshly exposed wall rock. The composition of water that will be collected in the Open Pit sump during the pre-stripping of the Open Pit was conservatively assumed to have the predicted composition of water that collects in the Open Pit during the initial years of operation. Nitrate and ammonia concentrations presented in Table 7.II.4-1 are assumed based on the explosive usage rates during the initial years of operation. The actual composition of water that collects in the Open Pit sumps will be a function of the rate of pit development and rate of explosive usage, and rock types encountered during pit development.

7.II.4.4 Water Pumped from the Underground Mine Workings

According to the Water Management Plan (Section 3, Appendix 3.III), it is estimated that 50 000 m³ will be pumped from the flooded exploration workings prior to the start of underground mining. According to Fortune, 2 water quality end members could be observed during dewatering of the underground mine workings (Table 7.II.4-1):

- water that is not in direct contact with ore, and that receives recharge from precipitation that infiltrates through shallow, fractured bedrock is represented by the range of composition of water quality samples; and
- deeper groundwater in contact with mineralized Mine Rock and ore.

The potential range of water quality presented in Table 7.II.4-1 is based on the range of composition of samples collected from the portal, and groundwater monitoring wells. Water quality monitoring will be required during dewatering of the underground mine workings to determine if water can be discharged, or if it must be impounded prior to the start-up of the ETF.

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Table 7.II.4-1: Summary of Results of Site Water Quality Predictions - Construction

Parameter	Units	Site Specific Water Quality Objectives	Treated Sewage Effluent ^a	Plant Site Sump ^b	Open Pit Sump ^c	Underground Mine Water – Shallow ^d		Underground Mine Water - Deep ^e
						Minimum	Maximum	Minimum
pH	pH units	-		7.4	5.4	7.65	8.19	8.36
Aluminum	mg/L	0.41		0.098	3.4	0.01	0.02	< 0.20
Antimony	mg/L	0.03		0.018	0.029	0.0007	<0.2	0.0087
Arsenic	mg/L	0.05		0.19	0.65	0.02	0.19	0.42
Boron	mg/L	-		0.033	0.22	0.01	0.037	0.029
Barium	mg/L	-		0.0058	0.28	0.01	0.012	0.029
Beryllium	mg/L	-		0.0022	0.0011	<0.0005	0.005	< 0.00050
Calcium	mg/L	-		6.9	11	23.8	54.3	40.50
Cadmium	mg/L	0.00015		0.00039	0.00014	0.0004	<0.01	< 0.010
Chloride	mg/L	353		15	26	0.55	0.9	5.0
Cobalt	mg/L	0.01		0.0056	1.1	0.0032	0.012	< 0.010
Chromium	mg/L	-		0.0028	0.0048	<0.0004	<0.0004	< 0.0050
Copper	mg/L	0.022		0.0022	0.054	0.004	<0.01	< 0.010
Iron	mg/L	1.5		0.86	4.7	<0.01	0.035	< 0.010
Mercury	mg/L	-		0.0001	0.00011	<0.0001	<0.0001	---
Potassium	mg/L	-		196	355	1.65	3.85	2.79
Magnesium	mg/L	-		2.1	5.8	7.60	9.72	10.50
Manganese	mg/L	-		0.1	0.1	0.003	0.068	0.0166
Molybdenum	mg/L	-		0.017	0.03	0.004	0.074	0.033
Sodium	mg/L	-		2.3	19	4.44	15.1	19.70
Nickel	mg/L	-		0.0017	0.038	0.00	<0.05	0.0007
Phosphorous	mg/L	-	1	0.079	0.082	0.10	0.1	0.27
Lead	mg/L	0.0076		0.0017	0.0069	<0.0001	<0.0001	< 0.0001
Selenium	mg/L	0.005		0.002	0.02	<0.0004	0.0004	< 0.00040
Silver	mg/L	-		0.0014	0.00021	<0.0001	<0.0002	< 0.010
Sulphate	mg/L	-		3.3	71	34	66	50
Strontium	mg/L	-		0.026	0.031	0.07	0.23	0.31

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Table 7.II.4-1: Summary of Results of Site Water Quality Predictions – Construction (continued)

Parameter	Units	Site Specific Water Quality Objectives	Treated Sewage Effluent ^a	Plant Site Sump ^b	Open Pit Sump ^c	Underground Mine Water – Shallow ^d		Underground Mine Water - Deep ^e
						Minimum	Maximum	
Tin	mg/L	-		0.029	0.0087	<0.0002	<0.03	< 0.030
Vanadium	mg/L	-		0.0011	0.005	0.0002	0.0003	0.0002
Thallium	mg/L	-		0.014	0.0023	<0.00005	<0.2	< 0.000050
Uranium	mg/L	0.027		0.027	0.0043	0.005	0.031	0.0257
Zinc	mg/L	0.11		0.0079	0.14	0.01	0.23	< 0.0050
Nitrate						0.09	4.3	0.144
Ammonia	mg/L as N		2			<0.049	0.66	< 0.050
Total suspended solids	mg/L		< 10			<3.0	6	---
Fecal coliform	M.P.N./100 mL		< 200			---	---	---
Fats, oils and greases			Non-detect			---	---	---

^a Predicted composition of effluent based on the proposed RBC.

^b Assumed to be represented by the composition of site runoff (F1) during early years of operation.

^c Assumed to be represented by the composition of pit sump water (F3) in early years of operation.

^d Assumed to be represented by the composition of water quality samples collected from the portal.

^e Assumed to be represented by the composition of water quality samples collected from exploration drill hole 97-051.

1.0 - Denotes values greater than site-specific water quality guidelines.

7.II.5 FLOODED OPEN PIT WATER QUALITY PREDICTIONS

7.II.5.1 Conceptual Model

Mining at the NICO Project will result in the formation of an Open Pit. Water that flows into the Open Pit will be captured in sumps and pumped to the water treatment plant during operations. Unless water is captured and pumped from the Open Pit in perpetuity, a Flooded Open Pit will form in the Open Pit after the completion of mining. Figure 7.II.5-1 presents a flow diagram of the conceptual model for the post-closure Flooded Open Pit. Key flows (Q) and water quality inputs (C) that could contribute to the formation of the post-closure Flooded Open Pit include the following:

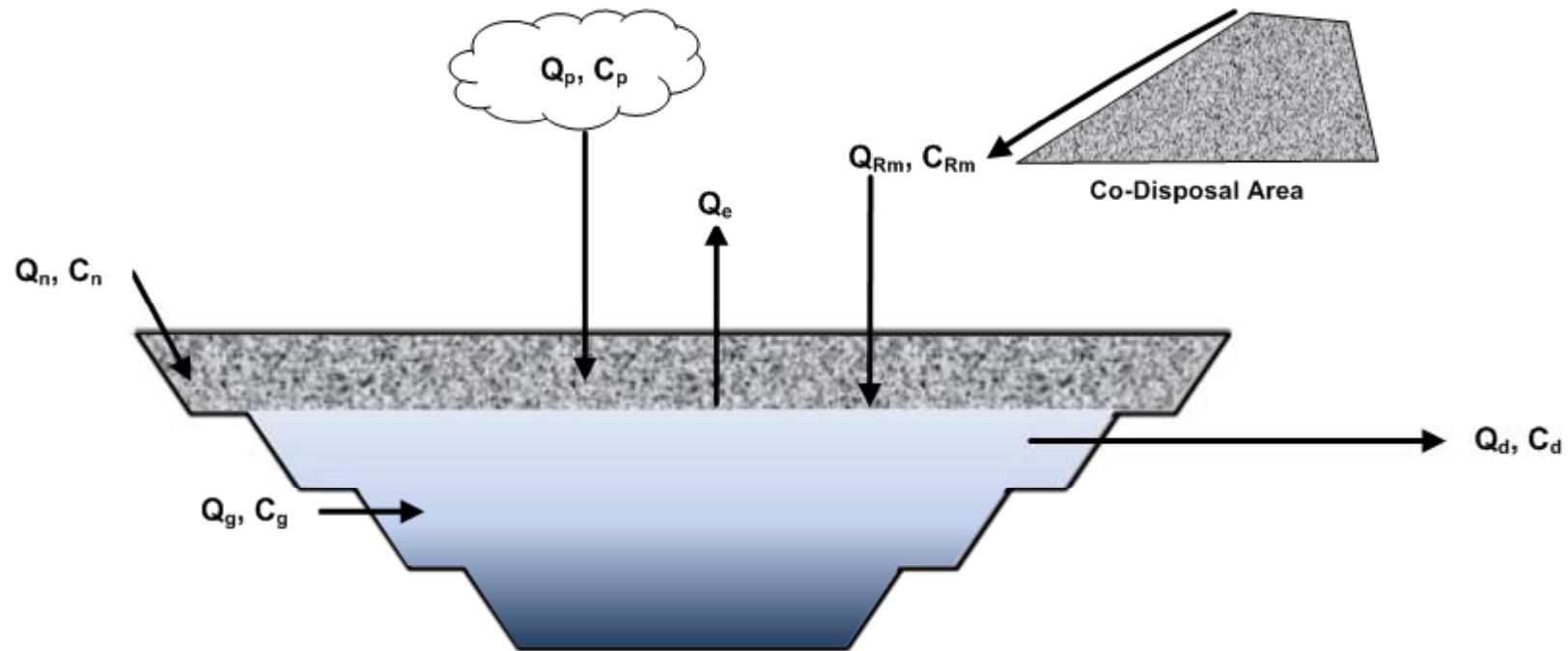
- direct precipitation into the Flooded Open Pit;
- groundwater inflow;
- pit wall runoff (i.e., precipitation that contacts exposed mine rock in the pit walls prior to reporting to the Flooded Open Pit);
- runoff from the CDF closure cover; and
- local catchment runoff.

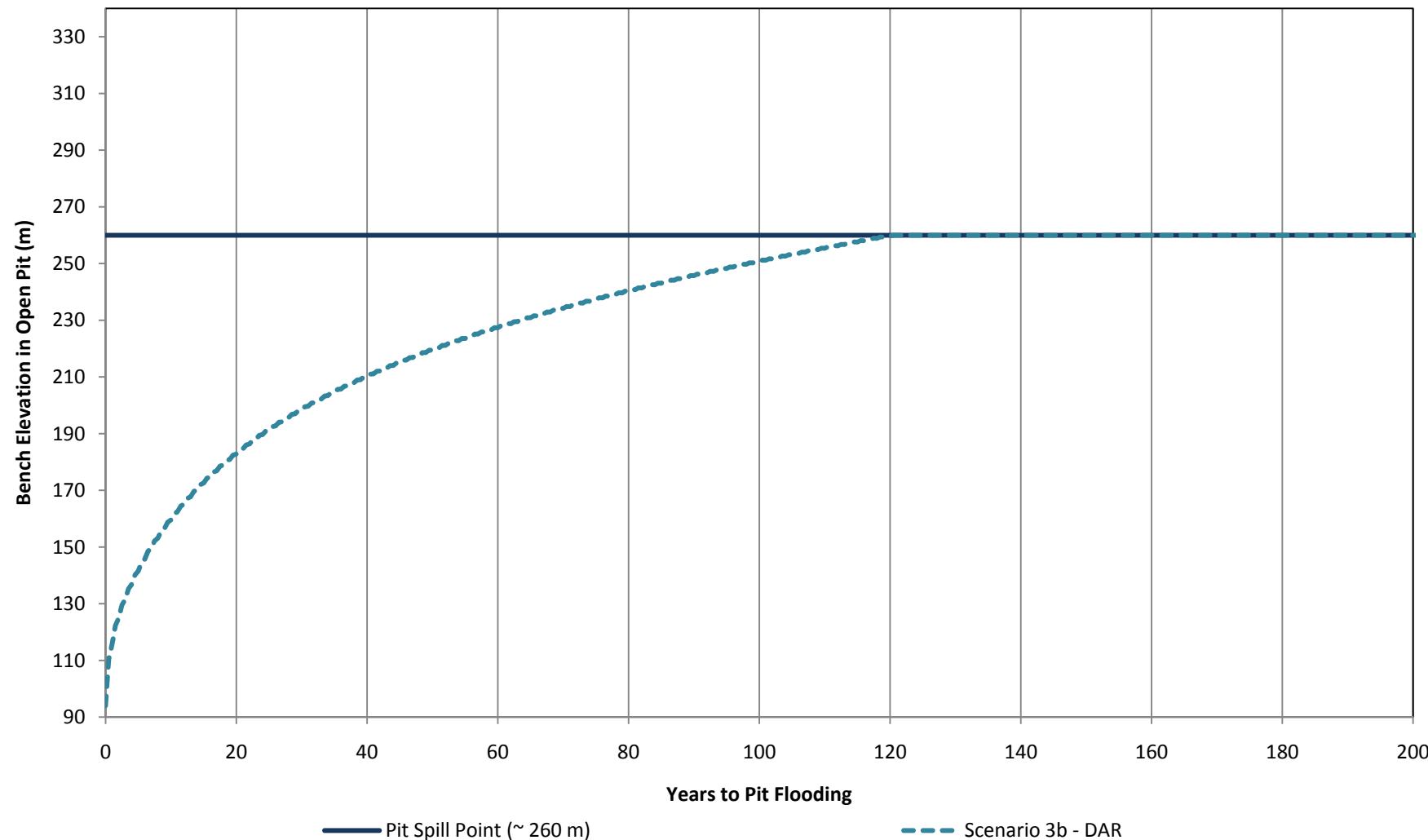
Attachment 7.II.V provides a list of the key flows and concentrations in the Flooded Open Pit water quality conceptual model. The conceptual model is presented in Figure 7.II.5-1.

7.II.5.2 Water Balance

A Flooded Open Pit water balance was developed based on the closure plan for the NICO Project. The Flooded Open Pit water balance quantifies the contribution of each source of flow into the Open Pit over time. The Open Pit filling curve assumes that the Flooded Open Pit will discharge at an elevation of approximately 260 m (Figure 7.II.5-2). Attachment 7.II.VI provides the detailed water balance for the Open Pit during the closure and post-closure periods.

According to the Flooded Open Pit water balance, it will take approximately 120 years for the Flooded Open Pit to reach the spill point elevation of 260 m.





Title		Drawn	
Pit Lake Filling Curves - Scenario 3b (DAR)		KAS	
Project Name	NICO Project	Checked	KD
Client Name	Fortune Minerals Limited	Reviewed	KD
Project No. 10 1118 0046 5500		FIGURE 7.II.5-2	
Date April 11, 2011			

7.II.5.3 Hydrodynamic Model

A hydrodynamic model was completed to evaluate the potential for stratification in the Open Pit. The hydrodynamic model is discussed in detail in (Appendix 7.VI). This section provides a brief overview of the hydrodynamic model in the context of how the results were applied to the Flooded Open Pit water quality mixing model.

The hydrodynamic model was completed using CE-QUAL-W2 (W2) (Cole and Wells 2008). The W2 model is a 2-dimensional, laterally averaged, hydrodynamic and water quality model maintained and supported by the U.S. Army Corp. of Engineers Waterways Experiment Station. The model simulates interaction of physical and chemical processes, including flow, thermal and substance mass loading regimes, meteorological forcing conditions (e.g., air temperature, wind, solar radiation, precipitation, evaporation, etc.) and lake-bottom interactions. The W2 model also includes a module to simulate ice-cover in the winter. The formation of a complete ice cover prevents re-aeration, provides complete wind sheltering and results in reduced thermal inputs via solar radiation. The model has been extensively used to simulate the potential performance of natural and constructed lakes, including mine pit lakes (Cole and Wells 2008; Castendyk and Eary 2009).

The results of the hydrodynamic model for the NICO Open Pit that approximately 900 000 m³ of water located at the bottom 35 m of the pit will remain unmixed seasonally, which equates to approximately 3% of the filled volume of 28 000 000 m³. The small size of the monolimnion appears to be attributable to the relatively small differences in Total Dissolved Solids content of the predicted post-closure Flooded Open Pit water sources, associated weak or absent chemo/pycnocline at depth, and high evaporation rates (which tends to result in evapoconcentration in the warmer surface layers in summer relative to the cooler waters below, followed by density-driven turnover in fall). This may be further compounded by the long axis of the Flooded Open Pit being generally aligned with the orientation of dominant winds.

Based on the results of the hydrodynamic model, the Flooded Open Pit water quality predictions were therefore conservatively based on complete mixing, as a monolimnion consisting of 3% of the Flooded Open Pit volume is unlikely to make a substantial difference to the quality of the waters at initial discharge.

7.II.5.4 Model Framework

A Flooded Open Pit water quality model was completed using PHREEQC, assuming fully mixed conditions. Water quality inputs were assigned to each of the key flows in the site water balance. The assigned water qualities were mixed in the proportions defined by the Flooded Open Pit water balance on a bi-annual basis (November to June, and July to October).

For the site water quality predictions, mathematical mixing simulations were conducted using the geochemical modeling code PHREEQC Version 2.17.2. A range of mixing simulations were completed to account for the mixing of water, while accounting for thermodynamic constraints that could effect the composition of natural waters, including precipitation/dissolution of geochemically-credible mineral phases, and adsorption of metals onto ferrihydrite ("with geochemical controls"). A conservative simple mixing of water ("no geochemical controls") was also modelled.

7.II.5.5 Input Water Quality

Water quality inputs to the Flooded Open Pit water quality model are listed in Attachment 7.II.VII, and include the following:

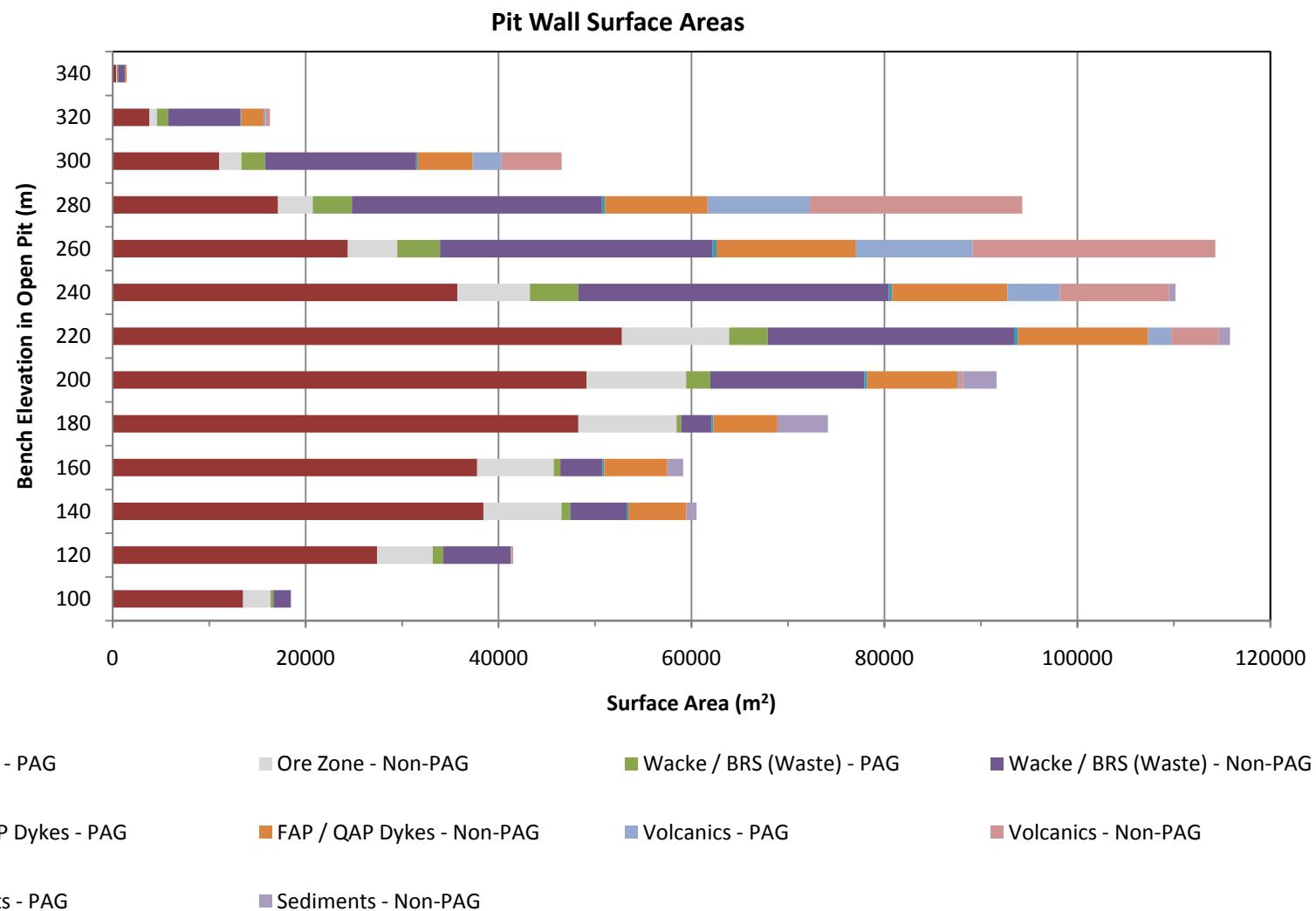
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- **Precipitation:** The composition of local precipitation was calculated using the average composition of samples in the Environment Canada CapMon Snare Lake precipitation monitoring station dataset.
- **Upgradient flows from existing watersheds:** The surface water quality baseline for the NICO Project was used to define the average composition of water in Nico Lake in June and August, respectively.
- **Groundwater:** The composition of groundwater seepage into the Open Pit was assumed to equal the average composition of groundwater quality samples collected from monitoring well 03-281 in 2004, 2009, and 2010.
- **Runoff from the CDF to the Open Pit:** It is assumed that the CDF closure cover will be constructed with a cover made with construction material from the NICO Project site. The composition of runoff from the CDF was defined based on the average results of short-term leach tests carried out on samples of borrow material samples collected from the site.
- **Pit Wall Runoff:** As the Flooded Open Pit fills, rock exposed in the reactive zone of the pit walls will become inundated with water, effectively reducing the rate of mineral reactions in reactive zone. The Flooded Open Pit model assumes that rock inundated by water below the Flooded Open Pit surface will contribute negligible mass to the Flooded Open Pit; whereas rock exposed in the high wall above the Flooded Open Pit surface could continue to contribute some acidity, metals, and sulphate (based on the results of long-term geochemical leach tests). The contribution of pit wall runoff was defined based on the exposed surface area of each lithology in the Open Pit by elevation as the Flooded Open Pit fills (Figure 7.II.5-3).

The composition of rock exposed in the high wall above the ultimate post-closure Flooded Open Pit discharge elevation is of key importance with respect to long-term Flooded Open Pit water quality. The elevation of the high wall above the spill point elevation ranges from 260 to 340 m. Rock exposed above the ultimate Flooded Open Pit includes black rock schist (33%), with some mineralized black rock schist (sub-economic ore) (25%), feldspar amphibole porphyry dykes (12%), and rhyolitic volcanics (30%).

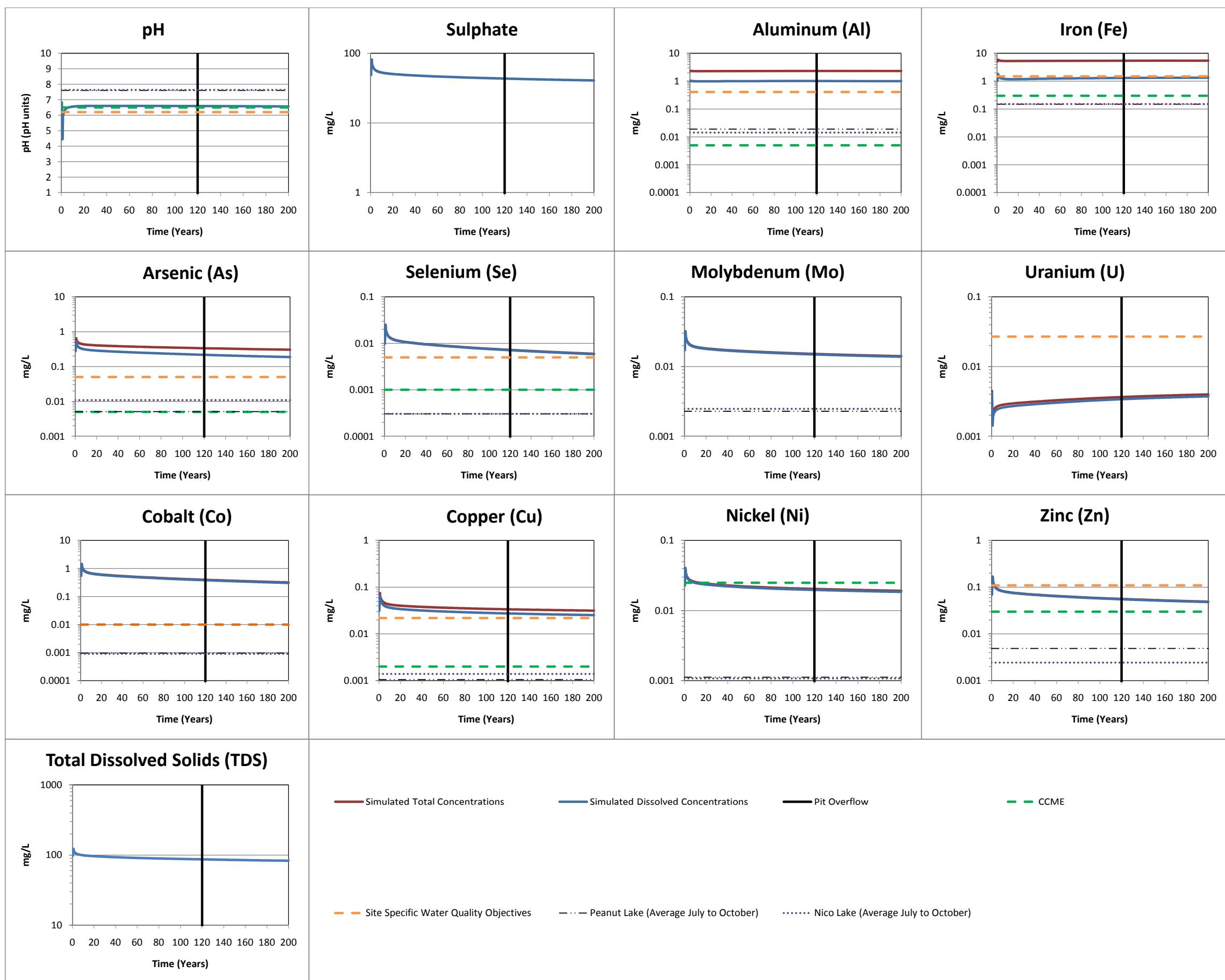
7.II.5.6 Results

Water quality predictions were performed on a bi-annual basis over a period of 200 years. Attachment 7.II.VIII presents a detailed comparison of the results of the preliminary post-closure Flooded Open Pit water quality evaluation assuming complete, conservative mixing of the Flooded Open Pit at each bi-annual time step, assuming no precipitation of geochemically credible controls. Select results of the Flooded Open Pit water quality model are presented in Figure 7.II.5-4 in comparison to the SSWQOs, and the background concentrations measured in Nico Lake and the Grid Ponds.



Title		Pit Wall Geology		Drawn	KAS
Project Name		NICO Project		Checked	KD
Client Name		Fortune Minerals Limited		Reviewed	KD
Project No.		10 1118 0046 5500		FIGURE 7.II.5-3	
Date		April 11, 2011			

Figure 7.II.5-4
NICO Flooded Open Pit Water Quality Predictions



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Table 7.II.5-1 defines the maximum dissolved and total concentrations of Flooded Open Pit water quality during 3 periods:

- **Maximum in-pit water quality:** the maximum predicted dissolved and total concentrations of each parameter during the period of Flooded Open Pit formation (i.e., Year 0 until the Flooded Open Pit reaches the spill-point elevation of 260 m);
- **Maximum effluent water quality:** the maximum predicted dissolved and total concentrations of each parameter after the Flooded Open Pit reaches the spill-point elevation; and
- **Expected steady state effluent water quality:** the steady-state concentrations of each parameter predicted after the Flooded Open Pit has reached the spill-point elevation.

Parameters that may occur at concentrations in excess of the site SSWQOs after the pit reaches the spill point elevation of 260 m include aluminum, arsenic, cobalt, copper, and selenium. As presented in Table 7.II.5-1, reductions in the predicted metal concentrations could result from the precipitation of iron and aluminum hydroxide minerals.

The results of the Flooded Open Pit model indicate that the pH of the fully mixed Flooded Open Pit is sensitive to several factors, including the alkalinity of input waters contributing to the Flooded Open Pit, the relative proportion of the various rock types that will be exposed in the ultimate Open Pit, and the duration of exposure of the rock exposed in the pit walls. Ultimately, long-term monitoring of the Flooded Open Pit will be required as the Flooded Open Pit fills over time to determine if the water in the Open Pit is amenable to wetland treatment after the spill point elevation is reached. If it becomes clear that the water in the Open Pit is not amenable to wetland treatment, alternatives for treatment prior to discharge to Peanut Lake may be considered. In situ treatment by chemical addition or biological treatment methods to adjust the pH and / or metal concentrations in Flooded Open Pit water is also an option that could be considered in order to condition the water prior to discharge into the treatment wetlands. Another possibility, only if necessary, would be construction of a new ETF for active treatment prior to discharge into Peanut Lake.

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Table 7.II.5-1: Preliminary Results – Flooded Open Pit Water Quality Predictions

			Simulated Post-Closure Pit Lake Water Quality					
Years			0 to 120	0 to 120	0 to 120	~ Year 120	> 120 years	> 120 years
Geochemical Controls			None	Mineral precipitation and absorption	None	Mineral precipitation and absorption	None	Mineral precipitation and absorption
Parameter	Units	Site Specific Water Quality Objectives	Maximum In-Pit Water Quality	Maximum In-Pit Water Quality	Maximum Effluent Water Quality	Maximum Effluent Water Quality	Expected Steady State Effluent Water Quality	Expected Steady State Effluent Water Quality
General Parameters								
pH	pH units	6.2	4.4	4.6	6.6	6.5	6.6	6.5
Redox	mV	-	438	417	383	386	383	386
Alkalinity	mg/L as CaCO ₃	-	7.4	12	6.5	7.4	6.5	6.8
Anions								
Chloride (Cl)	mg/L	353	5.1	5.1	5.5	5.5	5.5	5.5
Sulphate (SO ₄)	mg/L	-	81	81	43	43	41	41
Dissolved Metals								
Total Dissolved Solids (TDS)	mg/L	-	123	123	87	82	83	78
Aluminum (Al)	mg/L	0.41	1.1	1.2	1.0	0.0012	1.0	0.0012
Antimony (Sb)	mg/L	0.03	0.018	0.018	0.0074	0.0074	0.0068	0.0068
Arsenic (As)	mg/L	0.05	0.52	0.51	0.22	0.15	0.19	0.12
Barium (Ba)	mg/L	-	0.18	0.18	0.073	0.073	0.068	0.068
Beryllium (Be)	mg/L	-	0.00087	0.00091	0.00064	0.0000043	0.00058	0.0000043
Boron (B)	mg/L	-	0.2	0.2	0.12	0.12	0.12	0.12
Cadmium (Cd)	mg/L	0.0002	0.00012	0.00012	0.000083	0.000082	0.000083	0.000082
Calcium (Ca)	mg/L	-	8.6	8.6	7.1	7.1	7.0	7.0
Chromium (Cr)	mg/L	-	0.0031	0.004	0.0032	0.000064	0.0032	0.000063
Cobalt (Co)	mg/L	0.01	1.4	1.4	0.38	0.38	0.31	0.31
Copper (Cu)	mg/L	0.02	0.068	0.071	0.028	0.0059	0.025	0.0059
Iron (Fe)	mg/L	1.5	1.8	1.8	1.3	0.0007	1.3	0.0007
Lead (Pb)	mg/L	0.0076	0.0067	0.0069	0.0035	0.00026	0.0025	0.00024
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8
Manganese (Mn)	mg/L	-	0.11	0.11	0.046	0.046	0.042	0.042
Mercury (Hg)	mg/L	-	0.000086	0.000085	0.000094	0.000093	0.000094	0.000093
Molybdenum (Mo)	mg/L	-	0.032	0.031	0.015	0.015	0.014	0.014
Nickel (Ni)	mg/L	-	0.04	0.04	0.02	0.02	0.019	0.019
Phosphorus (P)	mg/L	-	0.04	0.036	0.029	0.018	0.025	0.015
Potassium (K)	mg/L	-	24	24	11	11	11	11
Selenium (Se)	mg/L	0.005	0.025	0.024	0.0071	0.007	0.0059	0.0057
Silver (Ag)	mg/L	-	0.00012	0.00012	0.00013	0.00013	0.00013	0.00013
Sodium (Na)	mg/L	-	9.4	9.4	7.4	7.4	6.9	6.9
Strontium (Sr)	mg/L	-	0.026	0.026	0.027	0.027	0.027	0.027
Thallium (Tl)	mg/L	-	0.00066	0.00066	0.00075	0.00075	0.00075	0.00075
Tin (Sn)	mg/L	-	0.015	0.015	0.017	0.017	0.017	0.017
Uranium (U)	mg/L	0.027	0.0042	0.0042	0.0037	0.0037	0.0037	0.0037
Vanadium (V)	mg/L	-	0.0026	0.0026	0.0022	0.0021	0.0022	0.0021
Zinc (Zn)	mg/L	0.11	0.16	0.17	0.055	0.055	0.048	0.049
Total Metals								
Total Suspended Solids ^a	mg/L	-	30	30	30	30	30	30
Aluminum (Al)	mg/L	-	2.3	2.5	2.3	1.3	2.3	1.3
Antimony (Sb)	mg/L	-	0.019	0.019	0.008	0.008	0.0074	0.0074
Arsenic (As)	mg/L	-	0.64	0.63	0.34	0.27	0.31	0.24
Barium (Ba)	mg/L	-	0.19	0.19	0.084	0.084	0.079	0.079
Beryllium (Be)	mg/L	-	0.00094	0.00098	0.00071	0.000068	0.00064	0.000068
Boron (B)	mg/L	-	-	-	0	0	-	-
Cadmium (Cd)	mg/L	-	0.00013	0.00013	0.000087	0.000087	0.000087	0.000087
Calcium (Ca)	mg/L	-	9.6	9.6	8.1	8.1	8.0	8.0
Chromium (Cr)	mg/L	-	0.0044	0.0054	0.0046	0.0014	0.0046	0.0014
Cobalt (Co)	mg/L	-	1.4	1.4	0.4	0.4	0.32	0.32
Copper (Cu)	mg/L	-	0.074	0.077	0.034	0.012	0.031	0.012
Iron (Fe)	mg/L	-	5.9	5.9	5.5	4.2	5.5	4.2
Lead (Pb)	mg/L	-	0.0069	0.0071	0.0037	0.00051	0.0028	0.0005
Magnesium (Mg)	mg/L	-	3.6	3.6	3.5	3.5	3.5	3.5
Manganese (Mn)	mg/L	-	0.14	0.14	0.076	0.076	0.072	0.072
Molybdenum (Mo)	mg/L	-	0.032	0.031	0.015	0.015	0.014	0.014
Nickel (Ni)	mg/L	-	0.04	0.041	0.02	0.02	0.019	0.019
Phosphorus (P)	mg/L	-	0.048	0.044	0.037	0.026	0.033	0.023
Potassium (K)	mg/L	-	25	25	12	12	12	12
Selenium (Se)	mg/L	-	0.025	0.025	0.0073	0.0071	0.006	0.0059
Silver (Ag)	mg/L	-	0.00013	0.00013	0.00013	0.00013	0.00013	0.00013
Sodium (Na)	mg/L	-	9.5	9.5	7.6	7.6	7.1	7.1
Strontium (Sr)	mg/L	-	0.026	0.026	0.027	0.027	0.027	0.027
Thallium (Tl)	mg/L	-	0.00068	0.00068	0.00076	0.00076	0.00076	0.00076
Tin (Sn)	mg/L	-	0.015	0.015	0.017	0.017	0.017	0.017
Uranium (U)	mg/L	-	0.0045	0.0045	0.004	0.004	0.004	0.004
Vanadium (V)	mg/L	-	0.0036	0.0036	0.0033	0.0032	0.0033	0.0032
Zinc (Zn)	mg/L	-	0.17	0.17	0.056	0.056	0.049	0.049

^a Total suspended solids content of pit water assumed to equal 30 mg/L.

0.3 - indicates an exceedance above the site-specific water quality objectives

7.II.6 MODEL ASSUMPTIONS AND LIMITATIONS

Water quality modeling requires the use of many assumptions due to the uncertainty related to determining the physical and geochemical characteristics of complex natural systems. The prediction of water quality is based on several inputs (surface flows, seepage, baseline water quality, and geochemical properties), all of which have inherent variability and uncertainty. Given all of the inherent uncertainties, the results of the water quality model should be used as a tool to aide in the design of monitoring programs, and mine planning, to develop mitigation strategies and to outline potential risks rather than to provide absolute concentrations. Water quality results predicted in this appendix, based on the results of geochemical characterization of tailings and mine rock, water management plan, mine rock management plan, and understanding of the existing site conditions, are considered to provide a reasonable estimate of the expected conditions for the purposes as described above.

The following key assumptions were used in the water quality model:

- fully mixed conditions were assumed at all locations;
- all surface waterbodies were assumed to be oxidizing, limiting metal mobility from reductive transport;
- measured water quality parameters that were less than the analytical detection limit were assumed to be equal to the detection limit;
- only dissolved concentrations were simulated for the site water management ponds;
- pH predictions are based on the measured pH and alkalinity of surface water and groundwater; and measured pH of mine rock and tailings (based on the results of geochemical characterization).

Care was taken to incorporate known processes as understood during model development. However, in natural systems and complex man-made systems, observed conditions, particularly on a daily basis, will almost certainly vary with respect to estimated conditions.

The data and approach used to estimate future water quality are currently believed to provide a reasonable approximation of the system as currently understood, within the context of the assumptions used in the model. Changes in the site conditions, input data, or assumptions regarding the site conditions will necessarily result in changes to water quality predictions.

Ultimately, models cannot compare with operational monitoring data. Monitoring of water quality and periodic reassessment of effects, predictions and/or remedial measures will be required.

7.II.7 REFERENCES

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ATTACHMENT 7.II.I

List of Flows and Water Qualities – Operations, Closure, and Post-Closure Water Quality Predictions

Attachment 7.II.Ia

Summary of Key Flows During Operations (approximately Years 2013 and 2031) According to the Site Water Balance

Component	Flow ID (Q)	Water Quality ID (C)	Description - Flow
Plant Site			
	F1		
Inflows	+RA1	C3	Runoff from natural ground
	+RA2	C7	Runoff from prepared ground
	+RA3	C1	Runoff from sump surface
Outflows	-EA1		Evaporation from Plant Site Sump
	-SA1		Seepage from plant site sump
CDF - input to surge pond			
	F2a		
Inflows	+RB1	C3	Runoff from natural ground (To Codisposal)
	+RB2	C1	Runoff from pond surface
	+RB3a	C12	Runoff from wet tailings or co-disposed waste
	+RB3b	C12	Runoff from dry tailings or co-disposed waste
	+RB4a	C8	Runoff from waste rock
	+P2	C11	Discharge from tailings thickener to tailings disposal facility
Outflows	-P4		Water retained in the deposited tailings
	-EB1		Evaporation from CDF pond & wet tailings
CDF - Seepage Collection Ponds			
	F2b		
Inflows	RB1a	C5	Runoff from natural ground (to seepage Ponds)
	RB5	C1	Runoff from seepage pond surfaces
	RB3c	C13	Infiltration through tailings or co-disposed waste
	RB4b	C8	Infiltration through waste rock
Outflows	EB2		Evaporation from Seepage Ponds
	-SB1		Seepage from seepage collection ponds
Open Pit			
	F3		
Inflows	+RC1	C3	Runoff from natural ground
	+RC2	C1	Runoff from pond surface
	+RC3	C14	Runoff from open pit
	+RB3b	N/A	Runoff from dry tailings or co-disposed waste
	+SC1	C6	Into the open pit
Outflows	-EC1		Evaporation from open pit sump
Surge Pond			
	F4		
Inflows	+RE1	C1	Runoff from pond surface
	+F1	F1	From the plant site sump to the SP
	+F2a	F2a	From the CDF to the SP
	+F2b	F2b	From the seepage collection pond to the SP
	+F3	F3	From the open pit sump to SP
Outflows	-EE1		Evaporation from Surge Pond (SP)
	-SE1		Seepage from the Surge Pond (SP)

Attachment 7.II.Ib
 Summary of Key Flows During the Closure and Post-Closure Periods According to the Site Water Balance

Component	Flow ID (Q)	Water Quality ID (C)	Description - Flow
Plant Site	F1		
Inflows	+RA1	C3	Runoff from natural ground
CDF - Seepage Collection Ponds 1, 2, 3 and 5 to Wetlands	F2		
Inflows	RB1a	C5	Runoff from natural ground (to seepage Ponds)
	RB5	C1	Runoff from seepage pond surfaces
	RB3c	C13	Infiltration through tailings or co-disposed waste
Outflows	EB2		From Seepage Ponds
	-SB1		From seepage collection ponds
Open Pit	F3	C15	
Inflows	+RC1	C3	Runoff from natural ground
	+RC2	C1	Runoff from pond surface
	+RC3	C14	Runoff from open pit
	+RB3b	C16	Runoff from dry tailings or co-disposed waste
	+SC1	C6	Into the open pit
Outflows	-EC1		From open pit sump
Surge Pond	F4		
Inflows	+RE1	C1	Runoff from pond surface
	+F1	F1	From the plant site sump to the SP
Outflows	-EE1		From Surge Pond (SP)
	-SE1		From the Surge Pond (SP)

ATTACHMENT 7.II.II

**Water Balance - Deterministic Water Balances for Operations,
Closure, and Post-closure**

Attachment 7.II.II
Deterministic Site Water Balances

Deterministic Site Water Balance - Start of Operations (Year 1)

			F1. PLANT SITE SUMP					
			Inflows		Outflows		Total Volume	Total Inflows
Monthly Flows	RA1	RA2	RA3	EA1	SA1	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows	
	Sept	m ³	641	907	132	-245	-304	1,376
	Oct	m ³	461	571	71	-66	-304	798
	Nov	m ³	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0
	May	m ³	3,004	2,918	328	0	-304	5,946
Total		m ³	9,206	10,071	1,262	-1,758	-1,825	18,714
								20,539

F2a. CDF input to surge pond													
			Inflows						Outflows		Total Volume	Total Inflows	
			RB1	RB2	RB3a	RB3b	RB4a	P2	Difference between discharge from tailings facility and water retained in tailings	Discharge from tailings thickener to tailings disposal facility	EB1	P4	
Monthly Flows	Runoff from natural ground (To Codisposal)	Runoff from pond surface	Runoff from wet tailings or codisposed waste	Runoff from dry tailings or codisposed waste	Runoff from waste rock					Evaporation from CdF pond & wet tailings	Water retained in the deposited tailings	Pond volume prior to evaporation (sum of inflows-pore water from sump)	Total volume
	Sept	m ³	5,603	1,746	957	1,139	456	8,263	45,449	-11,692	-37,185	18,164	55,349
	Oct	m ³	4,027	941	688	614	246	8,263	45,449	-3,150	-37,185	14,779	51,964
	Nov	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	Dec	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	Jan	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	Feb	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	Mar	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	April	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	May	m ³	26,267	4,333	4,485	4,289	2,008	8,263	45,449	0	-37,185	49,645	86,830
	June	m ³	31,497	5,555	5,378	5,086	2,327	8,263	45,449	-20,758	-37,185	58,106	95,292
Total		m ³	80,500	16,660	13,744	13,791	6,102	99,161	545,383	-83,750	-446,222	229,958	676,181

Attachment 7.II.II
Deterministic Site Water Balances

		F2b. CDF - Seepage Collection Ponds								
		Inflows			Outflows		Total Volume	Total Inflows		
		RB1a Runoff from natural ground (to seepage)	RB5 Runoff from seepage pond surfaces	RB3c Infiltration through tailings or co-disposed waste	RB4b Infiltration through waste rock	EB2 Evaporation from Seepage Ponds	SB1 Seepage from seepage collection ponds	Pond volume prior to evaporation (sum of inflows)	Total volume of inflows	
Monthly Flows	Sept	m ³	13,074	1,291	2,506	1,139	-2,395	-1,521	16,489	18,010
	Oct	m ³	9,397	696	1,351	614	-645	-1,521	10,536	12,057
	Nov	m ³	0	0	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0	0	0
	May	m ³	61,290	3,203	6,217	2,826	0	-1,521	72,014	73,535
	June	m ³	73,493	4,106	7,971	3,623	-4,252	-1,521	87,672	89,193
	July	m ³	14,564	1,438	2,791	1,269	-5,535	-1,521	18,540	20,061
	Aug	m ³	16,016	1,581	3,069	1,395	-4,327	-1,521	20,541	22,062
	Total	m ³	187,834	12,314	23,904	10,865	-17,154	-9,125	225,792	234,917

		F3. Open Pit Sump							
		Inflows			Outflows		Total Volume	Total Inflows	
		RC1 Runoff from natural ground	RC2 Runoff from pond surface	RC3 Runoff from open pit	SC1 Into the open pit	EC1 Evaporation from open pit sump	Pond volume prior to evaporation (sum of inflows- seepage from sump)	Total volume of inflows	
Monthly Flows	Sept	m ³	653	1,782	11,090	1,521	-3,307	15,046	15,046
	Oct	m ³	470	961	5,978	1,521	-891	8,929	8,929
	Nov	m ³	0	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0	0
	May	m ³	3,063	4,422	33,621	1,521	0	42,627	42,627
	June	m ³	3,673	5,670	41,384	1,521	-5,871	52,247	52,247
	July	m ³	728	1,985	12,353	1,521	-7,643	16,587	16,587
	Aug	m ³	801	2,183	13,585	1,521	-5,975	18,089	18,089
	Total	m ³	9,388	17,003	118,009	9,125	-23,686	153,526	153,526

Attachment 7.II.II
Deterministic Site Water Balances

		F4. Surge Pond									
		Inflows					Outflows		Total Volume	Total Inflows	
		RE1	F1	F2a	F2b	F3	EE1	SE1	Pond volume prior to evaporation <i>(sum of inflows)</i>	Total volume of inflows	
Monthly Flows	Sept	m ³	405	2,826	26,230	34,773	21,640	-752	-243	85,630	85,874
	Oct	m ³	218	2,826	26,230	34,773	21,640	-203	-243	85,444	85,687
	Nov	m ³	0	0	0	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0	0	0	0
	May	m ³	1,005	2,826	26,230	34,773	21,640	0	-243	86,230	86,474
	June	m ³	1,289	2,826	26,230	34,773	21,640	-1,334	-243	86,514	86,757
	July	m ³	451	2,826	26,230	34,773	21,640	-1,737	-243	85,676	85,920
	Aug	m ³	496	2,826	26,230	34,773	21,640	-1,358	-243	85,721	85,965
Total		m ³	3,864	16,956	157,377	208,639	129,840	-5,383	-1,460	515,216	516,676

Attachment 7.II.II
Deterministic Site Water Balances

Deterministic Site Water Balance - End of Operations (Year 18)

			F1. PLANT SITE SUMP						
			Inflows		Outflows		Total Volume	Total Inflows	
Monthly Flows	RA1	RA2	RA3	EA1	SA1	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows		
	Sept	m ³	729	1,620	270	-501	2,315	2,619	
	Oct	m ³	524	1,019	146	-135	1,384	1,688	
	Nov	m ³	0	0	0	0	0	0	
	Dec	m ³	0	0	0	0	0	0	
	Jan	m ³	0	0	0	0	0	0	
	Feb	m ³	0	0	0	0	0	0	
	Mar	m ³	0	0	0	0	0	0	
	April	m ³	0	0	0	0	0	0	
	May	m ³	3,418	5,210	670	0	8,994	9,298	
	June	m ³	4,098	6,345	859	-890	10,998	11,302	
	July	m ³	812	1,805	301	-1,158	2,614	2,918	
	Aug	m ³	893	1,985	331	-905	2,905	3,209	
Total		m ³	10,475	17,984	2,576	-3,589	-1,825	29,210	31,035

			F2a. CDF input to surge pond								Total Inflows		
			Inflows						Outflows		Total Volume		
Monthly Flows	RB1	RB2	RB3a	RB3b	RB4a	P2	Difference between discharge from tailings facility and water retained in tailings	Discharge from tailings thickener to tailings disposal facility	EB1	P4	Pond volume prior to evaporation (sum of inflows-pore water from sump)	Total volume	
	Sept	m ³	2,255	1,746	2,232	5,694	3,644	8,263	45,449	-22,961	-37,185	23,836	61,021
	Oct	m ³	1,621	941	1,604	3,069	1,964	8,263	45,449	-6,187	-37,185	17,464	54,649
	Nov	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	Dec	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	Jan	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	Feb	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	Mar	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	April	m ³	0	0	0	0	0	8,263	45,449	0	-37,185	8,263	45,449
	May	m ³	10,571	4,333	10,464	21,444	16,065	8,263	45,449	0	-37,185	71,141	108,326
	June	m ³	12,676	5,555	12,548	25,430	18,616	8,263	45,449	-40,766	-37,185	83,089	120,274
	July	m ³	2,512	1,945	2,486	6,343	4,060	8,263	45,449	-53,071	-37,185	25,609	62,795
	Aug	m ³	2,762	2,139	2,734	6,976	4,464	8,263	45,449	-41,488	-37,185	27,340	64,525
Total		m ³	32,396	16,660	32,069	68,957	48,814	99,161	545,383	-164,473	-446,222	298,058	744,280

Attachment 7.II.II
Deterministic Site Water Balances

		F2b. CDF - Seepage Collection Ponds							
		Inflows				Outflows		Total Volume	Total Inflows
Monthly Flows	RB1a	RB5	RB3c	RB4b	EB2	SB1	Pond volume prior to evaporation (sum of inflows seepage from sump)	Total volume of inflows	
	Runoff from natural ground (to seepage Ponds)	Runoff from seepage pond surfaces	Infiltration through tailings or co-disposed waste	Infiltration through waste rock	Evaporation from Seepage Ponds	Seepage from seepage collection ponds			
	Sept	m ³	5,262	1,291	8,883	9,111	-2,395	-1,521	23,026
	Oct	m ³	3,782	696	4,788	4,911	-645	-1,521	12,656
	Nov	m ³	0	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0	0
	May	m ³	24,666	3,203	22,041	22,606	0	-1,521	70,995
	June	m ³	29,576	4,106	28,260	28,984	-4,252	-1,521	89,405
	July	m ³	5,861	1,438	9,895	10,149	-5,535	-1,521	25,822
	Aug	m ³	6,446	1,581	10,882	11,161	-4,327	-1,521	28,549
Total		m ³	75,592	12,314	84,750	86,923	-17,154	-9,125	250,453
									259,578

		F3. Open Pit Sump							
		Inflows				Outflows		Total Volume	Total Inflows
Monthly Flows	RC1	RC2	RC3	SC1	EC1	Pond volume prior to evaporation (sum of inflows seepage from sump)	Total volume of inflows		
	Runoff from natural ground	Runoff from pond surface	Runoff from open pit	Into the open pit	Evaporation from open pit sump				
	Sept	m ³	4,326	1,602	11,216	18,250	-2,973	35,394	35,394
	Oct	m ³	3,109	864	6,046	18,250	-801	28,268	28,268
	Nov	m ³	0	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0	0
	May	m ³	20,279	3,975	34,003	18,250	0	76,508	76,508
	June	m ³	24,317	5,097	41,854	18,250	-5,278	89,518	89,518
	July	m ³	4,819	1,785	12,493	18,250	-6,871	37,346	37,346
	Aug	m ³	5,299	1,963	13,739	18,250	-5,371	39,251	39,251
Total		m ³	62,150	15,286	119,350	109,500	-21,293	306,285	306,285

Attachment 7.II.II
Deterministic Site Water Balances

		F4. Surge Pond								
		Inflows					Outflows			Total Inflows
Monthly Flows	RE1	F1	F2a	F2b	F3	EE1	SE1	Pond volume prior to evaporation (sum of inflows-	Total volume of inflows	
	Runoff from pond surface	From the plant site sump to the	From the CdF to the SP	From the seepage collection	From the open pit sump to SP	Evaporation from Surge Pond (SP)	Seepage from the Surge Pond (SP)			
	Sept	m ³	405	4,270	24,126	38,883	47,499	-752	-243	114,940
	Oct	m ³	218	4,270	24,126	38,883	47,499	-203	-243	114,753
	Nov	m ³	0	0	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0	0	0
	May	m ³	1,005	4,270	24,126	38,883	47,499	0	-243	115,539
	June	m ³	1,289	4,270	24,126	38,883	47,499	-1,334	-243	115,823
	July	m ³	451	4,270	24,126	38,883	47,499	-1,737	-243	114,986
	Aug	m ³	496	4,270	24,126	38,883	47,499	-1,358	-243	115,031
Total		m ³	3,864	25,621	144,754	233,299	284,992	-5,383	-1,460	691,071
										692,531

Attachment 7.II.II
Deterministic Site Water Balances

Deterministic Site Water Balance - Closure

		F1. PLANT SITE SUMP								
		Inflows			Outflows		Total Volume		Total Inflows	
		RA1 Runoff from natural ground	RA2 Runoff from prepared ground	RA3 Runoff from sump surface	EA1 Evaporation from Plant Site Sump	SA1 Seepage from plant site sump	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows		
Monthly Flows	Sept	m ³	756	0	0	0	756	756		
	Oct	m ³	543	0	0	0	543	543		
	Nov	m ³	0	0	0	0	0	0		
	Dec	m ³	0	0	0	0	0	0		
	Jan	m ³	0	0	0	0	0	0		
	Feb	m ³	0	0	0	0	0	0		
	Mar	m ³	0	0	0	0	0	0		
	April	m ³	0	0	0	0	0	0		
	May	m ³	3,544	0	0	0	3,544	3,544		
	June	m ³	4,250	0	0	0	4,250	4,250		
	July	m ³	842	0	0	0	842	842		
	Aug	m ³	926	0	0	0	926	926		
Total		m ³	10,863	0	0	0	10,863	10,863		

		F2a. CDF flows into the open pit									
		Inflows						Outflows		Total Volume	Total Inflows
		RB1 Runoff from natural ground (To Codisposal)	RB2 Runoff from pond surface	RB3a Runoff from wet tailings or codisposed waste	RB3b Runoff from the CDF cover	RB4a Runoff from waste rock	P2 Discharge from tailings thickener to tailings disposal facility	EB1 Evaporation from CdF pond & wet tailings	P4 Water retained in the deposited tailings	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows
Monthly Flows	Sept	m ³	2,276	0	0	14,806	0	0	0	17,081	17,081
	Oct	m ³	1,635	0	0	10,641	0	0	0	12,276	12,276
	Nov	m ³	0	0	0	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0	0	0	0
	May	m ³	10,667	0	0	69,405	0	0	0	80,072	80,072
	June	m ³	12,791	0	0	83,224	0	0	0	96,015	96,015
	July	m ³	2,535	0	0	16,492	0	0	0	19,026	19,026
	Aug	m ³	2,787	0	0	18,137	0	0	0	20,924	20,924
Total		m ³	32,691	0	0	212,704	0	0	0	245,395	245,395

Attachment 7.II.II
Deterministic Site Water Balances

F2b. CDF - Seepage Collection Ponds										
			Inflows			Outflows		Total Volume	Total Inflows	
Monthly Flows		Runoff from natural ground (to seepage Ponds)	Runoff from seepage pond surfaces	Infiltration through tailings or co-disposed waste	Infiltration through waste rock	EB2	SB1	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows	
		m³								
Sept	m³	5,310	1,291	4,935	0	-2,395	1,521	13,056	11,535	
Oct	m³	3,816	696	2,660	0	-645	1,521	8,693	7,172	
Nov	m³	0	0	0	0	0	0	0	0	
Dec	m³	0	0	0	0	0	0	0	0	
Jan	m³	0	0	0	0	0	0	0	0	
Feb	m³	0	0	0	0	0	0	0	0	
Mar	m³	0	0	0	0	0	0	0	0	
April	m³	0	0	0	0	0	0	0	0	
May	m³	24,890	3,203	12,245	0	0	1,521	41,858	40,337	
June	m³	29,845	4,106	15,700	0	-4,252	1,521	51,172	49,651	
July	m³	5,914	1,438	5,497	0	-5,535	1,521	14,370	12,849	
Aug	m³	6,504	1,581	6,046	0	-4,327	1,521	15,652	14,131	
Total	m³	76,279	12,314	47,083	0	-17,154	9,125	144,801	135,676	

F3. Open Pit Sump										
			Inflows			Outflows		Total Volume	Total Inflows	
Monthly Flows		Runoff from natural ground	Runoff from pond surface	Runoff from open pit	Into the open pit	EC1	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows		
		m³								
Sept	m³	4,696	16,319	933	18,250	-30,277	40,198	40,198		
Oct	m³	3,375	8,797	503	18,250	-8,159	30,924	30,924		
Nov	m³	0	0	0	0	0	0	0		
Dec	m³	0	0	0	0	0	0	0		
Jan	m³	0	0	0	0	0	0	0		
Feb	m³	0	0	0	0	0	0	0		
Mar	m³	0	0	0	0	0	0	0		
April	m³	0	0	0	0	0	0	0		
May	m³	22,014	40,491	2,827	18,250	0	83,582	83,582		
June	m³	26,397	51,915	3,480	18,250	-53,755	100,042	100,042		
July	m³	5,231	18,178	1,039	18,250	-69,982	42,698	42,698		
Aug	m³	5,753	19,991	1,142	18,250	-54,707	45,136	45,136		
Total	m³	67,465	155,691	9,923	109,500	-216,880	342,580	342,580		

Attachment 7.II.II
Deterministic Site Water Balances

F4. Surge Pond								
		Inflows		Outflows		Total Volume	Total Inflows	
		RE1	F1	EE1	SE1	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows	
Monthly Flows		Runoff from pond surface	From the plant site sump to the SP	Evaporation from Surge Pond (SP)	Seepage from the Surge Pond (SP)			
Sept	m ³	405	1,810	-752	-243	1,972	2,215	
Oct	m ³	218	1,810	-203	-243	1,785	2,029	
Nov	m ³	0	0	0	0	0	0	
Dec	m ³	0	0	0	0	0	0	
Jan	m ³	0	0	0	0	0	0	
Feb	m ³	0	0	0	0	0	0	
Mar	m ³	0	0	0	0	0	0	
April	m ³	0	0	0	0	0	0	
May	m ³	1,005	1,810	0	-243	2,572	2,815	
June	m ³	1,289	1,810	-1,334	-243	2,856	3,099	
July	m ³	451	1,810	-1,737	-243	2,018	2,262	
Aug	m ³	496	1,810	-1,358	-243	2,063	2,307	
Total	m ³	3,864	10,863	-5,383	-1,460	13,267	14,727	

D2. Wetlands 1, 2 to Nico Lake								
		Inflows			Outflows		Total Volume	Total Inflows
		RF1 Runoff from natural ground	RF2 Runoff from wetlands surface	F2 From the seepage collection pond to the WL1	EF1 From Wetlands 1, 2	SF1 From Wetlands 1, 2	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows
Monthly Flows								
Sept	m ³	1,566	65	7,620	403	0	9,251	9,251
Oct	m ³	1,125	47	5,006	109	0	6,178	6,178
Nov	m ³	0	0	0	0	0	0	0
Dec	m ³	0	0	0	0	0	0	0
Jan	m ³	0	0	0	0	0	0	0
Feb	m ³	0	0	0	0	0	0	0
Mar	m ³	0	0	0	0	0	0	0
April	m ³	0	0	0	0	0	0	0
May	m ³	7,340	306	38,817	0	0	46,463	46,463
June	m ³	8,802	367	43,879	716	0	53,047	53,047
July	m ³	1,744	73	5,793	933	0	7,610	7,610
Aug	m ³	1,918	80	8,283	729	0	10,281	10,281
Total	m ³	22,495	937	109,397	2,890	0	132,830	132,830

Attachment 7.II.II
Deterministic Site Water Balances

			D3. Wetlands 3 to Nico Lake					
		Inflows			Outflows		Total Volume	Total Inflows
		RG1 Runoff from natural ground	RG2 Runoff from wetlands surface	F4 From the SP to WL3	EG1 From Wetlands 3	SG1 From Wetlands 3	Pond volume prior to evaporation (sum of inflows-seepage from	Total volume of inflows
Monthly Flows	Sept	m ³	1,029	19	1,314	117	0	2,362
	Oct	m ³	739	14	1,314	31	0	2,067
	Nov	m ³	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0
	May	m ³	4,823	88	1,314	0	0	6,226
	June	m ³	5,784	106	1,314	207	0	7,204
	July	m ³	1,146	21	1,314	270	0	2,481
	Aug	m ³	1,260	23	1,314	211	0	2,597
Total		m ³	14,782	271	7,884	835	0	22,936
								22,936

Attachment 7.II.II
Deterministic Site Water Balances

Deterministic Site Water Balance - Post-Closure

			F1. PLANT SITE SUMP						
			Inflows		Outflows		Total Volume	Total Inflows	
			RA1	RA2	RA3	EA1	SA1		
			Runoff from natural ground	Runoff from prepared ground	Runoff from sump surface	Evaporation from Plant Site Sump	Seepage from plant site sump	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows
Monthly Flows	Sept	m ³	756	0	0	0	0	756	756
	Oct	m ³	543	0	0	0	0	543	543
	Nov	m ³	0	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0	0
	May	m ³	3,544	0	0	0	0	3,544	3,544
	June	m ³	4,250	0	0	0	0	4,250	4,250
	July	m ³	842	0	0	0	0	842	842
	Aug	m ³	926	0	0	0	0	926	926
	Total	m ³	10,863	0	0	0	0	10,863	10,863

			F2a. CDF flows into the open pit									
			Inflows			Outflows			Total Volume	Total Inflows		
			RB1	RB2	RB3a	RB3b	RB4a	P2	EB1	P4		
			Runoff from natural ground (To Codisposal)	Runoff from pond surface	Runoff from wet tailings or codisposed waste	Runoff from the CDF cover	Runoff from waste rock	Discharge from tailings thickener to tailings disposal facility	Evaporation from CdF pond & wet tailings	Water retained in the deposited tailings	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows
Monthly Flows	Sept	m ³	2,276	0	0	14,806	0	0	0	0	17,081	17,081
	Oct	m ³	1,635	0	0	10,641	0	0	0	0	12,276	12,276
	Nov	m ³	0	0	0	0	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0	0	0	0	0
	May	m ³	10,667	0	0	69,405	0	0	0	0	80,072	80,072
	June	m ³	12,791	0	0	83,224	0	0	0	0	96,015	96,015
	July	m ³	2,535	0	0	16,492	0	0	0	0	19,026	19,026
	Aug	m ³	2,787	0	0	18,137	0	0	0	0	20,924	20,924
	Total	m ³	32,691	0	0	212,704	0	0	0	0	245,395	245,395

Attachment 7.II.II
Deterministic Site Water Balances

F2b. CDF - Seepage Collection Ponds										
			Inflows			Outflows		Total Volume	Total Inflows	
			RB1a	RB5	RB3c	RB4b	EB2	SB1		
			Runoff from natural ground (to seepage Ponds)	Runoff from seepage pond surfaces	Infiltration through tailings or co-disposed waste	Infiltration through waste rock	Evaporation from Seepage Ponds	Seepage from seepage collection ponds	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows
Monthly Flows	Sept	m ³	5,310	1,291	4,935	0	-2,395	1,521	13,056	11,535
	Oct	m ³	3,816	696	2,660	0	-645	1,521	8,693	7,172
	Nov	m ³	0	0	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0	0	0
	May	m ³	24,890	3,203	12,245	0	0	1,521	41,858	40,337
	June	m ³	29,845	4,106	15,700	0	-4,252	1,521	51,172	49,651
	July	m ³	5,914	1,438	5,497	0	-5,535	1,521	14,370	12,849
	Aug	m ³	6,504	1,581	6,046	0	-4,327	1,521	15,652	14,131
	Total	m ³	76,279	12,314	47,083	0	-17,154	9,125	144,801	135,676

F3. Open Pit Sump										
			Inflows			Outflows		Total Volume	Total Inflows	
			RC1	RC2	RC3	SC1	EC1			
			Runoff from natural ground	Runoff from pond surface	Runoff from open pit	Into the open pit	Evaporation from open pit sump	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows	
Monthly Flows	Sept	m ³	4,696	16,319	933	18,250	-30,277	40,198	40,198	
	Oct	m ³	3,375	8,797	503	18,250	-8,159	30,924	30,924	
	Nov	m ³	0	0	0	0	0	0	0	
	Dec	m ³	0	0	0	0	0	0	0	
	Jan	m ³	0	0	0	0	0	0	0	
	Feb	m ³	0	0	0	0	0	0	0	
	Mar	m ³	0	0	0	0	0	0	0	
	April	m ³	0	0	0	0	0	0	0	
	May	m ³	22,014	40,491	2,827	18,250	0	83,582	83,582	
	June	m ³	26,397	51,915	3,480	18,250	-53,755	100,042	100,042	
	July	m ³	5,231	18,178	1,039	18,250	-69,982	42,698	42,698	
	Aug	m ³	5,753	19,991	1,142	18,250	-54,707	45,136	45,136	
	Total	m ³	67,465	155,691	9,923	109,500	-216,880	342,580	342,580	

Attachment 7.II.II
Deterministic Site Water Balances

F4. Surge Pond								
Monthly Flows	Inflows		Outflows		Total Volume	Total Inflows		
	RE1	F1	EE1	SE1	Pond volume prior to evaporation (sum of inflows-seepage)			
	Runoff from pond surface	From the plant site sump to the SP	Evaporation from Surge Pond (SP)	Seepage from the Surge Pond (SP)	Total volume of inflows			
Sept	m ³	405	1,810	-752	-243	1,972	2,215	
Oct	m ³	218	1,810	-203	-243	1,785	2,029	
Nov	m ³	0	0	0	0	0	0	
Dec	m ³	0	0	0	0	0	0	
Jan	m ³	0	0	0	0	0	0	
Feb	m ³	0	0	0	0	0	0	
Mar	m ³	0	0	0	0	0	0	
April	m ³	0	0	0	0	0	0	
May	m ³	1,005	1,810	0	-243	2,572	2,815	
June	m ³	1,289	1,810	-1,334	-243	2,856	3,099	
July	m ³	451	1,810	-1,737	-243	2,018	2,262	
Aug	m ³	496	1,810	-1,358	-243	2,063	2,307	
Total	m ³	3,864	10,863	-5,383	-1,460	13,267	14,727	

D2. Wetlands 1,2 to Nico Lake								
Monthly Flows	Inflows			Outflows		Total Volume	Total Inflows	
	RF1	RF2	F2	EF1	SF1	Pond volume prior to evaporation (sum of inflows-seepage from sump)		
	Runoff from natural ground	Runoff from wetlands surface	From the seepage collection pond to the WL1 and 2	From Wetlands 1, 2	From Wetlands 1, 2	Total volume of inflows		
Sept	m ³	1,566	65	7,620	403	0	9,251	9,251
Oct	m ³	1,125	47	5,006	109	0	6,178	6,178
Nov	m ³	0	0	0	0	0	0	0
Dec	m ³	0	0	0	0	0	0	0
Jan	m ³	0	0	0	0	0	0	0
Feb	m ³	0	0	0	0	0	0	0
Mar	m ³	0	0	0	0	0	0	0
April	m ³	0	0	0	0	0	0	0
May	m ³	7,340	306	38,817	0	0	46,463	46,463
June	m ³	8,802	367	43,879	716	0	53,047	53,047
July	m ³	1,744	73	5,793	933	0	7,610	7,610
Aug	m ³	1,918	80	8,283	729	0	10,281	10,281
Total	m ³	22,495	937	109,397	2,890	0	132,830	132,830

Attachment 7.II.II
Deterministic Site Water Balances

		D3. Wetlands 3 to Nico Lake						
		Inflows			Outflows		Total Volume	Total Inflows
		RG1	RG2	F4	EG1	SG1		
		Runoff from natural ground	Runoff from wetlands surface	From the SP to WL3	From Wetlands 3	From Wetlands 3	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows
Monthly Flows	Sept	m ³	1,029	19	1,314	117	0	2,362
	Oct	m ³	739	14	1,314	31	0	2,067
	Nov	m ³	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0
	May	m ³	4,823	88	1,314	0	0	6,226
	June	m ³	5,784	106	1,314	207	0	7,204
	July	m ³	1,146	21	1,314	270	0	2,481
	Aug	m ³	1,260	23	1,314	211	0	2,597
Total		m ³	14,782	271	7,884	835	0	22,936

		D4. Wetlands 4 to Peanut Lake						
		Inflows			Outflows		Total Volume	Total Inflows
		RH1	RH2	F3	EH1	SH1		
		Runoff from natural ground	Runoff from wetlands surface	From the open pit sump to WL4	From Wetlands 4	From Wetlands 4	Pond volume prior to evaporation (sum of inflows-seepage from sump)	Total volume of inflows
Monthly Flows	Sept	m ³	2,736	684	61,849	2,538	0	65,270
	Oct	m ³	1,407	369	61,849	684	0	63,625
	Nov	m ³	0	0	0	0	0	0
	Dec	m ³	0	0	0	0	0	0
	Jan	m ³	0	0	0	0	0	0
	Feb	m ³	0	0	0	0	0	0
	Mar	m ³	0	0	0	0	0	0
	April	m ³	0	0	0	0	0	0
	May	m ³	6,475	1,697	61,849	0	0	70,022
	June	m ³	8,302	2,176	61,849	4,507	0	72,327
	July	m ³	2,907	762	61,849	5,867	0	65,518
	Aug	m ³	3,197	838	61,849	4,587	0	65,884
Total		m ³	25,024	6,527	371,095	18,183	0	402,645

ATTACHMENT 7.II.III

**Input Water Qualities - Operations, Closure, and Post-Closure
Water Quality Predictions**

Attachment 7.II.III
Detailed Site Water Quality Predictions - Precipitation and Surface Water Inputs

	Precipitation	Nico Lake			Peanut Lake			Grid Ponds		
		June	July	August	June	July	August	June	July	August
Flow ID	C1	C3			C4			C5		
Description	Average composition of precipitation samples collected at the Environment Canada CapMon Snare Lake precipitation monitoring station.	Average + 1 standard deviation concentration calculated using baseline data for Nico Lake. Surface water Eh was assumed to be 400 mV, which is a reasonable redox condition for oxygenated surface water.			Average + 1 standard deviation concentration calculated using baseline data for Peanut Lake. Surface water Eh was assumed to be 400 mV, which is a reasonable redox condition for oxygenated surface water.			Average + 1 standard deviation concentration calculated using baseline data for Grid Pond and Little Grid Pond. Surface water Eh was assumed to be 400 mV, which is a reasonable redox condition for oxygenated surface water.		
pH	5.0	7.6	7.5	7.7	7.7	7.7	7.7	8.0	7.8	8.0
pe	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Alkalinity	0.56	0.79	0.32	0.44	0.39	0.36	0.87	0.7	1.4	
Aluminum	0.048	0.037	0.021	0.038	0.033	0.023	0.058	0.05	0.057	
Antimony	0.00044	0.00058	0.00039	0.00047	0.00051	0.00039	0.0016	0.0011	0.0011	
Arsenic	0.012	0.065	0.013	0.0038	0.0042	0.0075	0.26	0.18	0.24	
Boron	0.051	0.025	0.025	0.025	0.025	0.025	0.025	0.006	0.006	0.02
Barium	0.0076	0.0066	0.0076	0.0069	0.0083	0.009	0.008	0.0049	0.016	
Beryllium	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.00025	0.000010	
Calcium	0.11	8.8	8.2	9.0	7.8	7.9	8.6	23	14	53
Cadmium	0.00073	0.0005	0.000011	0.000069	0.0005	0.00002	0.0012	0.00005	0.00009	
Chloride	0.11	1.3	2.0	0.73	1.1	2.0	0.76	1.1	1.0	1.0
Cobalt	0.0021	0.0010	0.0019	0.0022	0.0010	0.002	0.004	0.0068	0.011	
Chromium	0.0051	0.0025	0.0025	0.0054	0.0025	0.0048	0.0025	0.0011	0.00010	
Copper	0.0029	0.0021	0.0019	0.0017	0.0016	0.0013	0.0099	0.015	0.011	
Iron	0.44	1.6	0.28	0.23	0.24	0.28	0.041	0.058	1.2	
Mercury	0.00015	0.0001	0.00001	0.00017	0.0001	0.00001	0.00001	0.00001	0.000005	
Potassium	0.044	1.2	0.99	1.1	1.3	1.2	1.3	1.9	1.2	2.9
Magnesium	0.022	3.6	3.5	4.2	3.4	3.8	3.9	8.7	5.2	16
Manganese	0.056	0.15	0.01	0.0074	0.11	0.15	0.0025	0.0010	0.083	
Molybdenum	0.0051	0.0025	0.0048	0.0054	0.0025	0.0048	0.0025	0.0018	0.0027	
Sodium	0.05	2.2	2.6	2.7	2.9	3.1	2.9	4.1	3.0	7.7
Nickel	0.002	0.001	0.0019	0.0021	0.001	0.0019	0.001	0.0002	0.0022	
Phosphorous	0.03	0.074	0.021	0.029	0.02	0.02	0.11	0.11	0.076	
Lead	0.0032	0.0025	0.0001	0.0033	0.0025	0.00012	0.00005	0.00005	0.00021	
Selenium	0.00049	0.0002	0.00055	0.0002	0.0002	0.00055	0.00025	0.0008	0.00025	
Silver	0.00005	0.0025	0.00005	0.00005	0.0025	0.00005	0.00005	0.0001	0.000005	
Sulfate	4.6	4.7	3.4	2.3	2.5	1.3	37	22	85	
Strontium	0.026	0.026	0.032	0.029	0.032	0.034	0.053	0.036	0.13	
Tin	0.051	0.025	0.025	0.054	0.025	0.048	0.025	0.0001	0.0053	
Vanadium	0.0013	0.0005	0.00097	0.0013	0.0005	0.00097	0.0005	0.0003	0.0016	
Thallium	0.00005	0.025	0.00005	0.00005	0.025	0.00005	0.00005	0.000025	0.000025	
Uranium	0.031	0.025	0.00026	0.033	0.025	0.00019	0.062	0.0014	0.0067	
Zinc	0.0073	0.012	0.0041	0.0061	0.0095	0.0065	0.0086	0.004	0.014	

Attachment 7.II.III
Detailed Site Water Quality Predictions - Groundwater Inputs

Groundwater - 03-281	
Flow ID	C6
Description	Average + 1 standard deviation concentration calculated using baseline data for 03-281, a monitoring well located within the outline of the proposed open pit. Groundwater Eh was assumed to be 200 mV, which is reasonable based on redox measurements collected during groundwater sampling.
pH	8.4
pe	6.8
Alkalinity	66
Aluminum	8.7
Antimony	0.0033
Arsenic	0.88
Boron	0.12
Barium	0.022
Beryllium	0.0025
Calcium	20
Cadmium	0.00017
Chloride	1.5
Cobalt	0.007
Chromium	0.0036
Copper	0.0077
Iron	0.091
Mercury	
Potassium	7.8
Magnesium	14
Manganese	0.018
Molybdenum	0.035
Sodium	85
Nickel	0.043
Phosphorous	0.34
Lead	0.025
Selenium	0.00055
Silver	0.00005
Sulfate	99
Strontium	0.093
Tin	0.035
Vanadium	0.0024
Thallium	0.000025
Uranium	0.0037
Zinc	0.0052

Attachment 7.II.III
Detailed Site Water Quality Predictions - Tailings Inputs

	Tailings - process water	Tailings runoff - wet tailings	Tailings runoff - first flush - max	Tailings runoff - long-term - max	Tailings infiltration - max
Flow ID	C11	C12	C12	C12	C13
Description	Defined based on the composition of water quality samples collected from the pilot plant.	Water quality to be calculated using the results of humidity cell testing (HCT). HCT results from bulk rougher tailings and PP#14. Concentration based on maximum concentration measured during first week of testing.	Water quality to be calculated using the results of humidity cell testing (HCT). HCT results from bulk rougher tailings and PP#14. First flush concentration calculated for BRT and PP#14, respectively. Concentration based on maximum concentration measured during first flush.	Water quality to be calculated using the results of humidity cell testing (HCT). HCT results from bulk rougher tailings and PP#14. Steady state concentration calculated for BRT and PP#14, respectively. Concentration based on maximum concentration measured during steady state of each humidity cell test.	Water quality defined based on maximum concentration measured in FC-8, FC-9 and FC 10 during 2010.
pH	8.0	7.2	7.1	7.1	7.7
pe	1.7	6.8	6.8	6.8	1.7
Alkalinity	3.6	1.0	2.0	1.7	64
Aluminum	0.09	0.05	0.03	0.015	7.5
Antimony	0.021	0.0046	0.0044	0.0039	0.029
Arsenic	0.045	0.097	0.048	0.026	0.42
Boron	0.11	0.011	0.010	0.0051	0.12
Barium	0.016	0.0012	0.001	0.00045	0.13
Beryllium	0.000010	0.00005	0.00005	0.00005	0.00025
Calcium	26	6.7	6.2	6.3	46
Cadmium	0.000088	0.000015	0.000029	0.000036	0.00014
Chloride	45				23
Cobalt	0.0024	0.00094	0.0010	0.00078	0.049
Chromium	0.0006	0.00025	0.00025	0.00025	0.0077
Copper	0.0019	0.001	0.0067	0.0005	0.023
Iron	0.014	0.12	0.04	0.025	32
Mercury	0.00005	0.00005	0.00005		0.00005
Potassium	99	8.9	6.1	4.6	52
Magnesium	8.8	1.3	1.3	1.3	20
Manganese	0.02	0.008	0.012	0.011	0.46
Molybdenum	0.079	0.0036	0.0029	0.0018	0.041
Sodium	35	2.1	1.5		26
Nickel	0.0027	0.0006	0.00038	0.0002	0.0078
Phosphorous	0.034	0.034	0.034	0.034	0.034
Lead	0.00088	0.00009	0.00011	0.00007	0.012
Selenium	0.065	0.004	0.0027	0.0025	0.048
Silver	0.00002	0.000005	0.000042	0.00008	0.0001
Sulfate	140	15	13	23	213
Strontium	0.074	0.011	0.01	0.011	0.22
Tin	0.00044	0.032	0.0079	0.0016	0.00053
Vanadium	0.00041	0.0005	0.00085	0.0005	0.0046
Thallium	0.0001	0.000098	0.000078	0.000064	0.00053
Uranium	0.017	0.0032	0.0091	0.0044	0.26
Zinc	0.007	0.005	0.005	0.005	0.2

	Type 1 First Flush Max	Type 1 Long-term Max	Type 2 First Flush Max	Type 2 Long-term Max	Type 3 First Flush Max	Type 3 Long-term Max	SMR Minimum	SMR Maximum	Pit wall runoff - year 2013	Pit wall runoff - year 2030
Flow ID	C7a	C7b	C8a	C8b	C9a	C9b	C10a	C10b	C14	C14
Description	Calculated based on the results of humidity cell tests 100863, 100872 and 100859. Maximum of first flush.	Calculated based on the results of humidity cell tests 100863, 100872 and 100859. Maximum of long-term. N based on results of field cell testing (long-term).	Calculated based on results of humidity cell tests 100925, 100802, 100913, 100914, 100881 (maximum of first flush) and minimum concentrations measured in FC-2.	Calculated based on results of humidity cell tests 100925, 100802, 100913, 100914, 100881 (maximum of long-term) and maximum concentrations measured in FC-2.	Calculated based on results of humidity cell tests 100890, 100977, 100907 and 100932 (maximum of first flush) and minimum concentrations measured in FC-1, FC-3 and FC-4.	Calculated based on results of humidity cell tests 100890, 100977, 100907 and 100932 (maximum of long-term) and maximum concentrations measured in FC-1, FC-3 and FC-4.	Based on the median results of field cell testing of SMR and ore (FC-1, FC-3, FC-4 and FC-5).	Based on the median results of NAG testing of all SMR and ore samples.	Calculated based on the relative proportion of each rock type exposed in the pit wall at year 2013. Water quality inputs based on the results of geochemical leach tests of each rock type exposed in the pit wall.	Calculated based on the relative proportion of each rock type exposed in the pit wall at year 2030. Water quality inputs based on the results of geochemical leach tests of each rock type exposed in the pit wall.
pH	7.4	6.8	7.0	5.3	5.8	4.6	7.7	4.5	4.7	4.5
pe	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
Alkalinity	1.9	1.7	4.7		0.18		0.2			
Aluminum	0.095	0.10	0.58	0.075	0.08	0.16	0.010	0.720	1.4	1.0
Antimony	0.036	0.0051	0.02	0.032	0.034	0.065	0.032	0.007	0.021	0.018
Arsenic	0.37	0.049	0.071	0.038	0.42	0.14	0.1	2.3	0.36	0.51
Boron	0.015	0.005	0.085	0.61	0.12	0.36	0.16	0.23	0.14	0.2
Barium	0.004	0.0010	0.042	0.17	0.064	0.21	0.09	0.14	0.2	0.17
Beryllium	0.0025	0.0025	0.0025	0.0025	0.00025	0.00008	0.0005	0.00014	0.00048	0.00029
Calcium	4.0	3.1	24	39	85	124	58	16	5.2	8.5
Cadmium	0.00005	0.00005	0.00005	0.00012	0.00010	0.0002	0.0001	0.00008	0.000052	0.00008
Chloride	1.1	0.10	1.4	10.0	1.5	15	1.6	2.0	1	1
Cobalt	0.0036	0.0065	0.0008	0.0013	0.2	0.013	0.0019	6.320	0.78	1.41
Chromium	0.0005	0.0005	0.0005	0.0005	0.0010	0.0006	0.0004	0.0064	0.0029	0.0028
Copper	0.0015	0.0004	0.0022	0.0038	0.1	0.19	0.029	0.226	0.038	0.068
Iron	0.010	0.010	0.053	0.027	0.072	0.38	0.010	0.010	3.3	1.7
Mercury	0.00005	0.00005	0.00005	0.00005	0.00005	0.00005	0.00010		0.000075	0.000053
Potassium	2.9	0.61	8.0	38	19	36	23	58	255.9	272
Magnesium	0.41	0.077	3.9	7.6	8.9	23	9	5	2.3	2.5
Manganese	0.0095	0.024	0.0059	0.043	0.057	0.26	0.057	0.291	0.062	0.112
Molybdenum	0.03	0.0010	0.013	0.031	0.029	0.12	0.029	0.055	0.017	0.031
Sodium	2.4	0.08	6.8	87	13	103	13	8	3.0	4.7
Nickel	0.0013	0.0005	0.0015	0.0026	0.0078	0.0037	0.0026	0.124	0.022	0.039
Phosphorous	0.05	0.05	0.05	0.05	0.05	0.005			0.013	0.01
Lead	0.0002	0.0002	0.00025	0.000055	0.0064	0.00011	0.00010	0.00049	0.0018	0.0012
Selenium	0.0025	0.0025	0.035	0.099	0.028	0.093	0.014	0.049	0.0145	0.024
Silver	0.00005	0.00005	0.0001	0.0001	0.0001	0.0001	0.0002	0.00004		
Sulfate	1.9	0.55	29	284	213	363	189	160	39	68
Strontium	0.026	0.0038	0.12	0.27	0.23	0.41	0.29	0.02	0.0093	0.012
Tin	0.0052	0.000045	0.0047	0.00006	0.005	0.0018	0.0002	0.00004	0.00053	0.00046
Vanadium	0.00093	0.00006	0.0027	0.0016	0.0015	0.002	0.0012	0.0057	0.0033	0.0026
Thallium	0.0001	0.000004	0.0001	0.00009	0.00005	0.00011	0.00005	0.00034	0.00018	0.00015
Uranium	0.023	0.0022	0.014	0.047	0.045	0.17	0.03	0.01	0.0012	0.0014
Zinc	0.002	0.002	0.0012	0.006	0.028	0.0097	0.0028	0.070	0.103	0.16

Attachment 7.II.III
Site Water Quality Predictions - Pit Wall Runoff Inputs

Description	Black Rock Schist / Breccia / Wacke - non-PAG	Black Rock Schist / Breccia / Wacke - PAG	Feldspar Porphyry - non-PAG	Feldspar Porphyry - PAG	Rhyolite - non-PAG	Rhyolite - PAG	Siltstone - Non-PAG	Siltstone - PAG	Sub-economic Mineralized Mine Rock / Ore - Non-PAG	Sub-economic Mineralized Mine Rock / Ore - PAG
Sample ID	Minimum concentration measured in BRS + mt leach tests.	Maximum concentration measured in BRS + mt leach tests.	Minimum concentration measured in FP leach tests.	Maximum concentration measured in FP leach tests.	Minimum concentration measured in rhyolite leach tests.	Maximum concentration measured in rhyolite leach tests.	Minimum concentration measured in siltstone leach tests.	Maximum concentration measured in siltstone leach tests.	Minimum concentration measured in FC-2, FC-3 and FC-4.	Max BRS +mt MinWR
pH s.u.	7.58792019	4.649024252	8	7.05	7.468201437	4.674223898	7.328251723	5.338430932	4.079266851	8.08
Alkalinity mg/L as CaCO ₃	17.5	2	156	7.333333333	39	3	11.833333333	2.333333333	2	150
Aluminum mg/L	0.01	15.89999962	0.03	5.670000076	0.02	7.369999886	0.01	14.80000019	0.43	0.01
Silver mg/L	0.00001	0.0001	0.0002	0.00024	0.00001	0.0001	0.00001	0.0001	0.00005	0.0002
Antimony mg/L	0.0005	0.199000001	0.0005	0.0646	0.000125	0.03625	0.000355	0.0109	0.0221	0.00137
Arsenic mg/L	0.005	1.360000014	0.007	6.07	0.0022	1.909999967	0.00025	0.25999999	0.872	0.0038
Boron mg/L	0.002	0.699999988	0.015	0.310000002	0.002	0.444	0.006	0.349999994	0.347	0.0408
Barium mg/L	0.001	2.069999933	0.001	1.00999999	0.00045	0.987999976	0.00016	1.629999995	0.144	0.0224
Beryllium mg/L	0.00002	0.005	0.0005	0.0002	0.00002	0.00008	0.00002	0.005	0.00005	0.0005
Calcium mg/L	0.156666667	5.789999962	2.569999933	49.5	0.04	12	1.078333333	3.829999924	16.4	4.06
Cadmium mg/L	0.000003	0.0001	0.000035	0.0002	0.0001	0.000042	0.000004	0.0001	0.000125	0.0001
Chloride mg/L	0.2	1.55	0.2	15	0.2	3.4	0.2	2	2	2
Cobalt mg/L	0.0003	0.0196	0.000467	0.0168	0.000355	0.20375	0.000041	0.0049	3.29	0.000124
Chromium mg/L	0.001	0.022	0.0004	0.0212	0.0005	0.029	0.0005	0.001	0.0012	0.0004
Copper mg/L	0.000825	0.0416	0.0005	0.0064	0.0005	0.208000004	0.0005	0.0074	0.135	0.0005
Iron mg/L	0.01	43.79999924	0.01	7.599999905	0.02	7.079999924	0.01	45	0.01	0.01
Mercury mg/L	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Potassium mg/L	0.43	6.255	0.465	34.1	0.075	16	0.355	5.15	19.4	8.04
Lithium mg/L	0.002	0.02	0.003	0.005	0.002	0.002	0.002	0.005	0.002	0.002
Magnesium mg/L	0.097	15.30000019	0.0565	9	0.0555	2.789999962	0.0395	7.900000095	4.39	0.04
Manganese mg/L	0.0007	0.00165	0.00083	0.13	0.00224	0.0241	0.0007	0.001105	0.259	0.002
Molybdenum mg/L	0.0003	0.0133	0.001	0.167	0.00001	0.125	0.00001	0.002825	0.0584	0.00077
Sodium mg/L	0.025	6.805	0.075	70	0.025	15.2	0.045	3.8175	8.51	0.64
Nickel mg/L	0.0001	0.009	0.0001	0.00344	0.0007	0.00775	0.0001	0.001	0.0906	0.00124
Phosphorous mg/L	0.01	0.1			0.01	0.1	0.01	0.1		
Lead mg/L	0.000035	0.021400001	0.0001	0.0035	0.0002	0.0083	0.00003	0.0026	0.00017	0.0001
Selenium mg/L	0.001	0.005	0.0048	0.0333	0.001	0.002	0.001	0.005	0.052	0.0122
Sulfate mg/L	0.5	24	1.85	197	0.55	51	0.966666667	19	150	3.8
Tin mg/L	0.000085	0.005	0.0002	0.00475	0.000015	0.00525	0.000025	0.0025	0.00004	0.0002
Strontium mg/L	0.0008	0.030999999	0.00365	0.315	0.0002	0.035700001	0.00295	0.020500001	0.0168	0.0089
Thallium mg/L	0.0002	0.0004	0.00005	0.000196	0.000004	0.00002	0.0000035	0.0004	0.000209	0.000009
Uranium mg/L	0.0000125	0.0019	0.000077	0.167	0.000193	0.011025	0.0000805	0.0018	0.000833	0.000035
Vanadium mg/L	0.0009	0.027000001	0.000925	0.0341	0.0009	0.0036	0.000145	0.0309	0.0025	0.00008
Zinc mg/L	0.001	0.257999986	0.001	0.141000003	0.001	0.191	0.001	0.160999998	0.343	0.001

1) Input water qualities selected to represent infiltration and runoff from each mine rock lithology, based on the results of geochemical characterization.

2) Mine rock contact water qualities calculated by mixing input water qualities in proportions assigned according to the mine plan. Concentrations reflect the results of conservative mixing with no geochemical controls

3) Mixture of Non-PAG input water qualities in proportions equal to the proportion of each Non-PAG mine rock lithology that will be encountered during Phase 1a and Phase 1.

4) Mixture of input water qualities in proportions equal to the cumulative proportion of mine rock to be encountered by the end of Phase 3 of mining.

ATTACHMENT 7.II.IV

Results of Water Quality Predictions – Operations, Closure, and Post-Closure

Attachment 7.II.IV-1
Detailed Site Water Quality Predictions - Plant Site Sump (F1) - Operations

Parameter	Units	Site Specific Water Quality Objectives	Year 1	Year 1	Year 1	Year 1	Year 1	Year 18	Year 18	Year 18	Year 18	Year 18	Year 18
			May	June	July	Aug	Sept	Oct	May	June	July	Aug	Sept
			May Year 1	June Year 1	July Year 1	Aug Year 1	Sept Year 1	Oct Year 1	May Year 18	June Year 18	July Year 18	Aug Year 18	Sept Year 18
pH	pH units	-	7.6	7.6	7.4	7.6	7.6	7.6	7.6	7.6	7.4	7.5	7.5
Aluminum	mg/L	0.41	0.068	0.072	0.098	0.079	0.073	0.064	0.071	0.077	0.13	0.098	0.086
Antimony	mg/L	0.03	0.017	0.018	0.0043	0.0037	0.0034	0.003	0.02	0.022	0.006	0.0047	0.0042
Arsenic	mg/L	0.05	0.18	0.19	0.074	0.04	0.037	0.033	0.21	0.23	0.087	0.05	0.044
Boron	mg/L	-	0.032	0.033	0.018	0.016	0.014	0.014	0.027	0.029	0.018	0.015	0.013
Barium	mg/L	-	0.0055	0.0058	0.0044	0.0044	0.004	0.0039	0.005	0.0054	0.0044	0.004	0.0035
Beryllium	mg/L	-	0.0014	0.0015	0.0022	0.002	0.0018	0.0016	0.0016	0.0017	0.003	0.0024	0.0022
Calcium	mg/L	-	6.1	6.4	6.9	6.5	6.0	5.7	5.5	5.9	7.5	6.4	5.7
Cadmium	mg/L	0.00015	0.00037	0.00039	0.00028	0.000087	0.00008	0.000076	0.00029	0.00032	0.00026	0.000089	0.000078
Chloride	mg/L	353	13	14	15	15	14	14	11	11	13	13	11
Cobalt	mg/L	0.010	0.0027	0.0028	0.0056	0.0054	0.005	0.0045	0.0028	0.003	0.0078	0.0067	0.0058
Chromium	mg/L	-	0.0027	0.0028	0.0018	0.0016	0.0014	0.0014	0.0022	0.0023	0.0018	0.0015	0.0013
Copper	mg/L	0.022	0.0021	0.0022	0.0015	0.0012	0.0011	0.0011	0.0019	0.0021	0.0015	0.0011	0.00098
Iron	mg/L	1.5	0.21	0.22	0.86	0.14	0.13	0.13	0.17	0.18	0.79	0.12	0.11
Mercury	mg/L	-	0.000095	0.0001	0.000093	0.000039	0.000036	0.000032	0.000083	0.00009	0.00011	0.000049	0.000043
Potassium	mg/L	-	33	36	196	174	160	139	40	43	281	227	199
Magnesium	mg/L	-	1.9	2.0	2.0	2.1	1.9	1.9	1.5	1.7	1.8	1.8	1.5
Manganese	mg/L	-	0.031	0.033	0.1	0.022	0.02	0.018	0.026	0.028	0.1	0.026	0.023
Molybdenum	mg/L	-	0.016	0.017	0.0021	0.003	0.0028	0.0027	0.019	0.02	0.0024	0.0029	0.0025
Sodium	mg/L	-	2.2	2.3	1.5	1.4	1.2	1.2	2.2	2.4	1.4	1.2	1.0
Nickel	mg/L	-	0.0016	0.0017	0.00093	0.0013	0.0012	0.0011	0.0015	0.0016	0.0011	0.0012	0.0011
Phosphorous	mg/L	-	0.038	0.04	0.079	0.045	0.041	0.037	0.039	0.042	0.092	0.054	0.047
Lead	mg/L	0.0076	0.0016	0.0017	0.0015	0.00019	0.00017	0.00015	0.0013	0.0014	0.0015	0.00022	0.00019
Selenium	mg/L	0.005	0.0014	0.0015	0.002	0.002	0.0018	0.0016	0.0016	0.0017	0.0029	0.0025	0.0022
Silver	mg/L	-	0.000047	0.00005	0.0014	0.000059	0.000054	0.00005	0.000046	0.00005	0.0013	0.000065	0.000057
Sulfate	mg/L	-	3.1	3.3	3.0	2.1	1.9	1.8	2.8	3.0	3.0	1.9	1.7
Strontium	mg/L	-	0.024	0.026	0.017	0.018	0.017	0.016	0.024	0.026	0.017	0.016	0.014
Tin	mg/L	-	0.027	0.029	0.014	0.012	0.011	0.011	0.022	0.023	0.013	0.01	0.0089
Vanadium	mg/L	-	0.0011	0.0011	0.00032	0.00051	0.00047	0.00046	0.001	0.0011	0.00032	0.00045	0.00039
Thallium	mg/L	-	0.000071	0.000075	0.014	0.00027	0.000025	0.000024	0.000074	0.000081	0.012	0.000024	0.000021
Uranium	mg/L	0.027	0.026	0.027	0.015	0.0017	0.0015	0.0014	0.024	0.026	0.015	0.0021	0.0019
Zinc	mg/L	0.11	0.0044	0.0047	0.0079	0.0034	0.0031	0.0029	0.0038	0.0041	0.008	0.0035	0.003

Notes:

1.0 - Denotes values greater than site specific water quality guidelines.

Years and months are approximate dates

Attachment 7.II.IV-1
Detailed Site Water Quality Predictions - Seepage Collection Ponds 4 and 5 (Runoff from the Co-Disposal Facility) (F2a) - Operations

Parameter	Units	Site Specific Water Quality Objectives	Year 1	Year 1	Year 1	Year 1	Year 1	Year 18	Year 18	Year 18	Year 18	Year 18	Year 18
			May	June	July	Aug	Sept	Oct	May	June	July	Aug	Sept
			May Year 1	June Year 1	July Year 1	Aug Year 1	Sept Year 1	Oct Year 1	May Year 18	June Year 18	July Year 18	Aug Year 18	Sept Year 18
pH	pH units	-	7.6	7.6	7.4	7.6	7.6	7.6	7.5	7.5	7.2	7.3	7.3
Aluminum	mg/L	0.41	0.081	0.089	0.11	0.078	0.067	0.064	0.13	0.23	0.34	0.14	0.085
Antimony	mg/L	0.03	0.013	0.0063	0.021	0.016	0.014	0.014	0.014	0.017	0.086	0.037	0.022
Arsenic	mg/L	0.05	0.037	0.037	0.093	0.049	0.041	0.037	0.049	0.076	0.28	0.1	0.061
Boron	mg/L	-	0.077	0.061	0.13	0.11	0.091	0.081	0.069	0.085	0.87	0.38	0.21
Barium	mg/L	-	0.012	0.011	0.026	0.022	0.018	0.015	0.014	0.02	0.22	0.096	0.053
Beryllium	mg/L	-	0.00019	0.00049	0.00046	0.00039	0.00029	0.0002	0.00039	0.00079	0.003	0.0013	0.00072
Calcium	mg/L	-	19	14	30	24	21	19	18	23	114	49	29
Cadmium	mg/L	0.00015	0.00025	0.00053	0.00039	0.000071	0.000062	0.000059	0.00012	0.00019	0.00068	0.00016	0.000094
Chloride	mg/L	353	33	27	54	46	38	36	24	25	121	51	32
Cobalt	mg/L	0.010	0.002	0.0021	0.0028	0.0028	0.0023	0.0021	0.0017	0.0022	0.0087	0.004	0.0024
Chromium	mg/L	-	0.0017	0.0038	0.0021	0.0018	0.0014	0.0011	0.00087	0.0015	0.0039	0.0017	0.00097
Copper	mg/L	0.022	0.0022	0.0033	0.0033	0.0025	0.0021	0.0018	0.0027	0.0045	0.011	0.0045	0.0026
Iron	mg/L	1.5	0.13	0.33	1.0	0.17	0.13	0.097	0.069	0.13	1.2	0.15	0.084
Mercury	mg/L	-	0.000074	0.00013	0.00011	0.000044	0.000038	0.000036	0.000057	0.00009	0.00025	0.000082	0.000049
Potassium	mg/L	-	73	57	135	109	91	79	103	157	924	405	227
Magnesium	mg/L	-	6.3	4.6	10	8.4	7.1	6.7	5.4	6.3	31	13	8.1
Manganese	mg/L	-	0.027	0.045	0.11	0.022	0.018	0.016	0.018	0.026	0.2	0.05	0.029
Molybdenum	mg/L	-	0.048	0.019	0.069	0.055	0.049	0.049	0.041	0.042	0.2	0.085	0.053
Sodium	mg/L	-	21	8.7	35	28	24	Year 130879	23	18	19	165	71
Nickel	mg/L	-	0.0022	0.0021	0.0031	0.003	0.0025	0.0023	0.0018	0.0022	0.0096	0.0043	0.0026
Phosphorous	mg/L	-	0.032	0.037	0.084	0.042	0.034	0.03	0.035	0.052	0.24	0.091	0.053
Lead	mg/L	0.0076	0.0014	0.0024	0.0023	0.00063	0.00056	0.00056	0.00076	0.0011	0.0036	0.00087	0.00056
Selenium	mg/L	0.005	0.039	0.015	0.059	0.047	0.041	0.041	0.037	0.04	0.24	0.1	0.062
Silver	mg/L	-	0.000029	0.000049	0.0016	0.000053	0.000041	0.000032	0.000035	0.000061	0.0019	0.00014	0.000075
Sulfate	mg/L	-	104	39	164	129	113	111	91	94	699	298	177
Strontium	mg/L	-	0.054	0.04	0.094	0.078	0.066	0.059	0.057	0.077	0.48	0.21	0.12
Tin	mg/L	-	0.016	0.041	0.019	0.017	0.012	0.0092	0.0095	0.019	0.039	0.018	0.0095
Vanadium	mg/L	-	0.00071	0.0013	0.00084	0.00095	0.00074	0.0006	0.00086	0.0015	0.0039	0.0019	0.001
Thallium	mg/L	-	0.000081	0.000078	0.016	0.00011	0.000092	0.000083	0.000088	0.00013	0.016	0.00021	0.00012
Uranium	mg/L	0.027	0.019	0.027	0.033	0.014	0.012	0.011	0.015	0.021	0.11	0.04	0.023
Zinc	mg/L	0.11	0.0065	0.0075	0.014	0.0079	0.0066	0.0059	0.0055	0.0075	0.039	0.015	0.0087

Notes:

1.0 - Denotes values greater than site specific water quality guidelines

Years and months are approximate dates

Attachment 7.II.IV-1
Detailed Site Water Quality Predictions - Seepage Collection Ponds 1, 2 and 3 (Seepage from the Co-Disposal Facility) (F2b) - Operations

Parameter	Units	Site Specific Water Quality Objectives	Year 1	Year 1	Year 1	Year 1	Year 1	Year 18	Year 18	Year 18	Year 18	Year 18	Year 18
			May	June	July	Aug	Sept	Oct	May	June	July	Aug	Sept
			May Year 1	June Year 1	July Year 1	Aug Year 1	Sept Year 1	Oct Year 1	May Year 18	June Year 18	July Year 18	Aug Year 18	Sept Year 18
pH	pH units	-	7.2	7.2	7.0	7.0	7.0	7.1	6.5	6.5	6.3	6.3	6.4
Aluminum	mg/L	0.41	0.7	0.77	1.5	1.3	1.2	0.91	2.5	2.7	3.5	3.2	3.1
Antimony	mg/L	0.03	0.0036	0.0039	0.0089	0.0078	0.0072	0.0054	0.015	0.016	0.028	0.026	0.025
Arsenic	mg/L	0.05	0.048	0.053	0.15	0.087	0.081	0.062	0.15	0.16	0.23	0.2	0.19
Boron	mg/L	-	0.056	0.059	0.1	0.091	0.085	0.068	0.081	0.085	0.35	0.32	0.31
Barium	mg/L	-	0.019	0.02	0.046	0.043	0.039	0.031	0.054	0.058	0.14	0.13	0.13
Beryllium	mg/L	-	0.00053	0.00056	0.00077	0.00069	0.00064	0.00058	0.001	0.0011	0.0014	0.0013	0.0013
Calcium	mg/L	-	12	13	20	19	18	15	25	26	42	39	37
Cadmium	mg/L	0.00015	0.00062	0.00064	0.00054	0.000043	0.00004	0.000032	0.00031	0.00031	0.00026	0.00011	0.00011
Chloride	mg/L	353	24	25	32	33	30	29	17	17	23	22	21
Cobalt	mg/L	0.010	0.0059	0.0064	0.01	0.01	0.0095	0.0074	0.016	0.017	0.023	0.022	0.021
Chromium	mg/L	-	0.005	0.0052	0.004	0.0036	0.0034	0.003	0.0043	0.0044	0.0045	0.0041	0.0039
Copper	mg/L	0.022	0.0045	0.0048	0.007	0.006	0.0056	0.0045	0.0087	0.0093	0.013	0.012	0.011
Iron	mg/L	1.5	3.1	3.4	7.7	5.8	5.4	4.0	9.9	11	15	14	13
Mercury	mg/L	-	0.00013	0.00014	0.00011	0.00022	0.00002	0.000017	0.000082	0.000084	0.000074	0.000046	0.000043
Potassium	mg/L	-	22	24	67	60	56	42	81	87	224	208	197
Magnesium	mg/L	-	4.8	5.1	8.0	7.8	7.3	6.2	8.5	9.1	14	13	11
Manganese	mg/L	-	0.086	0.092	0.24	0.093	0.086	0.066	0.16	0.17	0.28	0.22	0.21
Molybdenum	mg/L	-	0.0082	0.0088	0.013	0.014	0.013	0.01	0.018	0.019	0.034	0.032	0.03
Sodium	mg/L	-	4.3	4.6	15	14	13	9.9	11	11	54	50	47
Nickel	mg/L	-	0.0024	0.0026	0.0027	0.0033	0.0031	0.0027	0.0035	0.0037	0.0051	0.0049	0.0047
Phosphorous	mg/L	-	0.03	0.031	0.085	0.029	0.027	0.024	0.036	0.038	0.059	0.042	0.04
Lead	mg/L	0.0076	0.0037	0.0039	0.0049	0.0023	0.0021	0.0016	0.005	0.0052	0.0065	0.0054	0.0051
Selenium	mg/L	0.005	0.0058	0.0064	0.018	0.017	0.015	0.011	0.026	0.028	0.069	0.064	0.061
Silver	mg/L	-	0.000054	0.000057	0.0025	0.00007	0.000065	0.000058	0.000079	0.000083	0.000078	0.000099	0.000094
Sulfate	mg/L	-	23	25	70	62	58	43	75	81	233	216	204
Strontium	mg/L	-	0.044	0.048	0.092	0.087	0.081	0.066	0.11	0.12	0.24	0.22	0.21
Tin	mg/L	-	0.043	0.045	0.025	0.023	0.021	0.021	0.019	0.019	0.0071	0.0066	0.0062
Vanadium	mg/L	-	0.0016	0.0017	0.0015	0.0018	0.0017	0.0014	0.0027	0.0028	0.003	0.0029	0.0027
Thallium	mg/L	-	0.00009	0.000097	0.025	0.00014	0.00013	0.00011	0.00021	0.00022	0.0071	0.0028	0.0026
Uranium	mg/L	0.027	0.048	0.052	0.079	0.049	0.045	0.033	0.093	0.099	0.15	0.13	0.12
Zinc	mg/L	0.11	0.023	0.025	0.051	0.04	0.037	0.028	0.065	0.069	0.10	0.091	0.086

Notes:

1.0 - Denotes values greater than site specific water quality guidelines.

Years and months are approximate dates

Attachment 7.II.IV-1
Detailed Site Water Quality Predictions - Pit Lake Sump (F3) - Operations

Parameter	Units	Site Specific Water Quality Objectives	Year 1		Year 1		Year 1		Year 1		Year 18		Year 18		Year 18		Year 18			
			May		June		July		Aug		Sept		Oct		May		June			
			May Year 1	June Year 1	July Year 1	Aug Year 1	Sept Year 1	Oct Year 1	May Year 18	June Year 18	July Year 18	Aug Year 18	Sept Year 18	Oct Year 18	May Year 18	June Year 18	July Year 18	Aug Year 18	Sept Year 18	Oct Year 18
pH	pH units	-	5.5	5.4	6.1	6.0	6.1	6.4	7.0	6.9	7.3	7.3	7.4	7.7	5.2	5.1	5.2	6.0	5.2	6.0
Aluminum	mg/L	0.41	1.4	1.5	3.4	2.6	2.4	2.7	2.5	2.4	5.6	5.1	5.2	5.1	0.09	0.009	0.009	0.008	0.009	0.0061
Antimony	mg/L	0.03	0.017	0.019	0.029	0.024	0.02	0.016	0.0088	0.0097	0.0093	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.0061	
Arsenic	mg/L	0.05	0.31	0.35	0.65	0.51	0.45	0.43	0.44	0.45	0.75	0.68	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.7
Boron	mg/L	-	0.12	0.14	0.22	0.18	0.15	0.13	0.13	0.13	0.14	0.15	0.14	0.15	0.14	0.15	0.15	0.15	0.14	0.12
Barium	mg/L	-	0.16	0.18	0.28	0.23	0.19	0.16	0.084	0.093	0.085	0.083	0.083	0.083	0.073	0.073	0.073	0.073	0.054	
Beryllium	mg/L	-	0.0005	0.00055	0.00113	0.00089	0.0008	0.00086	0.0009	0.0008	0.00169	0.00154	0.00154	0.00154	0.0016	0.0016	0.0016	0.0016	0.0018	
Calcium	mg/L	-	5.5	6.0	11.3	9.0	8	8.2	11	11	17	15	15	15	15	15	15	15	15	
Cadmium	mg/L	0.00015	0.000099	0.000109	0.00014	0.00008	0.00007	0.00007	0.00027	0.00029	0.00021	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00013		
Chloride	mg/L	353	4	4	15.4	11.8	12	16	21	20	49	45	47	54	45	47	54	45	47	
Cobalt	mg/L	0.010	0.61	0.69	1.07	0.87	0.7	0.58	0.63	0.7	0.58	0.58	0.49	0.49	0.49	0.49	0.49	0.49	0.32	
Chromium	mg/L	-	0.0028	0.0031	0.0048	0.0038	0.0033	0.003	0.0035	0.0037	0.0037	0.0035	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	
Copper	mg/L	0.022	0.03	0.034	0.054	0.043	0.037	0.03	0.033	0.036	0.033	0.032	0.028	0.028	0.028	0.028	0.028	0.028	0.02	
Iron	mg/L	1.5	2.6	3.0	4.7	3.7	3.2	2.5	0.91	1.01	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.47	
Mercury	mg/L	-	0.00007	0.000079	0.000112	0.000085	0.00007	0.000056	0.000063	0.00007	0.000038	0.000023	0.00002	0.000013	0.00002	0.00002	0.00002	0.00002	0.000013	
Potassium	mg/L	-	202	229	355	288	243	192	123	137	116	115	99	65	99	99	99	99	65	
Magnesium	mg/L	-	2.5	2.8	5.8	4.6	4.2	4.6	5.4	5	9.9	9.2	9.2	10.2	9.2	9.2	9.2	9.2	10.2	
Manganese	mg/L	-	0.054	0.061	0.101	0.073	0.06	0.05	0.069	0.076	0.081	0.057	0.057	0.05	0.05	0.05	0.05	0.05	0.038	
Molybdenum	mg/L	-	0.015	0.017	0.03	0.024	0.021	0.02	0.024	0.025	0.034	0.032	0.031	0.031	0.031	0.031	0.031	0.031	0.031	
Sodium	mg/L	-	6	6	18.8	14.2	14	18	23	21	53	48	50	58	50	58	50	58	58	
Nickel	mg/L	-	0.019	0.021	0.038	0.03	0.027	0.025	0.028	0.029	0.042	0.039	0.038	0.037	0.038	0.038	0.038	0.038	0.037	
Phosphorous	mg/L	-	0.025	0.025	0.082	0.059	0.057	0.075	0.09	0.09	0.217	0.189	0.2	0.23	0.2	0.23	0.2	0.23	0.23	
Lead	mg/L	0.0076	0.0025	0.0026	0.0069	0.0051	0.0049	0.006	0.007	0.007	0.0158	0.0139	0.014	0.017	0.014	0.014	0.014	0.014	0.017	
Selenium	mg/L	0.005	0.011	0.013	0.02	0.016	0.014	0.011	0.0111	0.0124	0.01	0.01	0.009	0.006	0.009	0.009	0.009	0.006	0.006	
Silver	mg/L	-	0.000054	0.00006	0.0002119	0.000096	0.00001	0.0000124	0.000025	0.000025	0.000035	0.00003	0.000039	0.000039	0.00003	0.000039	0.00003	0.000039	0.000039	
Sulfate	mg/L	-	35	38	71	56	50	48	55	57	88	82	80	81	80	81	80	81	81	
Strontium	mg/L	-	0.012	0.013	0.031	0.024	0.023	0.026	0.034	0.034	0.065	0.06	0.061	0.068	0.061	0.068	0.061	0.068	0.061	
Tin	mg/L	-	0.0054	0.0057	0.0087	0.0066	0.0064	0.0085	0.022	0.023	0.025	0.023	0.023	0.026	0.023	0.023	0.023	0.026	0.026	
Vanadium	mg/L	-	0.0028	0.0031	0.005	0.0041	0.0035	0.003	0.0021	0.0022	0.00086	0.00095	0.00403	0.000082	0.0001	0.000055	0.00024	0.00023	0.00024	
Thallium	mg/L	-	0.00015	0.00016	0.00229	0.00021	0.0002	0.00014	0.00016	0.0016	0.0098	0.0105	0.0068	0.003	0.0026	0.0026	0.0026	0.0028	0.0028	
Uranium	mg/L	0.027	0.0033	0.0037	0.0043	0.0018	0.0016	0.0016	0.0016	0.0016	0.0105	0.0068	0.003	0.0026	0.0026	0.0026	0.0026	0.0028	0.0028	
Zinc	mg/L	0.11	0.082	0.092	0.144	0.116	0.1	0.08	0.076	0.084	0.072	0.07	0.06	0.04	0.04	0.04	0.04	0.04	0.04	

Notes:
1.0 - Denotes values greater than site specific water quality guidelines.
Years and months are approximate dates

Attachment 7.II.IV-1

Detailed Site Water Quality Predictions - Surge Pond (F4) - Operations

Parameter	Units	Site Specific Water Quality Objectives	Year 1	Year 1	Year 1	Year 1	Year 1	Year 18	Year 18	Year 18	Year 18	Year 18	Year 18
			May	June	July	Aug	Sept	Oct	May	June	July	Aug	Sept
			May Year 1	June Year 1	July Year 1	Aug Year 1	Sept Year 1	Oct Year 1	May Year 18	June Year 18	July Year 18	Aug Year 18	Sept Year 18
pH	pH units	-	6.8	6.8	6.7	6.7	6.8	6.9	6.8	6.8	6.9	6.9	6.9
Aluminum	mg/L	0.41	0.66	0.73	1.5	1.2	1.1	1.1	1.9	1.9	3.6	3.3	3.2
Antimony	mg/L	0.03	0.01	0.0088	0.018	0.014	0.013	0.011	0.012	0.014	0.032	0.021	0.017
Arsenic	mg/L	0.05	0.11	0.13	0.26	0.18	0.16	0.15	0.25	0.27	0.45	0.38	0.36
Boron	mg/L	-	0.078	0.079	0.14	0.12	0.1	0.086	0.095	0.1	0.37	0.25	0.21
Barium	mg/L	-	0.052	0.058	0.1	0.083	0.071	0.056	0.056	0.063	0.13	0.1	0.084
Beryllium	mg/L	-	0.00045	0.00057	0.00082	0.0007	0.00062	0.00057	0.00084	0.00094	0.002	0.0015	0.0013
Calcium	mg/L	-	12	11	21	18	16	14	17	19	46	30	25
Cadmium	mg/L	0.00015	0.00036	0.00046	0.00039	0.000061	0.000054	0.000049	0.00025	0.00028	0.00033	0.00012	0.00011
Chloride	mg/L	353	22	21	37	33	29	30	26	26	68	49	46
Cobalt	mg/L	0.010	0.16	0.18	0.28	0.23	0.19	0.15	0.26	0.3	0.25	0.25	0.21
Chromium	mg/L	-	0.0033	0.0041	0.0036	0.0031	0.0027	0.0024	0.0031	0.0034	0.004	0.0033	0.003
Copper	mg/L	0.022	0.01	0.012	0.018	0.014	0.012	0.0099	0.017	0.019	0.02	0.018	0.016
Iron	mg/L	1.5	1.9	2.2	4.7	3.4	3.0	2.3	3.7	4.0	5.9	5.0	4.7
Mercury	mg/L	-	0.000096	0.00012	0.00011	0.000046	0.000039	0.000033	0.000068	0.00008	0.000098	0.000044	0.000035
Potassium	mg/L	-	82	86	167	138	118	94	101	121	333	213	163
Magnesium	mg/L	-	4.5	4.3	8.0	7.1	6.3	5.8	6.3	6.7	16	11	9.8
Manganese	mg/L	-	0.057	0.068	0.17	0.064	0.057	0.045	0.087	0.096	0.18	0.11	0.098
Molybdenum	mg/L	-	0.022	0.014	0.035	0.029	0.026	0.024	0.025	0.026	0.069	0.042	0.035
Sodium	mg/L	-	9.7	6.1	22	18	16	16	17	17	76	52	45
Nickel	mg/L	-	0.0065	0.0071	0.012	0.01	0.0088	0.0081	0.013	0.014	0.021	0.019	0.018
Phosphorous	mg/L	-	0.029	0.032	0.085	0.041	0.038	0.039	0.059	0.061	0.17	0.11	0.11
Lead	mg/L	0.0076	0.0026	0.0031	0.0046	0.0024	0.0023	0.0023	0.0049	0.0049	0.0097	0.0078	0.0079
Selenium	mg/L	0.005	0.017	0.01	0.031	0.026	0.023	0.02	0.021	0.023	0.08	0.048	0.037
Silver	mg/L	-	0.000033	0.000041	0.0016	0.0005	0.000043	0.000038	0.000046	0.000053	0.00089	0.000079	0.000064
Sulfate	mg/L	-	49	32	98	80	71	64	67	71	266	171	140
Strontium	mg/L	-	0.038	0.036	0.076	0.067	0.06	0.052	0.065	0.072	0.21	0.14	0.12
Tin	mg/L	-	0.024	0.033	0.019	0.017	0.014	0.014	0.018	0.021	0.022	0.016	0.014
Vanadium	mg/L	-	0.0016	0.0019	0.0022	0.0021	0.0018	0.0015	0.002	0.0022	0.003	0.0024	0.0022
Thallium	mg/L	-	0.00010	0.00011	0.016	0.00015	0.00013	0.00011	0.00013	0.00014	0.0081	0.00018	0.00015
Uranium	mg/L	0.027	0.027	0.031	0.044	0.025	0.023	0.018	0.039	0.043	0.077	0.054	0.048
Zinc	mg/L	0.11	0.032	0.036	0.063	0.049	0.042	0.033	0.054	0.06	0.073	0.063	0.056

Notes:

1.0 - Denotes values greater than site specific water quality guidelines.

Years and months are approximate dates

Attachment 7.II.IV-2
Detailed Site Water Quality Predictions - Seepage Collection Ponds 4 and 5 (Runoff from the Co-Disposal Facility) (F2a) - Closure and Post Closure

Parameter	Units	Site Specific Water Quality Objectives	Closure	Closure	Closure	Closure	Closure	Closure
			May Closure	June Closure	July Closure	Aug Closure	Sept Closure	Oct Closure
pH	pH units	-	8	8	8	8	8	8
Aluminum	mg/L	0.41	0.82	0.82	0.82	0.82	0.82	0.82
Antimony	mg/L	0.03	0.0016	0.0016	0.0016	0.0016	0.0016	0.0016
Arsenic	mg/L	0.05	0.024	0.024	0.031	0.024	0.024	0.024
Boron	mg/L	-	0.081	0.081	0.078	0.078	0.078	0.078
Barium	mg/L	-	0.001	0.001	0.00088	0.001	0.001	0.001
Beryllium	mg/L	-	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092
Calcium	mg/L	-	3.8	3.8	3.7	3.8	3.8	3.8
Cadmium	mg/L	0.00015	0.0001	0.0001	0.000075	0.000094	0.000094	0.000094
Chloride	mg/L	353	5.4	5.4	5.3	5.9	5.9	5.9
Cobalt	mg/L	0.010	0.00088	0.00088	0.00074	0.00086	0.00086	0.00086
Chromium	mg/L	-	0.0012	0.0012	0.00088	0.00088	0.00088	0.00088
Copper	mg/L	0.022	0.012	0.012	0.012	0.012	0.012	0.012
Iron	mg/L	1.5	0.86	0.86	1.0	0.84	0.84	0.84
Mercury	mg/L	-	0.00012	0.00012	0.00011	0.000097	0.000097	0.000097
Potassium	mg/L	-	7.8	7.8	7.8	7.8	7.8	7.8
Magnesium	mg/L	-	1.4	1.4	1.4	1.5	1.5	1.5
Manganese	mg/L	-	0.021	0.021	0.034	0.015	0.015	0.015
Molybdenum	mg/L	-	0.0066	0.0066	0.0062	0.0065	0.0065	0.0065
Sodium	mg/L	-	5.8	5.8	5.8	5.8	5.8	5.8
Nickel	mg/L	-	0.015	0.015	0.015	0.015	0.015	0.015
Phosphorous	mg/L	-	0.004	0.004	0.0098	0.0028	0.0028	0.0028
Lead	mg/L	0.0076	0.00071	0.00071	0.00062	0.0003	0.0003	0.0003
Selenium	mg/L	0.005	0.0005	0.0005	0.00046	0.00051	0.00051	0.00051
Silver	mg/L	-	0.000017	0.000017	0.00034	0.000017	0.000017	0.000017
Sulfate	mg/L	-	28	28	28	28	28	28
Strontium	mg/L	-	0.022	0.022	0.022	0.022	0.022	0.022
Tin	mg/L	-	0.007	0.007	0.0035	0.0035	0.0035	0.0035
Vanadium	mg/L	-	0.002	0.002	0.0019	0.0019	0.0019	0.0019
Thallium	mg/L	-	0.000015	0.000015	0.0033	0.000015	0.000015	0.000015
Uranium	mg/L	0.027	0.0053	0.0053	0.0045	0.0012	0.0012	0.0012
Zinc	mg/L	0.11	0.013	0.013	0.014	0.013	0.013	0.013

Notes:

1.0 - Denotes values greater than site specific water quality guidelines.

Attachment 7.II.IV-2

Detailed Site Water Quality Predictions - Seepage Collection Ponds 1, 2 and 3 (Seepage from the Co-Disposal Facility) (F2b) - Closure and Post-Closure

Parameter	Units	Site Specific Water Quality Objectives	Closure	Closure	Closure	Closure	Closure	Closure
			May Closure	June Closure	July Closure	Aug Closure	Sept Closure	Oct Closure
pH	pH units	-	7	7	6	6	6	7
Aluminum	mg/L	0.41	2.3	2.6	5.2	4.4	3.9	3.0
Antimony	mg/L	0.03	0.009	0.01	0.02	0.017	0.015	0.012
Arsenic	mg/L	0.05	0.13	0.15	0.34	0.26	0.23	0.17
Boron	mg/L	-	0.068	0.075	0.1	0.087	0.077	0.063
Barium	mg/L	-	0.043	0.049	0.093	0.08	0.071	0.055
Beryllium	mg/L	-	0.00038	0.00041	0.00055	0.00047	0.00041	0.00039
Calcium	mg/L	-	20	22	38	33	29	24
Cadmium	mg/L	0.00015	0.00049	0.00052	0.00047	0.00009	0.000079	0.000062
Chloride	mg/L	353	24	26	36	33	30	27
Cobalt	mg/L	0.010	0.016	0.018	0.035	0.03	0.027	0.021
Chromium	mg/L	-	0.0055	0.006	0.0072	0.0062	0.0055	0.0045
Copper	mg/L	0.022	0.0089	0.0099	0.018	0.015	0.013	0.01
Iron	mg/L	1.5	10.0	11	23	19	17	13
Mercury	mg/L	-	0.00011	0.00012	0.00011	0.000036	0.000032	0.000026
Potassium	mg/L	-	70	80	160	136	121	93
Magnesium	mg/L	-	8.3	9.3	17	15	13	10
Manganese	mg/L	-	0.17	0.2	0.44	0.28	0.25	0.19
Molybdenum	mg/L	-	0.015	0.017	0.03	0.027	0.024	0.019
Sodium	mg/L	-	9.2	10	20	17	15	12
Nickel	mg/L	-	0.0036	0.004	0.0061	0.0058	0.0052	0.0042
Phosphorous	mg/L	-	0.029	0.031	0.079	0.034	0.03	0.026
Lead	mg/L	0.0076	0.0057	0.0064	0.011	0.0075	0.0066	0.0051
Selenium	mg/L	0.005	0.015	0.017	0.033	0.029	0.025	0.02
Silver	mg/L	-	0.000061	0.000067	0.0019	0.000091	0.000081	0.000069
Sulfate	mg/L	-	67	76	152	128	113	87
Strontium	mg/L	-	0.081	0.091	0.17	0.15	0.13	0.1
Tin	mg/L	-	0.032	0.034	0.019	0.016	0.014	0.015
Vanadium	mg/L	-	0.0022	0.0024	0.0035	0.0033	0.0029	0.0024
Thallium	mg/L	-	0.00019	0.00022	0.019	0.00034	0.00031	0.00024
Uranium	mg/L	0.027	0.098	0.11	0.2	0.15	0.14	0.1
Zinc	mg/L	0.11	0.066	0.075	0.15	0.12	0.11	0.084

Notes:

1.0 - Denotes values greater than site specific water quality guidelines.

Attachment 7.II.IV-2
Detailed Site Water Quality Predictions - Surge Pond (F4) - Closure and Post-Closure

Parameter	Units	Site Specific Water Quality Objectives	Closure	Closure	Closure	Closure	Closure	Closure
			May Closure	June Closure	July Closure	Aug Closure	Sept Closure	Oct Closure
pH	pH units	-	8	8	7	8	8	8
Aluminum	mg/L	0.41	0.031	0.053	0.21	0.048	0.028	0.021
Antimony	mg/L	0.03	0.00028	0.00049	0.0033	0.00089	0.00051	0.00039
Arsenic	mg/L	0.05	0.008	0.014	0.37	0.031	0.018	0.014
Boron	mg/L	-	0.033	0.056	0.14	0.057	0.033	0.025
Barium	mg/L	-	0.0049	0.0083	0.038	0.018	0.01	0.0077
Beryllium	mg/L	-	0.00032	0.00055	0.0029	0.0011	0.00066	0.0005
Calcium	mg/L	-	5.7	9.7	47	21	12	9.1
Cadmium	mg/L	0.00015	0.00047	0.0008	0.0029	0.000025	0.000014	0.000011
Chloride	mg/L	353	18	30	152	71	41	31
Cobalt	mg/L	0.010	0.0013	0.0023	0.0057	0.0044	0.0025	0.0019
Chromium	mg/L	-	0.0033	0.0056	0.014	0.0057	0.0033	0.0025
Copper	mg/L	0.022	0.0019	0.0032	0.012	0.0043	0.0025	0.0019
Iron	mg/L	1.5	0.28	0.48	9.0	0.64	0.37	0.28
Mercury	mg/L	-	0.000096	0.00016	0.00057	0.000023	0.000013	0.00001
Potassium	mg/L	-	0.79	1.4	5.8	2.5	1.4	1.1
Magnesium	mg/L	-	2.3	3.9	20	9.6	5.5	4.2
Manganese	mg/L	-	0.036	0.061	0.87	0.023	0.013	0.01
Molybdenum	mg/L	-	0.0033	0.0056	0.014	0.011	0.0064	0.0049
Sodium	mg/L	-	1.4	2.5	15	6.1	3.5	2.7
Nickel	mg/L	-	0.0013	0.0022	0.0057	0.0045	0.0026	0.002
Phosphorous	mg/L	-	0.019	0.033	0.42	0.049	0.028	0.021
Lead	mg/L	0.0076	0.002	0.0035	0.014	0.00023	0.00013	0.0001
Selenium	mg/L	0.005	0.00032	0.00054	0.0011	0.0013	0.00072	0.00055
Silver	mg/L	-	0.000032	0.000055	0.014	0.00011	0.000066	0.00005
Sulfate	mg/L	-	2.9	5.0	27	7.9	4.5	3.5
Strontium	mg/L	-	0.017	0.028	0.15	0.073	0.042	0.032
Tin	mg/L	-	0.033	0.056	0.14	0.057	0.033	0.025
Vanadium	mg/L	-	0.00086	0.0015	0.0029	0.0022	0.0013	0.00098
Thallium	mg/L	-	0.000032	0.000055	0.14	0.00011	0.000066	0.00005
Uranium	mg/L	0.027	0.02	0.034	0.14	0.00061	0.00035	0.00027
Zinc	mg/L	0.11	0.0047	0.008	0.067	0.0095	0.0055	0.0042

Notes:

1.0

- Denotes values greater than site specific water quality guidelines.

Attachment 7.II.IV-2
Detailed Site Water Quality Predictions - Wetland 1, 2 to Nico Lake (D2) - Closure and Post-Closure

Parameter	Units	Site Specific Water Quality Objectives	Closure	Closure	Closure	Closure	Closure	Closure
			May Closure	June Closure	July Closure	Aug Closure	Sept Closure	Oct Closure
pH	pH units	-	7	7	6	6	6	7
Aluminum	mg/L	0.41	1.9	2.2	4.5	3.8	3.4	2.5
Antimony	mg/L	0.03	0.0075	0.0085	0.018	0.015	0.013	0.0097
Arsenic	mg/L	0.05	0.11	0.13	0.29	0.22	0.19	0.14
Boron	mg/L	-	0.057	0.064	0.09	0.076	0.067	0.052
Barium	mg/L	-	0.036	0.041	0.081	0.069	0.061	0.046
Beryllium	mg/L	-	0.00032	0.00035	0.00048	0.00041	0.00036	0.00032
Calcium	mg/L	-	16	18	33	29	25	20
Cadmium	mg/L	0.00015	0.00041	0.00044	0.00041	0.000078	0.000068	0.000051
Chloride	mg/L	353	20	22	32	29	26	23
Cobalt	mg/L	0.010	0.013	0.015	0.03	0.026	0.023	0.017
Chromium	mg/L	-	0.0046	0.0051	0.0063	0.0054	0.0047	0.0038
Copper	mg/L	0.022	0.0074	0.0083	0.015	0.013	0.011	0.0086
Iron	mg/L	1.5	8.3	9.5	20	17	15	11
Mercury	mg/L	-	0.000091	0.000098	0.000096	0.000031	0.000027	0.000021
Potassium	mg/L	-	59	67	139	118	104	76
Magnesium	mg/L	-	7.0	7.8	14	13	11	8.7
Manganese	mg/L	-	0.15	0.16	0.38	0.24	0.21	0.16
Molybdenum	mg/L	-	0.013	0.015	0.026	0.023	0.021	0.016
Sodium	mg/L	-	7.7	8.7	17	15	13	9.8
Nickel	mg/L	-	0.003	0.0034	0.0053	0.0051	0.0045	0.0035
Phosphorous	mg/L	-	0.024	0.027	0.069	0.029	0.026	0.021
Lead	mg/L	0.0076	0.0048	0.0054	0.0092	0.0065	0.0057	0.0042
Selenium	mg/L	0.005	0.012	0.014	0.029	0.025	0.022	0.016
Silver	mg/L	-	0.000051	0.000057	0.0017	0.000079	0.00007	0.000057
Sulfate	mg/L	-	56	64	132	111	98	72
Strontium	mg/L	-	0.068	0.077	0.15	0.13	0.11	0.086
Tin	mg/L	-	0.027	0.029	0.017	0.014	0.013	0.012
Vanadium	mg/L	-	0.0019	0.0021	0.0031	0.0029	0.0025	0.002
Thallium	mg/L	-	0.00016	0.00018	0.017	0.0003	0.00026	0.0002
Uranium	mg/L	0.027	0.082	0.092	0.17	0.13	0.12	0.085
Zinc	mg/L	0.11	0.056	0.063	0.13	0.11	0.094	0.069

Notes:

1.0

- Denotes values greater than site specific water quality guidelines.

Attachment 7.II.IV-2
Detailed Site Water Quality Predictions - Wetland 3 to Nico Lake (D3) - Closure and Post Closure

Parameter	Units	Site Specific Water Quality Objectives	Closure	Closure	Closure	Closure	Closure	Closure
			May Closure	June Closure	July Closure	Aug Closure	Sept Closure	Oct Closure
pH	pH units	-	7	7	7	8	8	8
Aluminum	mg/L	0.41	0.0073	0.011	0.13	0.027	0.016	0.014
Antimony	mg/L	0.03	0.000066	0.000098	0.002	0.0005	0.0003	0.00026
Arsenic	mg/L	0.05	0.0019	0.0028	0.22	0.017	0.011	0.0088
Boron	mg/L	-	0.0077	0.011	0.086	0.032	0.02	0.016
Barium	mg/L	-	0.0011	0.0017	0.023	0.023	0.006	0.005
Beryllium	mg/L	-	0.000075	0.00011	0.0017	0.00064	0.00039	0.00033
Calcium	mg/L	-	1.4	2.0	28	12	7.1	6.0
Cadmium	mg/L	0.000015	0.00011	0.00016	0.0017	0.000014	0.0000084	0.0000071
Chloride	mg/L	353	4.7	6.7	91	40	24	20
Cobalt	mg/L	0.010	0.00031	0.00045	0.0034	0.0025	0.0015	0.0013
Chromium	mg/L	-	0.00077	0.0011	0.0086	0.0032	0.002	0.0016
Copper	mg/L	0.022	0.00043	0.00064	0.0073	0.0024	0.0015	0.0012
Iron	mg/L	1.5	0.065	0.096	5.3	0.35	0.22	0.18
Mercury	mg/L	-	0.000022	0.000033	0.00034	0.000013	0.0000078	0.0000066
Potassium	mg/L	-	0.22	0.31	3.4	1.4	0.88	0.73
Magnesium	mg/L	-	0.55	0.81	12	5.3	3.3	2.7
Manganese	mg/L	-	0.0084	0.012	0.52	0.013	0.008	0.0067
Molybdenum	mg/L	-	0.00077	0.0011	0.0086	0.0062	0.0038	0.0032
Sodium	mg/L	-	0.37	0.54	9.1	3.4	2.1	1.8
Nickel	mg/L	-	0.00031	0.00045	0.0034	0.0025	0.0015	0.0013
Phosphorous	mg/L	-	0.0045	0.0066	0.25	0.027	0.017	0.014
Lead	mg/L	0.0076	0.00048	0.0007	0.0086	0.00013	0.000079	0.000066
Selenium	mg/L	0.005	0.000074	0.00011	0.00068	0.0007	0.00043	0.00036
Silver	mg/L	-	0.0000075	0.000011	0.0086	0.000064	0.000039	0.000033
Sulfate	mg/L	-	0.68	1.0	16	4.4	2.7	2.3
Strontium	mg/L	-	0.0039	0.0057	0.09	0.04	0.025	0.021
Tin	mg/L	-	0.0077	0.011	0.086	0.032	0.02	0.016
Vanadium	mg/L	-	0.0002	0.00029	0.0017	0.0012	0.00076	0.00064
Thallium	mg/L	-	0.0000075	0.000011	0.086	0.000064	0.000039	0.000033
Uranium	mg/L	0.027	0.0047	0.0069	0.086	0.00034	0.00021	0.00017
Zinc	mg/L	0.11	0.0011	0.0016	0.04	0.0053	0.0032	0.0027

Notes:

1.0 - Denotes values greater than site specific water quality guidelines.

ATTACHMENT 7.II.V

List of Flows and Water Qualities – Flooded Open Pit Water Quality Predictions

Attachment 7.II.V
List of Potential Flows to/from the NICO Post-Closure Pit Lake

Description	Flow ID	Concentration ID	Flow Input	Chemistry Input	Assumptions
Direct precipitation	Q_p	C_p	Calculated as the total volume of water reporting directly to the pit lake (i.e., a function of the surface area of the pit lake) based on monthly precipitation data.	Average composition of precipitation samples collected at the Environment Canada CapMon Snare Lake precipitation monitoring station.	Most precipitation reports directly to the pit lake.
Catchment runoff to pit	Q_n	C_n	Runoff volumes to be calculated based on average monthly precipitation data and runoff coefficients for the watershed.	Conservatively assumed to equal the average composition of water quality samples collected from Nico Lake during two seasonal periods - (freshet (November to June) and October to July).	
Groundwater seepage	Q_g	C_g	Groundwater inflow or outflow rate.	Results of groundwater monitoring from 03-281.	
Pit wall runoff	Q_{pit}	C_{pit}	Calculated as a function of the surface area of the open pit as the pit fills relative to the precipitation rate.	Assumed that the mass load from wall rock will dominate; water quality will be calculated using representative inputs from results of geochemical characterization, based on the relative proportion of each rock type exposed in the pit walls above the pit lake at each time step.	Runoff flows over the edges of the pit wall, gaining a mass load from disturbed rock at the pit wall interface.
Runoff from the Co-Disposal Area	Q_{Rm}	C_{Rm}	Runoff volumes to be calculated based on average monthly precipitation data and runoff coefficients for the co-disposal area cover.	"Cover" water quality (i.e., water quality representative of "clean" runoff, represented by the average composition of geochemical leach testing of borrow material.	
Evaporation	Q_e		Evaporation based on lake area and long term annual pan evaporation values.	Evaporation removes water, but solutes remain in pit.	
Pit discharge	Q_d	C_d	Discharge calculated from pit lake water balance or pumped discharge strategy.	Predicted quality of surface water in pit.	

ATTACHMENT 7.II.VI

Water Balance - Summary of Post-Closure Flooded Open Pit Water Balance

Attachment 7.II.VI
Summary of Post-Closure Pit Lake Water Balance

Year # Freshet = November to June (0.5), October to November (1)	Inflow Pit Wall Runoff (m³)	Inflow Catchment Runoff to Pit (m³)	Inflow Waste Rock/Tailings Runoff to Ponds (m³)	Outflow Lake Surface Evaporation (m³)	Inflow Precipitation Reporting to Pit Lake (m³)	Inflow/Outflow Seepage Reporting to Lake (m³)	Future Lake Volume with Outflow (m³)	Outflow (m³)
0.5	92,770	35,207	82,840	-2,433	1,274	27,448	237,106	0
1	77,023	17,537	41,264	-8,732	4,067	13,098	381,363	0
1.5	87,754	35,207	82,840	-4,810	6,290	25,066	613,709	0
2	74,211	17,537	41,264	-15,301	6,879	12,377	750,676	0
2.5	85,058	35,207	82,840	-6,335	8,986	23,905	980,337	0
3	72,282	17,537	41,264	-19,736	8,808	11,882	1,112,375	0
3.5	83,026	35,207	82,840	-7,550	11,018	23,111	1,340,026	0
4	70,710	17,537	41,264	-23,327	10,380	11,471	1,468,062	0
4.5	81,317	35,207	82,840	-8,595	12,727	22,252	1,693,809	0
5	69,347	17,537	41,264	-26,436	11,743	11,108	1,818,373	0
5.5	79,809	35,207	82,840	-9,528	14,235	21,568	2,042,503	0
6	68,123	17,537	41,264	-29,222	12,967	10,778	2,163,950	0
6.5	78,443	35,207	82,840	-10,380	15,601	20,939	2,386,600	0
7	67,001	17,537	41,264	-31,773	14,089	10,472	2,505,190	0
7.5	77,183	35,207	82,840	-11,170	16,861	20,440	2,726,551	0
8	65,957	17,537	41,264	-34,146	15,133	10,187	2,842,482	0
8.5	76,003	35,207	82,840	-11,913	18,041	19,809	3,062,469	0
9	64,974	17,537	41,264	-36,379	16,116	9,918	3,175,900	0
9.5	74,888	35,207	82,840	-12,618	19,156	19,294	3,394,666	0
10	64,040	17,537	41,264	-38,500	17,050	9,664	3,505,722	0
10.5	73,824	35,207	82,840	-13,292	20,220	18,806	3,723,326	0
11	63,145	17,537	41,264	-40,531	17,945	9,424	3,832,110	0
11.5	72,803	35,207	82,840	-13,942	21,241	18,418	4,048,677	0
12	62,282	17,537	41,264	-42,488	18,808	9,195	4,155,275	0
12.5	71,816	35,207	82,840	-14,570	22,228	17,901	4,370,696	0
13	61,447	17,537	41,264	-44,383	19,643	8,976	4,475,181	0
13.5	70,859	35,207	82,840	-15,180	23,185	17,478	4,689,570	0
14	60,634	17,537	41,264	-46,225	20,456	8,767	4,792,003	0
14.5	69,926	35,207	82,840	-15,776	24,118	17,074	5,005,392	0
15	59,842	17,537	41,264	-48,022	21,248	8,566	5,105,828	0
15.5	69,015	35,207	82,840	-16,358	25,029	16,756	5,318,316	0
16	59,066	17,537	41,264	-49,780	22,024	8,374	5,416,801	0
16.5	68,124	35,207	82,840	-16,928	25,920	16,314	5,628,277	0
17	58,307	17,537	41,264	-51,503	22,783	8,188	5,724,854	0
17.5	67,249	35,207	82,840	-17,488	26,795	15,955	5,935,412	0
18	57,560	17,537	41,264	-53,195	23,530	8,010	6,030,118	0
18.5	66,390	35,207	82,840	-18,039	27,654	15,609	6,239,779	0
19	56,827	17,537	41,264	-54,858	24,263	7,837	6,332,650	0
19.5	65,544	35,207	82,840	-18,581	28,500	15,338	6,541,498	0
20	56,104	17,537	41,264	-56,495	24,986	7,671	6,632,565	0
20.5	64,711	35,207	82,840	-19,114	29,333	14,951	6,840,493	0
21	55,393	17,537	41,264	-58,107	25,697	7,510	6,929,786	0
21.5	63,891	35,207	82,840	-19,640	30,153	14,639	7,136,875	0
22	54,692	17,537	41,264	-59,697	26,398	7,354	7,224,423	0
22.5	63,082	35,207	82,840	-20,159	30,962	14,335	7,430,691	0
23	54,000	17,537	41,264	-61,264	27,090	7,202	7,516,520	0
23.5	62,284	35,207	82,840	-20,671	31,760	14,100	7,722,040	0
24	53,317	17,537	41,264	-62,811	27,773	7,055	7,806,175	0
24.5	61,497	35,207	82,840	-21,176	32,547	13,756	8,010,846	0
25	52,644	17,537	41,264	-64,337	28,446	6,913	8,093,313	0
25.5	60,720	35,207	82,840	-21,674	33,324	13,478	8,297,208	0
26	51,979	17,537	41,264	-65,844	29,111	6,774	8,378,030	0
26.5	59,953	35,207	82,840	-22,166	34,091	13,208	8,581,163	0
27	51,323	17,537	41,264	-67,331	29,767	6,639	8,660,362	0
27.5	59,196	35,207	82,840	-22,652	34,848	12,999	8,862,801	0
28	50,675	17,537	41,264	-68,799	30,415	6,507	8,940,400	0
28.5	58,449	35,207	82,840	-23,131	35,595	12,690	9,142,049	0
29	50,036	17,537	41,264	-70,249	31,054	6,379	9,218,071	0
29.5	57,710	35,207	82,840	-23,605	36,334	12,440	9,418,997	0
30	49,404	17,537	41,264	-71,680	31,686	6,254	9,493,462	0
30.5	56,982	35,207	82,840	-24,072	37,062	12,196	9,693,677	0
31	48,781	17,537	41,264	-73,093	32,309	6,132	9,766,607	0
31.5	56,262	35,207	82,840	-24,534	37,782	12,008	9,966,172	0
32	48,165	17,537	41,264	-74,488	32,925	6,012	10,037,588	0
32.5	55,552	35,207	82,840	-24,989	38,492	11,726	10,236,415	0
33	47,557	17,537	41,264	-75,865	33,533	5,896	10,306,337	0
33.5	54,851	35,207	82,840	-25,439	39,193	11,499	10,504,488	0
34	46,957	17,537	41,264	-77,225	34,133	5,782	10,572,936	0
34.5	54,158	35,207	82,840	-25,883	39,886	11,276	10,770,420	0
35	46,365	17,537	41,264	-78,567	34,725	5,670	10,837,415	0
35.5	53,475	35,207	82,840	-26,321	40,569	11,105	11,034,290	0
36	45,780	17,537	41,264	-79,892	35,310	5,561	11,099,850	0
36.5	52,801	35,207	82,840	-26,753	41,243	10,846	11,296,034	0
37	45,204	17,537	41,264	-81,199	35,886	5,454	11,360,180	0
37.5	52,135	35,207	82,840	-27,180	41,909	10,637	11,555,729	0
38	44,634	17,537	41,264	-82,489	36,456	5,349	11,618,480	0

Attachment 7.II.VI
Summary of Post-Closure Pit Lake Water Balance

Year # Freshet = November to June (0.5), October to November (1)	Inflow	Inflow	Inflow	Outflow	Inflow	Inflow/Outflow	Future Lake Volume with Outflow (m³)	Outflow (m³)
	Pit Wall Runoff (m³)	Catchment Runoff to Pit (m³)	Waste Rock/Tailings Runoff to Ponds (m³)	Lake Surface Evaporation (m³)	Precipitation Reporting to Pit Lake (m³)	Seepage Reporting to Lake (m³)		
38.5	51,479	35,207	82,840	-27,601	42,565	10,433	11,813,403	0
39	44,073	17,537	41,264	-83,761	37,017	5,246	11,874,779	0
39.5	50,831	35,207	82,840	-28,016	43,213	10,274	12,069,129	0
40	43,519	17,537	41,264	-85,017	37,571	5,145	12,129,148	0
40.5	50,192	35,207	82,840	-28,425	43,852	10,035	12,322,849	0
41	42,972	17,537	41,264	-86,256	38,118	5,046	12,381,530	0
41.5	49,561	35,207	82,840	-28,829	44,483	9,842	12,574,634	0
42	42,433	17,537	41,264	-87,478	38,657	4,949	12,631,997	0
42.5	48,940	35,207	82,840	-29,228	45,104	9,652	12,824,512	0
43	41,901	17,537	41,264	-88,682	39,189	4,854	12,880,574	0
43.5	48,326	35,207	82,840	-29,621	45,718	9,505	13,072,549	0
44	41,377	17,537	41,264	-89,871	39,713	4,760	13,127,330	0
44.5	47,722	35,207	82,840	-30,008	46,322	9,282	13,318,695	0
45	40,860	17,537	41,264	-91,042	40,230	4,668	13,372,212	0
45.5	47,126	35,207	82,840	-30,390	46,918	9,102	13,563,015	0
46	40,350	17,537	41,264	-92,197	40,740	4,577	13,615,286	0
46.5	46,538	35,207	82,840	-30,766	47,506	8,925	13,805,536	0
47	39,848	17,537	41,264	-93,336	41,242	4,488	13,856,580	0
47.5	45,959	35,207	82,840	-31,137	48,085	8,787	14,046,321	0
48	39,352	17,537	41,264	-94,458	41,738	4,400	14,096,154	0
48.5	45,388	35,207	82,840	-31,502	48,656	8,579	14,285,322	0
49	38,864	17,537	41,264	-95,564	42,226	4,314	14,333,963	0
49.5	44,825	35,207	82,840	-31,863	49,219	8,410	14,522,601	0
50	38,384	17,537	41,264	-96,653	42,706	4,229	14,570,068	0
50.5	44,271	35,207	82,840	-32,217	49,773	8,244	14,758,185	0
51	37,910	17,537	41,264	-97,727	43,180	4,145	14,804,495	0
51.5	43,725	35,207	82,840	-32,567	50,319	8,113	14,992,132	0
52	37,443	17,537	41,264	-98,784	43,647	4,062	15,037,301	0
52.5	43,187	35,207	82,840	-32,911	50,857	7,918	15,224,400	0
53	36,983	17,537	41,264	-99,826	44,107	3,981	15,268,446	0
53.5	42,657	35,207	82,840	-33,250	51,387	7,759	15,455,046	0
54	36,531	17,537	41,264	-100,851	44,559	3,901	15,497,987	0
54.5	42,136	35,207	82,840	-33,584	51,908	7,602	15,684,096	0
55	36,085	17,537	41,264	-101,861	45,005	3,821	15,725,947	0
55.5	41,622	35,207	82,840	-33,912	52,422	7,478	15,911,604	0
56	35,646	17,537	41,264	-102,856	45,444	3,743	15,952,383	0
56.5	41,116	35,207	82,840	-34,236	52,928	7,295	16,137,533	0
57	35,214	17,537	41,264	-103,835	45,876	3,666	16,177,256	0
57.5	40,618	35,207	82,840	-34,554	53,426	7,144	16,361,937	0
58	34,789	17,537	41,264	-104,798	46,301	3,590	16,400,620	0
58.5	40,128	35,207	82,840	-34,867	53,916	6,995	16,584,840	0
59	34,370	17,537	41,264	-105,746	46,720	3,515	16,622,500	0
59.5	39,646	35,207	82,840	-35,175	54,398	6,877	16,806,293	0
60	33,958	17,537	41,264	-106,679	47,132	3,441	16,842,946	0
60.5	39,172	35,207	82,840	-35,478	54,872	6,703	17,026,262	0
61	33,553	17,537	41,264	-107,597	47,537	3,368	17,061,924	0
61.5	38,706	35,207	82,840	-35,776	55,338	6,560	17,244,799	0
62	33,155	17,537	41,264	-108,500	47,935	3,296	17,279,486	0
62.5	38,247	35,207	82,840	-36,070	55,797	6,419	17,461,927	0
63	32,763	17,537	41,264	-109,387	48,327	3,224	17,495,655	0
63.5	37,795	35,207	82,840	-36,358	56,249	6,305	17,677,693	0
64	32,378	17,537	41,264	-110,260	48,712	3,154	17,710,478	0
64.5	37,352	35,207	82,840	-36,641	56,692	6,141	17,892,068	0
65	31,999	17,537	41,264	-111,119	49,091	3,084	17,923,925	0
65.5	36,916	35,207	82,840	-36,920	57,128	6,004	18,105,100	0
66	31,626	17,537	41,264	-111,962	49,464	3,015	18,136,045	0
66.5	36,487	35,207	82,840	-37,193	57,557	5,869	18,316,811	0
67	31,261	17,537	41,264	-112,791	49,829	2,947	18,346,858	0
67.5	36,066	35,207	82,840	-37,462	57,978	5,759	18,527,247	0
68	30,901	17,537	41,264	-113,606	50,189	2,879	18,556,412	0
68.5	35,652	35,207	82,840	-37,726	58,392	5,603	18,736,380	0
69	30,548	17,537	41,264	-114,406	50,542	2,813	18,764,678	0
69.5	35,245	35,207	82,840	-37,986	58,799	5,473	18,944,256	0
70	30,201	17,537	41,264	-115,192	50,889	2,747	18,971,702	0
70.5	34,846	35,207	82,840	-38,240	59,198	5,343	19,150,896	0
71	29,860	17,537	41,264	-115,963	51,230	2,681	19,177,505	0
71.5	34,454	35,207	82,840	-38,490	59,590	5,237	19,356,343	0
72	29,526	17,537	41,264	-116,721	51,564	2,617	19,382,129	0
72.5	34,069	35,207	82,840	-38,736	59,975	5,089	19,560,573	0
73	29,197	17,537	41,264	-117,465	51,893	2,553	19,585,552	0
73.5	33,691	35,207	82,840	-38,976	60,353	4,963	19,763,630	0
74	28,875	17,537	41,264	-118,194	52,215	2,489	19,787,816	0
74.5	33,321	35,207	82,840	-39,212	60,723	4,839	19,965,533	0
75	28,559	17,537	41,264	-118,910	52,531	2,426	19,988,941	0
75.5	32,957	35,207	82,840	-39,444	61,087	4,735	20,166,323	0
76	28,249	17,537	41,264	-119,612	52,841	2,364	20,188,966	0

Attachment 7.II.VI
Summary of Post-Closure Pit Lake Water Balance

Year # Freshet = November to June (0.5), October to November (1)	Inflow	Inflow	Inflow	Outflow	Inflow	Inflow/Outflow	Future Lake Volume with Outflow (m³)	Outflow (m³)
	Pit Wall Runoff (m³)	Catchment Runoff to Pit (m³)	Waste Rock/Tailings Runoff to Ponds (m³)	Lake Surface Evaporation (m³)	Precipitation Reporting to Pit Lake (m³)	Seepage Reporting to Lake (m³)		
76.5	32,601	35,207	82,840	-39,671	61,443	4,594	20,365,979	0
77	27,945	17,537	41,264	-120,301	53,145	2,302	20,387,872	0
77.5	32,251	35,207	82,840	-39,894	61,793	4,473	20,564,542	0
78	27,647	17,537	41,264	-120,976	53,443	2,241	20,585,699	0
78.5	31,909	35,207	82,840	-40,112	62,135	4,353	20,762,032	0
79	27,355	17,537	41,264	-121,637	53,735	2,181	20,782,467	0
79.5	31,573	35,207	82,840	-40,325	62,471	4,252	20,958,485	0
80	27,069	17,537	41,264	-122,285	54,021	2,121	20,978,212	0
80.5	31,244	35,207	82,840	-40,534	62,800	4,117	21,153,885	0
81	26,789	17,537	41,264	-122,920	54,301	2,061	21,172,918	0
81.5	30,922	35,207	82,840	-40,739	63,122	4,000	21,348,270	0
82	26,514	17,537	41,264	-123,541	54,576	2,002	21,366,622	0
82.5	30,607	35,207	82,840	-40,940	63,437	3,885	21,541,659	0
83	26,246	17,537	41,264	-124,149	54,844	1,944	21,559,344	0
83.5	30,298	35,207	82,840	-41,136	63,746	3,786	21,734,086	0
84	25,983	17,537	41,264	-124,745	55,107	1,886	21,751,118	0
84.5	29,996	35,207	82,840	-41,327	64,048	3,657	21,925,538	0
85	25,726	17,537	41,264	-125,327	55,364	1,828	21,941,931	0
85.5	29,701	35,207	82,840	-41,515	64,343	3,544	22,116,051	0
86	25,474	17,537	41,264	-125,896	55,616	1,771	22,131,818	0
86.5	29,413	35,207	82,840	-41,698	64,631	3,432	22,305,643	0
87	25,229	17,537	41,264	-126,452	55,861	1,715	22,320,797	0
87.5	29,131	35,207	82,840	-41,877	64,913	3,335	22,494,346	0
88	24,989	17,537	41,264	-126,995	56,101	1,659	22,508,901	0
88.5	28,855	35,207	82,840	-42,052	65,189	3,211	22,682,151	0
89	24,755	17,537	41,264	-127,526	56,335	1,603	22,696,119	0
89.5	28,587	35,207	82,840	-42,222	65,457	3,101	22,869,089	0
90	24,526	17,537	41,264	-128,043	56,564	1,547	22,882,485	0
90.5	28,324	35,207	82,840	-42,388	65,720	2,993	23,055,180	0
91	24,303	17,537	41,264	-128,548	56,787	1,493	23,068,015	0
91.5	28,068	35,207	82,840	-42,550	65,976	2,897	23,240,453	0
92	24,085	17,537	41,264	-129,041	57,005	1,438	23,252,741	0
92.5	27,819	35,207	82,840	-42,708	66,225	2,778	23,424,902	0
93	23,873	17,537	41,264	-129,521	57,217	1,384	23,436,656	0
93.5	27,576	35,207	82,840	-42,862	66,468	2,671	23,608,557	0
94	23,667	17,537	41,264	-129,988	57,423	1,330	23,619,790	0
94.5	27,339	35,207	82,840	-43,011	66,705	2,566	23,791,435	0
95	23,466	17,537	41,264	-130,443	57,624	1,276	23,802,160	0
95.5	27,109	35,207	82,840	-43,157	66,935	2,471	23,973,565	0
96	23,270	17,537	41,264	-130,886	57,820	1,223	23,983,794	0
96.5	26,885	35,207	82,840	-43,298	67,159	2,357	24,154,944	0
97	23,080	17,537	41,264	-131,316	58,010	1,171	24,164,690	0
97.5	26,668	35,207	82,840	-43,435	67,376	2,253	24,335,599	0
98	22,896	17,537	41,264	-131,733	58,194	1,118	24,344,874	0
98.5	26,457	35,207	82,840	-43,569	67,587	2,150	24,515,547	0
99	22,717	17,537	41,264	-132,139	58,373	1,066	24,524,365	0
99.5	26,252	35,207	82,840	-43,698	67,792	2,056	24,694,815	0
100	22,543	17,537	41,264	-132,532	58,547	1,014	24,703,188	0
100.5	26,053	35,207	82,840	-43,823	67,991	1,946	24,873,403	0
101	22,374	17,537	41,264	-132,913	58,716	963	24,881,344	0
101.5	25,861	35,207	82,840	-43,944	68,183	1,845	25,051,336	0
102	22,212	17,537	41,264	-133,282	58,878	911	25,058,857	0
102.5	25,675	35,207	82,840	-44,061	68,369	1,745	25,228,632	0
103	22,054	17,537	41,264	-133,638	59,036	861	25,235,745	0
103.5	25,495	35,207	82,840	-44,174	68,549	1,652	25,405,314	0
104	21,902	17,537	41,264	-133,983	59,188	810	25,412,033	0
104.5	25,321	35,207	82,840	-44,283	68,723	1,545	25,581,386	0
105	21,755	17,537	41,264	-134,315	59,335	760	25,587,722	0
105.5	25,153	35,207	82,840	-44,388	68,891	1,446	25,756,872	0
106	21,613	17,537	41,264	-134,635	59,477	709	25,762,838	0
106.5	24,992	35,207	82,840	-44,488	69,052	1,348	25,931,788	0
107	21,477	17,537	41,264	-134,943	59,613	660	25,937,396	0
107.5	24,837	35,207	82,840	-44,585	69,207	1,255	26,106,157	0
108	21,346	17,537	41,264	-135,239	59,744	610	26,111,419	0
108.5	24,688	35,207	82,840	-44,678	69,356	1,153	26,279,985	0
109	21,221	17,537	41,264	-135,523	59,869	561	26,284,914	0
109.5	24,546	35,207	82,840	-44,767	69,498	1,056	26,453,293	0
110	21,101	17,537	41,264	-135,795	59,989	511	26,457,902	0
110.5	24,409	35,207	82,840	-44,852	69,635	959	26,626,100	0
111	20,986	17,537	41,264	-136,054	60,104	463	26,630,400	0
111.5	24,279	35,207	82,840	-44,933	69,765	867	26,798,425	0
112	20,876	17,537	41,264	-136,302	60,214	414	26,802,428	0
112.5	24,155	35,207	82,840	-45,010	69,889	768	26,970,277	0
113	20,772	17,537	41,264	-136,537	60,318	365	26,973,997	0
113.5	24,037	35,207	82,840	-45,083	70,007	673	27,141,677	0
114	20,674	17,537	41,264	-136,761	60,416	317	27,145,125	0

Attachment 7.II.VI
Summary of Post-Closure Pit Lake Water Balance

Year # Freshet = November to June (0.5), October to November (1)	Inflow	Inflow	Inflow	Outflow	Inflow	Inflow/Outflow	Future Lake Volume with Outflow (m³)	Outflow (m³)
	Pit Wall Runoff (m³)	Catchment Runoff to Pit (m³)	Waste Rock/Tailings Runoff to Ponds (m³)	Lake Surface Evaporation (m³)	Precipitation Reporting to Pit Lake (m³)	Seepage Reporting to Lake (m³)		
114.5	23,925	35,207	82,840	-45,152	70,119	578	27,312,643	0
115	20,580	17,537	41,264	-136,972	60,510	269	27,315,831	0
115.5	23,820	35,207	82,840	-45,216	70,224	485	27,483,191	0
116	20,492	17,537	41,264	-137,171	60,598	221	27,486,133	0
116.5	23,720	35,207	82,840	-45,277	70,324	389	27,653,336	0
117	20,409	17,537	41,264	-137,358	60,681	174	27,656,043	0
117.5	23,627	35,207	82,840	-45,334	70,417	296	27,823,095	0
118	20,332	17,537	41,264	-137,533	60,758	126	27,825,580	0
118.5	23,540	35,207	82,840	-45,387	70,504	202	27,992,486	0
119	20,260	17,537	41,264	-137,695	60,830	79	27,994,761	0
119.5	23,460	35,207	82,840	-45,436	70,584	110	28,161,526	0
120	20,193	17,537	41,264	-137,846	60,897	32	28,163,603	0
120.5	23,391	35,207	82,840	-45,456	70,653	23	28,211,015	-119,246
121	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
121.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
122	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
122.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
123	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
123.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
124	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
124.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
125	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
125.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
126	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
126.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
127	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
127.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
128	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
128.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
129	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
129.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
130	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
130.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
131	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
131.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
132	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
132.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
133	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
133.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
134	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
134.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
135	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
135.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
136	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
136.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
137	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
137.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
138	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
138.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
139	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
139.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
140	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
140.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
141	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
141.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
142	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
142.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
143	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
143.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
144	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
144.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
145	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
145.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
146	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
146.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
147	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
147.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
148	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
148.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
149	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
149.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
150	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
150.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
151	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
151.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
152	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0

Attachment 7.II.VI
Summary of Post-Closure Pit Lake Water Balance

Year # Freshet = November to June (0.5), October to November (1)	Inflow	Inflow	Inflow	Outflow	Inflow	Inflow/Outflow	Outflow	
	Pit Wall Runoff (m³)	Catchment Runoff to Pit (m³)	Waste Rock/Tailings Runoff to Ponds (m³)	Lake Surface Evaporation (m³)	Precipitation Reporting to Pit Lake (m³)	Seepage Reporting to Lake (m³)	Future Lake Volume with Outflow (m³)	Outflow (m³)
152.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
153	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
153.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
154	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
154.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
155	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
155.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
156	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
156.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
157	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
157.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
158	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
158.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
159	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
159.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
160	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
160.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
161	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
161.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
162	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
162.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
163	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
163.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
164	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
164.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
165	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
165.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
166	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
166.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
167	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
167.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
168	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
168.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
169	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
169.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
170	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
170.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
171	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
171.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
172	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
172.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
173	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
173.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
174	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
174.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
175	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
175.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
176	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
176.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
177	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
177.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
178	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
178.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
179	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
179.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
180	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
180.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
181	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
181.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
182	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
182.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
183	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
183.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
184	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
184.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
185	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
185.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
186	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
186.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
187	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
187.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
188	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
188.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
189	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
189.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
190	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0

Attachment 7.II.VI
Summary of Post-Closure Pit Lake Water Balance

Year # Freshet = November to June (0.5), October to November (1)	Inflow	Inflow	Inflow	Outflow	Inflow	Inflow/Outflow	Outflow	
	Pit Wall Runoff (m³)	Catchment Runoff to Pit (m³)	Waste Rock/Tailings Runoff to Ponds (m³)	Lake Surface Evaporation (m³)	Precipitation Reporting to Pit Lake (m³)	Seepage Reporting to Lake (m³)	Future Lake Volume with Outflow (m³)	Outflow (m³)
190.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
191	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
191.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
192	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
192.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
193	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
193.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
194	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
194.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
195	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
195.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
196	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
196.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
197	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
197.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
198	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
198.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
199	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
199.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
200	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
200.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
201	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
201.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
202	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
202.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
203	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
203.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
204	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
204.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
205	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
205.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
206	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
206.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
207	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
207.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
208	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
208.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
209	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
209.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
210	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
210.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
211	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
211.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
212	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
212.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
213	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
213.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
214	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
214.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
215	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
215.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
216	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
216.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
217	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
217.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
218	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
218.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
219	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
219.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
220	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
220.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
221	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
221.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
222	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
222.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
223	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
223.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
224	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
224.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
225	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
225.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
226	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
226.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
227	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
227.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
228	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0

Attachment 7.II.VI
Summary of Post-Closure Pit Lake Water Balance

Year # Freshet = November to June (0.5), October to November (1)	Inflow	Inflow	Inflow	Outflow	Inflow	Inflow/Outflow	Future Lake Volume with Outflow (m³)	Outflow (m³)
	Pit Wall Runoff (m³)	Catchment Runoff to Pit (m³)	Waste Rock/Tailings Runoff to Ponds (m³)	Lake Surface Evaporation (m³)	Precipitation Reporting to Pit Lake (m³)	Seepage Reporting to Lake (m³)		
228.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
229	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
229.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
230	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
230.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
231	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
231.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
232	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
232.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
233	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
233.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
234	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
234.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
235	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
235.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
236	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
236.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
237	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
237.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
238	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
238.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
239	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
239.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
240	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
240.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
241	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
241.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
242	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
242.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
243	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
243.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
244	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
244.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
245	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
245.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
246	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
246.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
247	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
247.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
248	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
248.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
249	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
249.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
250	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
250.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
251	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
251.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
252	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
252.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
253	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
253.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
254	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
254.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
255	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
255.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
256	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
256.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
257	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
257.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
258	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
258.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
259	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
259.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
260	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
260.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
261	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
261.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
262	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
262.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
263	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
263.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
264	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
264.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
265	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
265.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
266	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0

Attachment 7.II.VI
Summary of Post-Closure Pit Lake Water Balance

Year # Freshet = November to June (0.5), October to November (1)	Inflow Pit Wall Runoff (m³)	Inflow Catchment Runoff to Pit (m³)	Inflow Waste Rock/Tailings Runoff to Ponds (m³)	Outflow Lake Surface Evaporation (m³)	Inflow Precipitation Reporting to Pit Lake (m³)	Inflow/Outflow Seepage Reporting to Lake (m³)	Future Lake Volume with Outflow (m³)	Outflow (m³)
266.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
267	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
267.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
268	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
268.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
269	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
269.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
270	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
270.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
271	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
271.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
272	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
272.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
273	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
273.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
274	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
274.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
275	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
275.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
276	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
276.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
277	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
277.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
278	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
278.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
279	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
279.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
280	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
280.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
281	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
281.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
282	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
282.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
283	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
283.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
284	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
284.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
285	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
285.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
286	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
286.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
287	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
287.5	23,369	35,207	82,840	-45,456	70,675	-2	28,211,015	-168,585
288	20,150	17,537	41,264	-137,938	60,940	-1	28,212,967	0
288.5	8,136	0	0	0	24,606	-1	28,232,128	-13,580

ATTACHMENT 7.II.VII

Input Water Qualities – Flooded Open Pit Water Quality Predictions

Attachment 7.II.VII
Water Quality Inputs - NICO Pit Lake Model

C	Cn	Cn	Cg		Cpit								Crm		
O	On	On	Og		Opit								Ogm		
Natural background runoff; average composition of surface water quality samples collected from Nico Lake in 2011	Natural background runoff; average composition of surface water quality samples collected from Nico Lake in 2011	Natural background runoff; average composition of groundwater quality samples collected from D3-281.		Pit wall runoff; minimum composition of BRS + mt. wacke (non-PAG)	Pit wall runoff; maximum composition of BRS + mt. wacke (PAG)	Pit wall runoff; minimum composition of feldspar porphyry (non-PAG)	Pit wall runoff; maximum composition of feldspar porphyry (PAG)	Pit wall runoff; minimum composition of rhyolite / volcanics (non-PAG)	Pit wall runoff; maximum composition of rhyolite / volcanics (PAG)	Pit wall runoff; minimum composition of siltstone (non-PAG)	Pit wall runoff; maximum composition of siltstone(PAG)	Pit wall runoff; average composition of NAG leachates from mineralized mine rock	Pit wall runoff; average composition of field cell leachates from mineralized mine rock (PAG)	Closure cover runoff during the freshet	Closure cover runoff between July and October
pH	7.385	7.6425	8.39897178	7.58792019	4.649024252	8	7.05	7.468201437	4.674223898	7.328251723	5.338430932	4.079266851	8.08	7.88143	7.83605
Acidity	#N/A	#N/A	#N/A	<2	3.5	<2	<2	2.333333333	4.5	#N/A	#N/A	8	<2	#N/A	#N/A
Alkalinity	27.88	30.96666667	105.751429	17.5	2	156	7.333333333	39	3	11.833333333	2.333333333	2	150	6.543057107	6.571632031
Conductivity	66.87	72.8	336.7142857	14.16666667	49	20.5	953	18.5	152	#N/A	#N/A	353	183	#N/A	#N/A
SO4	3.329	3.436666667	63.2	<0.5	24	1.85	51	0.966666667	19	150	3.8	27.83424	27.85152		
Ca	7.803	8.138571429	15.48666667	0.156666667	5.789999962	2.569999933	49.5	0.04	12	1.078333333	3.829999924	16.4	4.06	3.771379878	3.686454596
Fe	0.3555	0.152142857	0.066666667	<0.01	43.79999924	<0.010	7.599999905	0.02	7.079999924	<0.01	45	0.01	0.01	0.86403384	1.01392182
Cl	0.999	0.585	0.981428571	<0.2	1.55	<0.2	15	<0.2	3.4	<0.2	<2	<2	<2	5.390937562	5.32145027
NO2	0.0356	<0.050	0.063142857	<0.06	<0.6	<0.06	18.3	<0.06	0	#N/A	#N/A	0	0.16	#N/A	#N/A
NO3	0.0656	0.023428571	0.130571429	<0.05	<0.5	<0.05	19.8	<0.05	0.055	#N/A	#N/A	0	1.45	#N/A	#N/A
NH3	0.0717	0.01328571	0.050333333	<0.1	<0.1	<0.1	0.15	<0.1	0	#N/A	#N/A	0	0	#N/A	#N/A
#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Hg	0.0000675	<0.000020	#N/A	<0.0001	<0.0001	<0.00010	<0.00010	<0.0001	0	<0.0001	<0.0001	0	<0.00010	0.000115271	0.000108668
Ag	<0.0001	<0.00010	<0.0001	<0.0001	<0.00020	<0.00020	0.00024	<0.00001	0.0001	<0.0001	<0.0001	0.00005	<0.00020	1.70626E-05	0.000343441
Al	0.036868	0.014314286	2.637883333	<0.01	15.89999962	0.03	5.670000076	0.02	7.369999886	<0.01	14.80000019	0.43	<0.010	0.821210151	0.8197926167
As	0.0111	0.010874286	0.597333333	<0.005	1.360000014	0.007	6.07	0.0022	1.905999967	0.0025	0.25999999	0.872	0.0038	0.024200426	0.031225075
Ba	0.006992	0.006774286	0.015593333	<0.001	2.069999933	0.001	1.00999999	0.00045	0.987999976	0.00016	1.629999995	0.144	0.0224	0.001010282	0.000884117
Be	<0.001	<0.0010	<0.050	<0.0002	<0.005	<0.0050	0.0002	<0.00002	0.00008	<0.00002	<0.005	0.00005	<0.00050	9.1744E-05	9.1744E-05
B	0.0278	<0.050	0.07685	<0.002	0.699999988	0.015	0.310000002	<0.002	0.444	0.006	0.349999994	0.347	0.04008	0.081385208	0.077881363
Bi	0.285751429	<0.00005	0.0801802	<0.003	0.047200002	0.000053	0.0087	<0.00001	0.264999986	<0.00001	0.0068	0.00058	<0.000050	#N/A	#N/A
Cd	0.00030701	8.42857142857143E-06	0.000095	<0.00003	<0.0001	0.000035	0.0002	<0.0001	0.000042	0.000004	<0.0001	0.0000125	<0.00010	0.000104682	7.45829E-05
Co	0.001111	0.000900857	0.003433333	0.0003	0.0196	0.004467	0.0168	0.000355	0.20375	0.000041	0.0049	3.29	0.000124	0.000880816	0.000739965
Cr	0.00279	<0.0050	0.00187	<0.001	0.022	<0.0040	0.0212	<0.0005	0.029	<0.0005	<0.001	0.0012	<0.00040	0.001231525	0.000879096
Cu	0.00191	0.001394286	0.005351667	<0.00025	0.0416	0.0005	0.0064	<0.0005	0.208000004	<0.0005	0.0074	0.135	0.0005	0.011651795	0.011554569
K	1.061	0.948571429	5.446666667	0.43	6.255	0.465	34.1	0.075	16	0.355	5.15	19.4	8.04	7.79828136	7.759829601
U	0.00428	0.005314286	0.01214	<0.002	<0.02	0.003	0.005	<0.002	0.002	<0.002	<0.005	0.002	0.002	#N/A	#N/A
Mg	3.217	3.728571429	7.579833333	0.097	15.30000019	0.0565	9	0.0555	2.789999962	0.0395	7.900000095	4.39	0.04	1.42660628	1.41489127
Mn	0.02658	0.004242857	0.010833333	<0.0007	0.00165	0.00083	0.13	0.00224	0.0241	0.0007	0.001105	0.259	<0.0020	0.02130166	0.03407035
Mo	0.002692	0.002474286	0.020108333	<0.0003	0.0133	0.001	0.167	<0.00001	0.125	<0.00001	0.002825	0.0584	0.00077	0.006576879	0.006227178
Na	2.11	2.387142857	44.7966667	0.025	6.805	0.075	70	0.025	15.2	0.045	3.8175	8.51	0.64	5.755948715	5.81342314
Ni	0.00126	0.01074286	0.017615	<0.0001	0.009	0.0001	0.00344	0.0007	0.00775	<0.0001	<0.001	0.0906	0.00124	0.015008489	0.014869386
P	0.02273	0.018257143	0.1945	<0.01	<0.1	0	0	<0.01	<0.1	<0.01	<0.1	0	0	0.003999332	0.009846249
Pb	0.001123	0.000056	<0.050	0.000035	0.021400001	<0.00010	0.0035	<0.0002	0.0083	0.00003	0.0026	0.00017	<0.00010	0.000708147	0.000619093
Sb	0.000331	0.00241429	0.002793333	0.005	0.199000001	0.0005	0.0646	0.000125	0.03625	0.000355	0.0109	0.0221	0.00137	0.001619246	0.001637632
Se	0.0044	0.000302857	0.00046	<0.001	<0.005	0.0048	0.0333	<0.001	0.002	<0.001	<0.005	0.052	0.0122	0.000498885	0.000460037
Sn	0.025064	<0.050	0.013523333	<0.00085	0.005	<0.00020	0.00475	0.000015	0.00525	0.000025	0.00004	0.00004	<0.00020	0.006979317	0.003469181
Sr	0.023271429	0.030625	0.07302	0.0088	0.03099999	0.00365	0.315	0.0002	0.03570001	0.00295	0.020500001	0.0168	0.0089	0.021640388	0.021714865
Tl	0.00078	0.000728571	0.00301	<0.0001	0.72299999	0.0006	0.49000001	<0.0001	0.079000004	<0.0001	0.989000026	0.0005	<0.00030	#N/A	#N/A
Tl	<0.0001	<0.00010	<0.000050	<0.0002	0.0004	<0.000050	0.000196	0.000004	0.00002	0.0000035	0.0004	0.000209	0.000009	1.53287E-05	0.00339209
U	0.010217	0.000242571	0.002628323	<0.0000125	0.0019	0.000077	0.167	0.000193	0.011025	0.0000805	0.0018	0.0000833	0.000035	0.005281147	0.004457229
V	0.000798	0.000537143	0.001153333	<0.0009	0.027000001	0.000925	0.0341	<0.0009	0.0036	0.000145	0.0309	0.0025	0.00008	0.00199777	0.001886924
W	#N/A	#N/A	#N/A	<0.0003	0.114	<0.0002	0.0283	<0.0003	0.0953	0.00012	0.03209999	0.00186	0.00046	#N/A	#N/A
Y	#N/A	#N/A	#N/A	<0.000001	0.0062	<0.0001	0.0023	0.0000015	0.0062	<0.0001	0.0055	0.000213	0.000007	#N/A	#N/A
Zn	0.00541	0.002428571	0.003216667	<0.001	0.257999986	<0.001	0.141000003	0.001	0.191	<0.001	0.160999998	0.343	0.001	0.013105464	0.013685473

ATTACHMENT 7.II.VIII

Flooded Open Pit Water Quality Predictions, Assuming Complete Mixing in the Flooded Open Pit

Parameter	Units	Site Specific Water Quality Objectives																		
			Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9	
			Wet	Dry																
General Parameters																				
pH	pH units	-	6.8	4.4	5.9	6.1	6.3	6.4	6.4	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Redox	mV	-	234	438	315	310	298	301	299	304	305	310	314	321	328	339	354	362	364	366
Alkalinity	mg/L as CaCO ₃	-	17.9	-1.9	5.4	7.0	9.3	9.9	11.1	11.3	12.0	12.1	12.6	12.7	13.0	13.0	13.2	13.3	13.5	13.5
Anions																				
Chloride (Cl)	mg/L	353	4.6	1.4	2.6	2.9	3.3	3.4	3.6	3.6	3.8	3.8	3.9	3.9	4.0	4.0	4.0	4.0	4.1	4.1
Sulphate (SO ₄)	mg/L	-	49	81	68	66	62	61	59	59	57	57	56	56	55	55	54	54	53	54
Dissolved Metals																				
Total Dissolved Solids (TDS)	mg/L	-	98	123	112	111	107	107	104	105	103	103	102	102	101	101	100	101	100	100
Aluminum (Al)	mg/L	0.41	1.0	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.99	1.0	1.0
Antimony (Sb)	mg/L	0.03	0.0079	0.018	0.014	0.013	0.012	0.011	0.011	0.011	0.011	0.011	0.01	0.01	0.0099	0.010	0.0097	0.0098	0.0096	0.0096
Arsenic (As)	mg/L	0.05	0.28	0.52	0.43	0.41	0.38	0.37	0.35	0.35	0.34	0.34	0.33	0.33	0.32	0.32	0.32	0.31	0.31	0.31
Barium (Ba)	mg/L	-	0.071	0.18	0.14	0.13	0.11	0.11	0.11	0.1	0.099	0.10	0.096	0.096	0.093	0.094	0.091	0.092	0.09	0.09
Beryllium (Be)	mg/L	-	0.00087	0.0003	0.00055	0.00061	0.00063	0.00066	0.00067	0.00069	0.00069	0.0007	0.00071	0.00072	0.00072	0.00072	0.00073	0.00072	0.00073	0.00073
Boron (B)	mg/L	-	0.12	0.2	0.17	0.16	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.13	0.13	0.13
Cadmium (Cd)	mg/L	0.0002	0.00012	0.000082	0.00008	0.000079	0.000078	0.000078	0.000078	0.000078	0.000078	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077
Calcium (Ca)	mg/L	-	7.6	8.6	8.1	8.0	8.0	7.9	7.9	7.8	7.8	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7
Chromium (Cr)	mg/L	-	0.0022	0.0029	0.0027	0.0027	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Cobalt (Co)	mg/L	0.01	0.55	1.4	1.1	1.0	0.9	0.89	0.82	0.81	0.77	0.77	0.74	0.74	0.71	0.72	0.7	0.7	0.68	0.68
Copper (Cu)	mg/L	0.02	0.031	0.068	0.054	0.051	0.046	0.046	0.043	0.041	0.041	0.039	0.04	0.038	0.039	0.038	0.038	0.037	0.037	0.037
Iron (Fe)	mg/L	1.5	1.0	1.8	1.5	1.5	1.3	1.3	1.3	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Lead (Pb)	mg/L	0.0076	0.0067	0.0012	0.003	0.0035	0.004	0.0042	0.0045	0.0045	0.0047	0.0047	0.0048	0.0048	0.0049	0.0049	0.0049	0.005	0.005	0.005
Magnesium (Mg)	mg/L	-	2.8	2.6	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Manganese (Mn)	mg/L	-	0.057	0.11	0.09	0.086	0.078	0.077	0.073	0.072	0.069	0.069	0.067	0.067	0.066	0.066	0.064	0.065	0.063	0.064
Mercury (Hg)	mg/L	-	0.000071	0.000055	0.000059	0.00006	0.000061	0.000062	0.000062	0.000063	0.000063	0.000064	0.000064	0.000064	0.000065	0.000065	0.000065	0.000065	0.000065	0.000065
Molybdenum (Mo)	mg/L	-	0.017	0.032	0.026	0.025	0.023	0.023	0.022	0.021	0.021	0.021	0.02	0.02	0.02	0.019	0.019	0.019	0.019	0.019
Nickel (Ni)	mg/L	-	0.023	0.04	0.033	0.032	0.03	0.029	0.028	0.028	0.027	0.027	0.026	0.026	0.026	0.026	0.025	0.025	0.025	0.025
Phosphorus (P)	mg/L	-	0.04	0.014	0.023	0.025	0.028	0.029	0.031	0.031	0.031	0.031	0.032	0.033	0.033	0.033	0.033	0.033	0.033	0.033
Potassium (K)	mg/L	-	13	24	19	19	17	17	16	16	15	15	15	15	15	15	15	14	14	14
Selenium (Se)	mg/L	0.005	0.0098	0.025	0.019	0.018	0.016	0.016	0.014	0.014	0.014	0.014	0.013	0.013	0.013	0.012	0.012	0.012	0.012	
Silver (Ag)	mg/L	-	0.00006	0.000073	0.000067	0.000085	0.000089	0.000084	0.000092	0.000087	0.000093	0.000089	0.000094	0.000091	0.000095	0.000092	0.000096	0.000093	0.000097	0.000097
Sodium (Na)	mg/L	-	9.4	4.8	6.4	6.8	7.3	7.5	7.7	7.8	7.9	7.9	8.0	8.1	8.1	8.1	8.2	8.2	8.2	8.2
Strontium (Sr)	mg/L	-	0.024	0.012	0.017	0.018	0.02	0.02	0.021	0.021	0.022	0.022	0.022	0.022	0.022	0.023	0.023	0.023	0.023	0.023
Thallium (Tl)	mg/L	-	0.000085	0.000015	0.000013	0.000031	0.000025	0.000036	0.000031	0.000039	0.00									

Parameter	Units	Site Specific Water Quality Objectives																		
			Year 10		Year 11		Year 12		Year 13		Year 14		Year 15		Year 16		Year 17		Year 18	
			Wet	Dry																
General Parameters																				
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Redox	mV	-	367	368	368	368	369	369	369	370	369	370	370	370	370	370	370	370	370	371
Alkalinity	mg/L as CaCO ₃	-	13.6	13.7	13.8	13.8	13.9	13.9	14.0	14.1	14.1	14.2	14.2	14.2	14.3	14.3	14.3	14.3	14.3	14.3
Anions																				
Chloride (Cl)	mg/L	353	4.1	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
Sulphate (SO ₄)	mg/L	-	53	53	53	52	52	52	52	51	52	51	51	51	51	51	51	51	51	51
Dissolved Metals																				
Total Dissolved Solids (TDS)	mg/L	-	99	100	99	98	99	98	98	98	98	98	98	98	97	97	97	97	97	97
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.99	1.0	0.99	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Antimony (Sb)	mg/L	0.03	0.0095	0.0095	0.0094	0.0094	0.0093	0.0093	0.0092	0.0092	0.0091	0.0091	0.0091	0.0091	0.009	0.009	0.009	0.009	0.0089	0.0089
Arsenic (As)	mg/L	0.05	0.31	0.31	0.31	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.29	0.3	0.29	0.29	0.29	0.29
Barium (Ba)	mg/L	-	0.089	0.089	0.088	0.087	0.087	0.086	0.087	0.086	0.085	0.085	0.084	0.085	0.084	0.084	0.084	0.084	0.083	0.084
Beryllium (Be)	mg/L	-	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073
Boron (B)	mg/L	-	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Cadmium (Cd)	mg/L	0.0002	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077
Calcium (Ca)	mg/L	-	7.6	7.7	7.6	7.7	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.6	7.5	7.6	7.5	7.5
Chromium (Cr)	mg/L	-	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026
Cobalt (Co)	mg/L	0.01	0.67	0.67	0.66	0.66	0.65	0.65	0.64	0.64	0.63	0.63	0.62	0.63	0.62	0.62	0.61	0.61	0.6	0.6
Copper (Cu)	mg/L	0.02	0.037	0.037	0.036	0.036	0.036	0.036	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.035	0.034	0.034	0.034	0.034
Iron (Fe)	mg/L	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Lead (Pb)	mg/L	0.0076	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Manganese (Mn)	mg/L	-	0.063	0.063	0.062	0.062	0.061	0.062	0.061	0.061	0.061	0.06	0.06	0.06	0.059	0.059	0.059	0.059	0.058	0.059
Mercury (Hg)	mg/L	-	0.000065	0.000066	0.000066	0.000066	0.000066	0.000067	0.000067	0.000067	0.000067	0.000067	0.000068	0.000068	0.000068	0.000068	0.000068	0.000068	0.000068	
Molybdenum (Mo)	mg/L	-	0.019	0.019	0.019	0.019	0.019	0.019	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018
Nickel (Ni)	mg/L	-	0.025	0.025	0.025	0.025	0.025	0.025	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
Phosphorus (P)	mg/L	-	0.033	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034
Potassium (K)	mg/L	-	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	13	13
Selenium (Se)	mg/L	0.005	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011
Silver (Ag)	mg/L	-	0.000094	0.000097	0.000095	0.000097	0.000095	0.000098	0.000096	0.000096	0.000099	0.000097	0.000097	0.000099	0.000097	0.000099	0.000099	0.000098	0.000098	0.000098
Sodium (Na)	mg/L	-	8.2	8.2	8.2	8.2	8.2	8.2	8.3	8.2	8.3	8.2	8.3	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Strontium (Sr)	mg/L	-	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.024	0.024	0.024	0.024	0.024	0.024
Thallium (Tl)	mg/L	-	0.00042	0.00045	0.00043	0.00045	0.00043	0												

Parameter	Units	Site Specific Water Quality Objectives																						
			Year 20		Year 21		Year 22		Year 23		Year 24		Year 25		Year 26		Year 27		Year 28		Year 29			
			Wet	Dry																				
General Parameters																								
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6		
Redox	mV	-	370	371	371	371	371	371	371	371	371	372	371	372	372	372	372	372	372	372	372	372	372	
Alkalinity	mg/L as CaCO ₃	-	14.3	14.3	14.3	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	
Anions																								
Chloride (Cl)	mg/L	353	4.3	4.3	4.3	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.5	
Sulphate (SO ₄)	mg/L	-	50	51	50	50	50	50	50	50	50	50	50	50	50	50	50	50	49	50	49	49	49	49
Dissolved Metals																								
Total Dissolved Solids (TDS)	mg/L	-	96	97	96	96	96	96	96	96	96	96	95	96	95	96	95	95	95	95	95	95	95	
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Antimony (Sb)	mg/L	0.03	0.0089	0.0089	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0087	0.0087	0.0087	0.0087	0.0086	0.0087	0.0086	0.0087	0.0086	0.0086	0.0086	
Arsenic (As)	mg/L	0.05	0.29	0.29	0.29	0.28	0.29	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	
Barium (Ba)	mg/L	-	0.083	0.084	0.083	0.083	0.083	0.082	0.083	0.082	0.083	0.082	0.082	0.082	0.082	0.082	0.082	0.082	0.081	0.082	0.081	0.082	0.082	
Beryllium (Be)	mg/L	-	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	
Boron (B)	mg/L	-	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	
Cadmium (Cd)	mg/L	0.0002	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	
Calcium (Ca)	mg/L	-	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.5	7.5	
Chromium (Cr)	mg/L	-	0.0026	0.0027	0.0026	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	
Cobalt (Co)	mg/L	0.01	0.6	0.6	0.59	0.59	0.59	0.58	0.59	0.58	0.58	0.58	0.58	0.57	0.58	0.57	0.57	0.57	0.57	0.57	0.56	0.56	0.56	
Copper (Cu)	mg/L	0.02	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	
Iron (Fe)	mg/L	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
Lead (Pb)	mg/L	0.0076	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0049	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
Manganese (Mn)	mg/L	-	0.058	0.058	0.058	0.058	0.058	0.058	0.057	0.058	0.057	0.057	0.057	0.057	0.057	0.056	0.056	0.056	0.056	0.056	0.056	0.056	0.056	
Mercury (Hg)	mg/L	-	0.000068	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	0.000069	
Molybdenum (Mo)	mg/L	-	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.018	0.017	0.018	0.017	0.017	0.017	0.017	0.017	
Nickel (Ni)	mg/L	-	0.024	0.024	0.024	0.024	0.024	0.024	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	
Phosphorus (P)	mg/L	-	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	
Potassium (K)	mg/L	-	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	
Selenium (Se)	mg/L	0.005	0.01																					

Parameter	Units	Site Specific Water Quality Objectives																		
			Year 30		Year 31		Year 32		Year 33		Year 34		Year 35		Year 36		Year 37		Year 38	
			Wet	Dry																
General Parameters																				
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Redox	mV	-	372	372	372	372	373	373	373	373	373	373	373	373	373	373	373	373	373	374
Alkalinity	mg/L as CaCO ₃	-	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.5	14.5	14.5	14.5	14.5	14.5
Anions																				
Chloride (Cl)	mg/L	353	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Sulphate (SO ₄)	mg/L	-	49	49	49	49	49	49	49	49	49	49	49	49	48	49	48	49	48	48
Dissolved Metals																				
Total Dissolved Solids (TDS)	mg/L	-	95	95	94	95	94	94	94	94	94	94	94	94	93	94	93	94	93	93
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Antimony (Sb)	mg/L	0.03	0.0086	0.0086	0.0086	0.0085	0.0086	0.0085	0.0086	0.0085	0.0085	0.0085	0.0085	0.0085	0.0085	0.0085	0.0085	0.0084	0.0085	0.0084
Arsenic (As)	mg/L	0.05	0.28	0.28	0.27	0.28	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Barium (Ba)	mg/L	-	0.081	0.082	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.08
Beryllium (Be)	mg/L	-	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072
Boron (B)	mg/L	-	0.13	0.13	0.13	0.13	0.13	0.13	0.12	0.13	0.12	0.13	0.12	0.13	0.12	0.12	0.12	0.12	0.12	0.12
Cadmium (Cd)	mg/L	0.0002	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077
Calcium (Ca)	mg/L	-	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Chromium (Cr)	mg/L	-	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0028
Cobalt (Co)	mg/L	0.01	0.56	0.56	0.55	0.56	0.55	0.55	0.54	0.55	0.54	0.54	0.54	0.54	0.53	0.53	0.53	0.53	0.53	0.53
Copper (Cu)	mg/L	0.02	0.032	0.033	0.033	0.033	0.033	0.032	0.033	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032
Iron (Fe)	mg/L	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Lead (Pb)	mg/L	0.0076	0.0048	0.0048	0.0048	0.0048	0.0048	0.0048	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0047	0.0046	0.0047
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Manganese (Mn)	mg/L	-	0.056	0.056	0.055	0.056	0.055	0.055	0.055	0.055	0.055	0.055	0.055	0.054	0.054	0.054	0.054	0.054	0.054	0.054
Mercury (Hg)	mg/L	-	0.000071	0.000071	0.000071	0.000071	0.000071	0.000072	0.000072	0.000072	0.000072	0.000072	0.000072	0.000072	0.000072	0.000072	0.000072	0.000072	0.000073	0.000073
Molybdenum (Mo)	mg/L	-	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
Nickel (Ni)	mg/L	-	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022
Phosphorus (P)	mg/L	-	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033	0.033
Potassium (K)	mg/L	-	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
Selenium (Se)	mg/L	0.005	0.010	0.01	0.0099	0.0099	0.0099	0.0098	0.0098	0.0097	0.0098	0.0097	0.0097	0.0096	0.0097	0.0096	0.0096	0.0096	0.0095	0.0095
Silver (Ag)	mg/L	-	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001	0.0001
Sodium (Na)	mg/L	-	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0	8.1	8.0	8.1	8.0	8.0
Strontium (Sr)	mg/L	-	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024	0.024
Thallium (Tl)	mg/L	-	0.0005	0.00051	0.0005	0.														

Notes

0.3 - indicates an exceedance above the

■ Indicates an exceedance above the Site Specific Water Quality Objectives

*Assumed TSS at 30 mg/L

Year and months are approximate dates

Parameter	Units	Site Specific Water Quality Objectives																					
			Year 50		Year 51		Year 52		Year 53		Year 54		Year 55		Year 56		Year 57		Year 58		Year 59		
			Wet	Dry																			
General Parameters																							
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	
Redox	mV	-	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	375	376	
Alkalinity	mg/L as CaCO ₃	-	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	
Anions																							
Chloride (Cl)	mg/L	353	4.6	4.6	4.6	4.7	4.6	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	
Sulphate (SO ₄)	mg/L	-	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	46	47
Dissolved Metals																							
Total Dissolved Solids (TDS)	mg/L	-	92	92	92	92	92	92	92	92	92	92	91	92	91	92	91	91	91	91	91	91	
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Antimony (Sb)	mg/L	0.03	0.0083	0.0083	0.0082	0.0083	0.0082	0.0083	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0082	0.0081	0.0082	0.0081	0.0081	
Arsenic (As)	mg/L	0.05	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.25	0.26	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	
Barium (Ba)	mg/L	-	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	0.079	
Beryllium (Be)	mg/L	-	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
Cadmium (Cd)	mg/L	0.0002	0.000077	0.000078	0.000077	0.000078	0.000077	0.000078	0.000077	0.000078	0.000077	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	
Calcium (Ca)	mg/L	-	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	
Chromium (Cr)	mg/L	-	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	
Cobalt (Co)	mg/L	0.01	0.5	0.5	0.5	0.5	0.5	0.5	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.48	0.48	0.48	0.48	
Copper (Cu)	mg/L	0.02	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.03	0.031	0.03	0.03	
Iron (Fe)	mg/L	1.5	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.2	1.3	1.2	1.3	1.2	1.3	1.2	1.3	1.2	1.3	1.2	1.3	1.3	
Lead (Pb)	mg/L	0.0076	0.0045	0.0045	0.0045	0.0045	0.0045	0.0045	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	0.0044	
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
Manganese (Mn)	mg/L	-	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	
Mercury (Hg)	mg/L	-	0.000075	0.000075	0.000075	0.000075	0.000075	0.000075	0.000075	0.000076	0.000076	0.000076	0.000076	0.000076	0.000076	0.000076	0.000076	0.000076	0.000076	0.000076	0.000076		
Molybdenum (Mo)	mg/L	-	0.017	0.017	0.017	0.017	0.017	0.016	0.017	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	
Nickel (Ni)	mg/L	-	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.021	0.021	0.021	0.021	0.021	
Phosphorus (P)	mg/L	-	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	
Potassium (K)	mg/L	-	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Selenium (Se)	mg/L	0.005	0.009	0.0091	0.009	0.009	0.009	0.0089	0.0089	0.0089	0.0089	0.0088	0.0088	0.0088	0.0088	0.0088	0.0088	0.0087	0.0088	0.0087	0.0087	0.0087	
Silver (Ag)	mg/L	-	0.00011																				

Parameter	Units	Site Specific Water Quality Objectives																					
			Year 60		Year 61		Year 62		Year 63		Year 64		Year 65		Year 66		Year 67		Year 68		Year 69		
			Wet	Dry																			
General Parameters																							
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Redox	mV	-	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376	376
Alkalinity	mg/L as CaCO ₃	-	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5
Anions																							
Chloride (Cl)	mg/L	353	4.7	4.7	4.7	4.7	4.7	4.7	4.8	4.7	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Sulphate (SO ₄)	mg/L	-	46	47	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Dissolved Metals																							
Total Dissolved Solids (TDS)	mg/L	-	91	91	91	91	91	91	91	91	91	91	91	91	91	90	91	91	90	91	90	90	90
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Antimony (Sb)	mg/L	0.03	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.0081	0.008	0.0081	0.008	0.0081	0.008	0.008	0.008	0.008
Arsenic (As)	mg/L	0.05	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Barium (Ba)	mg/L	-	0.078	0.078	0.078	0.078	0.078	0.078	0.078	0.078	0.078	0.078	0.078	0.078	0.078	0.078	0.077	0.078	0.077	0.078	0.077	0.077	0.077
Beryllium (Be)	mg/L	-	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.00069	0.00069	0.00069	0.00069	0.00069	0.00069	0.00069	0.00069
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Cadmium (Cd)	mg/L	0.0002	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	
Calcium (Ca)	mg/L	-	7.3	7.3	7.3	7.3	7.3	7.3	7.2	7.3	7.2	7.3	7.2	7.3	7.2	7.3	7.2	7.3	7.2	7.3	7.2	7.3	7.3
Chromium (Cr)	mg/L	-	0.0028	0.0029	0.0028	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029
Cobalt (Co)	mg/L	0.01	0.48	0.48	0.48	0.48	0.47	0.48	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.46	0.46	0.46
Copper (Cu)	mg/L	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Lead (Pb)	mg/L	0.0076	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0043	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Manganese (Mn)	mg/L	-	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Mercury (Hg)	mg/L	-	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000077	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	
Molybdenum (Mo)	mg/L	-	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	
Nickel (Ni)	mg/L	-	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	
Phosphorus (P)	mg/L	-	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.031	0.031	0.031	0.031	0.031	0.031	0.031	
Potassium (K)	mg/L	-	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Selenium (Se)	mg/L	0.005	0.0087	0.0087	0.0086	0.0087	0.0086	0.0086	0.0086	0.0085</													

Parameter	Units	Site Specific Water Quality Objectives																			
			Year 70		Year 71		Year 72		Year 73		Year 74		Year 75		Year 76		Year 77		Year 78		
			Wet	Dry																	
General Parameters																					
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	
Redox	mV	-	376	376	376	376	377	377	377	377	377	377	377	377	377	377	377	377	377	377	
Alkalinity	mg/L as CaCO ₃	-	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.5	
Anions																					
Chloride (Cl)	mg/L	353	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.9	4.8	4.9	4.9	4.9	4.9	
Sulphate (SO ₄)	mg/L	-	46	46	46	46	46	46	46	46	46	46	46	46	45	45	45	45	45	45	
Dissolved Metals																					
Total Dissolved Solids (TDS)	mg/L	-	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Antimony (Sb)	mg/L	0.03	0.008	0.008	0.008	0.008	0.008	0.0079	0.008	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	
Arsenic (As)	mg/L	0.05	0.24	0.25	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	
Barium (Ba)	mg/L	-	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.077	0.076	0.076	0.076	0.076	0.077	
Beryllium (Be)	mg/L	-	0.00069	0.00069	0.00069	0.00069	0.00069	0.00069	0.00069	0.00069	0.00069	0.00069	0.00069	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
Cadmium (Cd)	mg/L	0.0002	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000078	0.000079	0.000079	0.000078	0.000079	0.000079	0.000078	0.000079	
Calcium (Ca)	mg/L	-	7.2	7.3	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	
Chromium (Cr)	mg/L	-	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	
Cobalt (Co)	mg/L	0.01	0.46	0.46	0.46	0.46	0.46	0.45	0.46	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.44	0.45	0.44	
Copper (Cu)	mg/L	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
Lead (Pb)	mg/L	0.0076	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0042	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	0.0041	
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
Manganese (Mn)	mg/L	-	0.05	0.05	0.05	0.05	0.05	0.05	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	
Mercury (Hg)	mg/L	-	0.000078	0.000078	0.000078	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	
Molybdenum (Mo)	mg/L	-	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	
Nickel (Ni)	mg/L	-	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	
Phosphorus (P)	mg/L	-	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	
Potassium (K)	mg/L	-	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Selenium (Se)	mg/L	0.005	0.0084	0.0084	0.0083	0.0084	0.0083	0.0083	0.0083	0.0083	0.0082	0.0082	0.0082	0.0081	0.0082	0.0081	0.0081	0.0081	0.0081	0.0081	
Silver (Ag)	mg/L	-	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	
Sodium (Na)	mg/L	-	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.7	
Strontium (Sr)	mg/L	-	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	
Thallium (Tl)	mg/L	-	0.00058	0.0																	

Parameter	Units	Site Specific Water Quality Objectives																		
			Year 80		Year 81		Year 82		Year 83		Year 84		Year 85		Year 86		Year 87		Year 88	
			Wet	Dry																
General Parameters																				
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Redox	mV	-	377	377	377	377	377	377	377	377	377	377	378	378	378	378	378	378	378	378
Alkalinity	mg/L as CaCO ₃	-	14.4	14.5	14.4	14.5	14.4	14.5	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4
Anions																				
Chloride (Cl)	mg/L	353	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Sulphate (SO ₄)	mg/L	-	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45
Dissolved Metals																				
Total Dissolved Solids (TDS)	mg/L	-	89	90	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89	89
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Antimony (Sb)	mg/L	0.03	0.0078	0.0079	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	0.0077	0.0078
Arsenic (As)	mg/L	0.05	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.23	0.23	0.23	0.23
Barium (Ba)	mg/L	-	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
Beryllium (Be)	mg/L	-	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00067	0.00067	0.00068	0.00067
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Cadmium (Cd)	mg/L	0.0002	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079
Calcium (Ca)	mg/L	-	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Chromium (Cr)	mg/L	-	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.003	0.003	0.003	0.003
Cobalt (Co)	mg/L	0.01	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.44	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Copper (Cu)	mg/L	0.02	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Lead (Pb)	mg/L	0.0076	0.0041	0.0041	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.0039	0.004	0.0039	0.0039
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Manganese (Mn)	mg/L	-	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048	0.048
Mercury (Hg)	mg/L	-	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.000081	0.000081	0.000081	0.000082
Molybdenum (Mo)	mg/L	-	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016
Nickel (Ni)	mg/L	-	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.021	0.02	0.02	0.02	0.02
Phosphorus (P)	mg/L	-	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031	0.031
Potassium (K)	mg/L	-	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Selenium (Se)	mg/L	0.005	0.008	0.0081	0.008	0.008	0.008	0.008	0.008	0.0079	0.0079	0.0079	0.0079	0.0078	0.0078	0.0078	0.0078	0.0078	0.0078	
Silver (Ag)	mg/L	-	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	
Sodium (Na)	mg/L	-	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.7	7.6	7.7
Strontium (Sr)	mg/L	-	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Thallium (Tl)	mg/L	-	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.00061											

Parameter	Units	Site Specific Water Quality Objectives																					
			Year 90		Year 91		Year 92		Year 93		Year 94		Year 95		Year 96		Year 97		Year 98		Year 99		
			Wet	Dry																			
General Parameters																							
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	
Redox	mV	-	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	378	
Alkalinity	mg/L as CaCO ₃	-	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	
Anions																							
Chloride (Cl)	mg/L	353	4.9	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Sulphate (SO ₄)	mg/L	-	45	45	45	45	45	45	45	45	44	45	44	45	44	44	44	44	44	44	44	44	44
Dissolved Metals																							
Total Dissolved Solids (TDS)	mg/L	-	89	89	89	89	88	89	88	89	88	89	88	88	88	88	88	88	88	88	88	88	
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Antimony (Sb)	mg/L	0.03	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0076	0.0077	0.0076	0.0076	0.0076	0.0076	0.0076	
Arsenic (As)	mg/L	0.05	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	
Barium (Ba)	mg/L	-	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	0.075	
Beryllium (Be)	mg/L	-	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00066	0.00067	0.00066	0.00066	0.00067	0.00067	
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
Cadmium (Cd)	mg/L	0.0002	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	0.000079	
Calcium (Ca)	mg/L	-	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	
Chromium (Cr)	mg/L	-	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	
Cobalt (Co)	mg/L	0.01	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41	
Copper (Cu)	mg/L	0.02	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.028	0.028	0.028	0.028	0.028	0.028	
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
Lead (Pb)	mg/L	0.0076	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0039	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
Manganese (Mn)	mg/L	-	0.048	0.048	0.048	0.048	0.048	0.048	0.047	0.048	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	
Mercury (Hg)	mg/L	-	0.000081	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000083	0.000083	0.000083	0.000083	0.000083	0.000083	0.000083	
Molybdenum (Mo)	mg/L	-	0.016	0.016	0.015	0.016	0.015	0.016	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	
Nickel (Ni)	mg/L	-	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
Phosphorus (P)	mg/L	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	
Potassium (K)	mg/L	-	11	12	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
Selenium (Se)	mg/L	0.005	0.0078	0.0078	0.0077	0.0077	0.0077	0.0077	0.0077	0.0077	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	
Silver (Ag)	mg/L	-	0.00011	0.00011	0.00011	0.000																	

Parameter	Units	Site Specific Water Quality Objectives																			
			Year 100		Year 101		Year 102		Year 103		Year 104		Year 105		Year 106		Year 107		Year 108		
			Wet	Dry																	
General Parameters																					
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	
Redox	mV	-	378	378	378	378	378	378	379	379	379	379	379	379	379	379	379	379	379	379	
Alkalinity	mg/L as CaCO ₃	-	14.4	14.4	14.4	14.4	14.3	14.4	14.3	14.4	14.3	14.4	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	
Anions																					
Chloride (Cl)	mg/L	353	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.1	5.0	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	
Sulphate (SO ₄)	mg/L	-	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44	44
Dissolved Metals																					
Total Dissolved Solids (TDS)	mg/L	-	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	88	87	88	
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Antimony (Sb)	mg/L	0.03	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0075	0.0076	0.0075	0.0075	0.0075	
Arsenic (As)	mg/L	0.05	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.23	0.22	0.23	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	
Barium (Ba)	mg/L	-	0.074	0.075	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	0.074	
Beryllium (Be)	mg/L	-	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	0.00066	
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
Cadmium (Cd)	mg/L	0.0002	0.000079	0.00008	0.000079	0.00008	0.000079	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	
Calcium (Ca)	mg/L	-	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	
Chromium (Cr)	mg/L	-	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	
Cobalt (Co)	mg/L	0.01	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
Copper (Cu)	mg/L	0.02	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
Lead (Pb)	mg/L	0.0076	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0038	0.0036	0.0037	
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
Manganese (Mn)	mg/L	-	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.047	0.046	0.046	0.046	0.046	0.046	0.046	0.046	
Mercury (Hg)	mg/L	-	0.000083	0.000083	0.000083	0.000083	0.000083	0.000083	0.000083	0.000083	0.000083	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	
Molybdenum (Mo)	mg/L	-	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	
Nickel (Ni)	mg/L	-	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
Phosphorus (P)	mg/L	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	
Potassium (K)	mg/L	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
Selenium (Se)	mg/L	0.005	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0073	0.0074		
Silver (Ag)	mg/L	-	0.00011	0.00011	0.00011	0.00011	0.00011	0.00011	0.00012	0.00011	0.00012	0.00011	0.00012	0.00011	0.00012	0.00012	0.00012	0.00012	0.00012		
Sodium (Na)	mg/L	-	7.6	7.6	7.6	7.6	7.6	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
Strontium (Sr)	mg/L	-	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	
Thallium (Tl)	mg/L	-	0.00063	0.00063	0.00063	0.00064	0.00063	0.00064	0.0												

Parameter	Units	Site Specific Water Quality Objectives																		
			Year 110		Year 111		Year 112		Year 113		Year 114		Year 115		Year 116		Year 117		Year 118	
			Wet	Dry																
General Parameters																				
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Redox	mV	-	379	379	379	379	379	379	379	379	379	379	379	379	379	379	379	379	379	379
Alkalinity	mg/L as CaCO ₃	-	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.3	14.2	14.3	14.2	14.3	14.2	14.2
Anions																				
Chloride (Cl)	mg/L	353	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1	5.1
Sulphate (SO ₄)	mg/L	-	44	44	44	44	44	44	44	44	44	44	44	44	44	43	44	43	44	43
Dissolved Metals																				
Total Dissolved Solids (TDS)	mg/L	-	87	88	87	88	87	87	87	87	87	87	87	87	87	87	87	87	87	87
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Antimony (Sb)	mg/L	0.03	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0074	0.0075	0.0074	0.0075	0.0074	0.0074	0.0074
Arsenic (As)	mg/L	0.05	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22
Barium (Ba)	mg/L	-	0.073	0.074	0.073	0.074	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073	0.073
Beryllium (Be)	mg/L	-	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Cadmium (Cd)	mg/L	0.0002	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	
Calcium (Ca)	mg/L	-	7.1	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.1	7.1	7.1	7.1
Chromium (Cr)	mg/L	-	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
Cobalt (Co)	mg/L	0.01	0.4	0.4	0.4	0.4	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.39	0.38	0.39
Copper (Cu)	mg/L	0.02	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Lead (Pb)	mg/L	0.0076	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Manganese (Mn)	mg/L	-	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046	0.046
Mercury (Hg)	mg/L	-	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084	0.000084
Molybdenum (Mo)	mg/L	-	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Nickel (Ni)	mg/L	-	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Phosphorus (P)	mg/L	-	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029
Potassium (K)	mg/L	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Selenium (Se)	mg/L	0.005	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0071	0.0071	0.0071	0.0071	0.0071
Silver (Ag)	mg/L	-	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012
Sodium (Na)	mg/L	-	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Strontium (Sr)	mg/L	-	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Thallium (Tl)	mg/L	-	0.00064	0.00065	0.00065	0.00065	0													

Parameter	Units	Site Specific Water Quality Objectives																		
			Year 120		Year 121		Year 122		Year 123		Year 124		Year 125		Year 126		Year 127		Year 128	
			Wet	Dry																
General Parameters																				
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Redox	mV	-	379	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380
Alkalinity	mg/L as CaCO ₃	-	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.2	14.1	14.2	14.1	14.2	14.2
Anions																				
Chloride (Cl)	mg/L	353	5.1	5.1	5.1	5.2	5.1	5.2	5.1	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2
Sulphate (SO ₄)	mg/L	-	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Dissolved Metals																				
Total Dissolved Solids (TDS)	mg/L	-	87	87	87	87	87	87	87	87	87	87	86	87	86	86	86	86	86	86
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Antimony (Sb)	mg/L	0.03	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074	0.0073	0.0074	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073
Arsenic (As)	mg/L	0.05	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21
Barium (Ba)	mg/L	-	0.073	0.073	0.073	0.073	0.073	0.072	0.073	0.072	0.073	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072
Beryllium (Be)	mg/L	-	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00064	0.00063	0.00064
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Cadmium (Cd)	mg/L	0.0002	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008
Calcium (Ca)	mg/L	-	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
Chromium (Cr)	mg/L	-	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031
Cobalt (Co)	mg/L	0.01	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.37	0.37
Copper (Cu)	mg/L	0.02	0.028	0.028	0.027	0.028	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Lead (Pb)	mg/L	0.0076	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034	0.0034
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Manganese (Mn)	mg/L	-	0.046	0.046	0.046	0.046	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045
Mercury (Hg)	mg/L	-	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086
Molybdenum (Mo)	mg/L	-	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015
Nickel (Ni)	mg/L	-	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Phosphorus (P)	mg/L	-	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.029	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028
Potassium (K)	mg/L	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Selenium (Se)	mg/L	0.005	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.0069	0.0069	
Silver (Ag)	mg/L	-	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	
Sodium (Na)	mg/L	-	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Strontium (Sr)	mg/L	-	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Thallium (Tl)	mg/L	-	0.00066	0.00066	0.00066	0.00066														

Parameter	Units	Site Specific Water Quality Objectives	Year 130		Year 131		Year 132		Year 133		Year 134		Year 135		Year 136		Year 137		Year 138		Year 139		
			Wet	Dry																			
General Parameters																							
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	
Redox	mV	-	380	380	380	380	380	380	380	380	380	380	380	380	380	380	380	381	381	381	381	381	
Alkalinity	mg/L as CaCO ₃	-	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.1	14.0	14.1	
Anions																							
Chloride (Cl)	mg/L	353	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	5.2	
Sulphate (SO ₄)	mg/L	-	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
Dissolved Metals																							
Total Dissolved Solids (TDS)	mg/L	-	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	86	
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Antimony (Sb)	mg/L	0.03	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0073	0.0072	0.0073	0.0072	0.0073	0.0072	
Arsenic (As)	mg/L	0.05	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	
Barium (Ba)	mg/L	-	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.072	0.071	0.072	0.071	0.072	0.071	
Beryllium (Be)	mg/L	-	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00063	0.00062	0.00063	
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
Cadmium (Cd)	mg/L	0.0002	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	
Calcium (Ca)	mg/L	-	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	
Chromium (Cr)	mg/L	-	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	
Cobalt (Co)	mg/L	0.01	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.37	0.36	0.36	0.36	0.36	
Copper (Cu)	mg/L	0.02	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
Lead (Pb)	mg/L	0.0076	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0033	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
Manganese (Mn)	mg/L	-	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.045	0.044	0.044	0.044	
Mercury (Hg)	mg/L	-	0.000087	0.000087	0.000087	0.000087	0.000087	0.000087	0.000087	0.000087	0.000087	0.000087	0.000087	0.000087	0.000087	0.000087	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	
Molybdenum (Mo)	mg/L	-	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	
Nickel (Ni)	mg/L	-	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	
Phosphorus (P)	mg/L	-	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	
Potassium (K)	mg/L	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
Selenium (Se)	mg/L	0.005	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0068	0.0068	0.0068	0.0068	0.0068		
Silver (Ag)	mg/L	-	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012		
Sodium (Na)	mg/L	-	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	
Strontium (Sr)	mg/L	-	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	
Thallium (Tl)	mg/L	-	0.00067	0.00068	0.00067	0.00068	0.00067	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00068	0.00069	0.00069	0.00069	0.00069	0.00069	
Tin (Sn)	mg/L	-	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	
Uranium (U)	mg/L	0.027	0.0034	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	0.0035	
Vanadium (V)	mg/L	-	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	
Zinc (Zn)	mg/L	0.11	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.054	0.053	0.053	
Total Metals																							
Total Suspended Solids*	mg/L	-	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
Aluminum (Al)	mg/L	-	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Antimony (Sb)	mg/L	-	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0079	0.0078	0.0078	0.0078	0.0078	0.0078	
Arsenic (As)	mg/L	-	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	
Barium (Ba)	mg/L	-	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.083	0.082	0.083	
Beryllium (Be)	mg/L	-	0.0007	0.0007	0.0007	0.0007	0.0007	0.0007	0.00069	0.00069	0.00069	0.00069	0										

Notes

0.3 - indicates an exceedance above the

■ Indicates an exceedance above the Site Specific Water Quality Objectives

*Assumed TSS at 30 mg/L

Year and months are approximate dates

Parameter	Units	Site Specific Water Quality Objectives																				
			Year 140		Year 141		Year 142		Year 143		Year 144		Year 145		Year 146		Year 147		Year 148		Year 149	
			Wet	Dry	Wet	Dry																
General Parameters																						
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	
Redox	mV	-	381	381	381	381	381	381	381	381	381	381	381	381	381	381	381	381	381	381	381	
Alkalinity	mg/L as CaCO ₃	-	14.0	14.1	14.0	14.1	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	
Anions																						
Chloride (Cl)	mg/L	353	5.2	5.2	5.2	5.3	5.2	5.3	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	
Sulphate (SO ₄)	mg/L	-	43	43	43	43	43	43	42	43	42	43	42	42	42	42	42	42	42	42	42	
Dissolved Metals																						
Total Dissolved Solids (TDS)	mg/L	-	86	86	86	86	86	86	85	86	85	86	85	85	85	85	85	85	85	85	85	
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Antimony (Sb)	mg/L	0.03	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	0.0072	
Arsenic (As)	mg/L	0.05	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	0.21	
Barium (Ba)	mg/L	-	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	0.071	
Beryllium (Be)	mg/L	-	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	0.00062	
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
Cadmium (Cd)	mg/L	0.0002	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	
Calcium (Ca)	mg/L	-	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	
Chromium (Cr)	mg/L	-	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	
Cobalt (Co)	mg/L	0.01	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	0.36	
Copper (Cu)	mg/L	0.02	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
Lead (Pb)	mg/L	0.0076	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
Manganese (Mn)	mg/L	-	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	
Mercury (Hg)	mg/L	-	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	0.000088	
Molybdenum (Mo)	mg/L	-	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	0.015	
Nickel (Ni)	mg/L	-	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	
Phosphorus (P)	mg/L	-	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	0.028	
Potassium (K)	mg/L	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
Selenium (Se)	mg/L	0.005	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067	0.0067		
Silver (Ag)	mg/L	-	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	
Sodium (Na)	mg/L	-	7.3	7.3	7.2	7.3	7.2	7.3	7.2													

Parameter	Units	Site Specific Water Quality Objectives																		
			Year 150		Year 151		Year 152		Year 153		Year 154		Year 155		Year 156		Year 157		Year 158	
			Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
General Parameters																				
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Redox	mV	-	381	381	381	381	381	381	381	381	381	381	381	381	381	382	382	382	382	382
Alkalinity	mg/L as CaCO ₃	-	14.0	14.0	13.9	14.0	13.9	14.0	13.9	14.0	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9
Anions																				
Chloride (Cl)	mg/L	353	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Sulphate (SO ₄)	mg/L	-	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Dissolved Metals																				
Total Dissolved Solids (TDS)	mg/L	-	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Antimony (Sb)	mg/L	0.03	0.0071	0.0072	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071	0.0071
Arsenic (As)	mg/L	0.05	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Barium (Ba)	mg/L	-	0.071	0.071	0.07	0.071	0.07	0.071	0.07	0.071	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Beryllium (Be)	mg/L	-	0.00061	0.00062	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061	0.00061
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Cadmium (Cd)	mg/L	0.0002	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000081	0.000082	0.000081	0.000082	0.000081	0.000082
Calcium (Ca)	mg/L	-	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
Chromium (Cr)	mg/L	-	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0032	0.0032	0.0032	0.0032	0.0032
Cobalt (Co)	mg/L	0.01	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.34	0.34	0.34	0.34	0.34	0.34
Copper (Cu)	mg/L	0.02	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Lead (Pb)	mg/L	0.0076	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031	0.0031
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Manganese (Mn)	mg/L	-	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.044	0.043	0.043	0.043	0.043	0.043
Mercury (Hg)	mg/L	-	0.000089	0.000089	0.000089	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009	0.00009
Molybdenum (Mo)	mg/L	-	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
Nickel (Ni)	mg/L	-	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
Phosphorus (P)	mg/L	-	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
Potassium (K)	mg/L	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Selenium (Se)	mg/L	0.005	0.0066	0.0066	0.0065	0.0066	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0065	0.0064	0.0065	0.0064	0.0064	0.0064	0.0064
Silver (Ag)	mg/L	-	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012
Sodium (Na)	mg/L	-	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Strontium (Sr)	mg/L	-	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Thallium (Tl)	mg/L	-	0.0007	0.0007	0.0007	0.0007</td														

Parameter	Units	Site Specific Water Quality Objectives	Year 160		Year 161		Year 162		Year 163		Year 164		Year 165		Year 166		Year 167		Year 168		Year 169		
			Wet	Dry																			
General Parameters																							
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	
Redox	mV	-	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	
Alkalinity	mg/L as CaCO ₃	-	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.9	13.8	13.9	13.8	13.9	13.8	13.9	13.8	13.8	13.8	13.8	13.8	13.8	
Anions																							
Chloride (Cl)	mg/L	353	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.4	5.3	5.4	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	
Sulphate (SO ₄)	mg/L	-	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Dissolved Metals																							
Total Dissolved Solids (TDS)	mg/L	-	85	85	85	85	85	85	84	85	84	85	84	85	84	84	84	84	84	84	84	84	
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Antimony (Sb)	mg/L	0.03	0.0071	0.0071	0.007	0.0071	0.007	0.0071	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	
Arsenic (As)	mg/L	0.05	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	
Barium (Ba)	mg/L	-	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.069	0.07	0.069	0.07	
Beryllium (Be)	mg/L	-	0.00061	0.00061	0.0006	0.00061	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
Cadmium (Cd)	mg/L	0.0002	0.000081	0.000082	0.000081	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	
Calcium (Ca)	mg/L	-	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	
Chromium (Cr)	mg/L	-	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	
Cobalt (Co)	mg/L	0.01	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.33	0.33	0.33	0.33	
Copper (Cu)	mg/L	0.02	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
Lead (Pb)	mg/L	0.0076	0.003	0.003	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
Manganese (Mn)	mg/L	-	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	
Mercury (Hg)	mg/L	-	0.00009	0.00009	0.00009	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	
Molybdenum (Mo)	mg/L	-	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	
Nickel (Ni)	mg/L	-	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	
Phosphorus (P)	mg/L	-	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.026	0.026	0.026	0.026	0.026	0.026	
Potassium (K)	mg/L	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
Selenium (Se)	mg/L	0.005	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0064	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063	0.0063		
Silver (Ag)	mg/L	-	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012		
Sodium (Na)	mg/L	-	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	
Strontium (Sr)	mg/L	-	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.027	0.027	0.027	0.027	0.027	0.027	0.026	0.026	0.027	0.027	0.027	
Thallium (Tl)	mg/L	-	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00071	0.00072	0.00072	0.00072	0.00071	0.00072	0.00072	0.00071	0.00072	0.00072	0.00072	0.00072		
Tin (Sn)	mg/L	-	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	0.016	
Uranium (U)	mg/L	0.027	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	0.0036	
Vanadium (V)	mg/L	-	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	
Zinc (Zn)	mg/L	0.11	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.052	0.051	0.051	0.051	0.051	
Total Metals																							
Total Suspended Solids*	mg/L	-	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
Aluminum (Al)	mg/L	-	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	
Antimony (Sb)	mg/L	-	0.0076	0.0077	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	0.0076	
Arsenic (As)	mg/L	-	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	
Barium (Ba)	mg/L	-	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	0.081	
Beryllium (Be)	mg/L	-	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00067	0.00066	0.00066	0.00066	0.00066					

Notes

0.3 - indicates an exceedance above the

■ Indicates an exceedance above the Site Specific Water Quality Objectives

*Assumed TSS at 30 mg/L

Year and months are approximate dates

Parameter	Units	Site Specific Water Quality Objectives																			
			Year 170		Year 171		Year 172		Year 173		Year 174		Year 175		Year 176		Year 177		Year 178		
			Wet	Dry																	
General Parameters																					
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	
Redox	mV	-	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	382	
Alkalinity	mg/L as CaCO ₃	-	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.7	13.8	13.7	13.8	13.8	
Anions																					
Chloride (Cl)	mg/L	353	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	
Sulphate (SO ₄)	mg/L	-	42	42	42	42	42	42	41	42	41	42	41	42	41	41	41	41	41	41	
Dissolved Metals																					
Total Dissolved Solids (TDS)	mg/L	-	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84	
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Antimony (Sb)	mg/L	0.03	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007	
Arsenic (As)	mg/L	0.05	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.19	0.2	0.19	0.19
Barium (Ba)	mg/L	-	0.069	0.07	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	
Beryllium (Be)	mg/L	-	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	0.0006	
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	
Cadmium (Cd)	mg/L	0.0002	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	
Calcium (Ca)	mg/L	-	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.0	
Chromium (Cr)	mg/L	-	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	
Cobalt (Co)	mg/L	0.01	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.32	0.32	0.32	
Copper (Cu)	mg/L	0.02	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	
Lead (Pb)	mg/L	0.0076	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	0.0028	
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	
Manganese (Mn)	mg/L	-	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.043	0.042	0.043	0.042	
Mercury (Hg)	mg/L	-	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000091	0.000092	0.000092	0.000092	
Molybdenum (Mo)	mg/L	-	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	
Nickel (Ni)	mg/L	-	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	
Phosphorus (P)	mg/L	-	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	
Potassium (K)	mg/L	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
Selenium (Se)	mg/L	0.005	0.0062	0.0063	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0062	0.0061	0.0062	0.0061	0.0061	0.0061	0.0061	
Silver (Ag)	mg/L	-	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	
Sodium (Na)	mg/L	-	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.1	7.0	7.0	
Strontium (Sr)	mg/L	-	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	
Thallium (Tl)	mg/L	-	0.00072	0.00072																	

Parameter	Units	Site Specific Water Quality Objectives	Annual Performance Summary (2023)																	
			Year 180		Year 181		Year 182		Year 183		Year 184		Year 185		Year 186		Year 187		Year 188	
			Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
General Parameters																				
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
Redox	mV	-	382	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383
Alkalinity	mg/L as CaCO ₃	-	13.7	13.8	13.7	13.8	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7
Anions																				
Chloride (Cl)	mg/L	353	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4
Sulphate (SO ₄)	mg/L	-	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41
Dissolved Metals																				
Total Dissolved Solids (TDS)	mg/L	-	84	84	84	84	84	84	84	84	84	83	84	83	84	83	84	83	84	83
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Antimony (Sb)	mg/L	0.03	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069	0.0069
Arsenic (As)	mg/L	0.05	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Barium (Ba)	mg/L	-	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069	0.069
Beryllium (Be)	mg/L	-	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059	0.00059
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
Cadmium (Cd)	mg/L	0.0002	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082
Calcium (Ca)	mg/L	-	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Chromium (Cr)	mg/L	-	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032
Cobalt (Co)	mg/L	0.01	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32
Copper (Cu)	mg/L	0.02	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Lead (Pb)	mg/L	0.0076	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0027	0.0026
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Manganese (Mn)	mg/L	-	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
Mercury (Hg)	mg/L	-	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092	0.000092	0.000093	0.000093	0.000093
Molybdenum (Mo)	mg/L	-	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014
Nickel (Ni)	mg/L	-	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019
Phosphorus (P)	mg/L	-	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026
Potassium (K)	mg/L	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
Selenium (Se)	mg/L	0.005	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	0.0061	
Silver (Ag)	mg/L	-	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00013
Sodium (Na)	mg/L	-	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.9	7.0	6.9	6.9
Strontium (Sr)	mg/L	-	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027	0.027
Thallium (Tl)	mg/L	-	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00073	0.00074	0.00074	0.00074
Tin (Sn)	mg/L	-	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017
Uranium (U)	mg/L	0.027	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037	0.0037
Vanadium (V)	mg/L	-	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022	0.0022
Zinc (Zn)	mg/L	0.11	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049	0.049
Total Metals																				
Total Suspended Solids*	mg/L	-	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Aluminum (Al)	mg/L	-	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Antimony (Sb)	mg/L	-	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0075	0.0074	0.0074	0.0074
Arsenic (As)	mg/L	-	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31
Barium (Ba)	mg/L	-	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08
Beryllium (Be)	mg/L	-	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065	0.00065
Boron (B)	mg/L	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (Cd)	mg/L	-	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086	0.000086
Calcium (Ca)	mg/L	-	8.0	8.0	8.0	8.0	8.0</													

Notes

0.3 - indicates an exceedance above the Site Specific Water Quality Objectives

*Assumed TSS at 30 mg/l

Year and months are approximate dates

Parameter	Units	Site Specific Water Quality Objectives																						
			Year 190		Year 191		Year 192		Year 193		Year 194		Year 195		Year 196		Year 197		Year 198		Year 199		Year 200	
			Wet	Dry	Wet	Dry																		
General Parameters																								
pH	pH units	-	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	
Redox	mV	-	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	383	
Alkalinity	mg/L as CaCO ₃	-	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.7	13.6	13.7	13.6	13.7	13.6	13.7	13.6	13.6	13.6	13.6	13.6	13.6	13.6	
Anions																								
Chloride (Cl)	mg/L	353	5.4	5.5	5.4	5.5	5.4	5.5	5.4	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	
Sulphate (SO ₄)	mg/L	-	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	41	
Dissolved Metals																								
Total Dissolved Solids (TDS)	mg/L	-	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	
Aluminum (Al)	mg/L	0.41	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Antimony (Sb)	mg/L	0.03	0.0068	0.0069	0.0068	0.0069	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068	0.0068		
Arsenic (As)	mg/L	0.05	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19		
Barium (Ba)	mg/L	-	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068	0.068		
Beryllium (Be)	mg/L	-	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058	0.00058		
Boron (B)	mg/L	-	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12		
Cadmium (Cd)	mg/L	0.0002	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082	0.000082		
Calcium (Ca)	mg/L	-	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		
Chromium (Cr)	mg/L	-	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032	0.0032		
Cobalt (Co)	mg/L	0.01	0.31	0.32	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31	0.31		
Copper (Cu)	mg/L	0.02	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026	0.026		
Iron (Fe)	mg/L	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3		
Lead (Pb)	mg/L	0.0076	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026	0.0026		
Magnesium (Mg)	mg/L	-	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8		
Manganese (Mn)	mg/L	-	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042		
Mercury (Hg)	mg/L	-	0.000093	0.000093	0.000093	0.000093	0.000093	0.000093	0.000094	0.000094	0.000094	0.000094	0.000094	0.000094	0.000094	0.000094	0.000094	0.000094	0.000094	0.000094	0.000094			
Molybdenum (Mo)	mg/L	-	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014	0.014		
Nickel (Ni)	mg/L	-	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019	0.019		
Phosphorus (P)	mg/L	-	0.025	0.026	0.025	0.026	0.025	0.026	0.025	0.026	0.025	0.026	0.025	0.026	0.025	0.026	0.025	0.026	0.025	0.026	0.025	0.025		
Potassium (K)	mg/L	-	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11		
Selenium (Se)	mg/L	0.005	0.006	0.006	0.006	0.0059	0.006	0.0059	0.0059	0.0059	0.0059													