Appendix 8

Meadowbank 2018 Water Management Report and Plan

MEADOWBANK GOLD MINE

2018 WATER MANAGEMENT REPORT AND PLAN

MARCH 2019

VERSION 07

EXECUTIVE SUMMARY

Agnico Eagle Mines Ltd. Meadowbank Division (Agnico) is operating the Meadowbank Gold Mine (the Mine), located on Inuit-owned surface lands in the Kivalliq region approximately 70 km north of the Hamlet of Baker Lake, Nunavut. The mine is subject to the terms and conditions of both the Project Certificate issued in accordance with the Nunavut Land Claims Agreement Article 12.5.12 on December 30, 2006, and the Nunavut Water Board Water Licence No. 2AM-MEA1526 issued on July 23, 2015.

The Water Management Plan is updated on a yearly basis as required by the Nunavut Water Board Water License 2AM-MEA1526. This report presents an updated version of the Water Management Plan 2017 and provides a revised site-wide Water Balance. The revised Water Balance determines the demand and storage requirements of water over the life of the mine. The storage strategies and required transfers are presented. Certain concepts within the Water Balance, including pit flooding, remain at the conceptual stage for now and will be further detailed in the Final Mine Closure and Reclamation Plan to be submitted prior to final closure in accordance with the current Type A Water License.

This water management plan update consider changes in the observed natural pit water inflows, updated tailings deposition parameters, mine and milling life schedule and production rate, tailings management strategy and pit backfilling strategy.

The principal additions to this update are:

- The Central Dike seepage status update;

The 2018 Water Management Plan also includes the 2018 Water Quality Forecast Update (Appendix C), the 2019 Freshet Action Plan (Appendix D) and the 2015 Ammonia Management Plan (Appendix E).

Recommendations obtained during the 2017 Meadowbank Annual Report Review have been included in the 2018 Water Management Plan.

DOCUMENT CONTROL

Version	Date (YM)	Section	Page	Revision
1	March 2014	ALL	-	Revision for the 2012 Water Management Plan (by SNC) according to the updated Life of Mine and water management strategies
2	March 2015	ALL	-	Revision for the 2013 Water Management Plan (by Agnico) according to the updated Life of Mine and water management strategies
3	October 2015	ALL	-	Update of sections according to Water License renewal conditions
4	March 2016	ALL	-	Revision of the 2014 Water Management Plan (by Agnico) according to the updated Life of Mine and water management strategies
5	March 2017	ALL	-	Revision of the 2015 Water Management Plan (by Agnico) according to the updated Life of Mine and water management strategies
6	March 2018	ALL	-	Revision of the 2016 Water Management Plan (by Agnico) according to the updated Life of Mine and water management strategies
7	March 2019	ALL		Revision of the 2017 Water Management Plan (by Agnico) according to the updated Life of Mine and water management strategies

Prepared By: Engineering and Environmental Departments

Approved by:_ _

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Robin Allard – Environment General Supervisor

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Pierre McMullen – Engineering Superintendent

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1 INTRODUCTION

Agnico Eagle Mines Ltd. (Agnico) has been operating the Meadowbank Gold Mine since 2008, officially beginning production in 2010. The mine is located approximately 70km north of the Hamlet of Baker Lake, Nunavut. The mine is subject to the terms and conditions of both the Project Certificate issued in accordance with the Nunavut Land Claims Agreement Article 12.5.12 on December 30, 2006, and the Nunavut Water Board Water License No. 2AM-MEA1526 issued on July 23, 2015.

This report presents an updated version of the Water Management Plan 2017 and provides a revised site-wide water balance that determines the demand and storage requirements of water over the life of the mine (LOM). The storage strategies and required transfers are detailed in this document. Certain concepts within the water balance, including pit flooding, remain at the conceptual stage and will be further detailed in the Final Mine Closure and Reclamation Plan which is to be submitted prior to mine closure in accordance with the Type A Water License.

The necessity of this particular water management update follows changes in the observed natural pit water inflows, updated tailings deposition parameters, tailings management strategy and pit backfilling strategy.

1.1 RECOMMENDATION FROM 2017 WATER MANAGEMENT PLAN

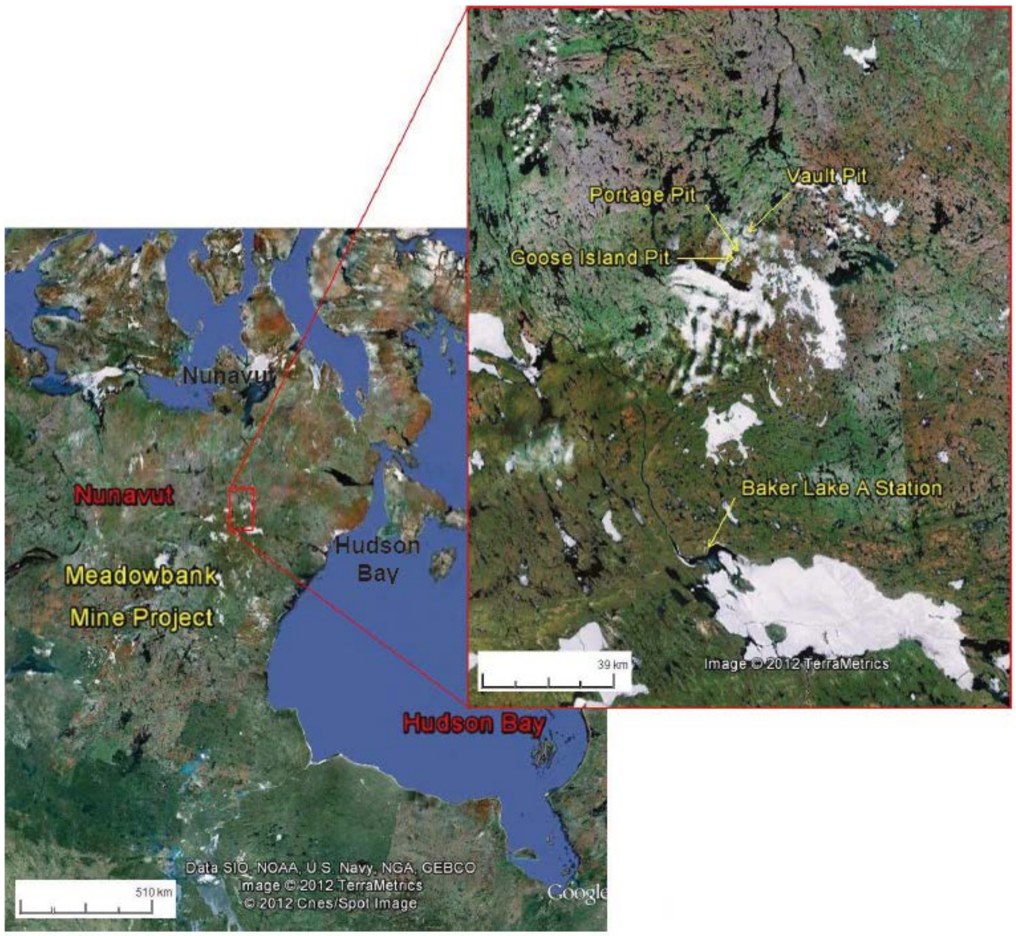
This report also addresses the recommendations from the NIRB following their review of the 2017 Annual report. These recommendations and requirements are outlined below:

- The General Water Movement models for 2017- 2029 do not include Second Portage Lake. Include Second Portage Lake in the General Water Movement models for the life of the mine. This is addressed in Appendix B.
- It is not clear how water level measurements were obtained for Ponds C and D. This is addressed in Section 2.2.3.

2 BACKGROUND INFORMATION

2.1 SITE CONDITIONS

The location of the Meadowbank mine site is shown below in Figure 2.1. A close-up is also provided to show the location of the Baker Lake A Station used to obtain meteorological data.



Source: Google Earth Pro, 2012

Figure 2.1: Portage Pit area map

2.1.1 Climate

The Meadowbank region is located within a low Arctic Eco climate described as one of the coldest and driest regions of Canada. Arctic winter conditions occur from October through May, with temperatures ranging from +5°C to -40°C. Summer temperatures range from -5°C to +25°C with isolated rainfall increasing through September (Table 2-1).

Table 2-1: Estimated average monthly climate data – Baker Lake

Month	Max. Air Temp. (°C)	Min. Air Temp. (°C)	Rainfall (mm)	Snowfall (mm)	Total Precip. (mm)	Lake Evap. (mm)	Min. Relative Humidity (%)	Max. Relative Humidity (%)	Wind Speed (km/h)	Soil Temp. (°C)
January	-29.1	-35.5	0	6.9	6.9	0	67.1	75.9	16.3	-25.5
February	-27.8	-35.2	0	6.0	6.1	0	66.6	76.5	16.0	-28.1
March	-22.3	-30.5	0.0	9.2	9.2	0	68.4	81.4	16.9	-24.9
April	-13.3	-22.5	0.4	13.6	14.0	0	71.3	90.1	17.3	-18.1
May	-3.1	-9.9	5.2	7.7	12.8	0	75.7	97.2	18.9	-8.0
June	7.6	0.0	18.6	3.1	21.7	8.8	62.6	97.2	16.4	2.0
July	16.8	7.2	38.6	0.0	38.6	99.2	47.5	94.3	15.1	10.5
August	13.3	6.4	42.8	0.6	43.4	100.4	59.2	97.7	18.4	9.3
September	5.7	0.9	35.2	6.7	41.9	39.5	70.8	98.6	19.3	3.6
October	-5.0	-10.6	6.5	22.6	29.1	0.1	83.1	97.4	21.4	-2.8
November	-14.8	-22.0	0.2	16.2	16.4	0	80.6	91.1	17.9	-11.7
December	-23.3	-29.9	0	9.4	9.5	0	73.3	82.7	17.7	-19.9

Note: Data from Baker Lake A station is available from 1946 to 2011. During this period, the data quality is good, with the exception of years 1946 to 1949, and 1993, which were removed from the compilation.

The long-term mean annual air temperature for Meadowbank is estimated to be approximately 11.1°C. Air temperatures in the Meadowbank area are, on average, about 0.6°C cooler than Baker Lake air temperatures, and extreme temperatures tend to be larger in magnitude. This climatic difference is thought to be the effect of a moderating maritime influence at Baker Lake.

The prevailing winds at Meadowbank for both the winter and summer months are from the northwest. A maximum daily wind gust of 93 km/h was recorded on September 1, 2009. Light to moderate snowfall is accompanied by variable winds up to 70 km/h, creating large, deep drifts and occasional whiteout conditions. Skies tend to be more overcast in winter than in summer.

Table 2.1 presents monthly rainfall, snowfall and total precipitation values for the mine site. August is the wettest month, with a total precipitation of 43.4 mm, and February is the driest month, with a total precipitation of 6.1 mm. During an average year, the total precipitation is 249.6 mm, split between 147.5 mm of rainfall and 102.1 mm of snowfall precipitation.

2.1.2 Faults

Two main faults are inferred in the Portage deposit area and included in the groundwater model (Golder, 2011) used to estimate groundwater inflows and brackish water upwelling to the pits during mine life. These are the Bay Zone Fault and the Second Portage Fault shown in Figure 2.2 by clear blue lines.

The Second Portage fault trends to the northwest under Central Dike and the Tailings Storage Facilities (TSF), roughly parallel to the orientation of Second Portage Lake. This fault is a potential pathway for Central Dike Seepage.

The Bay Zone Fault trend from South to North and cross Third Portage Lake, Goose Pit and Portage Pit. This fault is a potential pathway for water infiltration from Third Portage Lake into Goose pit.

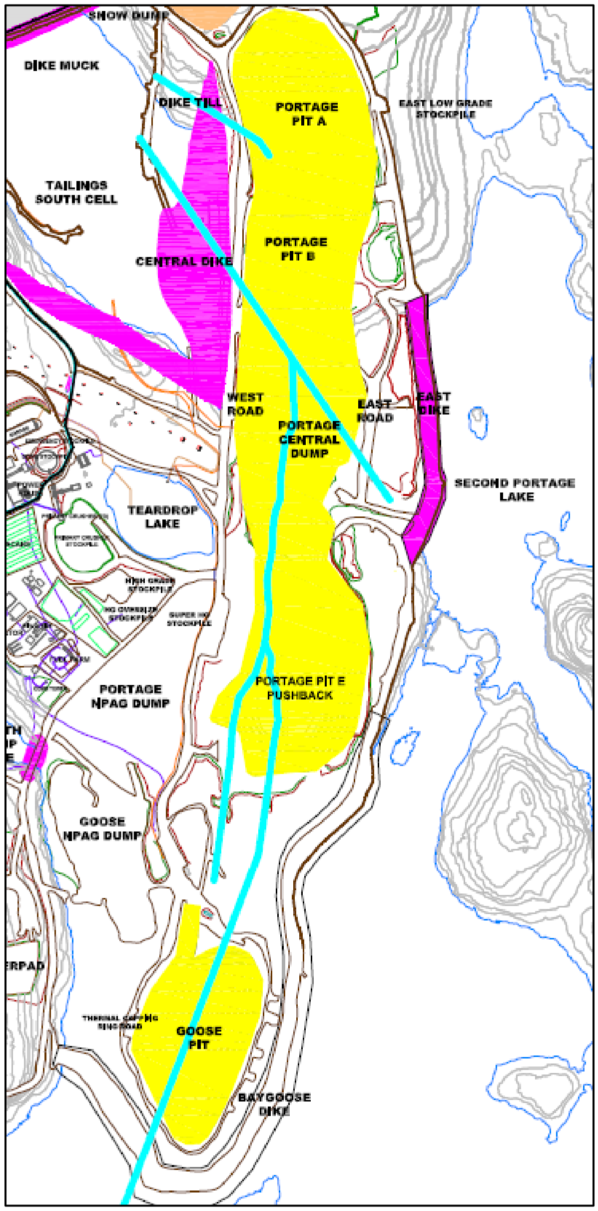


Figure 2.2: Portage Pit area – fault location

2.1.3 Permafrost

The Meadowbank Gold Mine is located in the area of continuous permafrost. Lake ice thicknesses of between 1.5 m and 2.5 m have been encountered during geotechnical investigations performed mid to late spring. Taliks (areas of permanently unfrozen ground) could be expected where water depth is and/or has been greater than about 2 to 2.5 m. Based on thermal studies and measurements of ground temperatures (Golder, 2003), the depth of permafrost at site is estimated to be in the order of 450 to 550 m, depending on proximity to lakes. The depth of the active layer ranges based on depth of overburden, vegetation and organics, proximity to lakes, and aspect of about 1 to 1.5 m.

Based on ground conductivity surveys and compilation of regional data, the ground ice content is expected to be low. Locally on land, ice lenses and ice wedges are present, as indicated by ground conductivity, and by permafrost features such as frost mounds. These areas of local ground ice are generally associated with low-lying areas of poor drainage.

2.1.4 Hydrology

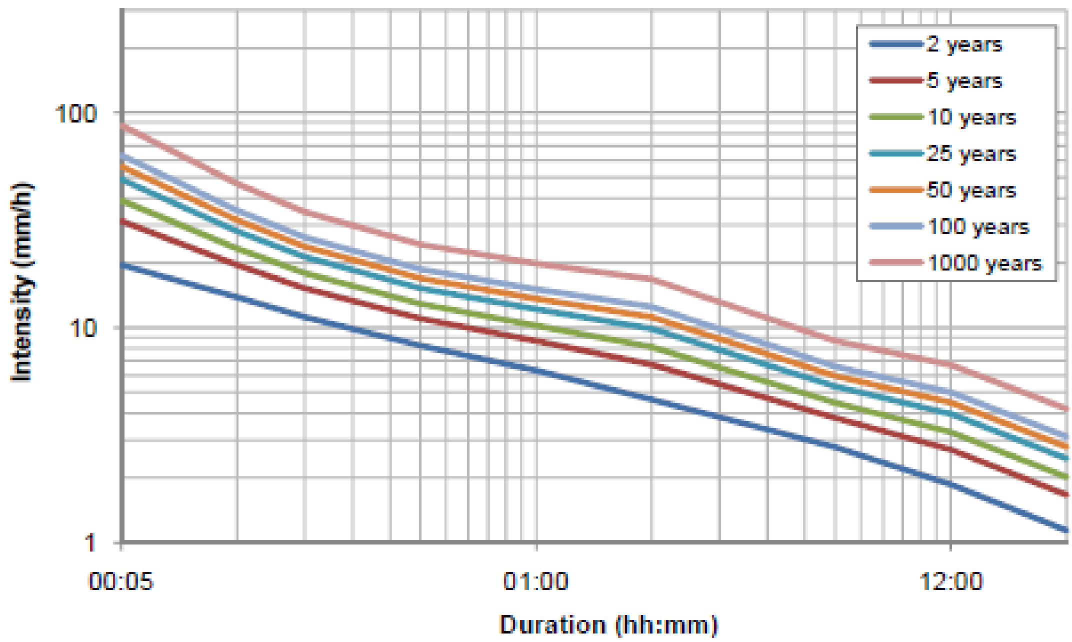
As shown above in Table 2.1, the Baker Lake A meteorological station was used to tabulate the monthly precipitation data. Using this data, SNC-Lavalin completed a Log-Pearson 3 probability distribution to determine the annual precipitation for different return periods. The results of this statistical analysis are presented in Table 2-2.

Table 2-2: Total annual precipitation for varying return periods

Return Period (years)	Precipitation (mm)
2	246
5	295
10	322
20	345
100	391

Source: SNC-Lavalin 2012 Water Management Plan (SNC, 2013)

Intensity duration frequency curves (IDF) computed by SNC-Lavalin (SNC, 2013) from the Baker Lake A meteorological station, are presented in Figure 2.3. These IDF curves are for precipitations of short duration (5min-24hrs) based on data between 1987 and 2006.



Source: SNC-Lavalin Water Management Plan 2013 (SNC,2013)

Figure 2.3: Baker Lake A meteorological IDF curves

The beginning of freshet (spring period) vary from year to year however it has been observed that the winter snow accumulation (October to May) usually begin to melt at the beginning June and continue throughout the month.

2.2 MINING OPERATION DESCRIPTION

The Meadowbank Gold Mine consists of several gold-bearing deposits within proximity to one another. The three main deposits are Vault (Vault, Phaser and BB Phaser), Portage (South, Center and North Portage deposits), and Goose.

The South Portage deposit is located on a peninsula, and extends northward under Second Portage Lake (2PL) and southward under Third Portage Lake (3PL). The North Portage deposit is located on the northern shore of 2PL. The South, Center and North Portage deposits are mined as a single pit, termed the Portage Pit, which extends approximately 2 km in a north-south direction. Portage Pit is isolated from the Second Portage Lake by the East Dike built in 2008-2009 and the Bay-Goose Dike (Pit E) built from 2009 to 2011.

The Goose deposit lies approximately 1 km to the south of the Portage deposit, and beneath 3PL. The pit is isolated from the Second Portage Lake and the Third Portage Lake by the Bay-Goose Dike and the South Camp Dike constructed in 2009-2010.

The Vault deposit is located adjacent to Vault Lake, approximately 6 km north of the Portage deposits. The deposit is isolated from the Wally Lake by the Vault Dike built in 2013.

2.2.1 Portage Pit Area

The Portage area located between the Third Portage Lake (3PL) and Second Portage Lake (2PL) contains most of the infrastructure of the Meadowbank mine site including but not limited to the Portage Rock Storage Facility (RSF), North and South Tailings Storage Facilities (NC & SC TSF), the mill, the camp and the Stormwater Management Pond. The East Dike was constructed to isolate the north portion of the Portage Pit from the 2PL. Subsequent renaming of the pits led to the nomenclature for each pit (A, B, C, D and E). Mining in Pits A, B, C, and D (representing the North and Central Portage area) is completed and these areas are currently subject to pit infilling operations with waste rock material (which will form part of fish habitat compensation). In 2018, an expansion was done in pit E to extend mining and mill feed to bridge the gap between the end of mining activities in Meadowbank, and the start of mining activities at the Amaruq project. As a result, mining activities in the Portage area in 2018 were only ongoing in Pit E. Figure 2.4 presents the evolution of the Portage pit and Figure 2.5 shows the Portage Pit Area and surrounding infrastructures.

Seepage through the East Dike from Second Portage Lake (2PL), reaches the Portage Pit area. This seepage is controlled via two seepage collection points. From the collection points, the water is pumped to a common pipe and discharged back into 2PL since 2014. The discharge is subject to MMER and Water License effluent criteria. The water is discharged through a diffuser located in 2PL. If the seepage does not meet criteria (mainly related to TSS), the pumping is redirected toward the Portage Pit, specifically in the Portage Central Waste Rock area, where the water flows in the rock backfill pores towards Pit B and Pit E in two sumps located at the northern and southern toe of the dump (sampling locations ST-17 and ST-19 respectively). Since mid-August 2017, the water collected in ST-17 and ST-19 is transferred in inactive portion of the Portage Pit.

Inflow of water into the bottom benches of Pit C and D has been historically before these pits were backfilled. Several areas of these pits are located in an inferred talik area and cross a regional fault (Golder, 2009). The water inflow is thus likely a combination of ground and surface water. Pits A and B are located in the permafrost and a minimal amount of water has been observed historically. Some water inflow is observed from the Pit E south wall since 2015. This inflow is mixed with other water sources at the bottom of pit E such as natural run offs. In 2018, all water pumped from Portage Pit E was directed to the inactive pit A area.

2.2.1.1 Tailings Storage Facility

The Tailings Storage Facility (TSF) is located with the Portage Pit Area and is comprised of the South Cell and the North Cell. These cells are delimited by tailings retaining dikes that are progressively built as capacity is required. More detailed information on the TSF can be found in the Waste Management Plan. Agnico is currently in amendment process of its license for in-pit tailings disposal and is currently evaluating capacity requirements whether additional dike constructions would be required in the North and South Cells.

Stormwater Dike, constructed in 2009-2010, is an internal dike (El. 150m) that divides the TSF in the North and South Cell.

The peripheral structures of the North Cell are SD1, SD2, RF1 and RF2 built to El. 150 m from 2009 to 2010. In 2018, a North Cell Internal Structure (NCIS) was built in the northern part of the North Cell over the existing tailings (variable El. From 152 to 154 m) to increase the tailings storage capacity.

The peripheral structures of the South Cell are SD3, SD4, SD5 and Central Dike built to El. 145 m from 2012 to 2018.

The diversion ditches (East and West), located around the perimeter of the North Cell TSF and the Portage RSF, are designed to collect the non-contact water runoff from the surrounding watershed. The ditches are divided in two sections – the west and east sections, to divert non-contact water respectively to Third Portage Lake and to NP1 Lake. On the west end of the diversion ditches, an Interception Sump was constructed in 2014-2015. The objective of the interception sump is to collect runoff water from the west section of the diversion ditches and to retain it until the total suspended solids in the water have reached the criteria allowing discharge to the environment.

As part of the construction of the NCIS, a ditch was built during the summer of 2018 in the rockfill capping located downstream of the NCIS, but within the TSF footprint, in order to avoid ponding of water against the structure. One sump was also built in a natural topographic low point at the north of the cell and upstream of RF2, within the tailings footprint areas.

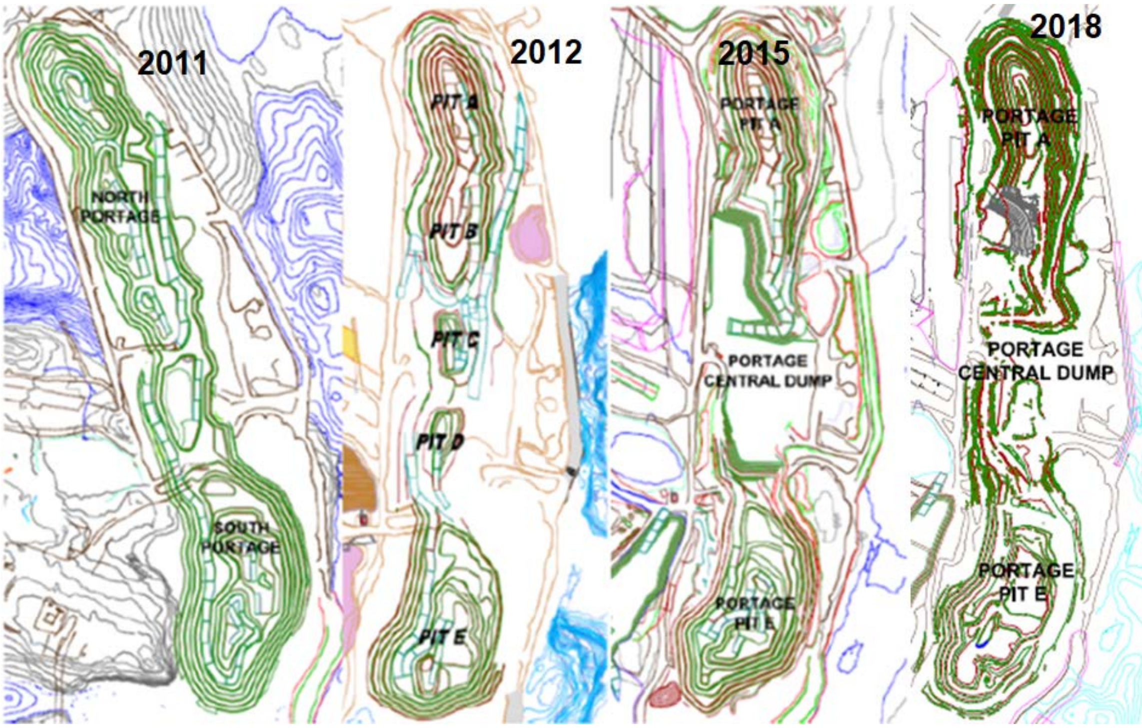


Figure 2.4: Portage Pit terminology

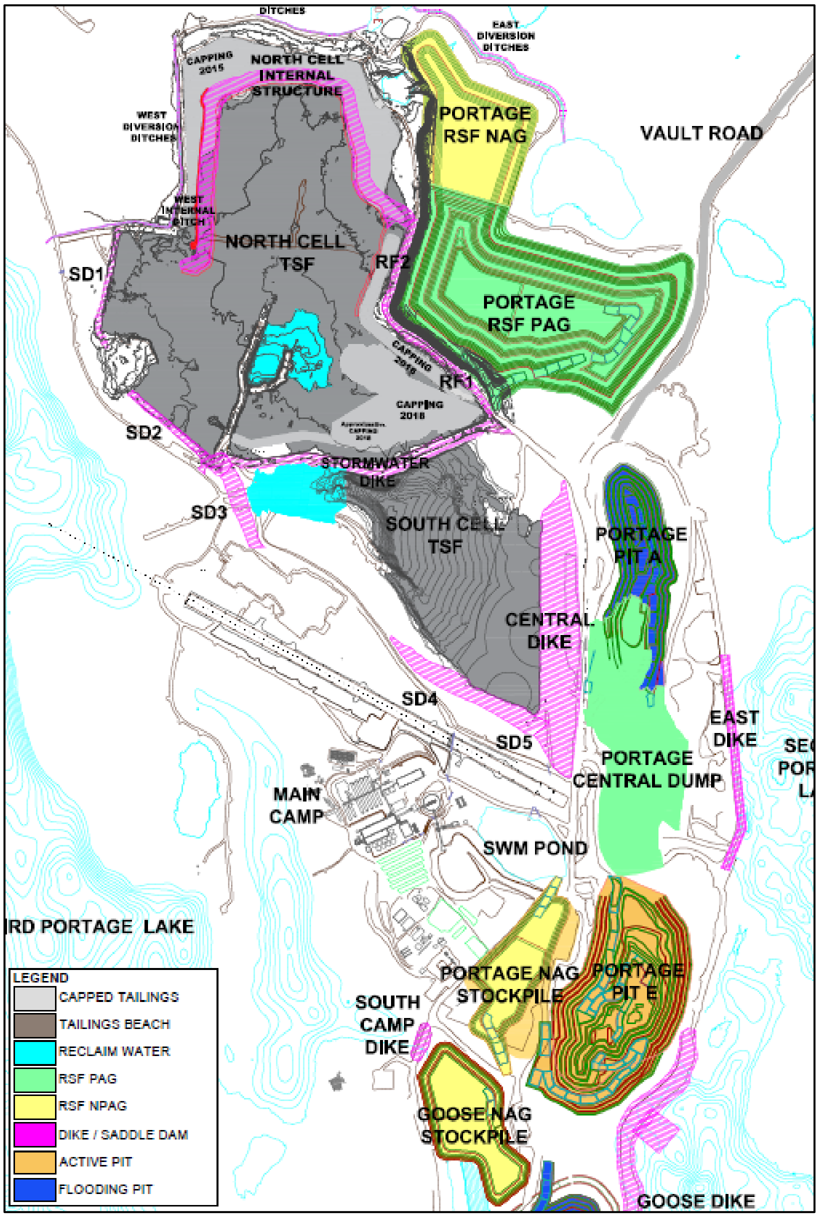


Figure 2.5: Portage Pit area map

2.2.2 Goose Pit Area

The Goose Pit area is located within the dewatered portion of 3PL. Mining in Goose pit began in 2012 and was completed in April 2015. Goose Pit is being passively re-flooded (natural runoff and inflow) as part of the closure strategy (refer to the flooding section 3.2 for further details). As part of the Central Dike situation mitigation strategy, water transfers from Central Dike downstream toe to Goose Pit occurred in 2015 and 2017. The Goose Pit area and surrounding infrastructures are illustrated in Figure 2.6.

The majority of Goose Pit is located within a talik zone. Historically, the main water inflow into Goose Pit has been observed from the fractured quartzite rock formation located in the South and West wall. No major water inflow has been observed from the eastern wall associated with the iron formation type rock with small volcanic lenses. Between the quartzite and iron formation, there is a large band of ultramafic rock (soapstone).

Since mining was completed in 2015, pumping of water out of the pit has ceased and the inflows are collected in the pit as part of the natural flooding process. Pit water quality is also being monitored during reflooding with sampling station ST-20. The beginning of the active flooding (water transferred from Third Portage Lake) of the Goose pit is planned in 2026. Section 3.2.1 discusses the Goose Pit reflooding.

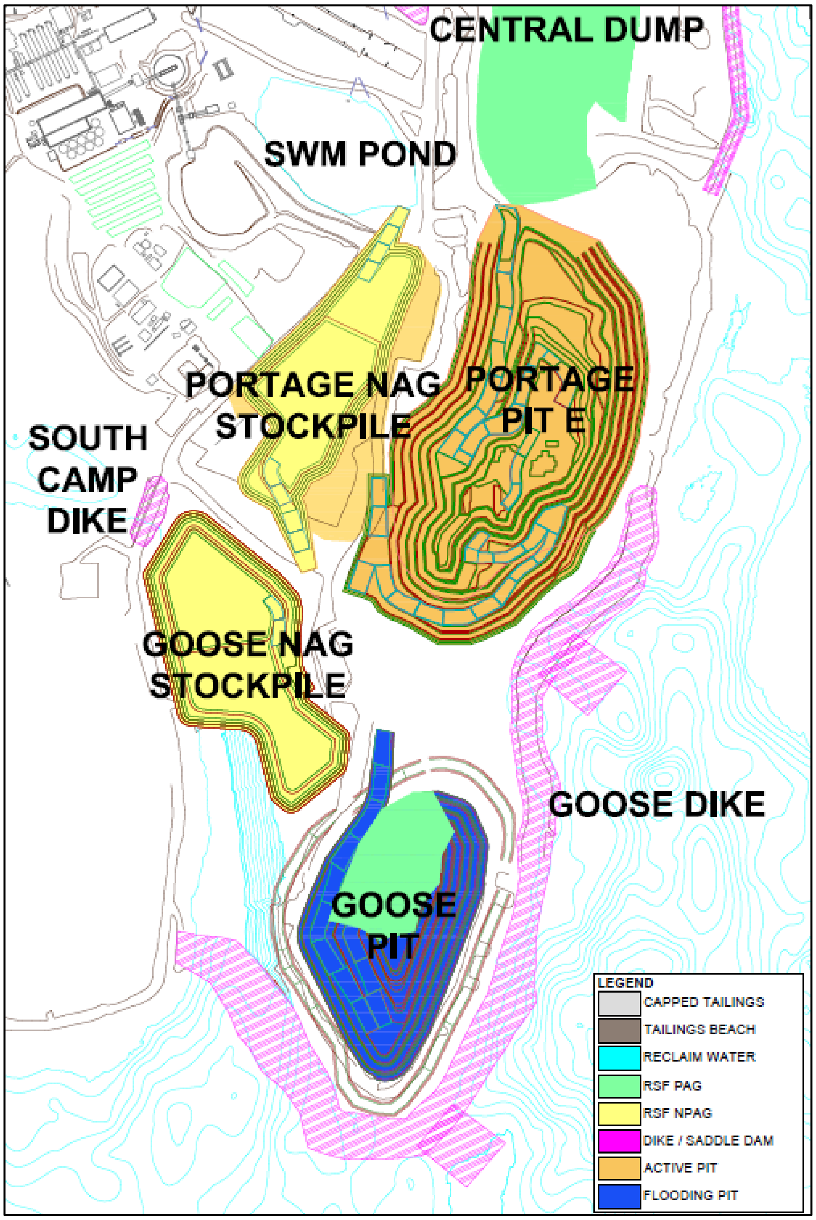


Figure 2.6: Goose Pit area map

2.2.3 Vault Pit Area

The infrastructure of the Vault Pit area include the Vault RSF, ore and marginal pads, Vault dike, Vault pit, Phaser Pit, BB Phaser Pit, Vault attenuation pond and emergency shelter. Figure 2.7 illustrates the Vault Pit area and surrounding infrastructure.

The Vault Pit, which is located under the former Vault Lake, required the construction of Vault dike in order to isolate the mining area from Wally Lake and allow dewatering. Dewatering was undertaken in 2013 and 2014. This allowed for mining of Vault Pit and the creation of the Vault Attenuation Pond (ATP).

The Vault pit began pre-mining operations in 2013 with active mining starting in 2014 and is expected to be completed in the first quarter of 2019. The dewatering of Phaser Lake occurred during summer 2016 in preparation for mining activity in Phaser and BB Phaser Pit. Phaser Pit mining activities were completed in October 2018. BB Phaser mining began in early 2018 and is scheduled to be completed in July 2019.

The Vault Attenuation Pond is comprised of four internal ponds named Pond A, B C & D. These ponds promote natural settling of the suspended solids. Water level of these ponds are measured by surveying with a GPS at the location indicated by the red crosses on Figure 2.7.

The majority of the water migrating into the pits of the Vault area has been observed to be runoff from the surrounding area during the freshet period. A localized water venue from the East wall of Vault Pit was historically above the 109 masl catch bench. This inflow is collected in a sump located at the toe of the wall and then pumped into the Vault Attenuation pond. Agnico is currently monitoring water quality of the sump in sampling locations ST-23 in accordance with the Water License.

Water pumped from Vault Pit is directed to the Vault Attenuation Pond (ATP). When required, the water is discharged into Wally Lake in accordance with the Water License and the MMER. Agnico monitors water quality of the Vault Attenuation Pond and discharge at sampling locations ST-25 and ST-10 respectively in accordance with the Water License. Water treatment for TSS has not been required to date to meet MMER and Water license criteria prior to discharging in Wally Lake. In 2018, all Vault Pit water was stored in the Vault Attenuation Pond, no discharge into Wally Lake occurred.

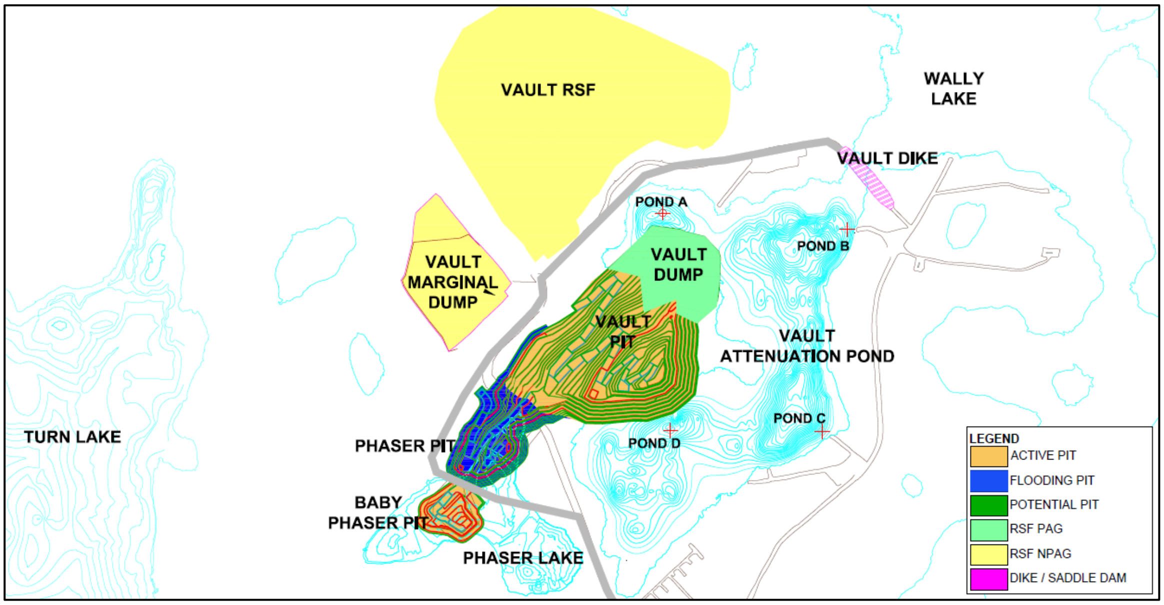


Figure 2.7: Vault Pit area map

2.3 LIFE OF MINE DESCRIPTION

The life-of-mine (LOM) presented in this report reflects an updated mining plan from the LOM summarized in the 2017 Water Management Plan, as it pertains to the activities within the current approved license for the Meadowbank mine, as well as the Whale Tail Pit. The specifics of the expected monthly milling tonnage are summarized in Table 2.3.

The LOM presented in the 2017 Water Management Plan presented the end of mining activities in Q3 2018. In this updated LOM, the Meadowbank ore production was extended until July 2019, due to the Portage pit E expansion.

Table 2-3: Current official LOM – Processed ore tonnages

	2018	2019	2020	2021
January	295,690	235,249	272,009	279,000
February	288,376	223,040	254,460	279,000
March	246,415	183,000	272,009	252,000
Q1	**830,481**	**641,289**	**798,478**	**810,000**
April	254,528	239,360	277,938	270,000
May	301,915	210,120	287,203	279,000
June	287,317	240,341	277,938	270,000
Q2	**843,760**	**689,821**	**843,079**	**819,000**
July	347,236	287,342	260,759	279,000
August	303,189	281,816	269,451	279,000
September	237,934	254,240	269,451	270,000
Q3	**888,359**	**823,398**	**799,661**	**828,000**
October	239,675	275,448	287,273	279,000
November	216,299	277,869	278,006	279,000
December	245,476	287,342	287,273	270,000
Q4	**701,450**	**840,659**	**852,552**	**828,000**
Total	**3,264,050**	**2,995,167**	**3,293,770**	**3,285,000**

2.4 CHANGES FROM THE WATER MANAGEMENT PLAN 2017

In this Water Management Plan version, revisions/modifications were made to the Water Balance for optimization purposes including:

- Fresh water consumption revision;
- Total daily mill water requirements;
- Updated tailings deposition plan affecting the North Cell and South Cell deposition calendar;
- Flooding sequence and volumes update to take into account the updated run off inflows as well as to optimize flooding activities ;
- Update to the seepage section;

- Changes in tailings dry density as observed through latest bathymetric analysis.

Further details of the modifications/revisions and their effects on the overall water management strategy will be provided in subsequent sections of the Water Management Plan.

3 WATER MANAGEMENT PLAN AND WATER BALANCE

3.1 GENERAL WATER MANAGEMENT STRATEGY

At Meadowbank, four major sources of inflow water are considered in the site water management system

- Freshwater pumped from Third Portage Lake (for camp and mill process)
- Natural run off
- Natural pit groundwater inflow
- Seepage inflow from the East Dike

This water is either reclaimed for milling process or removed from the system by the following means:

- Water treatment plant effluent (if treatment necessary to meet discharge criteria)
- Non-treated effluent from the Vault attenuation pond
- Water trapped in the capillary voids of the tailings fraction in the TSF (including ice entrapment for winter months)
- East Dike seepage discharge into Second Portage Lake
- Water trapped within the rock storage facilities area voids
- Natural pit flooding

The Water Balance is presented in Appendix A of this report. The Water Balance is subdivided into the following items, which are discussed in details in this section.

- Fresh Water from Third Portage
- Reclaim Tailings Water
- Mill Water
- North and South Cell TSF
- Portage Pit
- Goose Pit
- Water Transfers
- Model Parameters
- East Dike Seepage
- Vault Pit

- Phaser Pits (including BB Phaser) and Phaser Lake
- Vault ATP

As per the requirements concerning the Water Balance in the Water License 2AM-MEA1526 (Part E, condition 7), the Water Management Plan will be updated on an annual basis. The Water Management Plan will include a yearly updated Water Balance according to the water management strategy and the applicable LOM.

3.1.1 Updated Tailings Deposition Strategy

In 2018 the tailings deposition strategy was modified so that tailings deposition occurred in both the North Cell and the South Cell of the TSF. From August 2018 to October 2018, tailing deposition was ongoing in the North Cell, from the North Cell Internal structure. During tailings deposition in the North Cell, water was transferred to the South Cell. More information on tailings deposition can be found in the waste management plan.

The objective of the tailings deposition strategy is to minimize the water level in both the North Cell and South Cell while ensuring that there is enough water available for reclaim. As part of this strategy, 300 000 m^3 of water were transferred from the South Cell into Goose Pit in 2017. In 2018, no water transfer out of the TSF was done.

In the fall of 2017, Agnico built a structure within the South Cell TSF, to act as a permeable tailing retaining structure to maintain a suitable volume of water within the reclaim area while lowering the turbidity in the reclaim water. The 2018 bathymetry demonstrated the effectiveness of this structure. Figure 3.1 and 3.2 present the planned design and the 2018 summer bathymetry. Due to the success of this strategy, Agnico will continue to evaluate if additional internal structure will be required in 2019 to secure the reclaim water.

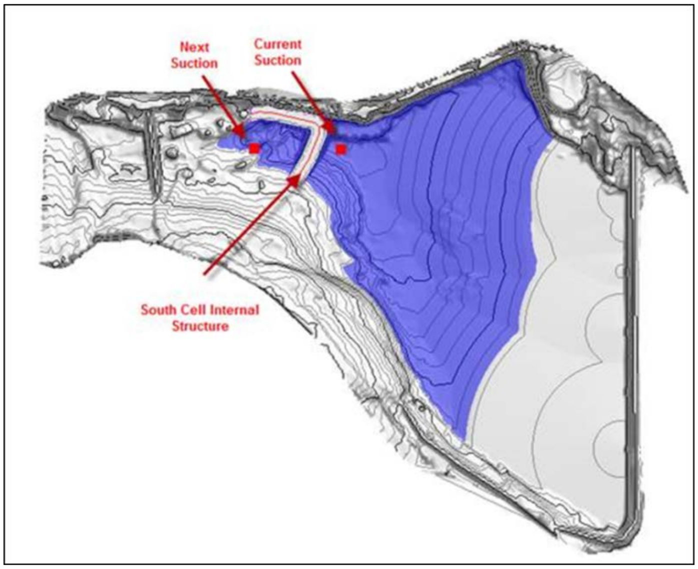


Figure 3.1: South Cell 2017 Internal Structure

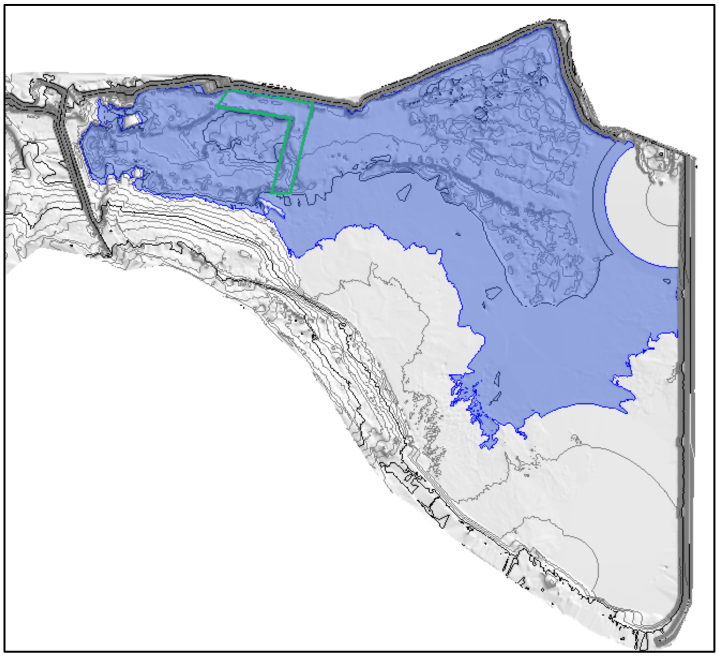


Figure 3.2: South Cell 2018 Summer Bathymetry Results

3.1.2 Fresh Water from Third Portage Lake

Fresh water from Third Portage Lake is pumped from a fresh water barge. The two main consumers of fresh water are the mill with an average of 79,016 m^3/month and the camp with an average of 3,329 m^3/month in 2018. The amount pumped from the barge is tracked and reported in the water balance as per the requirement of the Type A Water License.

The freshwater consumption at the process plant in 2018 is higher compared to previous years due to higher ice entrapment in the South Cell. For example from 2016 to 2017, the monthly freshwater consumption at the mill was 41,179 m^3/month compared to 79,016 m^3/month in 2018. The higher water entrapment in the TSF is caused by the cell being in a more mature state, resulting in longer beaches. As a result, in winter months, the tailing slurry is exposed to the air for a longer period of time, resulting in less water reaching the pond. The expected ice entrapment during winter 2019 is projected to increase due to similar cause. Despite these increases in water consumption, the limit prescribed in the Water License will be respected.

The freshwater going to the process plant is used as part of the milling process, and is then discharged in the TSF as slurry with the tailings. Depending of the season, of the total water volume discharged in the TSF, 35-75% is available to be recirculated back to the process plant.

The fresh water used in the camp includes laundry facilities, cleaning, cooking and drinking water consumption. The majority of the camp fresh water is returned as sewage treatment effluent to the Stormwater Management Pond, which ultimately is transferred to the active TSF (currently the South Cell). Later in the mature TSF stage, and mine closure period, the Stormwater Management Pond water will be transferred to the Portage Pit (from 2021 to 2029).

The total expected fresh water consumption planned for the operating period of 2019-2021 varies between 60-286 m^3/hr during mill operation, and drops gradually during closure to 4m^3/hr once the mill has closed (representing water used by the camp only and does not include pit flooding). The mill fresh water consumption is optimized to prevent a water deficit in the TSF and allows for adequate reclaim volumes while minimizing the reclaim water transfers from the TSF to the pits at closure. As mentioned above, higher freshwater consumption flows are planned during winter months to compensate for the ice entrapment, to promote sub-aqueous deposition and to ensure sufficient free water for reclaim.

In 2018, Agnico used a total of 988,132 m^3 of freshwater. In February 2018, the water management strategy was reviewed, and additional freshwater was deemed necessary, due to a higher water entrapment observed. Furthermore, process plant production was extended from September 2018 to 2022, requiring more water in Q4 2018 than projected in the 2017 Water Management Plan.

In 2022, when the mill is scheduled to cease production, freshwater use will be limited to pit flooding and camp use.

Table 3-1 presents the 2019 monthly water consumption forecast.

Table 3-1 presents the annually water consumption forecast for 2018 to 2030, which do not include pit reflooding volumes. Refer to Section 3.2 for the pit flooding activities description and freshwater needs. More details are included in the Water Balance presented in Appendix A.

Figure 3.3 shows the evolution of the mill water consumption according to the water source (freshwater or reclaim) until the end of mining activities. The higher freshwater consumption in winter due to a high ice entrapment is observed on Figure 3.3.

Table 3-1: 2019 Targeted water hourly consumption per month – for Mill and Camp Usage

Month	Fresh Water Flow (m^3/h)	Reclaim Water Flow (m^3/h)	Total Water Flow (m^3/h)
January	286	10	296
February	251	69	320
March	155	165	320
April	152	168	320
May	60	260	320
June	60	260	320
July	60	260	320
August	60	260	320

September	60	260	320
October	125	195	320
November	205	115	320
December	205	115	320
Average	**140**	**178**	**318**

Table 3-2: Yearly water consumption summary – Mill and Camp Usage

Year	Average Fresh Water Flow (m^3/h)	Total Fresh Water (m^3)	Average Reclaim Water Flow (m^3/h)	Total Reclaim Water (m^3)
2018	114	988,132	249	2,191,390
2019	140	1,220,077	178	1,565,490
2020	111	971,784	209	1,839,096
2021	120	1,047,456	200	1,755,744
2022-2030	4	34,675	0	0

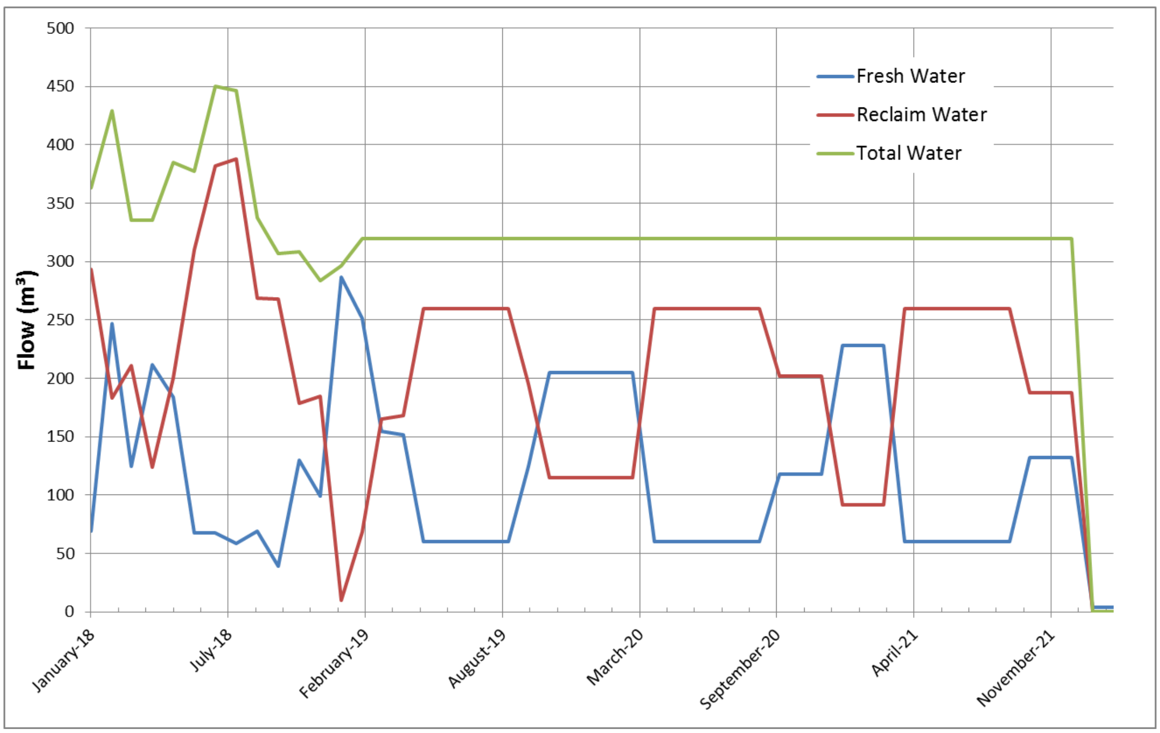


Figure 3.3: Flow to the mill

3.1.3 Reclaim Tailings Water

Reclaim tailings water represents the water reclaimed from the TSF during mill operation (North and South Cell reclaim ponds). In 2018, water was reclaimed from the South Cell using a mobile pumphouse on skids. The suction line is placed at the bottom of the pond and is extended as needed according to the pump moves. A summary of the annual forecast reclaim water that will be pumped to the mill is presented in Table 3.2. It is planned to continue reclaiming water with the South Cell system until the end of the TSF operation.

3.1.4 Mill

The average ore moisture content of the mill feed ore is used as a source of water in the water balance. This parameter is established as a percentage of mill throughputs. For example in 2019 a mill feed of 2,994,186t is expected with an average 1.11% of moisture (see Table 3-3), representing 33,345m^3 of water content in the ore.

Table 3-3 shows the average moisture content used over time until closure in the water balance. The forecasted average moisture content of this table is the average of the measured volume of 2013 to 2015. The moisture content calculation is another factor used to calculate the volume of water that enters the system of the South Cell.

Table 3-3: Monthly average moisture content at the mill

Month	Average Moisture Content (%)
January	1.96%
February	1.53%
March	1.04%
April	1.09%
May	1.08%
June	0.99%
July	1.30%
August	0.98%
September	0.89%
October	0.99%
November	0.72%
December	0.93%
Average	**1.11%**

3.1.5 North Cell

The North Cell TSF has been in operation from 2010 to 2014. Tailings deposition resumed in the North Cell from June to October 2015 and from August 2018 to October 2018.

Water inflows in the North Cell include run-off and water from tailings deposition. Tailings deposition is planned to continue occurring in the North Cell from Q3 2019 to Q2 2020. Water management strategy during North Cell deposition is to maintain the mill reclaim station in the South Cell, and transfer water from the North Cell to the reclaim pond in the South Cell. As per the design specifications, the level of the North Cell reclaim pond must be maintained with a two-meter freeboard with the peripheral structures, which are at 150.0masl elevation. In 2018, transfers from the North Cell to the South Cell were required from July to October. Water transfers from the North Cell to the South Cell is planned yearly (even after the North Cell is capped during closure operations) until 2030 (planned dike breaching if CCME criteria/site specific criteria for pit water quality are met). Figure 3.4 presents the North Cell water management strategy until the end of its operation.

Run off water (non-contact water) from the surrounding North Cell TSF watershed area is captured in the diversion ditches located north of the North Cell TSF and conveyed to the Interception Sump. From there, it is pumped into the North Cell.

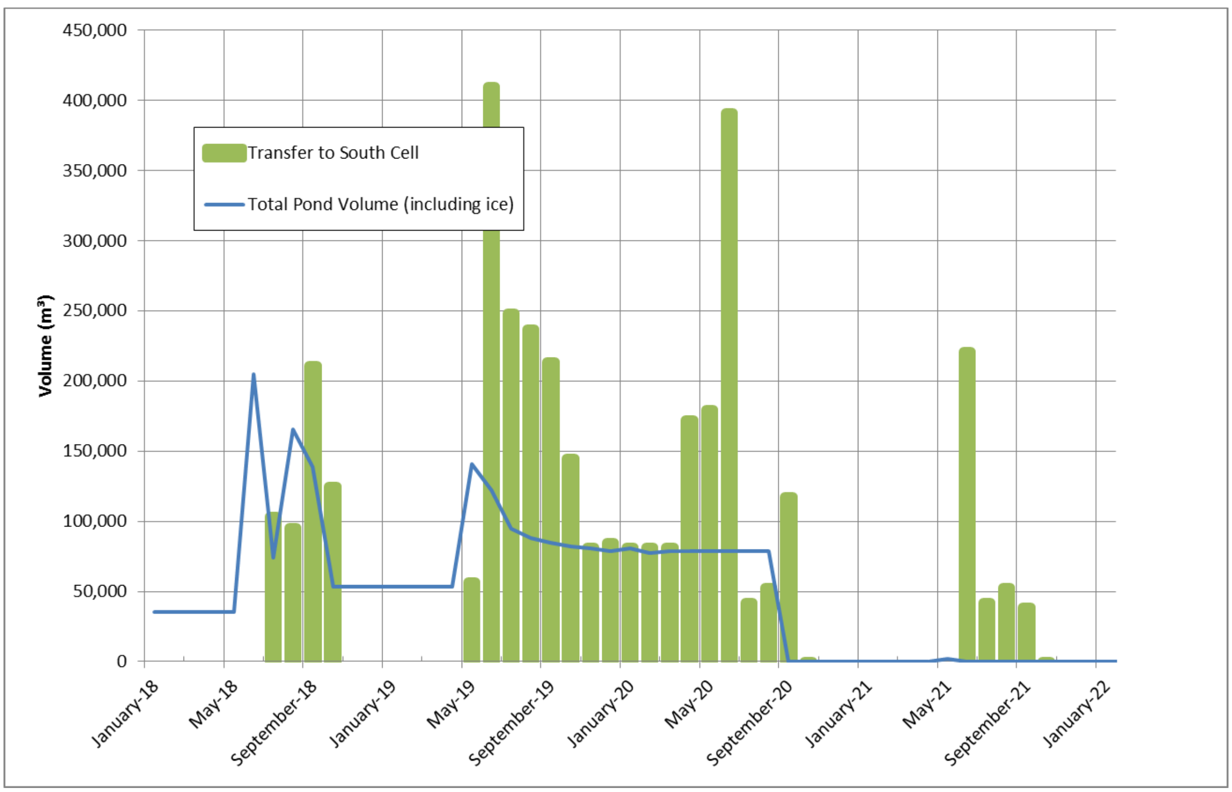


Figure 3.4: North Cell TSF –Water management strategy

3.1.6 South Cell

The South Cell was commissioned in November 2014 with the beginning of tailings deposition. Prior to that, this area was referred as the Portage Attenuation Pond. The South Cell will be receiving tailings until the end of production in 2022, with a planned hiatus from May 2019 to Q3 2020, to allow time to raise the structures.

Figure 3.5 presents the water management strategy in the South Cell until the end of its operation. The water management strategy is to keep the water level at a minimum while ensuring enough volume for reclaiming to reduce freshwater use.

As per the design specifications, the level of the South Cell reclaim pond must maintain a two-meter freeboard with the peripheral impermeable structures, which are at 145.0masl elevation. Therefore, the pond must respect an elevation of 143.0masl. In 2018, no water transfers were required from the South Cell to the pits. However, future water transfers are planned to comply with the freeboard requirement and are discussed in sections 3.1.10 and 3.2. Water management strategies within the Water Balance reflect the tailings deposition plan presented in the 2018 Mine Waste and Tailings management plan (Agnico, 2019).

Water will be transferred to the Portage Pit at the end of the tailings deposition (cessation of mining and mill operation) for reflooding and to properly dewater the tailings pond for closure capping. The reclaim water transfers are included in the pit flooding process. The impact on final pit water quality is considered in the yearly water quality forecast model prepared by SNC-Lavalin (Appendix C).

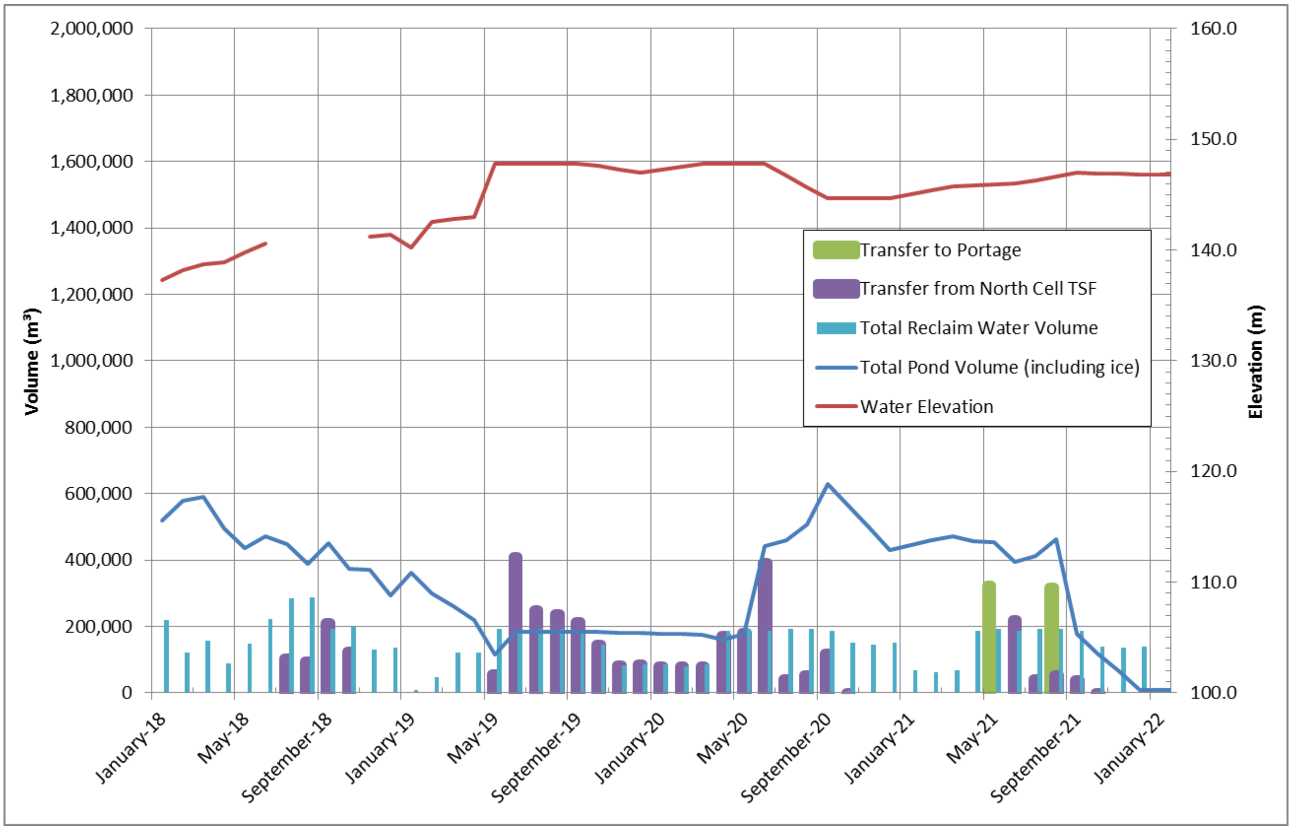


Figure 3.5: South TSF - Water management strategy

3.1.7 Portage Pit

The Portage Pit natural inflow is modelled based on measured onsite data from 2013 to 2015. This inflow includes runoff water, groundwater and the part of the East Dike seepage water, which is pumped back to Second Portage Lake when discharge criteria are met. In 2019, Agnico will look at the possibility of transferring the water from the East Dike seepage into Pit A, to promote pit flooding.

Historical field observations revealed an inflow from the bottom benches of Pit C and D. Since these areas are completed and backfilled with rockfill, water can accumulate in the rockfill porosity voids thus leading to a reduction in Portage Pit water outflow. It is likely that the water inflow is filling up the porosity voids of the Portage Central Dump to some extent. It is anticipated that additional inflow could occur at the bottom of Pit A and E as there will be an increased hydraulic gradient compared to the surrounding water (from possible GW and surface water from Second Portage Lake). Water inflows are observed from the Pit E south wall since 2015.

Since the summer 2017, water pumped from Portage Pits is no longer transferred in the South Cell. This is aligned with the strategy of minimizing water storage in the South Cell. In 2018, water was transferred from the active Pit E to the mined out Pit A.

3.1.8 Goose Pit

The Goose Pit natural inflow is modelled based on measured onsite data from 2013 to 2015. When referring back to the initial estimates originating from the 2012 SNC Water Management Plan (SNC 2013), an increase was observed in the water inflow during the mining of the bottom benches of Goose, which could be attributable to an increased hydraulic head as vertical mining progresses. It was historically observed that the pit inflow diminishes during the winter due to the freezing of the pit walls.

No more water is pumped from Goose to the South Cell as the mining of this pit is completed and the inflows (runoff and groundwater) are collected in the pit as part of the pit flooding process. AGNICO is monitoring the water level since Goose Pit mining was completed and this information is used to evaluate the pit inflow rate. Pit water quality is monitored during reflooding at sampling station ST-20.

According to the inflow model, a total inflow of 327,114m^3 was accumulated in Goose pit in 2018, coming from runoff and groundwater inflows, compared to 464,019m^3 in 2017, and 375,300m^3 in 2016. This additional natural inflow volume means that less mechanical flooding will be required to complete the flooding process for closure. More details are presented in section 3.2.1.

3.1.9 Vault Pits Area

In 2018, an ice wall was created on the pit wall due to water exfiltration in the winter. Water was pumped from the Vault Pond D onto the ice wall to accelerate its melting and water accumulating in the pit was pumped back in Vault Pond D.

No water was discharged from the Vault area to Wally Lake in 2018, as there was a sufficient capacity in the Phaser attenuation pond, and the various Vault ponds. More details are presented in section 3.1.10 Water Transfers.

3.1.10 Water Transfers

Water transfers from various locations around the site are required to reduce freshwater consumption, optimize basin storage, optimize the Water Balance in general and maintain the good working order of the different facilities around the mine site. They are also required to prevent off site environmental impacts.

3.1.10.1 TSF Water Transfers

In order to optimize the tailings deposition sequence, maintain an adequate reclaim pond (operating volume, dike structure protection and water quality), minimize freshwater consumption, and perform closure of each cell, water transfers within the tailings storage facilities and pits are required throughout their operating life and in closure. As shown in Table 3-4 water transfers from the North Cell to the South Cell are required for adequate operation and closure of the North Cell.

No water transfer out of the South Cell was done in 2018. In 2019, water transfers from South Cell to Goose pit are expected. These transfers will be necessary to maintain the water freeboard within the South Cell. The projected volume to transfer in 2019 is 454,333m^3. Furthermore, in the last year of processing operations, a total of 639,224m^3 of water is expected to be transferred from the South Cell to the pit (Portage) to begin closure of the TSF. Following this, the South Cell will be maintained empty by having an annual water transfer between 442,856m^3 and 522,028m^3 to the pit. This volume includes Interception Sump, WEP, SD3-4-5, ST-16, as well the natural inflow to the cells, which are considered as transfers into the TSF.

Water transfers from Saddle Dams SD3-4-5 downstream sump to the TSF are required to keep the dike downstream area free of water. These transfers totalized 28,163 m^3 in 2018.

Water transfers from the Stormwater Management Pond (SMP) to the South Cell TSF are required each summer. In 2018, 70,152m^3 was transferred from SMP to the South Cell. Once both TSF's are closed, the transfers from SMP will be directed to the Portage Pit until planned camp closure to contribute to the pit flooding process.

In 2018, 113,643m^3 of water from the Western diversion ditches reporting to the Interception Sump was pumped to the North Cell. For 2019, Agnico is considering to promote natural drainage of the western diversion ditches non-contact water into Third Portage Lake if the water quality meets the required Water License criteria.

In 2018, 43,119 m^3 of water were transferred form the NCIS sump and ditches into the North Cell.

In 2018, 34,550m^3 of water ponding in the Waste Extension Pool (WEP) and Waste Rock Seepage Pond (ST-16) was transferred into the North Cell. This strategy is planned to be used until closure.

The Central Dike seepage is included in the water balance with a 1:1 ratio (South Cell reclaim water to seep water) based on the conclusion of the steady flow test performed in October 2015 and the mass balance exercise completed on a monthly basis by Agnico.

Table 3-4: TSF Water Transfers

Year	TSF Water Transfers - During Operations											
	North Cell to South Cell (m^3)	SMP to South Cell (m^3)	SMP to Portage (m^3)	South Cell to Portage (m^3)	South Cell to Goose (m^3)	SD 3, 4 & 5 to South Cell (m^3)	SD 1, 2 & 6 to North Cell (m^3)	NCA-D & Japan Sump to North Cell (m^3)	Interception sump to North Cell (m^3)	ST-16 & WEP to North Cell (m^3)	CD D/S pond to SC (m^3)	SC to CD D/S pond (m^3)
2018	534,054	70,152	0	0	0	26,693	5,096	41,649	113,643	34,550	2,300,416	2,337,810

2019	1,477,294	34,675	0	0	454,333	34,927	15,569	0	171,214	19,236	1:1 ratio assumed
2020	1,199,740	34,675	0	0	0	34,927	15,569	0	171,214	19,236	1:1 ratio assumed
2021	354,470	0	34,675	639,224	0	34,927	15,569	0	171,214	19,236	1:1 ratio assumed
Total	**3,565,558**	**139,502**	**34,675**	**639,224**	**454,333**	**131,474**	**51,803**	**41,649**	**627,285**	**92,258**	

3.1.10.2 Vault Treatment Plant

Table 3-5 presents the annual discharge into Wally Lake. No discharge from the Vault attenuation pond to Wally Lake was required in 2018, as there was sufficient capacity within the Vault Attenuation Pond. The water stored in the Vault attenuation pond is planned to be transferred in Vault Pit at freshet of 2019 as mining activity will have been completed.

In the fall of 2018, the Vault Treatment Plant was dismantled as no additional water discharge to Wally Lake is planned. The Vault Treatment Plant was never used, as water quality for discharge in previous years always meet the Water License criteria.

Table 3-5: Wally Lake annual discharge

Year	Wally Lake Annual Discharge (m^3)
2016	1,008,457
2017	640,027
2018	0
Total	**1,648,484**

3.1.10.3 Stormwater Management Pond

The Stormwater Management Pond (SMP) is a small, shallow and fishless, water body adjacent to Portage Pit (Figure 2.2). Treated sewage effluent is discharged to this pond and is then transferred to the active area of the TSF. The pond also collects freshet flows within its catchment area, including most of the Primary Crusher area. The pond water is transferred two times per year during the warmer months – once in the spring and once in the fall with the total flow volume forecasted in the model as being 34,675m3 during operations. Table 3-6 presents the annual water volume transferred from SMP to South Cell. Since 2017, the SWP is used as a snow dump during wintertime. After the end of operations, this pond is planned to be transferred to the pits as part of the reflooding process, more details are outlined in section 3.1.10.1.

Table 3-6: SMP annual transfer

Year	SMP Annual Transfer (m^3)
2016	46,638
2017	103,894
2018	70,152

3.1.11 Seepage Collection Systems

3.1.11.1 Mill Seepage Collection system

In November 2013, Agnico observed seepage discharging west of the access road in front of the Assay lab shown on Figure 3.6. The source was determined to be leak from internal containment structures within the mill. Third Portage Lake (3PL), approximately 200 m to the west, was identified as a possible sensitive receptor. Remedial measures were undertaken immediately and this included construction of an impermeable interception/collection trench downstream of the seepage flow path. A comprehensive monitoring network and plan was implemented which included installation of monitoring wells, a recovery well (MW 203) and a water sampling program (including Third Portage Lake). To date, no contaminants have been detected in 3PL. Repairs (sealing) were completed within the mill (containment structures) in 2014 to eliminate the source of contaminants.

Seepage collected in the trench and recovery well is pumped back to the mill to be used as process water. The pumping occurs in the warmer months beginning when freshet begin. The recovery well is pumped year round when water available. In 2018, pumping of the mill seepage occurred from June to September. No flow of water has been pumped during winter months in the trench because of frozen conditions. Table 3.7 shows the pumped volumes from 2015 to 2018.

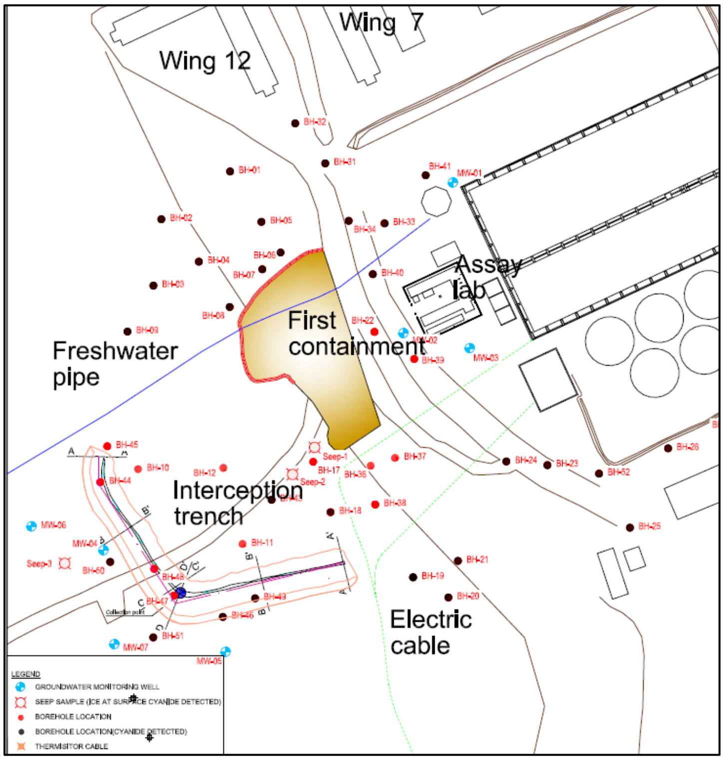


Figure 3.6: Mill Seepage Area

Table 3.7: Mill Seepage pumped volumes

Year	Mill seepage pumped volumes back to the mill (m^3)
2015	30,543
2016	11,078
2017	22,977
2018	13,645

3.1.11.2 ST-16 RSF Seepage management

Figure 3.7 presents the water management strategy to manage contact water from the Portage Rock Storage Facility, which consists of two sumps located behind the Portage waste dump (WEP-1 and WEP-2) to collect contact water. All water collected from these sumps is pumped back in the ST-16 sump system and then transferred to the North Cell reclaim pond

Table 3-8 presents the volume of water pumped back to the North Cell TSF from the ST-16 location. 34,550m³ was pumped back to the North Cell TSF in 2018. This volume is lower than in

2017 (50,553m³) due to lower rainfall and freshet runoffs. Low contaminant levels are still observed by the sampling program. The Freshet Action Plan (Appendix D) presents more information on the history, long term monitoring plan and remedial actions for this seepage location.

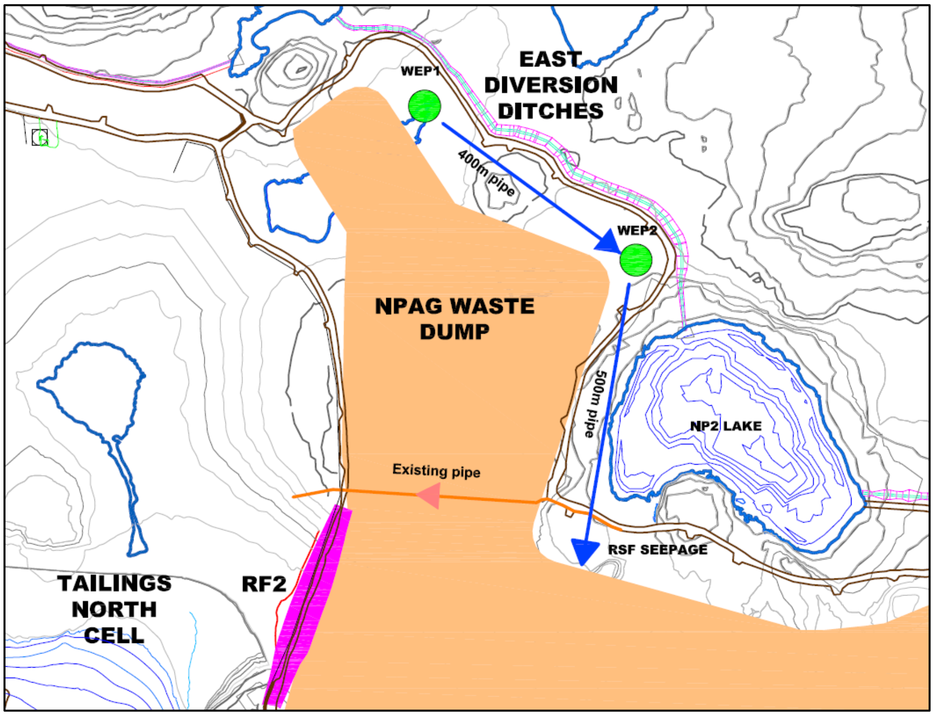


Figure 3.7: RSF seepage area

Table 3-8: ST-16 RSF Seepage 2018 pumped volumes

Month	2018 RSF seepage pumped volumes back to NC TSF (m^3)
January	0
February	0
March	0
April	0
May	0
June	27,249
July	2,523
August	3,453
September	1,325
October	0
November	0
December	0
Total	**34,550**

3.1.11.3 East Dike Seepage Collection

The East Dike Seepage system collects seepage from Second Portage Lake (2PL) as illustrated in Figure 3.8. Seepage from 2PL, flow through the East Dike in two discrete locations and is collected and discharged back, as a combined flow, through a diffuser, to 2PL (in accordance with the Water License and the MDMER criteria). If water quality does not meet license or MDMER criteria, due to increased TSS during freshet period and large precipitation events in summer, the seepage water is pumped to the mined out areas of the Portage Pit specifically in the Portage Central Waste Rock area, where the water flows through the deposited rock of the Portage Central Dump.

Table 3-9 presents the 2018 monthly volume discharged to 2PL. In 2018, seepage water did not meet license and MDMER criteria for TSS from June to August 2018. When this occurred, the discharge to 2PL was stopped and redirected towards the Portage Pit. The total volume returned to Second Portage Lake in 2018 was 138,288m^3 and 95,223m^3 to the pit. The historical monthly average of 14,964m^3 has been applied in the water balance until 2031.

Agnico will look at the feasibility of directing East Dike Seepage towards pit A in 2019 to promote pit flooding. At closure, this seepage water will be an inflow for the natural reflooding process.

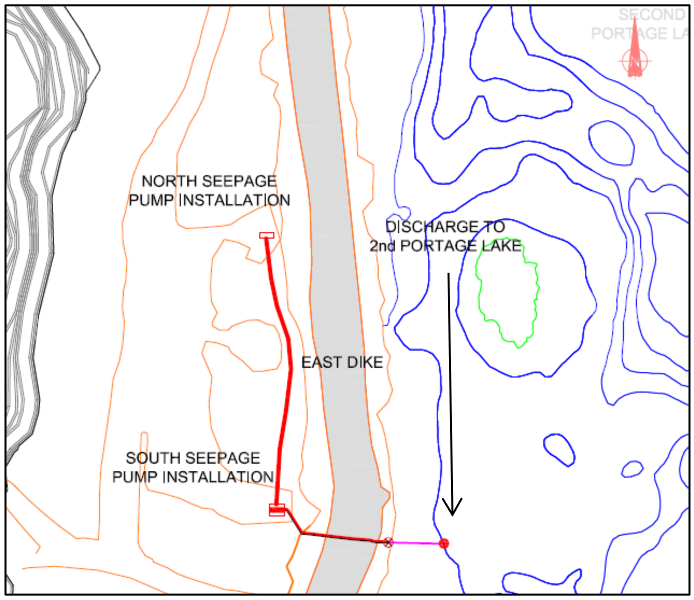


Figure 3.8: East dike pumping system

Table 3-9: East Dike Seepage 2018 pumped volumes

Month	2018 East Dike seepage pumped volumes back to 2PL (m^3)
January	16,638
February	13,937
March	18,592
April	17,067
May	19,078
June	1,718
July	0
August	3,614
September	13,372
October	12,078
November	11,226
December	10,968
Total	**138,288**

3.1.11.4 *Central Dike Seepage*

Since April 2015, the water from Central Dike downstream is pumped back in the South Cell continuously as to maintain the water level at El.115 m using the setup illustrated in Figure 3.9 .

In 2018, the seepage rate continued its downward trend from 2017 and varied between 237-303m3/h, with a stabilization towards 230m3/h. The seepage trend is closely following the seepage flowrate modelled by Golder (2017). Table 3-8 presents the water pumped from the Central Dike D/S pond to the South Cell TSF in 2017 and 2018. Figure 3.10 shows the Central Dike seepage pumping flow rate compared to the Golder seepage analysis revised in 2017.

During the summer of 2018, the orange precipitate identified in 2017 reappeared in the Central Dike Downstream pond as predicted. The sampling program established in the 2017 action plan was resumed. Results once again confirmed the presence of a bacteria driven biological process leading to an iron precipitate.

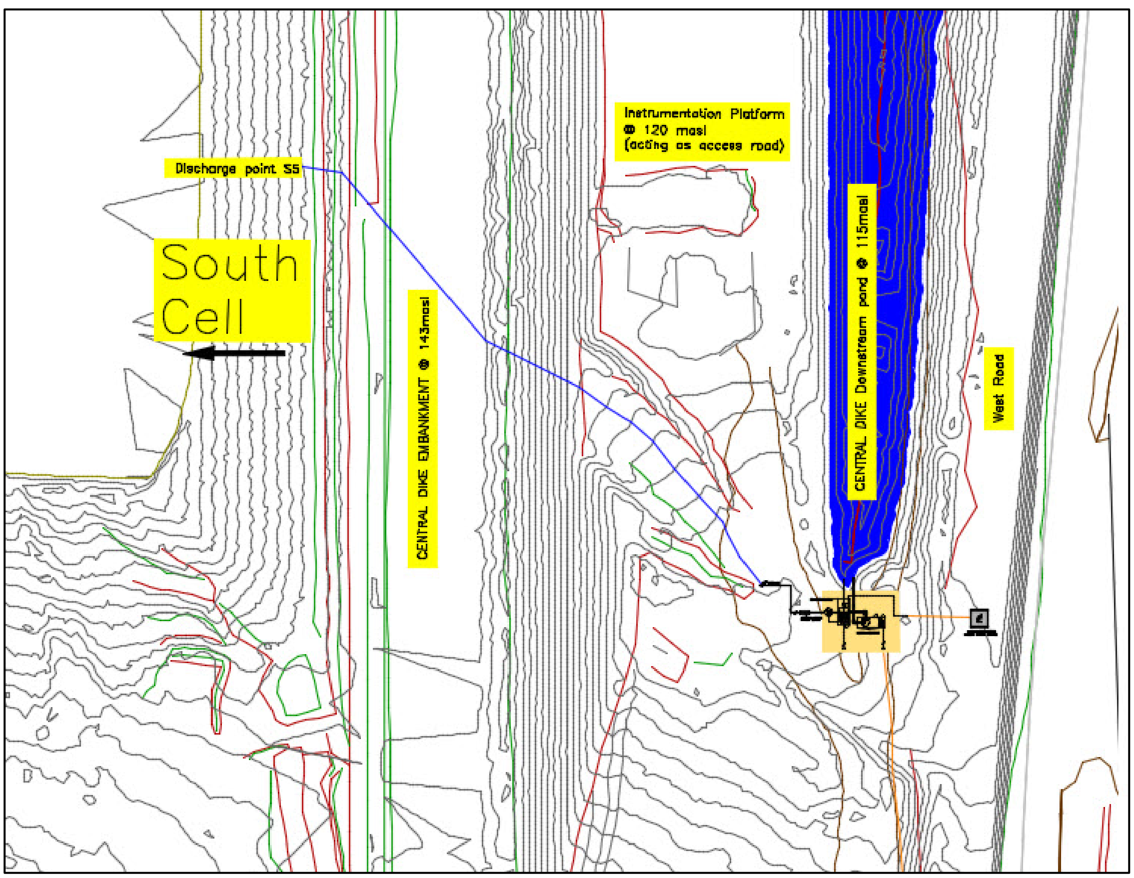


Figure 3.9: Central Dike seepage pumping system

Table 3-10: Central Dike Seepage 2017-2018 pumped volumes

Year	Month	Central Dike seepage pumped volumes back to SC TSF (m^3)	Central Dike seepage pumped volumes back to Goose Pit (m^3)	Average Seepage Rate (m^3/h)
2017	January	447,165	0	601
	February	408,856	0	608
	March	449,239	0	604
	April	427,944	0	594
	May	494,484	0	665
	June	466,642	0	648
	July	424,499	0	571
	August	374,648	26,889	540
	September	130,262	258,065	539
	October	234,820	47,223	379
	November	256,514	0	356
	December	251,796	0	338
	Total	**4,366,869**	**332,177**	**537**
2018	January	225,715	0	303
	February	189,026	0	281
	March	206,319	0	277
	April	175,832	0	244
	May	177,925	0	239
	June	195,645	0	272
	July	195,987	0	263
	August	205,314	0	276
	September	189,297	0	263
	October	191,783	0	258
	November	171,406	0	238
	December	176,167	0	237
	Total	**2,300,416**	**0**	**263**

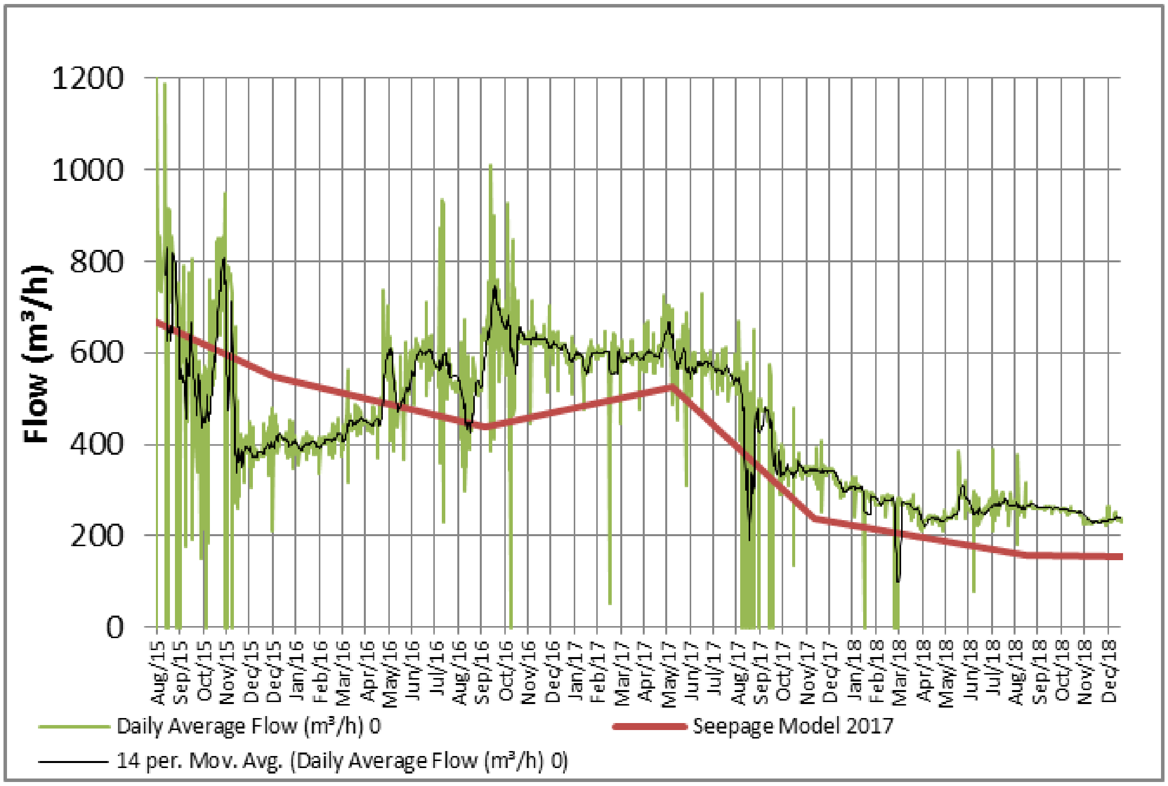


Figure 3.10: Central Dike seepage flow

3.2 PIT FLOODING

This section present the pit flooding strategy meeting the requirements outlined in the Nunavut Water Board Water License No. 2AM-MEA1526. Agnico will provide at least 30 days' notice to the Nunavut Water Board and Inspector prior to starting the flooding of each pit from water obtained from Third Portage Lake and Wally Lake.

As prescribed in the Nunavut Water Board Water License No. 2AM-MEA1526 (Part E, Conditions 1 and 2), the use of water from Third Portage Lake, for all purposes, including flooding of the pits, shall not exceed […]a maximum of 4,935,000 m^3 starting in 2018 through to the expiry of the License 2AM-MEA1526. The use of water from Wally Lake shall not exceed a total 4,185,000 m^3 per year starting in 2018 through the expiry of the License 2AM-MEA1526.

Refer to Table 3-11 for the reflooding sequence per year for all pits.

Table 3-11: Pit flooding profile

Pit Flooding profile								
Year	Volumes pumped from 3rd Portage lakes			Volumes pumped from Wally lake				Total flooding water (m^3)
	To Portage pit (m^3)	To Goose pit (m^3)	From 3PL (m^3)	To Vault pit (m^3)	To Vault Attenuation Pond (m^3)	To Phaser pit/lake (m^3)	From Wally lake (m^3)	
2018	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0
2020	3,963,216	0	3,963,216	4,185,000	0	0	4,185,000	8,148,217
2021	3,887,544	0	3,887,544	4,185,000	0	0	4,185,000	8,072,544
2022	4,900,325	0	4,900,325	4,185,000	0	0	4,185,000	9,085,325
2023	4,900,325	0	4,900,325	4,185,000	0	0	4,185,000	9,085,325
2024	4,900,230	0	4,900,230	4,185,000	0	0	4,185,000	9,085,230
2025	4,900,325	0	4,900,325	3,870,806	314,194	0	4,185,000	9,085,325
2026	1,122,594	3,298,049	4,420,643	2,936,848	0	0	2,936,848	7,357,491
Total	**28,574,558**	**3,298,049**	**31,872,607**	**27,732,655**	**314,194**	**0**	**28,046,849**	**59,919,456**

3.2.1 Portage Area Flooding

The volumes of water needed for the Portage area pit flooding, which is part of the overall closure plan, is dependent on the water elevation of Third Portage Lake (3PL). The Goose dike will only be breached when the level of the flooded pits reaches the same elevation as 3PL and pit water quality meets CCME/site specific criteria concentrations as per the Water License condition. According to 3PL elevation data from 2013-2018, this elevation would be 133.6masl. Figure 3.11 presents water level recorded for 3PL and 2PL between 2009 and 2018, while Figure 3.12 presents 2PL recorded elevations.

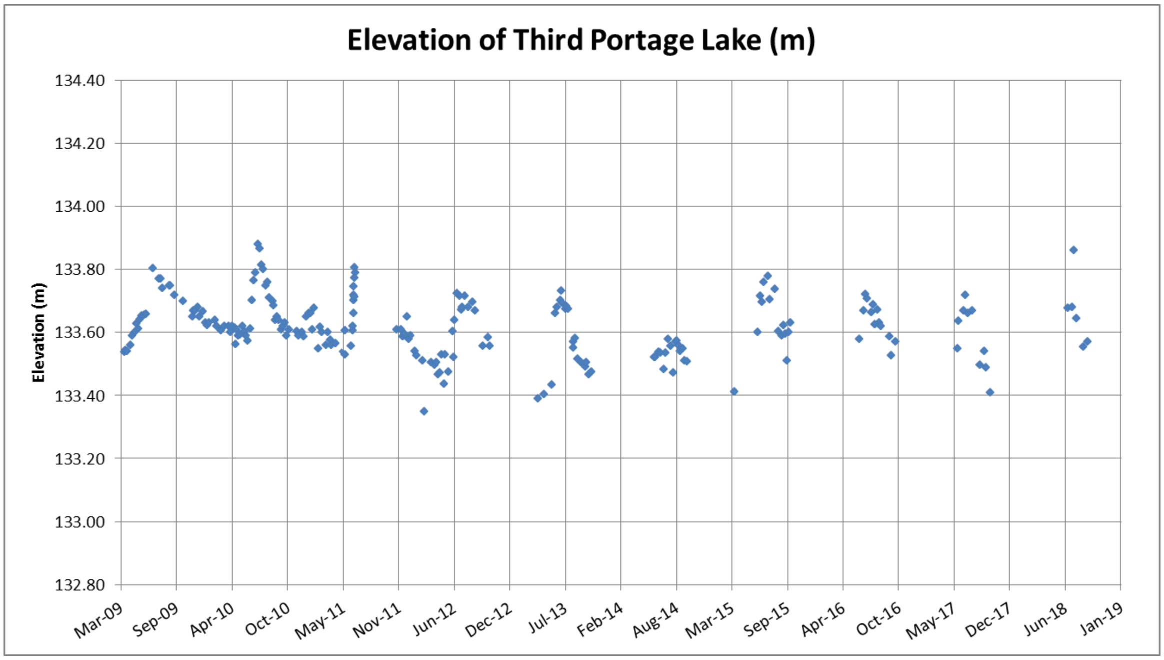


Figure 3.11: Distribution of 3PL elevation surveyed data

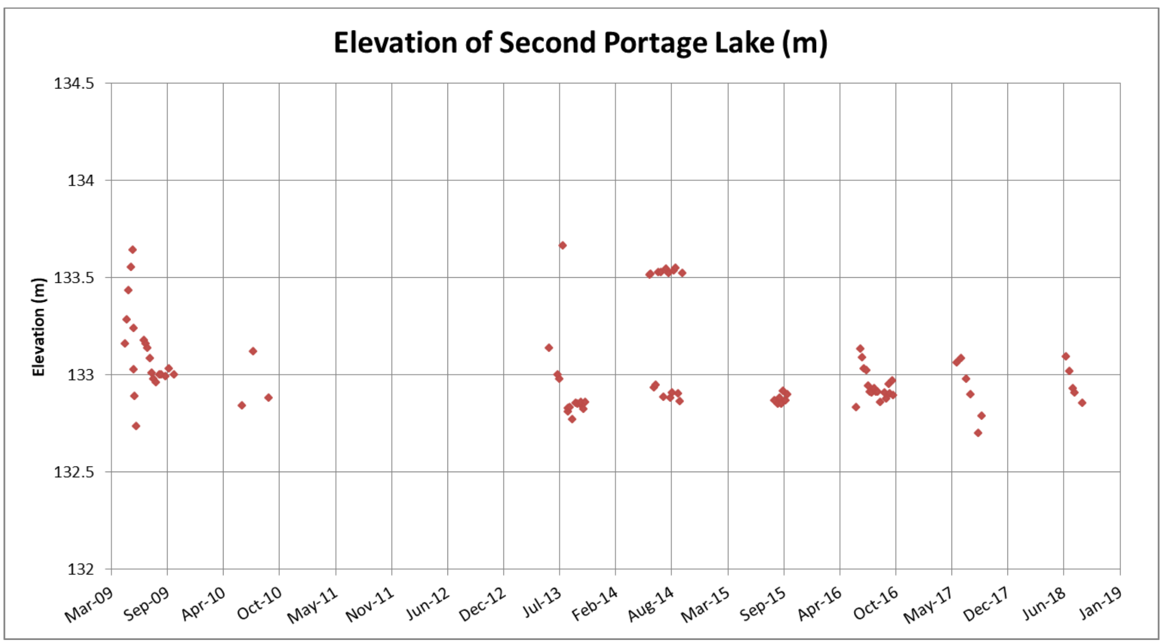


Figure 3.12: Distribution of 2PL elevation surveyed data

The current flooding technique proposed for Portage and Goose Pits is to use a combination of pumps and siphons to achieve the pumping rates prescribed by the Water Balance, which conforms to the approved volume stipulated in the Water License. During the active reflooding period, natural run off will also contribute to the process. Details of the complete mechanical flooding system will be available in the Final Reclamation and Closure Plan. 31.87Mm^3 will need to be transferred form 3rd Portage Lake to accomplish the required pit flooding for Portage and Goose Pits. Pit flooding is scheduled to begin in 2020, starting in Pit E. At water elevation 131.0 masl, both Portage and Goose Pits will join to become one waterbody. Reflooding will continue to the natural Third Portage Lake water elevation at approximately 133.6masl. At this level, the dikes will be breached; however, this is dependent on pit water quality. The current objective is to ensure the water meets CCME Guidelines for the Protection of Aquatic Life and/or site-specific criteria for parameters not listed in the CCME guidelines before the dike is breached. The first phase of the flooding sequence is planned to be completed by the end of summer 2026. Three to four years of monitoring is planned at that point to evaluate the water quality in the pits. During this time, water runoff will contribute exclusively to the reflooding process so 3rd Portage lake elevation is reached by 2030. Breach of the dike is planned for 2030.

Prior to completing the capping of the TSF's, residual reclaim water in the South Cell (647,100m^3) will be transferred into the pits at the end of milling operations. This residual volume combined to natural South Cell run offs will begin to be transferred in 2021 and the remaining to be pumped the following summer. More details on the treatment requirements of the reclaim water will be determined if required as per the Meadowbank Water Quality Forecasting Update Technical Note rev. 00 completed by SNC (March, 2019 – See Appendix C) (a summary of the findings is also the subject of Section 4 of this report). This document predicts that aluminum, arsenic, cadmium, chromium, copper, iron, mercury, nickel, lead, selenium, fluoride, total ammonia may require treatment to reach CCME criteria based on the completely mixed assumption. Mercury and lead are new parameters of concern, potentially requiring treatment compared to the 2018 water quality forecast report.

Agnico is committed to update the Water Quality Forecast Model, using up to date, year over year data, on a yearly basis until, and possibly after, the cessation of mine operations. The water split between Portage and Goose could also be revised in the future depending on mining plan updates and water balance changes.

To reach water elevation 133.6m, 42.84 Mm3 of water will be required. As previously stated, 31.87Mm^3 originates from Third Portage Lake, and the 10.97Mm^3 balance will be made up from the natural pit water inflows including runoff and precipitation combined with reclaim water. The reflooding strategy is similar to the strategy presented in the 2017 Water Management Plan and considers the design flow rate of the reflooding infrastructure. This approach is conservative, with respect to TSF runoff, as water quality of the runoff should be re-directed to Third Portage Lake a few years after capping (2024), which is consistent with the initial function of the diversion ditch system (however, the runoff from the capped TSF's will be directed to the pits until the water quality meets closure criteria).

3.2.1.1 Goose Pit Flooding

Goose pit flooding by natural inflow started in 2015 (runoff, groundwater, precipitation, potential Bay Goose dike seepage). So far, a total volume of 1.91Mm³ of natural flooding has been achieved. In 2018, the natural inflow was estimated at 327,114m³, based on surveyed water elevation, combined with pit geometry. This volume is smaller compared to the two previous years, 2016 and 2017, which had natural inflow volumes of 375,300 m³ and 464,019 m³ respectively. Agnico expects this was due to more flows of groundwater, seepage inflows and surface run offs for those given years versus the average value found in the model. This will continue to be monitored on a yearly basis and the Water Balance will be modified accordingly. Mechanical transfers from 3PL to Goose Pit are planned in 2026. At 131masl, the Goose water will join the Portage Pit water to form one water body. Figure 3.13 depicts the Goose Pit flooding curve. Goose Pit volumes between 131masl and 133.6masl are included as part of Portage flooding volumes.

Mechanical flooding – from 3PL – will end in August 2026, after which natural pit inflow will allow the level to reach the 3PL lake elevation in 2030. If water quality meets all closure criteria including CCME guidelines and site-specific criteria, the Goose dike will then be breached. Refer to Section 4 for the pit water quality forecast model.

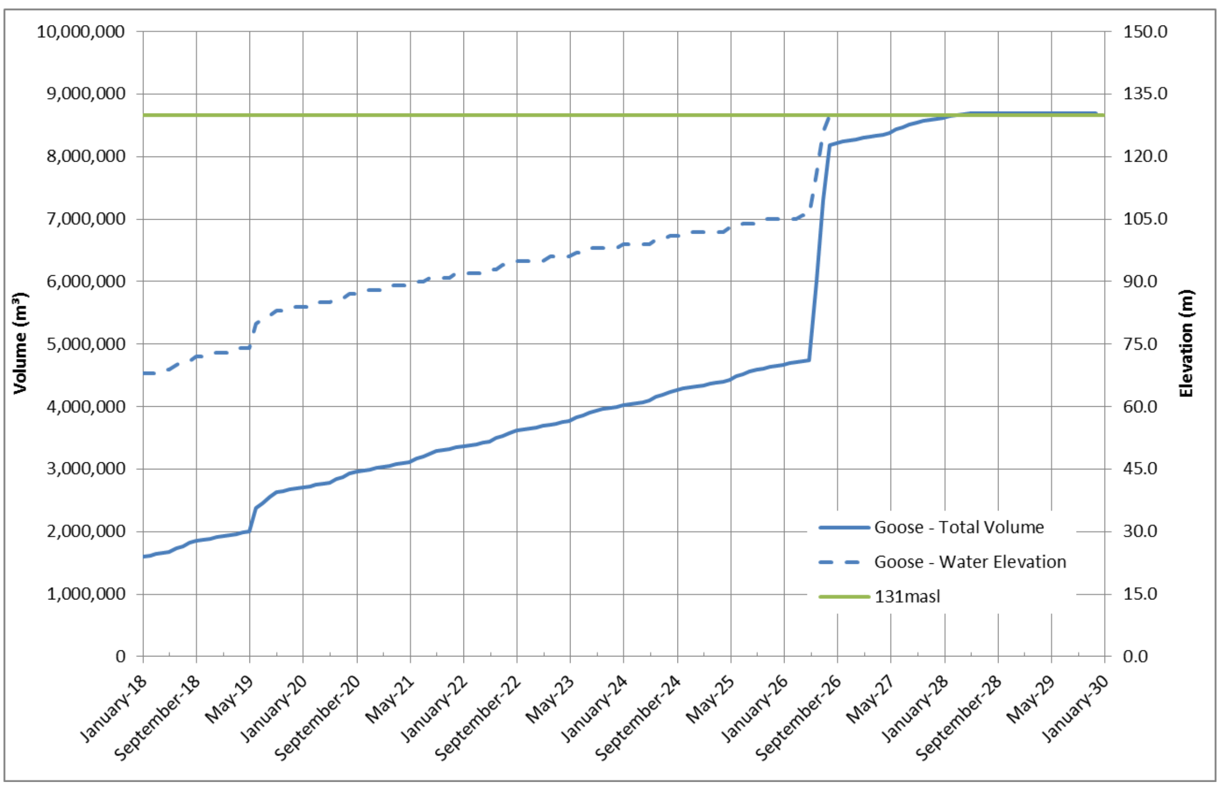


Figure 3.13: Goose pit flooding

3.2.1.2 Portage Pit Flooding

Portage Pit reflooding will commence in June 2020, and continue during summer months until September 2026, with an annual volume ranging between 1.6Mm^3 and 4.9Mm^3 from 3rd Portage Lake to complete the flooding to elevation 131masl. From this point, runoff water and other pit natural inflows will be used to complete flooding of both pits until elevation 133.6masl is reached in 2030. Figure 3.14 presents the pit reflooding curve which includes all water sources used to reflood the pit, including both South Cell reclaim transfers and 3rd Portage lake transfers. Refer to Section 4 for the pit water quality forecast model.

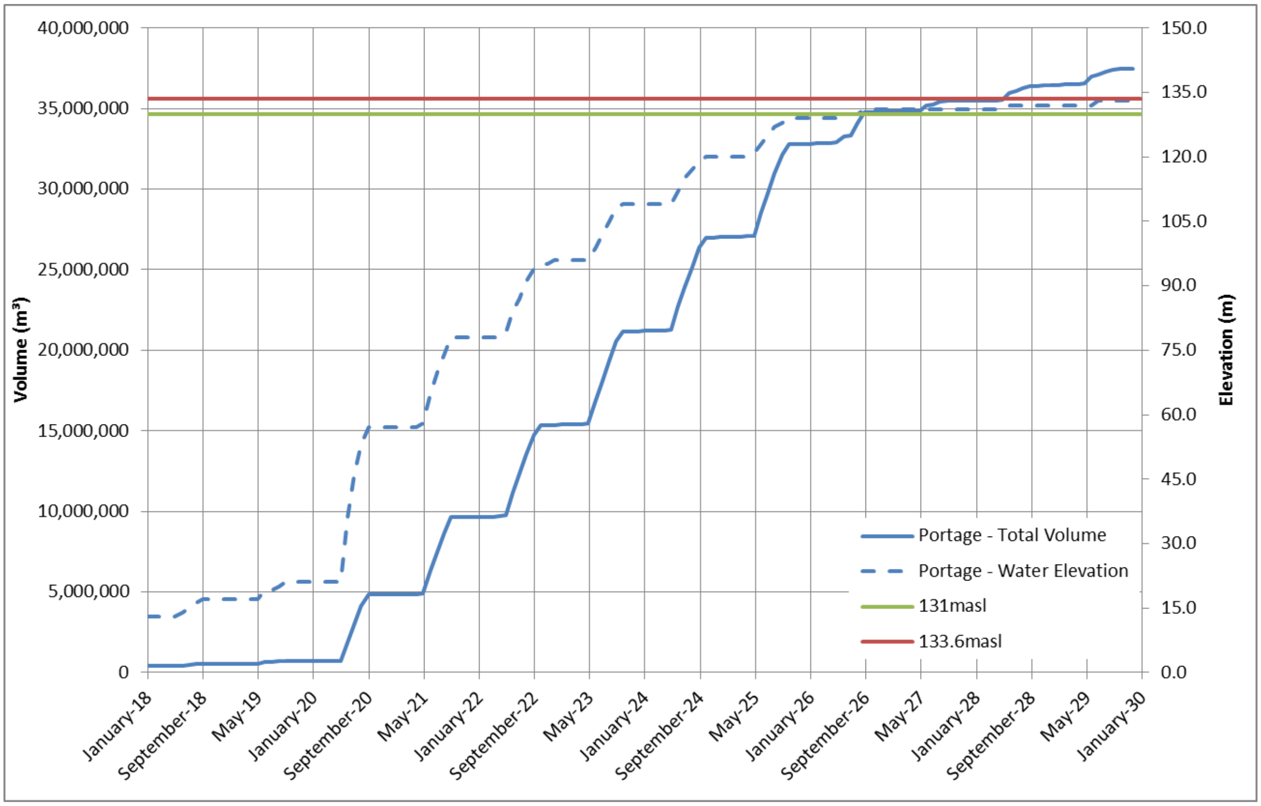


Figure 3.14: Portage pit flooding

3.2.3 Vault Pit Area Flooding

The Vault pit area is composed of many basins in the former lake and different pit elevations that are all linked togheter. The flooding of the Vault Pit area is complex and requires water transfers from basin to basin. Reflooding from Wally Lake of the Vault Pit will commence in 2020 and will continue until the end of summer 2026 using a siphon system similar to the one planned to be used in Goose and Portage. The volume of water transferred from Wally Lake to the Vault Pit will respect the limits prescribed in the Water License. This active flooding will occur at an annual rate of 4,185,000m^3 and finally 3,272,068m^3 in 2026. Like Portage and Goose, from 2026 to 2030, the natural inflow will then allow Vault pit to reach 139.9masl (natural Wally Lake water level).

The flooding curves for the Vault area are presented in Figure 3.15. The final elevation of the reflooding will be 139.9masl for Phaser and Vault Lake. At this point, the Vault dike will be breached provided the water quality in the Vaul area meets CCME criteria and/or site specific criteria for parameters not included in the CCME Guidelines. Refer to Table 3-11 for the yearly cumulative volumes required to complete the flooding process. Refer to section 4 for the pit water quality forecast model.

Phaser pit, BB Phaser Pit and Phaser Lake are planned to be flooded exclusively from their watershed run off inflows until the target elevation of Wally is reached in 2027. Those inflows will be used conjointly with the Vault ATP inflows to flood to the target elevation of the Vault ATP area – 139.9masl (Wally Lake level). The reflooding of Vault and Phaser area with natural inflow consists of approximatively 0.54Mm³ yearly from freshet, precipitation, groundwater inflow.

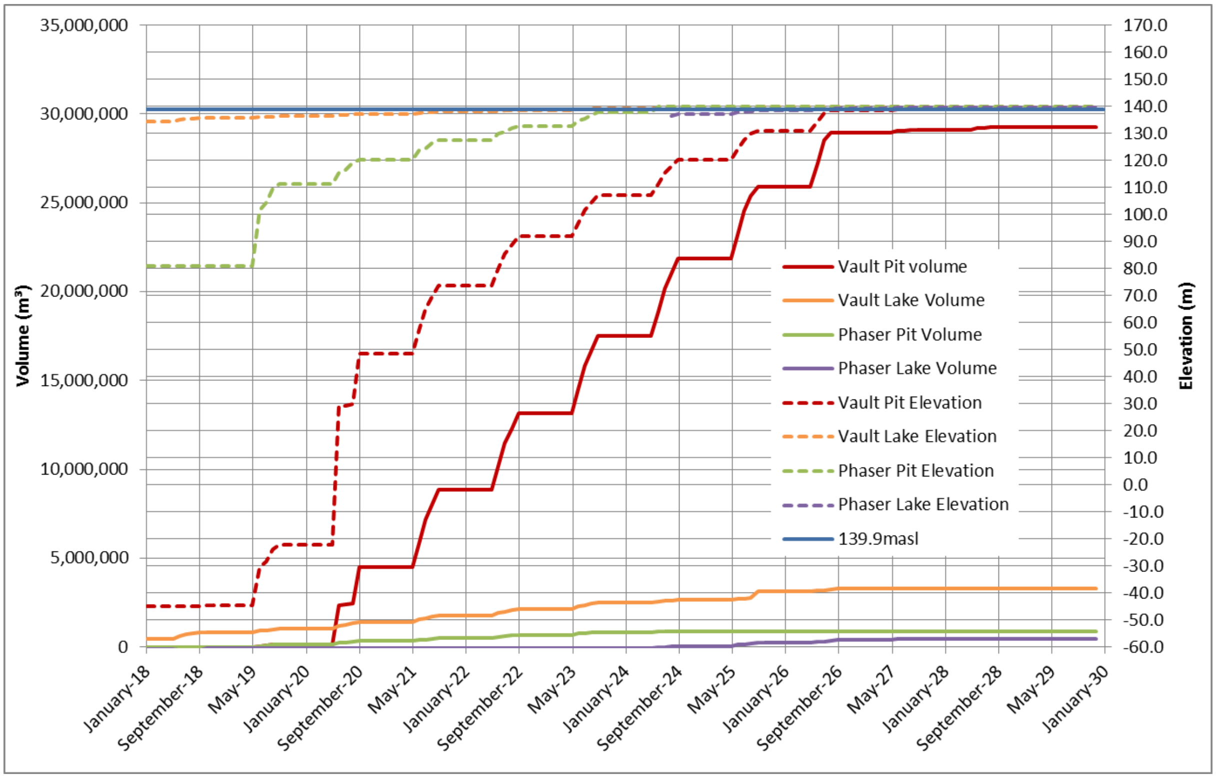


Figure 3.15: Vault Area Pits Flooding

3.3 WATER MANAGEMENT STRUCTURES

As per the Water License 2AM-MEA1526, (Part E, Condition 10) Agnico will conduct weekly inspections of all water management structures during periods of flow. This program commenced in 2016 and was added to the weekly inspections already undertaken as per the Freshet Action Plan (Appendix D) at water conveyance structures during flow periods. Records of the inspections will be available for review by an Inspector upon request.

4 MEADOWBANK WATER QUALITY FORECASTING UPDATE

The water quality forecast report was prepared by SNC Lavalin (SNC, 2019) and is a continuation of a series of yearly water quality modelling forecast report, which began in 2012, and will continue until mine closure, as per the Water License part E item 7. The purposes of the report are to identify, through a mass balance approach, the contaminants of concern during the pit flooding process, and determine if water treatment will be required on site for closure activities when comparing the final contaminant levels to the CCME guidelines and/or site specific criteria for parameters that are not included in the CCME Guidelines. Each yearly update builds on the previous year as new monitoring data is added at the site. Forecasted model values of the prior years are compared with the actual sample results from the following years for model calibration purposes. SNC identified 12 contaminants in their 2019 report: aluminum, arsenic, cadmium, chromium, copper, iron, mercury, nickel, lead, selenium, fluoride, total ammonia. Mercury and lead are new parameters of concern, potentially requiring treatment compared to the 2018 water quality forecast report. As the aforementioned parameters may be of concern prior to dike breaching, treatment options for their removal during, or after, the pit flooding process will need to be examined and will be assessed in greater detail during the preparation of the final closure and reclamation plan. Agnico is committed to implementing the recommendations provided in the SNC Water Modelling Report in 2019 and beyond. These are:

1. Continue the current monthly monitoring program of all inflows and outflows of the North and South Cells TSF Reclaim Pond for cyanide, a complete total and dissolved metal scan, ammonia, nitrate, fluoride, chloride, sulfates, total dissolved solids (TDS) and total suspended solids.
2. Continue the current monitoring program of the water in the South Cell TSF Reclaim Pond for cyanide, total and dissolved metal scan, ammonia, nitrate, fluoride, chloride, sulfates, total dissolved solids (TDS) and total suspended solids. It is understood that this recommendation is required as per the water license
3. Regular monitoring of pit water quality (Portage and Goose) should also be undertaken, when the site can be safely accessed, and analyzed for cyanide, total and dissolved metals, ammonia, nitrate, chloride, fluoride, sulfates, total dissolved solids (TDS) and total suspended solids. This information will be useful in developing and calibrating a water quality forecast model of the pit water quality based on loadings from surface runoff and possible underground water seepage.
4. If possible, quantify the seepage flows or volumes entering the Portage and Goose Pits. The study should also attempt to evaluate the seepage rate into the pits as a function of the hydraulic difference between the water level in the pit and in Third Portage Lake.

5. Once transfer of South Cell Reclaim Water to the Portage Pit begins, regular (at least monthly) monitoring of all outflows of the TSF Reclaim Pond for all parameters should be undertaken, including TSS to ensure low level during transfer.
6. Once Portage and Goose Pits are hydraulically connected, it is recommended to sample the water at different points in the pit area in order to evaluate the mixing efficiency over the entire area. The samples should be taken at different depths over the entire area of the flooded pits before and after the filling season.
7. Continue to sample and analyze, as per the Water License requirement, water from the Vault Pit and Vault Attenuation Pond and include ammonia and nitrate in the list of parameters to analyze for.
8. Perform a bench scale water treatment test to evaluate the contaminant removal efficiency using treatment approaches such as lime neutralization, coagulation/flocculation with aluminum sulfate or ferric sulfate, and coagulation/flocculation with proprietary coagulants designed for metal removal, as well as alternative treatment options.

5 2018 INTEGRATED DEPOSITION PLAN

An updated Tailings Deposition Plan has been prepared by Agnico for the 2018 revision of the Water Management Plan. The updated deposition plan is presented in the 2018 version of the Mine Waste Rock and Tailings Management Plan where a detailed update of the tailings deposition parameter is presented by comparing bathymetric results.

A significant change to the deposition strategy is the planned discharge of tailings in the North Cell in summer 2018 and from May 2019 to May 2020 while the South Cell structures are raised to increase the capacity of the South Cell. The North Cell deposition has been sequenced to optimize the closure landform. During North Cell deposition, water will be transferred from the North Cell to the South Cell. Increased freshwater consumption during winter months is planned to account for increased ice entrapment, while maintaining minimal water volume in the South Cell.

Closure water management for the TSF was updated to optimize the pit flooding process. Reclaim water transfers will be required yearly from the North Cell to the South Cell and then to the Portage Pit (in 2022-2029). Once capping construction is completed, water transfers will continue to be done until the final closure landform is achieved, however those transfers will originate from the capped TSF’s run off which will differ in terms of quality (likely only TSS).

6 CONCLUSION

This report presents an updated/revised water management plan for the Meadowbank mine based on the Agnico 2017 Water Management Plan submitted to the NWB as part of the Agnico 2017 Annual Report. Validation and updates of the site parameters (i.e. deposition parameters and pit flooding) were conducted as part of this annual update. In addition, further updates/modifications/revisions to the mine plan (LOM), site wide water management, tailings deposition plans and operating schedule were evaluated in preparing this update.

The most significant update to the plans is the addition of 8.3Mt of Whale Tail Pit ore to process in 2019 to 2021. North Cell deposition resumed in 2018, from August to October, from the North Cell Internal Structure. In 2019, it is planned to continue tailings deposition in the North Cell.

The site wide Water Balance has been optimized to ensure minimal freshwater consumption while operating a mature tailings pond during winter months. The 2018 TSF bathymetries confirmed that the increased beach length observed promoted ice entrapment, which reduced the tailings dry density.

Phaser pit mining activities were concluded in October 2018. Vault mining activities are planned to be completed in Q1 2019, while BB Phaser is planned to be completed in Q2 2019. The Vault WTP has been dismantled as no more Wally Lake discharge is planned.

Central Dike seepage flow has been variating between 230 and 315 m^3/h in 2018 and appears to be stabilizing around 230 m^3/h. The orange precipitate was observed again in 2018, as predicted. The flows observed closely follow the ones predicted by Golder in the latest seepage modelling and stability assessment performed in 2017. Pumping has continued until present day and will continue until pit flooding occurs.

Pit flooding volumes and sequencing (including Portage, Goose and Vault Pits) is presented in this report. Passive reflooding began in Goose Pit in 2015 and is ongoing. Active pit reflooding is planned to start in 2020 in Portage pit, and should be completed 2026. Vault reflooding will also begin in 2020, and active reflooding is to be completed in 2026. Once water quality in the flooded pits meet CCME Guidelines for the Protection of Aquatic Life and/or site specific criteria for parameters not listed in the CCME Guidelines, dike breaching of the surrounding structures will occur to reconnect the Portage and Goose areas to Second Portage Lake and Vault area to Wally Lake (2030). AGNICO plans three years of monitoring to assess the pit water quality prior to breaching. It should be understood that the dikes will not be breached unless the water quality meets the CCME or other site specific criteria.

A water quality forecasting model was completed by SNC Lavalin (SNC, 2019) for the life of mine and is included in this report. The mandate of this report is to analyze the water quality as we proceed through the operating life of the mine and the pit flooding operation in order to determine the needs for potential treatment of contaminants of concern. Based on current water quality and the latest Water Balance using the latest life of mine exercise, the report identifies certain contaminants, such as aluminum, arsenic, cadmium, chromium, copper, iron, mercury, nickel, lead, selenium, fluoride and total ammonia, which may require removal treatment in order for the pit water quality to meet CCME or site specific discharge criteria prior to dike breaching. AGNICO is committed to updating this forecast on a yearly basis.

The Freshet Action Plan (2019) is included in the 2018 Water Management Plan as Appendix D. The plan details the RSF seepage issue at ST-16 and the Assay Road seepage as well as providing revised monitoring. The 2015 Ammonia Management Plan is included in Appendix E.

7 RECOMMENDATIONS

This section presents a series of recommendations in order to improve on the current water management strategies and water balance. It is Agnico's intent to implement all recommendations listed.

- Continue to monitor and include any new flow monitoring locations/devices for any additional or new inflows observed in 2018.
- Continue to update the deposition plans of the North and South Cell as needed to maximize water use and availability as well as increasing the accuracy of the models including but not limited to bathymetric readings.
- Validate new tailings parameters with 2019 North and South Cells bathymetries.
- Conduct the water quality modelling analysis on a yearly basis based on updated water quality results and water balance through the life of mine.
- Continue development of the sediment flux model to evaluate erosion of geotechnical structures on site for the closure, primarily for TSS control: diversion ditches, rock storage facilities, capping of the tailings storage facilities, dikes and dams.
- Evaluate opportunities to reduce contaminants concentration in the reclaim pond prior to closure.
- Continue follow up of the Central Dike seepage flow and adjust pumping station capacity in function of the decreasing flow.
- Implement 2018 Meadowbank Water Quality Forecasting (SNC, 2019) recommendations.

8 REFERENCES

1. AGNICO (2017) – Water Management Plan 2016
2. AGNICO (2018) – Waste Management Plan 2017
3. AGNICO (2019) - 2018 Mine Waste and Tailings management plan
4. Environment Canada (2011a) - National Climate Data and Information Archive, http://climat.meteo.gc.ca/advanceSearch/searchHistoricData_f.html.
   14. Nunavut Water Board, Water Licence NO: 2AM-MEA0815, June 9 2008 to May 3 2015.
5. Golder Associates Ltd. (Golder), 2003. Report on Permafrost Thermal Regime Baseline Studies, Meadowbank Project. December 18, 2003.
6. Golder (2009) – Meadowbank Gold Project Updated Water Management Plan. Golder Associates Limited. July 2009.
7. Golder Associate Ltd (Golder) 2011b. 2011 Central Dike Geotechnical Investigation, Tailings Storage Facility, Meadowbank Project, Doc 1268, May 17, 2011
8. Golder (2017) – Central Dike Seepage and Performance Assessment Update
9. Golder (2018) - 2018 CONSTRUCTION SEASON AS-BUILT REPOR TAILINGS STORAGE FACILITY – 1897439-1578-r-Rev0 As-built report 2018
10. SNC (2013) – Water Management Plan 2012. SNC Lavalin. March 2013.
11. SNC (2019) – Meadowbank Water Quality Forecasting Update Base on the 2015 Water Management Plan. February 2018.

APPENDIX A – WATER BALANCE

2018

	Year 2018												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	295,690	288,376	246,415	254,528	301,915	287,317	347,236	303,189	237,934	239,675	216,299	245,476	**3,264,050**
Cummulative Tailings (tonnes):	24,942,306	25,230,682	25,477,097	25,731,625	26,033,540	26,320,857	26,668,093	26,971,282	27,209,216	27,448,891	27,665,190	27,910,666	-
Cummulative Tailings (m3) - North Cell	14,167,927	14,167,927	14,167,927	14,167,927	14,167,927	14,167,927	14,167,927	14,276,361	14,428,370	14,480,230	14,480,230	14,480,230	-
Cummulative Tailings (m3) - South Cell	8,349,101	8,616,115	8,844,277	9,079,951	9,359,502	9,543,680	9,766,267	9,852,185	9,852,697	9,983,901	10,189,900	10,423,687	-
North Cell (TSF)													
Starting Pond Volume (m^3)	35,306	35,306	35,306	35,306	35,306	35,306	205,106	74,021	165,289	138,962	53,505	53,505	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	138,997	180,938	39,109	0	0	**359,044**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	0	123,462	9,492	46,104	15,880	0	0	0	**194,938**
Runoff (m^3)	0	0	0	0	0	46,338	-37,461	162,622	-12,157	-13	0	0	**159,329**
Total Inflow (m^3)	0	0	0	0	0	169,800	-27,969	347,723	184,660	39,096	0	0	**713,311**
Transfer to South Cell (m^3)	0	0	0	0	0	0	103,116	95,398	210,987	124,553	0	0	**534,054**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	161,057	0	0	0	0	**161,057**
Total Outflow (m^3)	0	0	0	0	0	0	103,116	256,455	210,987	124,553	0	0	**695,111**
Net Inflow (m^3)	0	0	0	0	0	169,800	-131,085	91,268	-26,327	-85,457	0	0	**18,200**
End-of-Month Volume (m^3)	35,306	35,306	35,306	35,306	35,306	205,106	74,021	165,289	138,962	53,505	53,505	53,505	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	0	18,319	6,917	1,697	1,230	0	0	0	**28,163**
Runoff (m^3)	-56,352	153,260	142,491	-28,941	59,719	18,162	0	1	21,276	-102,158	47,672	-15,487	**239,643**
Transfer from North Cell (m^3)	0	0	0	0	0	0	103,116	95,398	210,987	124,553	0	0	**534,054**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	33,280	16,380	0	20,492	0	0	0	**70,152**
Water from tailings slurry (m^3)	145,520	28,758	24,823	23,993	28,547	190,050	233,898	110,136	812	97,821	78,517	75,564	**1,038,440**
Total Inflow (m^3)	89,168	182,018	167,314	-4,948	88,266	259,811	360,311	207,232	254,797	120,216	126,189	60,077	**1,910,452**
Reclaim water to the mill (m^3)	218,519	122,848	156,689	89,395	149,172	222,948	284,344	127,615	193,226	199,303	128,880	137,394	**2,030,333**
Transfer to Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	218,519	122,848	156,689	89,395	149,172	222,948	284,344	127,615	193,226	199,303	128,880	137,394	**2,030,333**
Net Inflow (m^3)	-129,351	59,170	10,625	-94,343	-60,906	36,863	75,967	79,617	61,572	-79,086	-2,691	-77,317	**-119,881**
End-of-Month Volume (m^3)	520,454	579,624	590,249	495,906	435,000	471,863	547,830	627,447	689,019	609,933	607,242	529,924	-
Mill/Camp													
Ore water (m^3)	2,606	2,047	2,078	1,500	2,854	3,177	2,778	3,335	2,430	3,002	5,494	8,140	**39,441**
Reclaim water (m^3)	218,519	122,848	156,689	89,395	149,172	222,948	284,344	288,672	193,226	199,303	128,880	137,394	**2,191,390**
Freshwater from Third Portage Lake (m^3)	51,593	165,743	92,864	152,356	136,970	48,679	50,348	43,441	49,672	29,232	93,370	73,864	**988,132**
Total Inflow (m^3)	272,718	290,638	251,631	243,251	288,996	274,804	337,470	335,448	245,328	231,536	227,744	219,399	**3,218,964**
Freshwater for camp purposes (m^3)	3,237	3,058	3,404	3,320	3,527	3,304	3,330	3,270	3,265	3,319	3,409	3,501	**39,944**
Slurry water (m^3)	269,481	287,580	248,227	239,931	285,469	271,500	334,140	332,178	242,063	228,217	224,335	215,898	**3,179,020**
Total Outflow (m^3)	272,718	290,638	251,631	243,251	288,996	274,804	337,470	335,448	245,328	231,536	227,744	219,399	**3,218,964**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	294	183	211	124	201	310	382	388	268	268	179	185	-
Freshwater pumping rate (m^3/hr)	69	247	125	212	184	68	68	58	69	39	130	99	-
TSF Water Balance													
Slurry water (m^3)	269,481	287,580	248,227	239,931	285,469	271,500	334,140	332,178	242,063	228,217	224,335	215,898	**3,179,020**
South Cell Tailings Deposition (%)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.44	0.00	0.71	1.00	1.00	-
Slurry water to South Cell (m^3)	269,481	287,580	248,227	239,931	285,469	271,500	334,140	146,848	812	163,036	224,335	215,898	**2,687,257**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	185,330	241,250	65,182	0	0	**491,762**
SC Tailings water/ice entrampment (%)	46%	90%	90%	90%	90%	30%	30%	25%	0%	40%	65%	65%	-
NC Tailings water/ice entrampment (%)	90%	90%	90%	90%	90%	30%	30%	25%	25%	40%	65%	65%	-
SC Void and ice entrapment losses (m^3)	123,961	258,822	223,404	215,938	256,922	81,450	100,242	36,712	0	65,214	145,818	140,334	**1,648,817**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	46,332	60,313	26,073	0	0	**132,718**
Slurry water returned to the SC pond (m^3)	145,520	28,758	24,823	23,993	28,547	190,050	233,898	110,136	812	97,821	78,517	75,564	**1,038,440**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	138,997	180,938	39,109	0	0	**359,044**

	Year 2018												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	1,600,937	1,620,250	1,639,381	1,658,512	1,677,825	1,738,541	1,768,783	1,818,080	1,851,345	1,870,476	1,889,789	1,908,920	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	10,715	20,985	59,410	26,694	0	0	0	**117,803**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m^3)	0	0	0	0	0	10,715	14,679	12,080	0	0	0	0	**37,474**
Pumped from Goose (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	21,430	35,664	71,490	26,694	0	0	0	**155,278**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	21,430	35,664	71,490	26,694	0	0	0	**155,278**
End-of-Month Volume (m^3)	392,731	392,731	392,731	392,731	392,731	414,161	449,825	521,314	548,008	548,008	548,008	548,008	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	111,652	9,922	64,582	32,212	-22	0	0	**218,346**
Pumped From Vault Pit (m^3)	0	0	0	0	0	1,425	33,884	-25,000	16,151	1,398	0	0	**27,858**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	67,855	23,928	16,087	17,337	0	0	0	**125,207**
Total Inflow (m^3)	0	0	0	0	0	180,932	67,734	55,669	65,700	1,376	0	0	**371,411**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	180,932	67,734	55,669	65,700	1,376	0	0	**371,411**
End-of-Month Volume (m^3)	455,475	455,475	455,475	455,475	455,475	636,407	704,140	759,810	825,510	826,886	826,886	826,886	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	1,425	33,884	-25,000	16,151	1,398	0	0	**27,858**
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	1,425	33,884	-25,000	16,151	1,398	0	0	**27,858**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	1,425	33,884	-25,000	16,151	1,398	0	0	**27,858**
Total Outflow (m^3)	0	0	0	0	0	1,425	33,884	-25,000	16,151	1,398	0	0	**27,858**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	39,355	9,362	9,463	2,431	0	0	0	**60,611**
Total Inflow (m^3)	0	0	0	0	0	39,355	9,362	9,463	2,431	0	0	0	60,611
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	39,355	9,362	9,463	2,431	0	0	0	**60,611**
End-of-Month Volume (m^3)	-123,486	-123,486	-123,486	-123,486	-123,486	-84,131	-74,769	-65,306	-62,875	-62,875	-62,875	-62,875	-

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	Year 2019												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	235,249	223,040	183,000	239,360	210,120	239,360	287,342	281,816	242,346	287,342	277,869	287,342	**2,994,186**
Cummulative Tailings (tonnes):	28,145,915	28,368,955	28,551,955	28,791,315	29,001,435	29,240,795	29,528,137	29,809,953	30,052,299	30,339,641	30,617,510	30,904,852	-
Cummulative Tailings (m3) - North Cell	14,480,230	14,480,230	14,480,230	14,480,230	14,674,785	14,828,221	15,012,415	15,193,066	15,348,416	15,566,099	15,823,385	16,089,443	-
Cummulative Tailings (m3) - South Cell	10,647,733	10,860,152	11,034,438	11,262,400	11,262,400	11,262,400	11,262,400	11,262,400	11,262,400	11,262,400	11,262,400	11,262,400	-
North Cell (TSF)													
Starting Pond Volume (m^3)	53,505	53,505	53,505	53,505	53,505	140,798	121,863	94,692	88,168	84,836	82,322	80,725	-
Water from tailings slurry (m^3)	0	0	0	0	142,110	171,952	178,737	178,006	171,793	142,455	80,115	83,038	**1,148,206**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m^3)	0	0	0	0	143,735	391,152	221,018	230,683	210,493	142,442	80,115	83,038	**1,502,675**
Transfer to South Cell (m^3)	0	0	0	0	56,442	410,086	248,189	237,207	213,825	144,956	81,712	84,877	**1,477,294**
Total Outflow (m^3)	0	0	0	0	56,442	410,086	248,189	237,207	213,825	144,956	81,712	84,877	**1,477,294**
Net Inflow (m^3)	0	0	0	0	87,293	-18,934	-27,171	-6,524	-3,332	-2,514	-1,597	-1,839	**25,381**
End-of-Month Volume (m^3)	53,505	53,505	53,505	53,505	140,798	121,863	94,692	88,168	84,836	82,322	80,725	78,886	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m^3)	0	-91,000	0	0	0	131,982	-10,260	8,951	5,933	-22	0	0	**45,584**
Transfer from North Cell (m^3)	0	0	0	0	56,442	410,086	248,189	237,207	213,825	144,956	81,712	84,877	**1,477,294**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Water from tailings slurry (m^3)	77,518	75,233	82,769	80,328	0	0	0	0	0	0	0	0	**315,849**
Total Inflow (m^3)	77,518	-15,767	82,769	80,328	90,143	560,642	238,397	249,332	233,443	144,934	81,712	84,877	**1,908,328**
Reclaim water to the mill (m^3)	7,410	46,200	122,760	120,960	193,440	187,200	193,440	193,440	187,200	145,080	82,800	85,560	**1,565,490**
Transfer to Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Goose Pit (m^3)	0	0	0	0	0	307,240	44,957	55,892	46,244	0	0	0	**454,333**
Total Outflow (m^3)	7,410	46,200	122,760	120,960	193,440	494,440	238,397	249,332	233,444	145,080	82,800	85,560	**2,019,823**
Net Inflow (m^3)	70,108	-61,967	-39,991	-40,632	-103,297	66,202	0	-1	-1	-146	-1,088	-683	**-111,495**
End-of-Month Volume (m^3)	362,410	300,444	260,453	219,821	116,524	182,725	182,725	182,725	182,724	182,578	181,490	180,807	-
Mill/Camp													
Ore water (m^3)	4,610	3,413	1,903	2,609	2,269	2,370	3,735	2,762	2,157	2,845	2,001	2,672	**33,345**
Reclaim water (m^3)	7,410	46,200	122,760	120,960	193,440	187,200	193,440	193,440	187,200	145,080	82,800	85,560	**1,565,490**
Freshwater from Third Portage Lake (m^3)	213,037	168,840	115,320	109,440	44,640	43,200	44,640	44,640	43,200	93,000	147,600	152,520	**1,220,077**
Total Inflow (m^3)	225,057	218,453	239,983	233,009	240,349	232,770	241,815	240,842	232,557	240,925	232,401	240,752	**2,818,913**
Freshwater for camp purposes (m^3)	3,577	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	**42,077**
Slurry water (m^3)	221,480	214,953	236,483	229,509	236,849	229,270	238,315	237,342	229,057	237,425	228,901	237,252	**2,776,836**
Total Outflow (m^3)	225,057	218,453	239,983	233,009	240,349	232,770	241,815	240,842	232,557	240,925	232,401	240,752	**2,818,913**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	10	69	165	168	260	260	260	260	260	195	115	115	-
Freshwater pumping rate (m^3/hr)	286	251	155	152	60	60	60	60	60	125	205	205	-
TSF Water Balance													
Slurry water (m^3)	221,480	214,953	236,483	229,509	236,849	229,270	238,315	237,342	229,057	237,425	228,901	237,252	**2,776,836**
South Cell Tailings Deposition (%)	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Slurry water to South Cell (m^3)	221,480	214,953	236,483	229,509	0	0	0	0	0	0	0	0	**902,425**
Slurry water to North Cell (m^3)	0	0	0	0	236,849	229,270	238,315	237,342	229,057	237,425	228,901	237,252	**1,874,411**
SC Tailings water/ice entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	-
NC Tailings water/ice entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	-
SC Void and ice entrapment losses (m^3)	143,962	139,719	153,714	149,181	0	0	0	0	0	0	0	0	**586,576**
NC Void and ice entrapment losses (m^3)	0	0	0	0	94,740	57,317	59,579	59,335	57,264	94,970	148,785	154,214	**726,205**
Slurry water returned to the SC pond (m^3)	77,518	75,233	82,769	80,328	0	0	0	0	0	0	0	0	**315,849**
Slurry water returned to the NC pond (m^3)	0	0	0	0	142,110	171,952	178,737	178,006	171,793	142,455	80,115	83,038	**1,148,206**

	Year 2019												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	307,240	44,957	55,892	46,244	0	0	0	**454,333**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**454,333**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	367,956	75,199	105,189	79,509	19,131	19,313	19,131	**781,447**
Pumped to Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	367,956	75,199	105,189	79,509	19,131	19,313	19,131	**781,447**
End-of-Month Volume (m^3)	1,928,051	1,947,364	1,966,495	1,985,626	2,004,939	2,372,895	2,448,094	2,553,283	2,632,792	2,651,923	2,671,236	2,690,367	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m^3)	1,908	0	0	0	0	0	0	0	0	0	0	0	**1,908**
Pumped from Goose (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	1,908	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**184,753**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	1,908	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**184,753**
End-of-Month Volume (m^3)	549,916	549,916	549,916	549,916	549,916	628,455	649,440	706,068	732,762	732,762	732,762	732,762	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m^3)	826,886	826,886	826,886	826,886	826,886	945,594	951,647	1,012,314	1,042,986	1,042,986	1,042,986	1,042,986	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
End-of-Month Volume (m^3)	1,398	1,398	1,398	1,398	1,398	67,924	85,700	133,666	156,278	156,278	156,278	156,278	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	-55,775	-55,775	-55,775	-55,775	-55,775	17,877	37,556	90,661	115,694	115,694	115,694	115,694	-

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	Year 2020												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	272,009	254,460	272,009	277,938	287,203	277,938	260,759	269,451	269,451	287,273	278,006	287,273	**3,293,770**
Cummulative Tailings (tonnes):	31,176,861	31,431,321	31,703,330	31,981,268	32,268,471	32,546,409	32,807,168	33,076,619	33,346,070	33,633,343	33,911,349	34,198,622	-
Cummulative Tailings (m3) - North Cell	16,295,510	16,488,283	16,694,350	16,904,910	17,122,488	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	11,262,400	11,262,400	11,262,400	11,262,400	11,262,400	11,262,400	11,459,945	11,664,074	11,868,204	12,085,835	12,296,446	12,514,077	-
North Cell (TSF)													
Starting Pond Volume (m^3)	78,886	80,673	77,100	78,886	78,886	78,886	78,886	78,886	78,886	0	0	0	-
Water from tailings slurry (m^3)	83,066	77,707	83,066	172,268	178,010	172,268	0	0	0	0	0	0	**766,384**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m^3)	83,066	77,707	83,066	172,268	179,635	391,467	42,281	52,677	38,701	-13	0	0	**1,120,854**
Transfer to South Cell (m^3)	81,280	81,280	81,280	172,267	179,635	391,467	42,281	52,677	117,587	-13	0	0	**1,199,740**
Total Outflow (m^3)	81,280	81,280	81,280	172,267	179,635	391,467	42,281	52,677	117,587	-13	0	0	**1,199,740**
Net Inflow (m^3)	1,786	-3,573	1,786	1	0	0	0	0	-78,886	0	0	0	**-78,886**
End-of-Month Volume (m^3)	80,673	77,100	78,886	78,886	78,886	78,886	78,886	78,886	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m^3)	0	0	0	0	0	40,982	-10,260	8,951	5,933	-22	0	0	**45,584**
Transfer from North Cell (m^3)	81,280	81,280	81,280	172,267	179,635	391,467	42,281	52,677	117,587	-13	0	0	**1,199,740**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Water from tailings slurry (m^3)	0	0	0	0	0	0	177,647	177,705	172,031	83,025	80,347	83,025	**773,779**
Total Inflow (m^3)	81,280	81,280	81,280	172,267	213,336	451,023	210,136	242,506	309,236	82,990	80,347	83,025	**2,088,705**
Reclaim water to the mill (m^3)	85,560	80,040	85,560	187,200	193,440	187,200	193,440	193,440	187,200	150,288	145,440	150,288	**1,839,096**
Transfer to Portage Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	85,560	80,040	85,560	187,200	193,440	187,200	193,440	193,440	187,200	150,288	145,440	150,288	**1,839,096**
Net Inflow (m^3)	-4,280	1,240	-4,280	-14,933	19,896	263,823	16,696	49,066	122,036	-67,298	-65,093	-67,263	**249,609**
End-of-Month Volume (m^3)	176,527	177,767	173,487	158,554	178,450	442,273	458,969	508,035	630,071	562,773	497,679	430,416	-
Mill/Camp													
Ore water (m^3)	2,829	2,646	2,829	2,752	2,843	2,752	2,321	2,398	2,398	2,672	2,585	2,672	**31,696**
Reclaim water (m^3)	85,560	80,040	85,560	187,200	193,440	187,200	193,440	193,440	187,200	150,288	145,440	150,288	**1,839,096**
Freshwater from Third Portage Lake (m^3)	152,520	142,680	152,520	43,200	44,640	43,200	44,640	44,640	43,200	87,792	84,960	87,792	**971,784**
Total Inflow (m^3)	240,909	225,366	240,909	233,152	240,923	233,152	240,401	240,478	232,798	240,752	232,985	240,752	**2,842,576**
Freshwater for camp purposes (m^3)	3,577	3,346	3,577	3,462	3,577	3,462	3,538	3,538	3,424	3,538	3,424	3,538	**42,000**
Slurry water (m^3)	237,332	222,020	237,332	229,690	237,346	229,690	236,863	236,940	229,374	237,214	229,562	237,214	**2,800,576**
Total Outflow (m^3)	240,909	225,366	240,909	233,152	240,923	233,152	240,401	240,478	232,798	240,752	232,985	240,752	**2,842,576**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	115	119	115	260	260	260	260	260	260	202	202	202	-
Freshwater pumping rate (m^3/hr)	205	212	205	60	60	60	60	60	60	118	118	118	-
TSF Water Balance													
Slurry water (m^3)	237,332	222,020	237,332	229,690	237,346	229,690	236,863	236,940	229,374	237,214	229,562	237,214	**2,800,576**
South Cell Tailings Deposition (%)	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	-
Slurry water to South Cell (m^3)	0	0	0	0	0	0	236,863	236,940	229,374	237,214	229,562	237,214	**1,407,166**
Slurry water to North Cell (m^3)	237,332	222,020	237,332	229,690	237,346	229,690	0	0	0	0	0	0	**1,393,411**
SC Tailings water/ice entrapment (%)	65%	65%	65%	25%	25%	25%	25%	25%	25%	65%	65%	65%	-
NC Tailings water/ice entrapment (%)	65%	65%	65%	25%	25%	25%	25%	25%	25%	65%	65%	65%	-
SC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	59,216	59,235	57,344	154,189	149,215	154,189	**633,387**
NC Void and ice entrapment losses (m^3)	154,266	144,313	154,266	57,423	59,337	57,423	0	0	0	0	0	0	**627,026**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	177,647	177,705	172,031	83,025	80,347	83,025	**773,779**
Slurry water returned to the NC pond (m^3)	83,066	77,707	83,066	172,268	178,010	172,268	0	0	0	0	0	0	**766,384**

	Year 2020												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	2,709,498	2,728,811	2,747,942	2,767,073	2,786,386	2,847,102	2,877,344	2,926,641	2,959,906	2,979,037	2,998,350	3,017,481	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,057,536	1,092,787	1,092,787	720,106	0	0	0	**3,963,216**
East Dike Seepage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Goose (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	1,136,075	1,113,772	1,149,415	746,800	0	0	0	**4,146,062**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	1,136,075	1,113,772	1,149,415	746,800	0	0	0	**4,146,062**
End-of-Month Volume (m^3)	732,762	732,762	732,762	732,762	732,762	1,868,836	2,982,608	4,132,024	4,878,823	4,878,823	4,878,823	4,878,823	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m^3)	1,042,985	1,042,985	1,042,985	1,042,985	1,042,985	1,161,693	1,167,746	1,228,413	1,259,085	1,259,086	1,259,086	1,259,086	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	2,157,443	0	0	2,027,558	0	0	0	**4,185,000**
Total Inflow (m^3)	0	0	0	0	0	2,223,969	17,775	47,967	2,050,169	0	0	0	**4,339,880**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	2,223,969	17,775	47,967	2,050,169	0	0	0	**4,339,880**
End-of-Month Volume (m^3)	156,278	156,278	156,278	156,278	156,278	2,380,246	2,398,022	2,445,988	4,496,157	4,496,157	4,496,157	4,496,157	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	115,694	115,694	115,694	115,694	115,694	189,347	209,026	262,131	287,164	287,164	287,164	287,164	-

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	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2021												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	279,000	279,000	252,000	270,000	279,000	270,000	279,000	279,000	270,000	279,000	279,000	270,000	**3,285,000**
Cummulative Tailings (tonnes):	34,477,622	34,756,622	35,008,622	35,278,622	35,557,622	35,827,622	36,106,622	36,385,622	36,655,622	36,934,622	37,213,622	37,483,622	-
Cummulative Tailings (m3) - North Cell	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	12,750,517	12,986,958	13,200,517	13,429,331	13,640,694	13,825,626	14,016,722	14,207,818	14,392,749	14,604,113	14,840,554	15,069,367	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	1,625	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m^3)	0	0	0	0	1,625	219,200	42,281	52,677	38,701	-13	0	0	**354,470**
Transfer to South Cell (m^3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Total Outflow (m^3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Net Inflow (m^3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	1,625	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m^3)	0	0	0	0	0	40,982	-10,260	8,951	5,933	-22	0	0	**45,584**
Transfer from North Cell (m^3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m^3)	83,078	75,136	82,979	172,209	177,949	172,209	177,769	177,769	172,034	82,998	80,350	82,969	**1,537,448**
Total Inflow (m^3)	83,078	75,136	82,979	172,209	188,565	452,589	210,258	242,570	218,763	82,963	80,350	82,969	**1,972,428**
Reclaim water to the mill (m^3)	68,448	61,824	68,448	187,200	193,440	187,200	193,440	193,440	187,200	139,872	135,360	139,872	**1,755,744**
Transfer to Portage Pit (m^3)	0	0	0	0	0	323,000	0	0	316,224	0	0	0	**639,224**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	68,448	61,824	68,448	187,200	193,440	510,200	193,440	193,440	503,424	139,872	135,360	139,872	**2,394,968**
Net Inflow (m^3)	14,630	13,312	14,531	-14,991	-4,875	-57,611	16,818	49,130	-284,661	-56,909	-55,010	-56,903	**-422,540**
End-of-Month Volume (m^3)	445,046	458,358	472,889	457,898	453,023	395,412	412,229	461,359	176,699	119,789	64,779	7,876	-
Mill/Camp													
Ore water (m^3)	2,902	2,902	2,621	2,673	2,762	2,673	2,483	2,483	2,403	2,595	2,595	2,511	**31,602**
Reclaim water (m^3)	68,448	61,824	68,448	187,200	193,440	187,200	193,440	193,440	187,200	139,872	135,360	139,872	**1,755,744**
Freshwater from Third Portage Lake (m^3)	169,632	153,216	169,632	43,200	44,640	43,200	44,640	44,640	43,200	98,208	95,040	98,208	**1,047,456**
Total Inflow (m^3)	240,982	217,942	240,701	233,073	240,842	233,073	240,563	240,563	232,803	240,675	232,995	240,591	**2,834,802**
Freshwater for camp purposes (m^3)	3,617	3,267	3,617	3,462	3,577	3,462	3,538	3,538	3,424	3,538	3,424	3,538	**42,000**
Slurry water (m^3)	237,365	214,675	237,084	229,611	237,265	229,611	237,025	237,025	229,379	237,137	229,571	237,053	**2,792,802**
Total Outflow (m^3)	240,982	217,942	240,701	233,073	240,842	233,073	240,563	240,563	232,803	240,675	232,995	240,591	**2,834,802**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	92	92	92	260	260	260	260	260	260	188	188	188	-
Freshwater pumping rate (m^3/hr)	228	228	228	60	60	60	60	60	60	132	132	132	-
TSF Water Balance													
Slurry water (m^3)	237,365	214,675	237,084	229,611	237,265	229,611	237,025	237,025	229,379	237,137	229,571	237,053	**2,792,802**
South Cell Tailings Deposition (%)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	-
Slurry water to South Cell (m^3)	237,365	214,675	237,084	229,611	237,265	229,611	237,025	237,025	229,379	237,137	229,571	237,053	**2,792,802**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SC Tailings water/ice entrapment (%)	65%	65%	65%	25%	25%	25%	25%	25%	25%	65%	65%	65%	-
NC Tailings water/ice entrapment (%)	65%	65%	65%	25%	25%	25%	25%	25%	25%	65%	65%	65%	-
SC Void and ice entrapment losses (m^3)	154,287	139,539	154,105	57,403	59,316	57,403	59,256	59,256	57,345	154,139	149,221	154,084	**1,255,354**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	83,078	75,136	82,979	172,209	177,949	172,209	177,769	177,769	172,034	82,998	80,350	82,969	**1,537,448**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2021												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	3,036,612	3,055,925	3,075,056	3,094,187	3,113,500	3,174,216	3,204,458	3,253,755	3,287,020	3,306,151	3,325,464	3,344,595	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	323,000	0	0	316,224	0	0	0	**639,224**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,057,536	1,092,787	1,092,787	644,434	0	0	0	**3,887,544**
East Dike Seepage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Goose (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	23,085	1,459,075	1,113,772	1,149,415	998,942	0	0	0	**4,744,289**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	23,085	1,459,075	1,113,772	1,149,415	998,942	0	0	0	**4,744,289**
End-of-Month Volume (m^3)	4,878,823	4,878,823	4,878,823	4,878,823	4,901,908	6,360,983	7,474,755	8,624,170	9,623,112	9,623,112	9,623,112	9,623,112	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m^3)	1,410,129	1,410,129	1,410,129	1,410,129	1,410,129	1,528,837	1,534,890	1,595,557	1,626,229	1,626,230	1,626,230	1,626,230	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	1,270,080	1,312,416	787,450	815,054	0	0	0	**4,185,000**
Total Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	835,417	837,665	0	0	0	**4,339,879**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	835,417	837,665	0	0	0	**4,339,879**
End-of-Month Volume (m^3)	4,496,157	4,496,157	4,496,157	4,496,157	4,496,157	5,832,764	7,162,955	7,998,371	8,836,037	8,836,037	8,836,037	8,836,037	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	287,164	287,164	287,164	287,164	287,164	360,816	380,495	433,600	458,633	458,633	458,633	458,633	-

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	Year 2022												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	-
Cummulative Tailings (m3) - North Cell	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	1,625	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m^3)	0	0	0	0	1,625	219,200	42,281	52,677	38,701	-13	0	0	**354,470**
Transfer to South Cell (m^3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Total Outflow (m^3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Net Inflow (m^3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	1,625	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m^3)	0	0	0	0	0	40,982	-10,260	8,951	5,933	-22	0	0	**45,584**
Transfer from North Cell (m^3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	10,616	280,380	32,489	64,801	46,729	-35	0	0	**434,980**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	18,492	280,380	32,489	64,801	46,729	-35	0	0	**442,856**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	18,492	280,380	32,489	64,801	46,729	-35	0	0	**442,856**
Net Inflow (m^3)	0	0	0	0	-7,876	0	0	0	0	0	0	0	**-7,876**
End-of-Month Volume (m^3)	7,876	7,876	7,876	7,876	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Total Inflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Tailings Deposition (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Slurry water to South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SC Tailings water/ice entrampment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	-
NC Tailings water/ice entrampment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	-
SC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Year 2022												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	3,363,726	3,383,039	3,402,170	3,421,301	3,440,614	3,501,330	3,531,572	3,580,869	3,614,134	3,633,265	3,652,578	3,671,709	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	18,492	280,380	32,489	64,801	46,729	-35	0	0	**442,856**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,057,536	1,092,787	1,092,787	1,057,536	599,678	0	0	**4,900,325**
East Dike Seepage (m^3)	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	**179,567**
Pumped from Goose (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	14,964	14,964	14,964	14,964	56,541	1,431,419	1,161,225	1,229,180	1,157,513	614,607	14,964	14,964	**5,740,268**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	14,964	14,964	14,964	14,964	56,541	1,431,419	1,161,225	1,229,180	1,157,513	614,607	14,964	14,964	**5,740,268**
End-of-Month Volume (m^3)	9,638,076	9,653,040	9,668,004	9,682,968	9,739,509	11,170,928	12,332,153	13,561,333	14,718,846	15,333,453	15,348,417	15,363,381	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m^3)	1,777,273	1,777,273	1,777,273	1,777,273	1,777,273	1,895,981	1,902,034	1,962,701	1,993,373	1,993,373	1,993,373	1,993,373	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	1,270,080	1,312,416	787,450	815,054	0	0	0	**4,185,000**
Total Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	835,417	837,665	0	0	0	**4,339,879**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	835,417	837,665	0	0	0	**4,339,879**
End-of-Month Volume (m^3)	8,836,037	8,836,037	8,836,037	8,836,037	8,836,037	10,172,643	11,502,834	12,338,251	13,175,916	13,175,916	13,175,916	13,175,916	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	458,633	458,633	458,633	458,633	458,633	532,286	551,965	605,070	630,103	630,103	630,103	630,103	-

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	Year 2023												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	-
Cummulative Tailings (m3) - North Cell	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	1,625	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m^3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	1,625	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Total Inflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Tailings Deposition (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Slurry water to South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SC Tailings water/ice entrapment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	-
NC Tailings water/ice entrapment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	-
SC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Year 2023												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	3,690,840	3,710,153	3,729,284	3,748,415	3,767,728	3,828,444	3,858,686	3,907,983	3,941,248	3,960,379	3,979,692	3,998,823	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,057,536	1,092,787	1,092,787	1,057,536	599,678	0	0	**4,900,325**
East Dike Seepage (m^3)	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	**179,567**
Pumped from Goose (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	14,964	14,964	14,964	14,964	48,665	1,434,507	1,196,044	1,264,421	1,171,377	614,642	14,964	14,964	**5,819,440**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	14,964	14,964	14,964	14,964	48,665	1,434,507	1,196,044	1,264,421	1,171,377	614,642	14,964	14,964	**5,819,440**
End-of-Month Volume (m^3)	15,378,345	15,393,309	15,408,272	15,423,236	15,471,901	16,906,409	18,102,453	19,366,874	20,538,251	21,152,893	21,167,857	21,182,821	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m^3)	2,144,417	2,144,417	2,144,417	2,144,417	2,144,417	2,263,125	2,269,178	2,329,845	2,360,517	2,360,517	2,360,517	2,360,517	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	1,270,080	1,312,416	787,450	815,054	0	0	0	**4,185,000**
Total Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	835,417	837,665	0	0	0	**4,339,879**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	835,417	837,665	0	0	0	**4,339,879**
End-of-Month Volume (m^3)	13,175,916	13,175,916	13,175,916	13,175,916	13,175,916	14,512,523	15,842,714	16,678,130	17,515,796	17,515,796	17,515,796	17,515,796	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	630,103	630,103	630,103	630,103	630,103	703,755	723,434	776,539	801,572	801,572	801,572	801,572	-

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	Year 2024												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	-
Cummulative Tailings (m3) - North Cell	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	1,625	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m^3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	1,625	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Total Inflow (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Freshwater for camp purposes (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Tailings Deposition (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Slurry water to South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SC Tailings water/ice entrampment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	-
NC Tailings water/ice entrampment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	-
SC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Year 2024												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	4,017,954	4,037,267	4,056,398	4,075,529	4,094,842	4,155,558	4,185,800	4,235,097	4,268,362	4,287,493	4,306,806	4,325,937	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	11,590	0	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,057,536	1,092,787	1,092,787	1,057,536	599,583	0	0	**4,900,230**
East Dike Seepage (m^3)	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	**179,567**
Pumped from Goose (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	14,964	14,964	14,964	14,964	48,665	1,434,507	1,196,044	1,276,011	1,159,787	614,547	14,964	14,964	**5,819,345**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	14,964	14,964	14,964	14,964	48,665	1,434,507	1,196,044	1,276,011	1,159,787	614,547	14,964	14,964	**5,819,345**
End-of-Month Volume (m^3)	21,197,785	21,212,749	21,227,713	21,242,677	21,291,342	22,725,849	23,921,893	25,197,904	26,357,691	26,972,238	26,987,202	27,002,166	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m^3)	2,511,561	2,511,561	2,511,561	2,511,561	2,511,561	2,630,269	2,636,322	2,696,989	2,727,661	2,727,661	2,727,661	2,727,661	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	1,270,080	1,312,416	787,450	815,054	0	0	0	**4,185,000**
Total Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	835,417	837,665	0	0	0	**4,339,879**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	835,417	837,665	0	0	0	**4,339,879**
End-of-Month Volume (m^3)	17,515,796	17,515,796	17,515,796	17,515,796	17,515,796	18,852,402	20,182,593	21,018,010	21,855,675	21,855,675	21,855,675	21,855,675	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	801,572	801,572	801,572	801,572	801,572	875,225	894,904	948,009	973,042	973,042	973,042	973,042	-

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	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2025												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	-
Cummulative Tailings (m3) - North Cell	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	1,625	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m^3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	1,625	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Total Inflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Tailings Deposition (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Slurry water to South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SC Tailings water/ice entrampment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	-
NC Tailings water/ice entrampment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	-
SC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2025												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	4,345,068	4,364,381	4,383,512	4,402,643	4,421,956	4,482,672	4,512,914	4,562,211	4,595,476	4,614,607	4,633,920	4,653,051	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,057,536	1,092,787	1,092,787	1,057,536	599,678	0	0	**4,900,325**
East Dike Seepage (m^3)	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	**179,567**
Pumped from Goose (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	14,964	14,964	14,964	14,964	38,049	1,415,933	1,195,576	1,261,247	1,169,282	614,642	14,964	14,964	**5,784,513**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	14,964	14,964	14,964	14,964	38,049	1,415,933	1,195,576	1,261,247	1,169,282	614,642	14,964	14,964	**5,784,513**
End-of-Month Volume (m^3)	27,017,130	27,032,094	27,047,058	27,062,022	27,100,071	28,516,004	29,711,580	30,972,827	32,142,110	32,756,752	32,771,716	32,786,680	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m^3)	2,662,604	2,662,604	2,662,604	2,662,604	2,662,604	2,781,312	2,787,365	2,848,032	2,878,704	2,878,705	2,878,705	2,878,705	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	1,270,080	1,312,416	787,450	500,861	0	0	0	**3,870,806**
Total Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	835,417	523,472	0	0	0	**4,025,686**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	835,417	523,472	0	0	0	**4,025,686**
End-of-Month Volume (m^3)	21,855,675	21,855,675	21,855,675	21,855,675	21,855,675	23,192,281	24,522,473	25,357,889	25,881,361	25,881,361	25,881,361	25,881,361	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	973,042	973,042	973,042	973,042	973,042	1,046,694	1,066,373	1,119,478	1,144,511	1,144,511	1,144,511	1,144,511	-

2026

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2026												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	37,483,622	-
Cummulative Tailings (m3) - North Cell	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	1,625	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m^3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	1,625	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Total Inflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Tailings Deposition (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Slurry water to South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SC Tailings water/ice entrampment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	-
NC Tailings water/ice entrampment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	-
SC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2026												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	1,207,872	1,248,134	842,042	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	1,268,588	1,278,376	891,339	33,265	19,131	19,313	19,131	**3,625,163**
Pumped to Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	1,268,588	1,278,376	891,339	33,265	19,131	19,313	19,131	**3,625,163**
End-of-Month Volume (m^3)	4,672,182	4,691,495	4,710,626	4,729,757	4,749,070	6,017,658	7,296,034	8,187,373	8,220,638	8,239,769	8,259,082	8,278,213	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	592,787	529,807	0	0	0	**1,122,594**
East Dike Seepage (m^3)	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	14,964	**179,567**
Pumped from Goose (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	14,964	14,964	14,964	14,964	38,049	358,397	102,789	761,247	641,553	14,964	14,964	14,964	**2,006,783**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	14,964	14,964	14,964	14,964	38,049	358,397	102,789	761,247	641,553	14,964	14,964	14,964	**2,006,783**
End-of-Month Volume (m^3)	32,801,643	32,816,607	32,831,571	32,846,535	32,884,584	33,242,982	33,345,771	34,107,017	34,748,571	34,763,535	34,778,498	34,793,462	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m^3)	3,127,842	3,127,842	3,127,842	3,127,842	3,127,842	3,246,550	3,252,603	3,313,270	3,343,942	3,343,942	3,343,942	3,343,942	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	1,270,080	1,312,416	354,352	0	0	0	0	**2,936,848**
Total Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	402,319	22,611	0	0	0	**3,091,728**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	1,336,606	1,330,191	402,319	22,611	0	0	0	**3,091,728**
End-of-Month Volume (m^3)	25,881,361	25,881,361	25,881,361	25,881,361	25,881,361	27,217,967	28,548,158	28,950,478	28,973,089	28,973,089	28,973,089	28,973,089	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	0
Net Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m^3)	1,144,511	1,144,511	1,144,511	1,144,511	1,144,511	1,218,164	1,237,843	1,290,948	1,315,981	1,315,981	1,315,981	1,315,981	-

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	Year 2027												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	-
Cummulative Tailings (m3) - North Cell	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	1,625	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m^3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	1,625	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Total Inflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Tailings Deposition (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Slurry water to South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SC Tailings water/ice entrampment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	-
NC Tailings water/ice entrampment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	-
SC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Year 2027												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
End-of-Month Volume (m^3)	8,297,344	8,316,657	8,335,788	8,354,919	8,374,232	8,434,948	8,465,190	8,514,487	8,547,752	8,566,883	8,586,196	8,605,327	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Goose (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	23,085	343,434	87,825	153,496	96,783	0	0	0	**704,622**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	23,085	343,434	87,825	153,496	96,783	0	0	0	**704,622**
End-of-Month Volume (m^3)	34,793,462	34,793,462	34,793,462	34,793,462	34,816,547	35,159,981	35,247,806	35,401,301	35,498,084	35,498,084	35,498,084	35,498,084	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	21,551	19,679	53,105	25,033	0	0	0	**119,368**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	140,259	25,732	113,772	55,705	0	0	0	**335,468**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	140,259	25,732	113,772	55,705	0	0	0	**335,468**
End-of-Month Volume (m^3)	3,278,574	3,278,574	3,278,574	3,278,574	3,278,574	3,418,833	3,444,565	3,558,337	3,614,042	3,614,042	3,614,042	3,614,042	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
End-of-Month Volume (m^3)	28,973,089	28,973,089	28,973,089	28,973,089	28,973,089	29,039,615	29,057,390	29,105,357	29,127,968	29,127,968	29,127,968	29,127,968	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	21,551	19,679	53,105	25,033	0	0	0	**119,368**
Total Outflow (m^3)	0	0	0	0	0	21,551	19,679	53,105	25,033	0	0	0	119,368
Net Inflow (m^3)	0	0	0	0	0	52,102	0	0	0	0	0	0	**52,102**
End-of-Month Volume (m^3)	1,315,981	1,315,981	1,315,981	1,315,981	1,315,981	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	-

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	Year 2028												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	-
Cummulative Tailings (m3) - North Cell	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	1,625	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m^3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	1,625	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Total Inflow (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Freshwater for camp purposes (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,755	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,770**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Tailings Deposition (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Slurry water to South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SC Tailings water/ice entrapment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	-
NC Tailings water/ice entrapment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	-
SC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Year 2028												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	0	0	0	0	13,238	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**244,333**
Total Outflow (m^3)	0	0	0	0	13,238	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**244,333**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	6,075	0	0	0	0	0	0	0	**82,781**
End-of-Month Volume (m^3)	8,624,458	8,643,771	8,662,902	8,682,033	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Goose (m^3)	0	0	0	0	13,238	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**244,333**
Total Inflow (m^3)	0	0	0	0	36,323	404,150	118,067	202,793	130,048	19,131	19,313	19,131	**948,955**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	36,323	404,150	118,067	202,793	130,048	19,131	19,313	19,131	**948,955**
End-of-Month Volume (m^3)	35,498,084	35,498,084	35,498,084	35,498,084	35,534,407	35,938,556	36,056,623	36,259,416	36,389,463	36,408,594	36,427,907	36,447,038	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	192,360	25,732	113,772	55,705	0	0	0	**387,570**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	192,360	25,732	113,772	55,705	0	0	0	**387,570**
End-of-Month Volume (m^3)	3,278,574	3,278,574	3,278,574	3,278,574	3,278,574	3,470,935	3,496,667	3,610,439	3,666,144	3,666,144	3,666,144	3,666,144	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
End-of-Month Volume (m^3)	29,127,968	29,127,968	29,127,968	29,127,968	29,127,968	29,194,494	29,212,270	29,260,237	29,282,848	29,282,848	29,282,848	29,282,848	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Outflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	-

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	Year 2029												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	-
Cummulative Tailings (m3) - North Cell	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	1,625	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m^3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	1,625	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Total Inflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Tailings Deposition (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Slurry water to South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SC Tailings water/ice entrapment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	-
NC Tailings water/ice entrapment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	-
SC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Year 2029												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Total Outflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	23,085	0	0	0	11,590	0	0	0	**34,675**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Goose (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	42,398	404,150	118,067	202,793	130,048	19,131	19,313	19,131	**1,031,736**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	42,398	404,150	118,067	202,793	130,048	19,131	19,313	19,131	**1,031,736**
End-of-Month Volume (m^3)	36,466,169	36,485,482	36,504,613	36,523,744	36,566,142	36,970,292	37,088,359	37,291,151	37,421,199	37,440,330	37,459,643	37,478,774	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	258,887	43,507	161,739	78,316	0	0	0	**542,449**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	324,156	60,559	208,423	100,354	0	0	0	**693,493**
Total Outflow (m^3)	0	0	0	0	0	324,156	60,559	208,423	100,354	0	0	0	**693,493**
Net Inflow (m^3)	0	0	0	0	0	-65,270	-17,052	-46,685	-22,038	0	0	0	**-151,044**
End-of-Month Volume (m^3)	3,278,574	3,278,574	3,278,574	3,278,574	3,278,574	3,213,305	3,196,253	3,149,568	3,127,531	3,127,531	3,127,531	3,127,531	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Total Outflow (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Outflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	-

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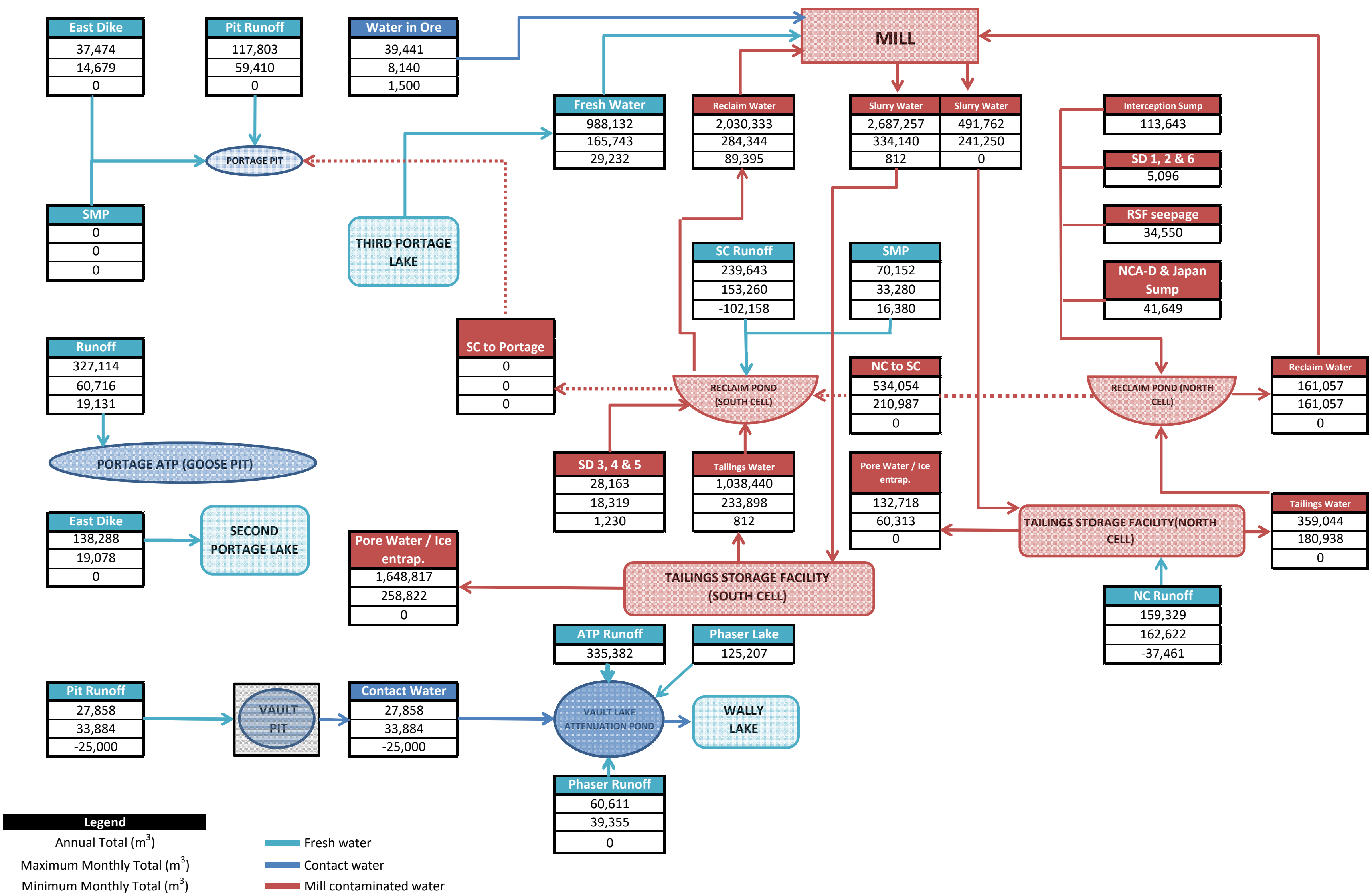
	Year 2030												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Cummulative Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	-
Cummulative Tailings (m3) - North Cell	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	17,333,047	-
Cummulative Tailings (m3) - South Cell	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	15,069,367	-
North Cell (TSF)													
Starting Pond Volume (m^3)	0	0	0	0	0	1,625	0	0	0	0	0	0	-
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,625	142,535	34,581	9,815	17,463	0	0	0	**206,019**
Runoff (m^3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m^3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m^3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	1,625	0	0	0	0	0	0	0	-
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Runoff (m^3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m^3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Reclaim water to the mill (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Portage Pit (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Transfer to Goose Pit (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	-
Mill/Camp													
Ore water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Total Inflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Freshwater for camp purposes (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	2,945	2,660	2,945	2,850	2,945	2,850	2,945	2,945	2,850	2,945	2,850	2,945	**34,675**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m^3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m^3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Tailings Deposition (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
Slurry water to South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water to North Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
SC Tailings water/ice entrampment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	-
NC Tailings water/ice entrampment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	-
SC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
NC Void and ice entrapment losses (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the SC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water returned to the NC pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**

	Year 2030												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	365
Goose Pit (ATP)													
Runoff (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Transfer from South Cell (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Pumped to Portage (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Total Outflow (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	8,688,108	-
Portage Pit													
Runoff (m^3)	0	0	0	0	0	78,539	20,985	56,628	26,694	0	0	0	**182,846**
Transfer from South Cell (m^3)	0	0	0	0	0	264,895	66,840	96,867	58,499	0	0	0	**487,101**
Sewage water from Tear Drop Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Goose (m^3)	19,131	19,313	19,131	19,131	19,313	60,716	30,242	49,297	33,265	19,131	19,313	19,131	**327,114**
Total Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	404,150	118,067	202,793	118,458	19,131	19,313	19,131	**997,061**
Pumped to Attenuation Pond (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m^3)	19,131	19,313	19,131	19,131	19,313	404,150	118,067	202,793	118,458	19,131	19,313	19,131	**997,061**
End-of-Month Volume (m^3)	37,497,905	37,517,218	37,536,349	37,555,480	37,574,793	37,978,942	38,097,009	38,299,802	38,418,259	38,437,390	38,456,703	38,475,834	-
Vault Attenuation Pond													
Runoff (m^3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped From Phaser Pit (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Pumped from Phaser Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	258,887	43,507	161,739	78,316	0	0	0	**542,449**
Decant - TSS to Wally Lake (m^3)	0	0	0	0	0	324,156	60,559	208,423	100,354	0	0	0	**693,493**
Total Outflow (m^3)	0	0	0	0	0	324,156	60,559	208,423	100,354	0	0	0	**693,493**
Net Inflow (m^3)	0	0	0	0	0	-65,270	-17,052	-46,685	-22,038	0	0	0	**-151,044**
End-of-Month Volume (m^3)	3,278,574	3,278,574	3,278,574	3,278,574	3,278,574	3,213,305	3,196,253	3,149,568	3,127,530	3,127,531	3,127,531	3,127,531	-
Vault Open Pit													
Runoff (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped from Wally Lake (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Total Outflow (m^3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	29,282,848	-
Phaser Open Pit (including Phaser Lake)													
Runoff (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Pumped to Vault Attenuation Pond (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Outflow (m^3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	171,470
Net Inflow (m^3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m^3)	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	1,368,082	-

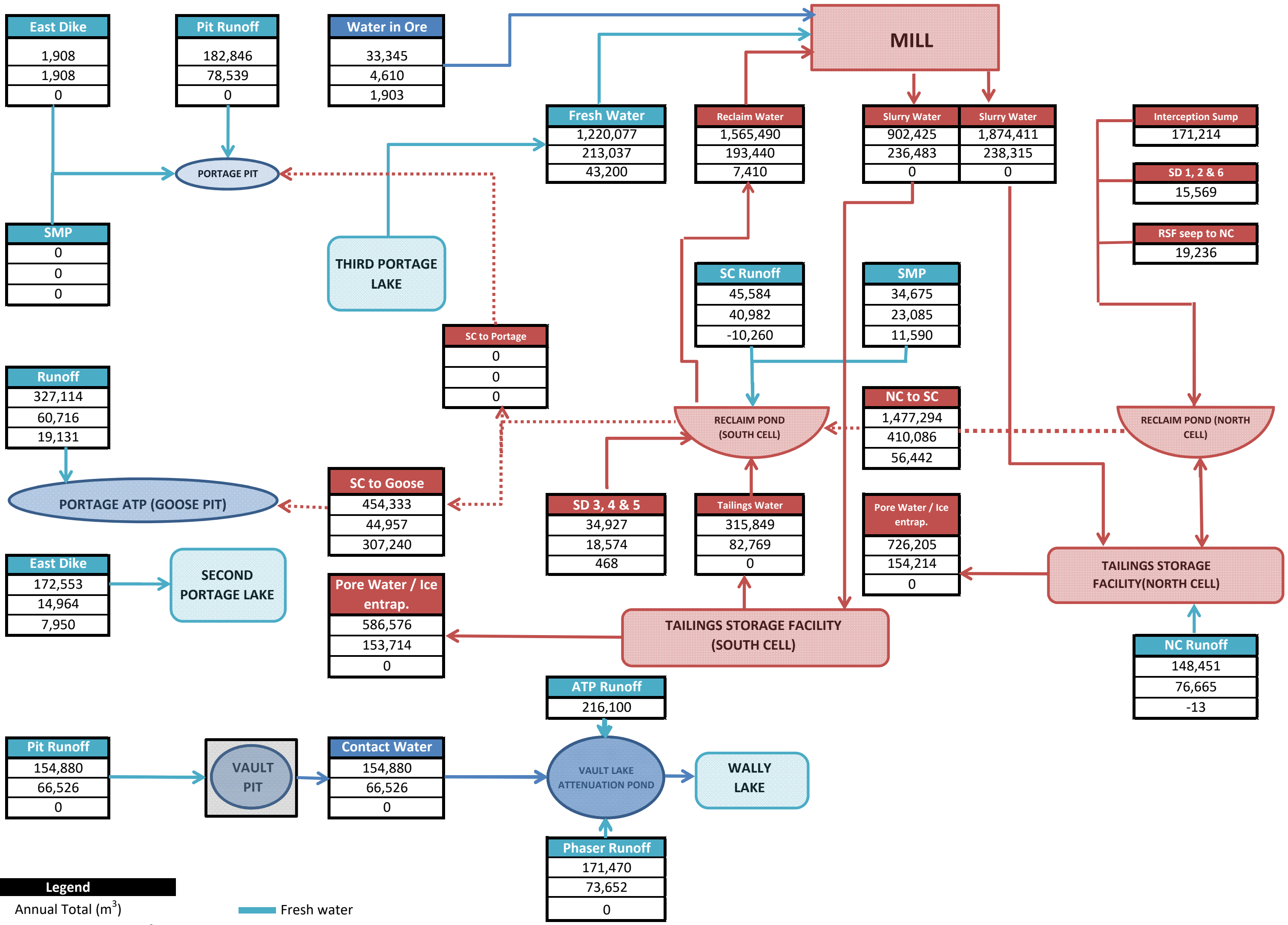
APPENDIX B – GENERAL WATER MOVEMENT

General Water Movement - 2018



*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2019



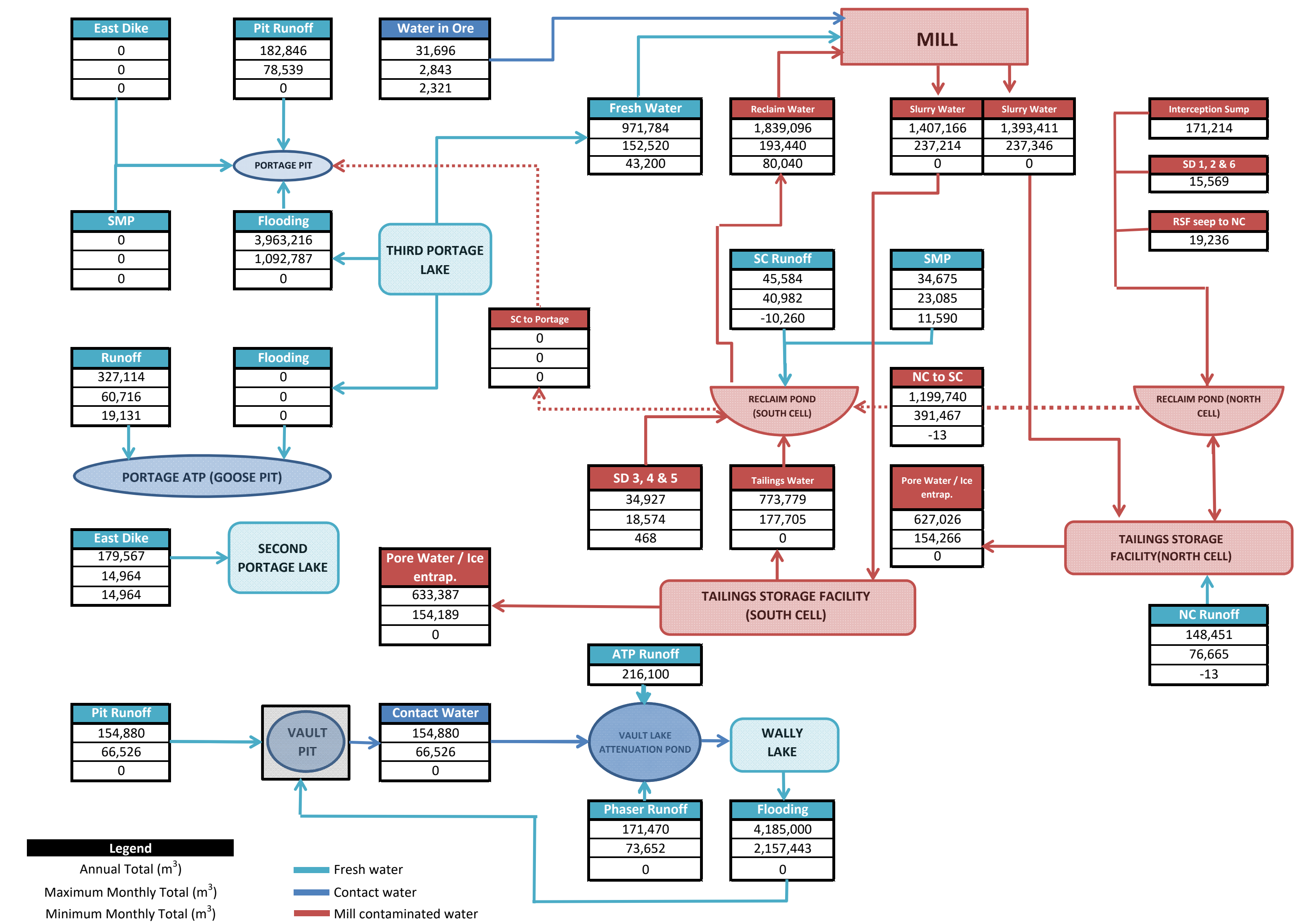
Legend

Annual Total (m^3)
Maximum Monthly Total (m^3)
Minimum Monthly Total (m^3)

Fresh water
Contact water
Mill contaminated water

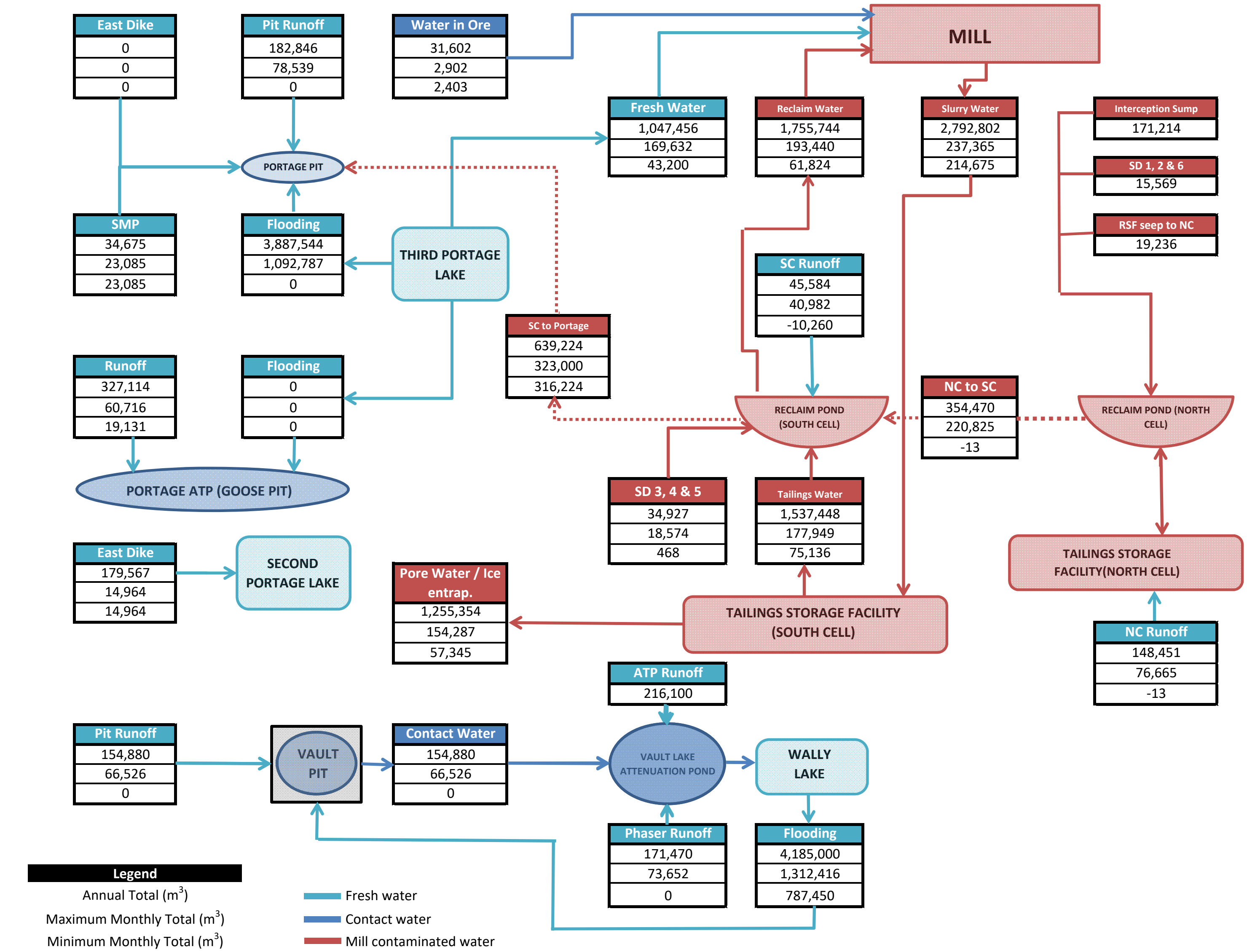
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2020



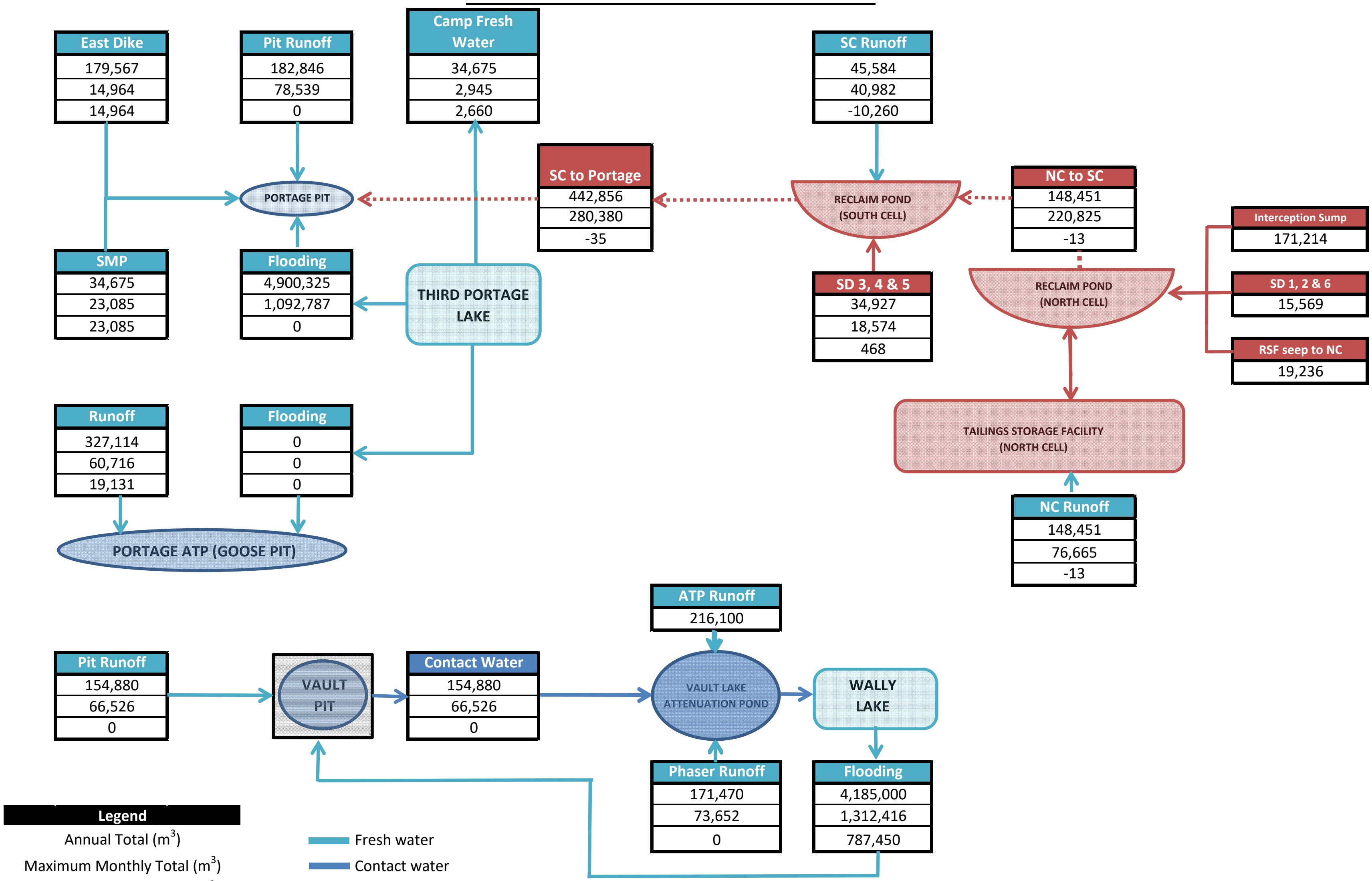
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2021



*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2022



Legend

Annual Total (m^3)

Maximum Monthly Total (m^3)

Minimum Monthly Total (m^3)

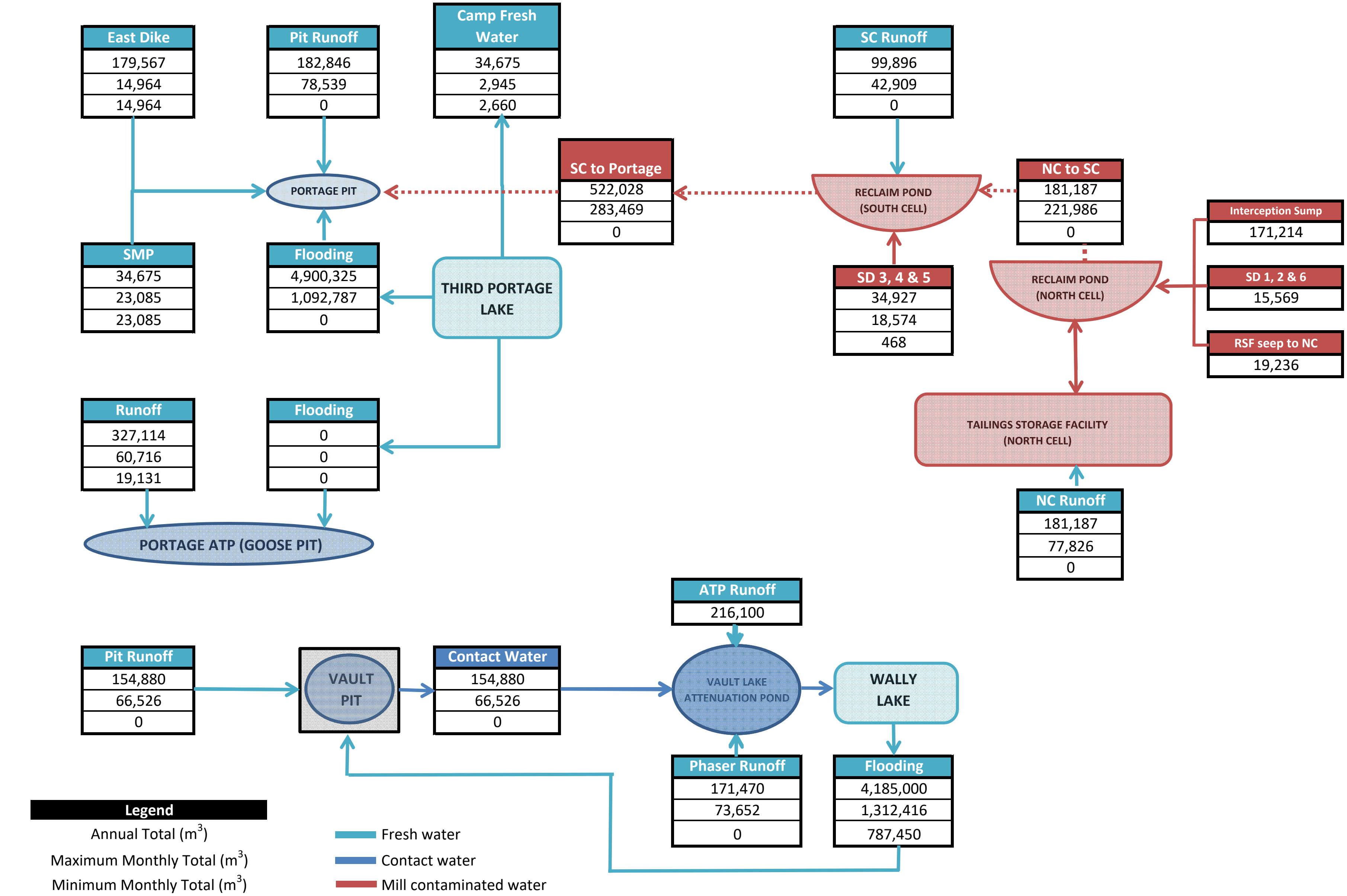
Fresh water

Contact water

Mill contaminated water

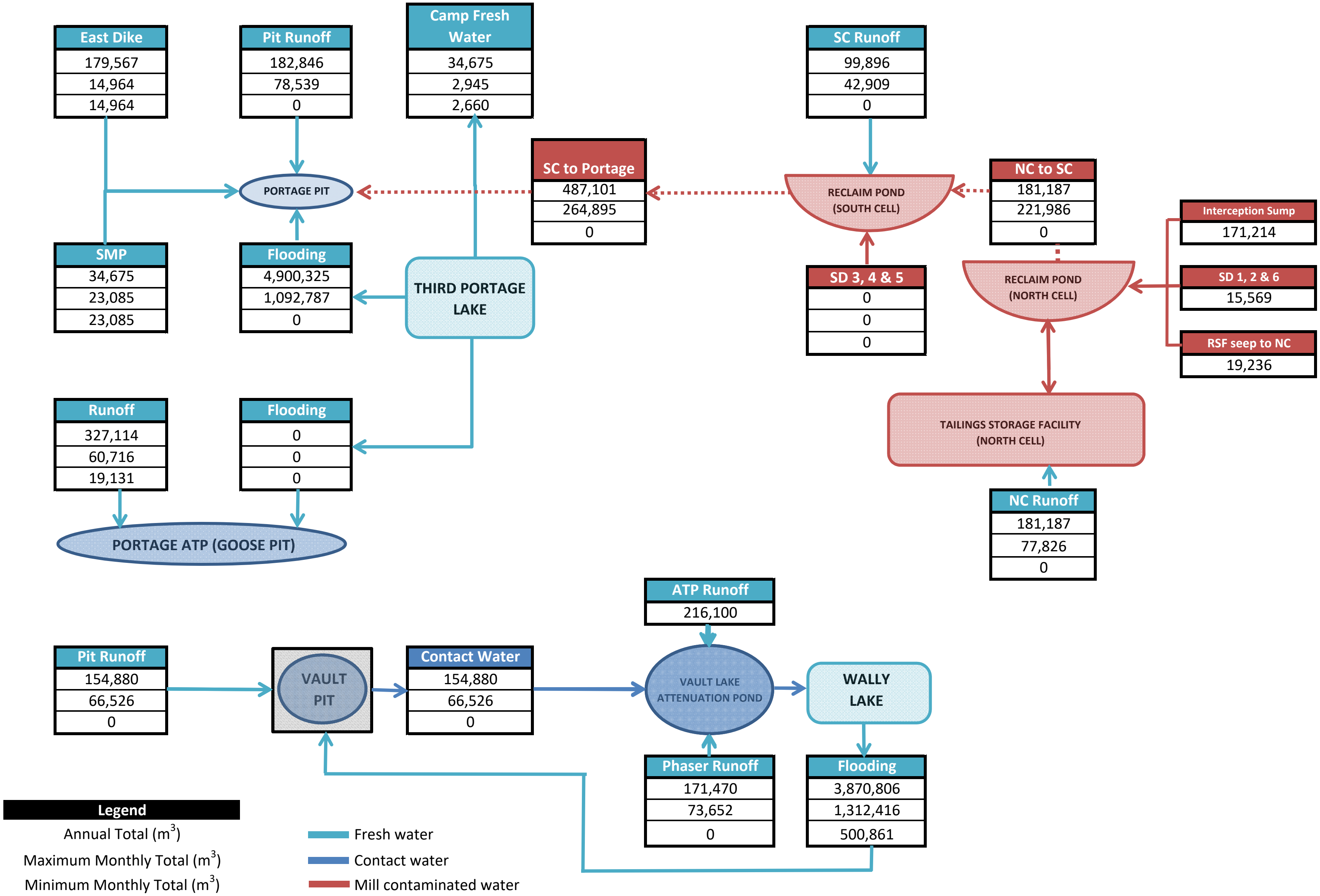
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2023-2024



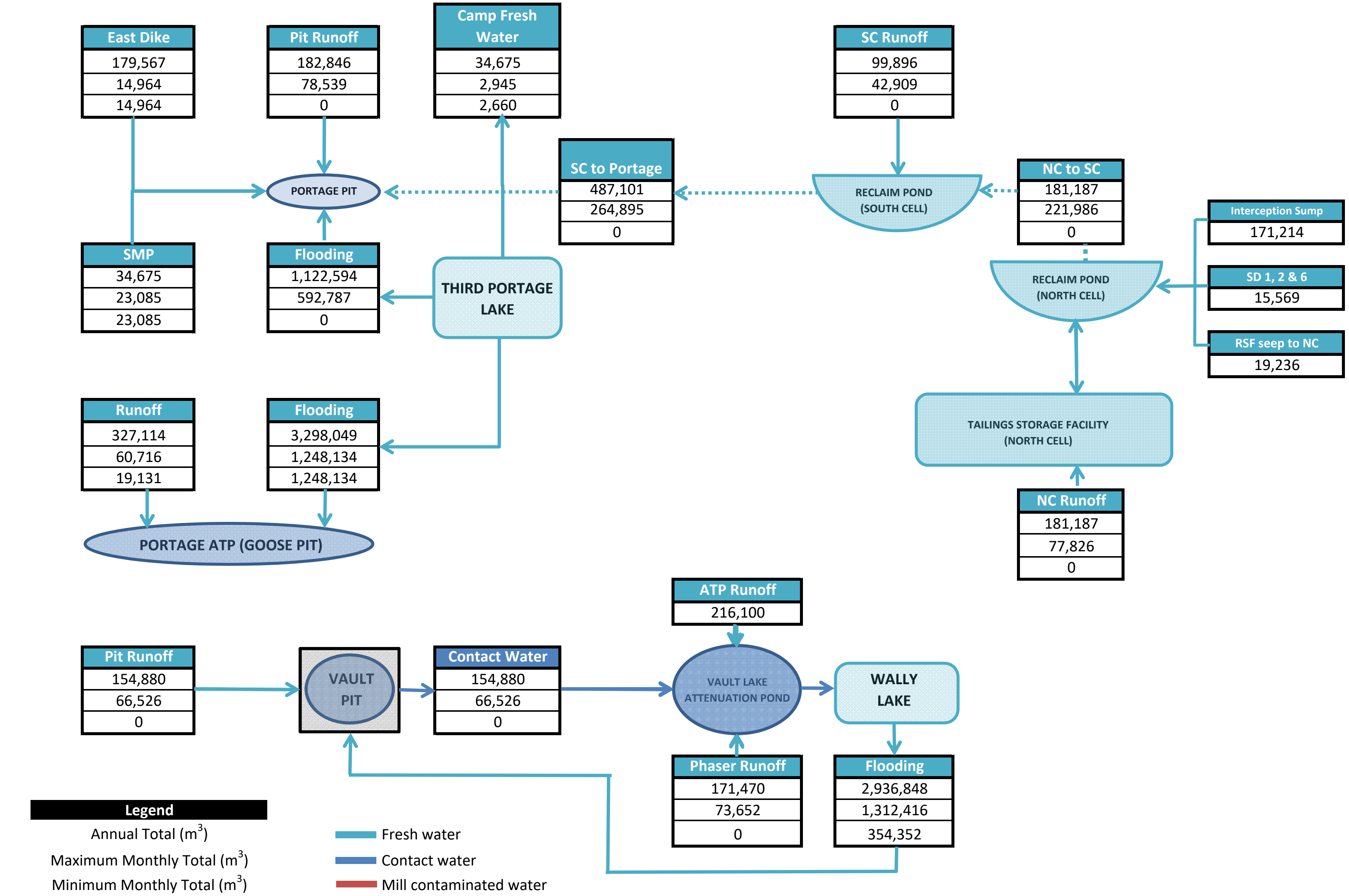
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2025

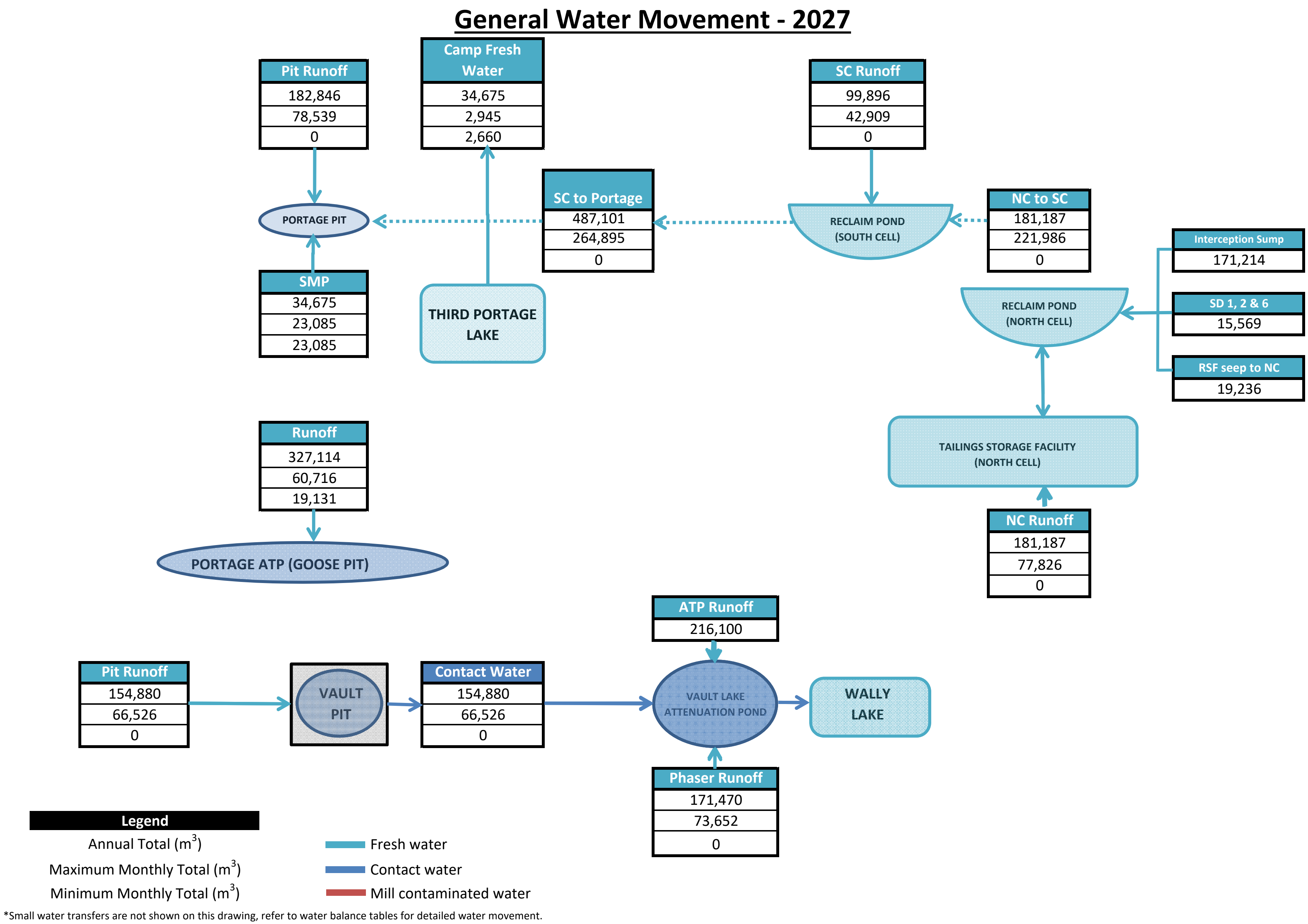


*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

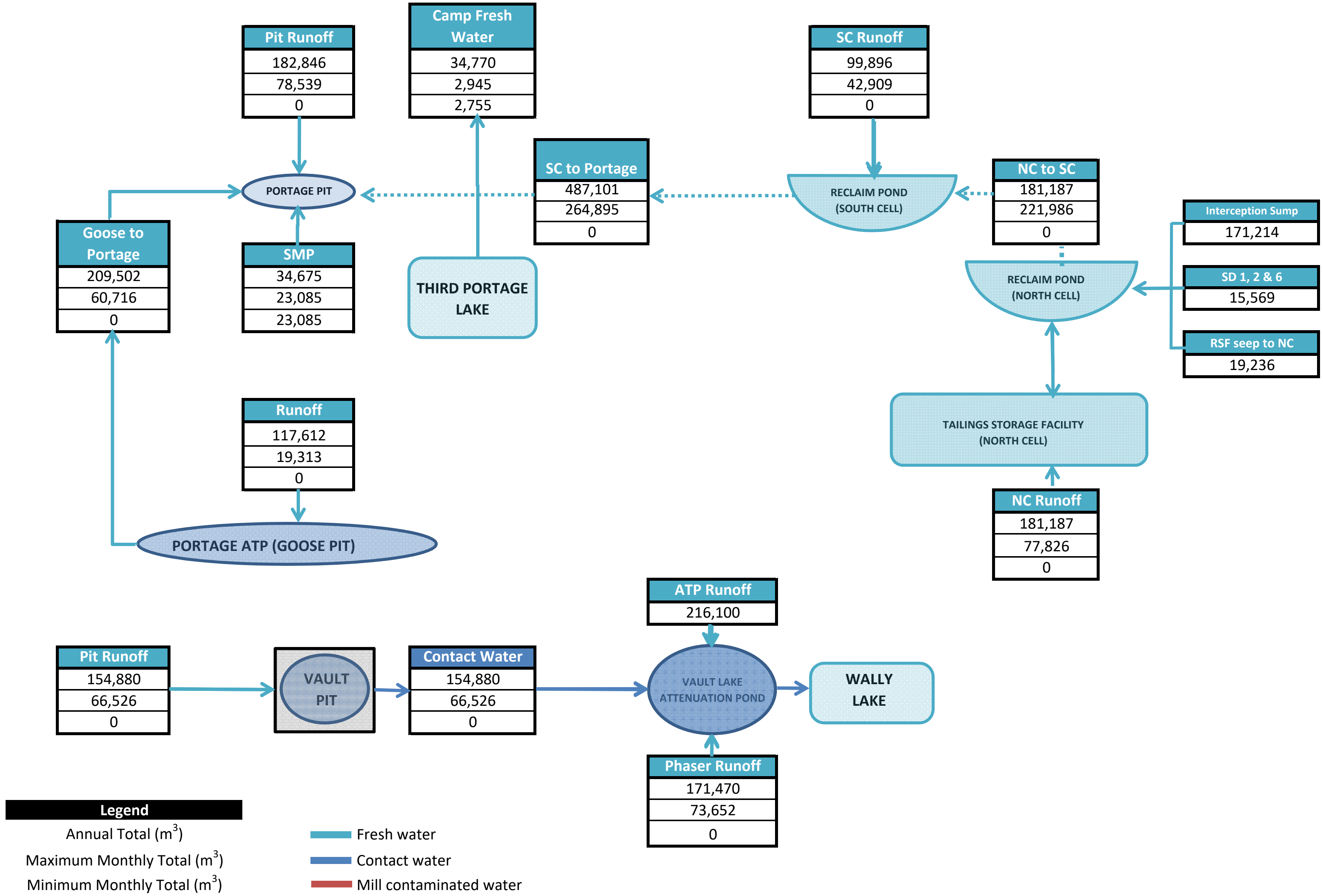
General Water Movement - 2026



*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

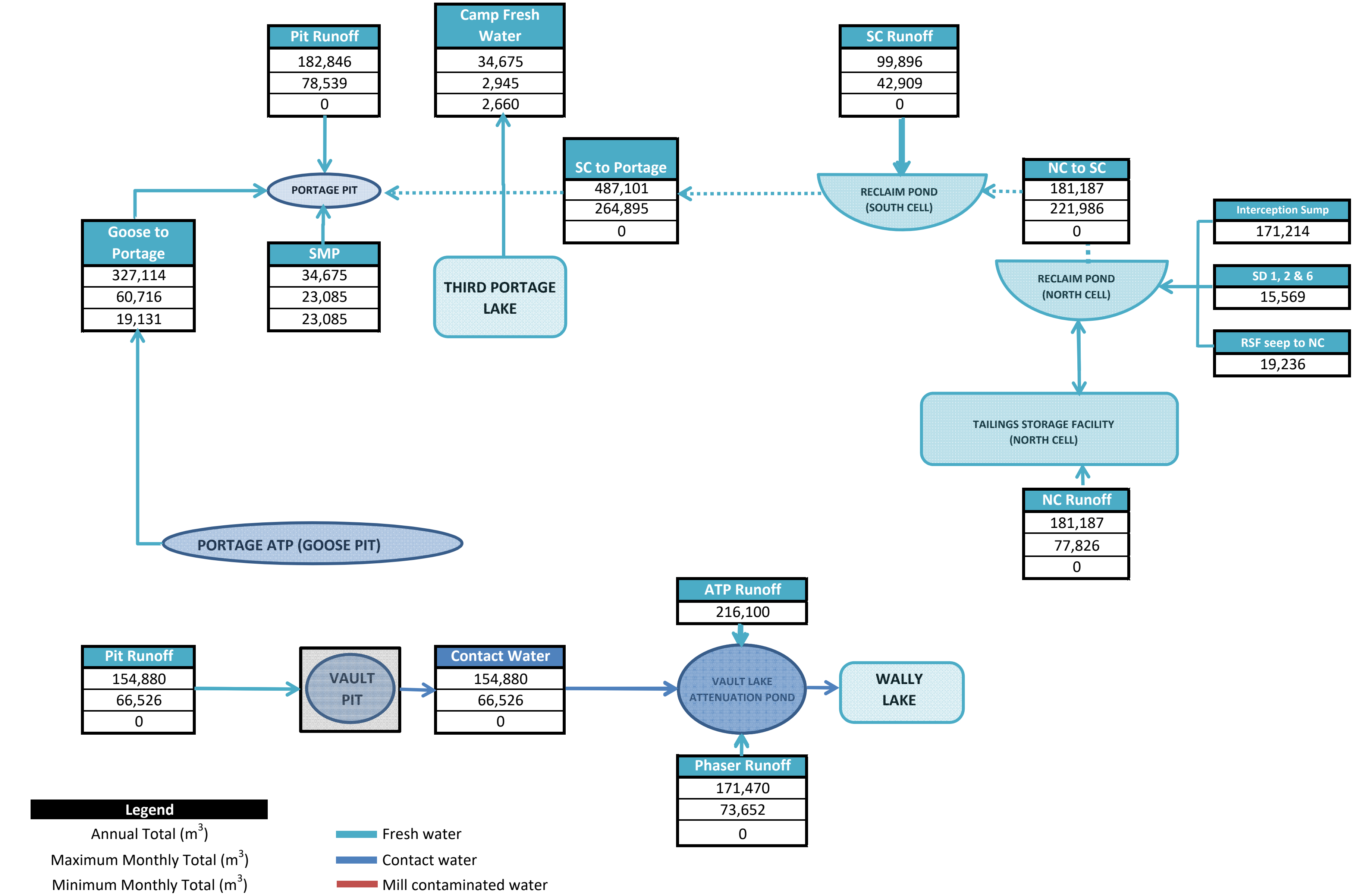

General Water Movement - 2027
Pit Runoff
182,846
78,539
0
Camp Fresh Water
34,675
2,945
2,660
SC Runoff
99,896
42,909
0
PORTAGE PIT
SC to Portage
487,101
264,895
0
RECLAIM POND (SOUTH CELL)
NC to SC
181,187
221,986
0
Interception Sump
171,214
SMP
34,675
23,085
23,085
THIRD PORTAGE LAKE
RECLAIM POND (NORTH CELL)
SD 1, 2 & 6
15,569
RSF seep to NC
19,236
Runoff
327,114
60,716
19,131
TAILINGS STORAGE FACILITY (NORTH CELL)
NC Runoff
181,187
77,826
0
PORTAGE ATP (GOOSE PIT)
ATP Runoff
216,100
Pit Runoff
154,880
66,526
0
VAULT PIT
Contact Water
154,880
66,526
0
VAULT LAKE ATTENUATION POND
WALLY LAKE
Phaser Runoff
171,470
73,652
0
Legend
Annual Total (m3)
Maximum Monthly Total (m3)
Minimum Monthly Total (m3)
Fresh water
Contact water
Mill contaminated water
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2028



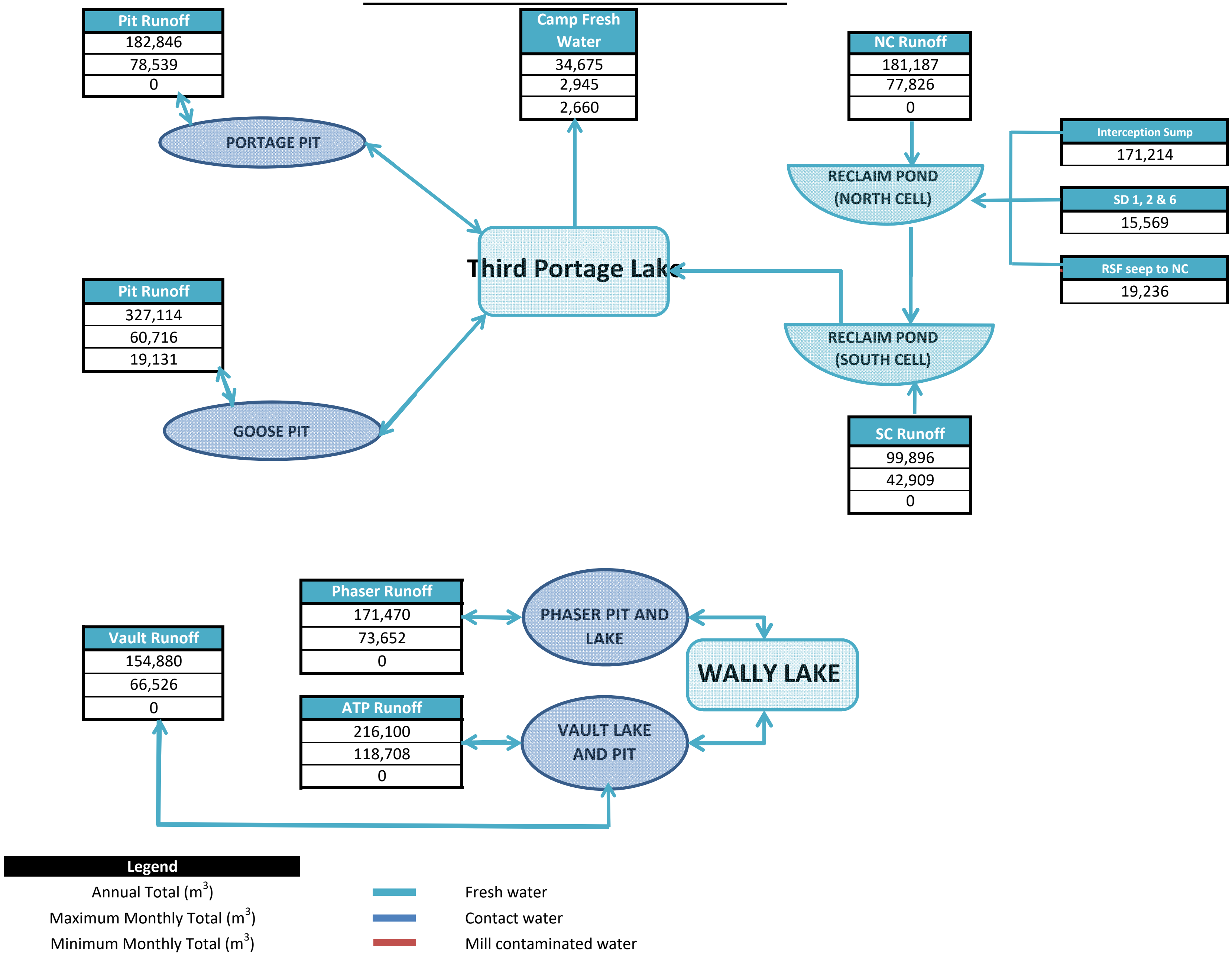
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2029



*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2030



APPENDIX C – 2019 MEADOWBANK WATER QUALITY FORECASTING UPDATE

Meadowbank Water Quality Forecasting Update for the 2018 Water Management Plan

Agnico-Eagle Mines, Meadowbank Mine

Mining & Metallurgy

04 | 04 | 2019

Report > Rev. 0
Internal ref. 663133-0000-40ER-0001_00

Title of document: **Meadowbank Water Quality Forecasting Update for the 2018 Water Management Plan**

Client: **AGNICO EAGLE**

Project: **Meadowbank Gold Project**

Prepared by: Priscila Crohmal, Eng.

Reviewed by: Anh-Long Nguyen, Eng., M.Sc.

REVISION INDEX

Revision				Pages Revised	Remarks
#	Prep.	App.	Date		
PA	PC	ALN	Mar. 13, 2019		For internal review
PB	PC	ALN	Mar. 15, 2019		For Client review
00	PC	ALN	Apr. 4, 2019		Issued for study

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This document contains the expression of the professional opinion of SNC-Lavalin Inc. ("SNC-Lavalin") as to the matters set out herein, using its professional judgment and reasonable care. It is to be read in the context of the agreement dated January 13, 2019 (the "Agreement") between SNC-Lavalin and Agnico Eagle (the "Client") and the methodology, procedures and techniques used, SNC-Lavalin's assumptions, and the circumstances and constraints under which its mandate was performed. This document is written solely for the purpose stated in the Agreement, and for the sole and exclusive benefit of the Client, whose remedies are limited to those set out in the Agreement. This document is meant to be read as a whole, and sections or parts thereof should thus not be read or relied upon out of context.

SNC-Lavalin has, in preparing estimates, as the case may be, followed accepted methodology and procedures, and exercised due care consistent with the intended level of accuracy, using its professional judgment and reasonable care, and is thus of the opinion that there is a high probability that actual values will be consistent with the estimate(s). Unless expressly stated otherwise, assumptions, data and information supplied by, or gathered from other sources (including the Client, other consultants, testing laboratories and equipment suppliers, etc.) upon which SNC-Lavalin's opinion as set out herein are based have not been verified by SNC-Lavalin; SNC-Lavalin makes no representation as to its accuracy and disclaims all liability with respect thereto.

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1.0 Introduction

1.1 Mandate

SNC-Lavalin (SLI) was mandated by Agnico Eagle (Agnico) to review and update the water quality forecasting model developed in 2012, and updated yearly using the Water Balance reported in the appendix A of the 2018 Water Management Report and Plan (WMP 2018) to be submitted in March 2019 by Agnico.

1.2 Study Objectives and Content

This Technical Note presents the water quality forecast model updated for the Meadowbank Gold Project, based on the Water Balance 2018 (WB 2018) of Agnico. The WB 2018 was developed according to the updated Life of Mine (LOM) (version BUD2019_V1B) and the mine development sequence provided by Agnico and summarized in Table 1-1. The updated water quality forecast model applies to the North and South Cell Tailings Storage Facility (TSF) Reclaim Ponds and Portage and Goose Pits.

The objective of this Technical Note is to forecast the concentration of the selected parameters of concern within the North and South Cell TSF Reclaim Ponds and the Portage and Goose Pits from 2018 until closure, verify last year's assumptions and results, update the model if necessary, develop recommendations and determine whether water treatment could be required.

For the Vault pit, no treatment is expected when re-flooding the pit since there is no tailings disposal facility at the Vault site. The Vault Attenuation Pond only receives mine pit runoff water and fresh water. This will be confirmed through regular monitoring required by the Type A Water License from 2014 to 2018. The first modelling of the Vault area was realized in 2016 based on the 2014 and 2015 data and updated on a yearly basis using sampling data collected for that year. For this year's report, the measurements taken in 2018 for this monitoring campaign were analyzed and are presented in section 5.0.

1.3 Water Balance

The Water Balance 2018 (WB 2018) was developed by Agnico Eagle. The company also examined the water transfers required for the water management infrastructure during the active life of mine, pit re-flooding activities and post closure, all under average hydrologic conditions.

The WB 2018 was based on the revised mining schedule presented in Table 1-1 below for Meadowbank and Vault areas.

Table 1-1: Water Management Phases (based on BUD2019_V1B)

ACTIVITY	UPDATED START DATE[1]	UPDATED END DATE[1]	WMP 2012 START DATE	WMP 2012 END DATE
Pits Mining				
Portage Pit	January 2010	June 2018	January 2010	December 2016
North (Pit A)	January 2010	June 2018	January 2010	December 2015
Central (Pit B, C D)	January 2010	April 2013	January 2010	December 2013
South (Pit E)	January 2010	June 2019	January 2010	December 2016
Goose Pit	April 2012	May 2015	April 2012	June 2015
Vault Pit	January 2014	September 2018	January 2014	February 2018
Phaser Pit	July 2018	September 2018	-	-
Amaruq Whale Tail Pit	July 2019	December 2021	-	-
Tailings Storage Facility Operations				
North Cell	January 2010	December 2020	January 2010	March 2015
South Cell	November 2014	December 2021	April 2015	February 2018
Rock Storage Facility (RSF) Operations				
Portage RSF	January 2009	August 2019	January 2009	December 2016
Vault RSF	January 2014	September 2018	January 2014	February 2018
Attenuation / Reclaim Pond Water Management				
Attenuation Pond (South Cell)[2]	January 2009	November 2014	January 2009	March 2015
Attenuation Pond Vault Lake	January 2014	September 2018	January 2014	February 2018
Other Key Activities				
Mill Operations	January 2010	December 2021	January 2010	February 2018
Dewatering of Vault Lake	June 2013	July 2014	September 2013	November 2013
Dewatering of Phaser Lake	July 2016	October 2016	September 2016	October 2016
Flooding of Portage Pit[3]	July 2017	September 2026	March 2017	September 2023
Flooding of Goose Pit[3]	May 2015	August 2026	July 2015	September 2023

ACTIVITY	UPDATED START DATE[1]	UPDATED END DATE[1]	WMP 2012 START DATE	WMP 2012 END DATE
Flooding of Vault Pit[3]	June 2019	August 2026	March 2018	October 2023
Flooding of Phaser Pit[3, 4]	-	-	-	-
Breaching of dikes	n/a	2030 only if water criteria are met	n/a	n/a

Notes:

1 Periods are given from the beginning of the starting month to the end of the ending month.

2 After October 2014, the Reclaim Pond is relocated to the South Cell TSF. After this date, there is no Attenuation Pond.

3 Artificial flooding only with a combination of pumps and siphons, natural run off inflow as part of re-flooding not accounted in this table.

4 Phaser pit and lake are expected to be flooded solely on a passive method (run offs) due to the small flooding volume required to re-establish initial elevation combined with its big watershed.

2.0 Review of Water Balance and Water Quality Data for 2018

2.1 Documents Reviewed

A review of the available water balance and water quality data measured in 2018 was undertaken by SLI and compiled with previous data measured since 2012. This includes a review of the following documents:

- Water balance model 2018 (WB 2018) based on the life of mine BUD2019_V1B.
- Water quality chemical analysis results for the Portage Area for 2018. The chemical analysis results of interest for this Technical Note are presented in Appendix A and were integrated in the data previously obtained, specifically:
  - North Cell TSF Reclaim Pond (ST-21) from January 2013 to October 2018;
  - South Cell TSF Reclaim Pond (ST-21) (former South Cell TSF Attenuation Pond ST-18) from June 2013 to December 2018;
  - Mill effluent metal and cyanide concentrations from January 2013 to December 2018;
  - Four (4) grab samples of Mill Effluent taken in 2018;
  - Portage North Pit (ST-17, Pit A) and Portage South Pit (ST-19, Pit E) from January 2013 to July 2018;
  - Goose Pit (samples taken in the sump pit and in the lake, ST-20) from January 2013 to September 2018;
  - Central Dike seepages collected in the downstream collection pond (ST-S-5) sampled in 2018;
  - East Dike (ST-8) seepage and Saddle Dam 3 (ST-32) sump sampled in 2018;
  - Saddle Dam 1 downstream sump (ST-S-2) and Portage Rock Storage Facility seepage (RSF) (ST-16) sampled from 2015 to 2018;
  - Stormwater Water management pond water analysis taken in July 2018;
  - Tailing shake flask extraction tests results conducted in 2018 on the tailings.
- Water quality chemical analysis results for the Vault Area for 2018, specifically:
  - Vault Pit sump (ST-23) from October 2013 to November 2018;
  - Vault Attenuation Pond (ST-25) from July 2014 to September 2018;
  - Discharge to Wally Lake (ST-10) from June 2013 to October 2017. There was no discharge from Vault Attenuation Pond to Wally Lake (ST-10) in 2018.

It is important to remember that the review of the Meadowbank water quality data was undertaken to gain a better understanding of the water quality in the Portage Area, particularly as it affects the TSF Reclaim Ponds, and to provide a basis for the development and update of the mass balance.

Analysis of the Vault water quality data was undertaken to gain a better understanding of the water quality and update of the mass balance in this area.

2.2 Updates to the Water Balance

The initial Water Balance (WB) was developed in 2012. It has been updated on a yearly basis based on actual water transfers conducted on site, field survey of the different pond levels and on updates to the Life of Mine. Table 2-1 summarizes the main differences between the WB from 2012 to 2018.

The WB 2018 integrates the extension of the Life of Mine (LOM) of Meadowbank Mine by construction and operating the Whale Tail Pit, a satellite deposit located on the Amaruq property, and continuing mine operations and milling at Meadowbank.

Table 2-1: Updates to the Water Balance

WB DATE	FORECAST END OF DEPOSITION	MAIN DIFFERENCES
2012	February 2018	Initial water balance model based on the WMP 2012. Tailings deposition started in the North Cell TSF until March 2015 and was then transferred to South Cell TSF until February 2018. Reclaim water was then transferred to the pits. It was anticipated that there would be approximately 6 Mm^3 of non-contact water already accumulated in each pit at that time.
2013	September 2017	In this WB, the LOM included deposition of tailings in North and South Cell TSF in 2014 and 2015. Deposition in the North Cell TSF was planned to end on October 2015 and continue in the South Cell TSF until September 2017. Furthermore, it was anticipated that South Cell TSF Reclaim Water would be transferred as of 2015 to the pits when there would be very little water in the pits. This was done while tailings deposition in South Cell TSF was ongoing. Runoff water will then be allowed to flow into the pit and mix with the South Cell Reclaim Water.
2014	September 2017	In this WB, tailings were deposited in the North and South Cell TSF in 2014 and 2015. Deposition in the South Cell TSF started on November 2014. Deposition in the North Cell TSF was planned to end in September 2015 and continue in the South Cell TSF. Based on the volume of Reclaim Water in the North Cell TSF and South Cell TSF Ponds, it was anticipated that South Cell Reclaim Water would be transferred to Portage Pit starting August 2017. No Reclaim Water was to be transferred to Goose Pit. Furthermore, the percentage of tailings water/ice entrapment was also updated in the 2014 Water Management Plan (WMP) to better reflect what was currently observed on site.

WB DATE	FORECAST END OF DEPOSITION	MAIN DIFFERENCES
2015	September 2018	From January to July 2015, tailings were deposited in the South Cell TSF. Deposition in the North Cell TSF continued from July to October 2015. As of October 2015, deposition of tailings continued only in the South Cell TSF until the end of the LOM. The LOM was extended compared to WB 2014, where tailings deposited was planned to end in September 2018. The transfer of Reclaim Water to the Portage Pit was postponed one year due to the longer LOM, and is planned to start on September 2018. No Reclaim Water will be transferred to Goose Pit other than the 50,431 m^3 transferred from the Central Dike Downstream Pond, which has a similar water quality than the South Cell Reclaim Pond. Those transfers were proposed by the Meadowbank Dike Review Board (MDRB) to further assess the Central Dike seepage (ST-S-5) that was identified that same year.
2016	September 2018	The tailings deposition and water transfer schedule is similar to the WB 2015. Water in sumps from Saddle Dam 3-4-5 was added as a new input to the South Cell TSF Reclaim Pond. Furthermore, the transfer of seepages and runoff water from the North Cell interception sump, Rock Storage Facility (RSF) and Saddle Dam 1 to the North Cell TSF continued past 2018 until closure. Portage and Goose Pit filling rates were also adjusted in this WB.
2017	September 2018	The tailings deposition and water transfer schedule is similar to the WB 2016. The actual volumes of water transfers and tailings deposited in 2017 were entered into the model. About 332,177 m^3 of pond water was transferred to Goose Pit from the Central Dike Downstream Pond between August and October 2017 in order to reduce the hydraulic gradient between the South Cell and ST-S-5. This strategy was presented to the MDRB as part of an action plan on Central Dike. The updated water balance does not plan any other pond water transfer during tailings deposition in 2018. Portage and Goose Pit flooding rates were also adjusted. A different percentage of tailings water/ice entrapment for North and South Cell TSF was also used in the WB 2017 in order to better characterize the difference of ice entrapment cover between the two, partly due to the continuing water inflow from the mill effluent in the South Cell TSF.

WB DATE	FORECAST END OF DEPOSITION	MAIN DIFFERENCES
2018	December 2021	The tailings deposition and water transfer schedule were extended until December 2021. Tailings will be deposited in the North Cell and South TSF. The additional tailings come from the continuation of the milling of ore produced from the Whale Tail pit at the Amaruq site. The actual volumes of water transfers and tailings deposited in 2018 were entered into the model. In 2018, no Reclaim Water was transferred from Central Dike Downstream Pond or South Cell TSF to Goose Pit. In the Vault area, there was no discharge to Wally Lake as well.

2.3 North and South Cell TSF Reclaim Ponds (ST-21)

2.3.1 Measured vs Forecasted Concentrations

A review of the chemical analysis for water samples collected in the North Cell (now transferred to the South Cell) and South Cell TSF Reclaim Ponds (station ST-21) was undertaken by SLI in order to identify contaminants that were above discharge criteria as stipulated in the MMER, CCME and the Water License, Part F.

It is understood that the MMER, CCME and Water License criteria apply to mining effluents discharged to the environment and are as such not applicable to the TSF Reclaim Ponds since no effluent is discharged from this area to the environment. However, the MMER, CCME and Water License criteria are used as a guide to identify potential parameters that may become a problem should they be discharged to the pit as part of reflooding and then the environment (once dike are breached) without treatment.

It should be noted that the parameters of concern were only determined based on the chemical analyses provided by Agnico and summarized in Appendix A.

The parameters of concern identified in last year's water quality forecasting reports that may represent a potential long-term contamination risk following closure are the following:

- Total Aluminum
- Total Arsenic
- Total Cadmium
- Total Chromium
- Total Copper
- Total Iron
- Total Nickel
- Total Selenium
- Fluoride
- Total ammonia

Furthermore, the water quality review from past reports also identified the following parameters in the Reclaim Water that should be monitored since they could represent a potential long-term contamination risk:

- Cyanide (total)
- Chloride
- Nitrate

Table 2-2 presents the MMER, Water License (Nunavut Water Board License, 2015) discharge criteria and CCME discharge guidelines for the parameters of concern identified in 2018 that may represent a potential contamination risk in the Portage Area when filling Portage and Goose Pits after the mining sequence is complete. For the purpose of the water quality forecast report, the British of Columbia guideline for sulfate for the protection of aquatic life was used as a benchmark for reference only. However final site-specific closure limits will be developed through review of the final closure plan by regulatory agencies.

Figure 2-1 presents the concentration of these parameters measured in the North and South Cell TSF Reclaim Ponds from 2013 to 2018. Also shown in this figure are the forecasted concentrations from the Water Quality Forecasting Update based on the 2017 Water Management Plan (SLI 2018). For the metal parameters, total concentration values are shown in the figures in this year's report since the discharge criteria and CCME water quality guidelines are based on total concentration measurements.

Table 2-2: Discharge Criteria and CCME Guidelines for the Parameters Evaluated

PARAMETER	DISCHARGE CRITERIA & WATER QUALITY GUIDELINES		
	MMER (1)	*Water License (2) (Part F)*	*CCME (3) (guideline date)*
Cyanide (CN)	1.00 mg/L (as total CN)	0.5 mg/L (as total CN)	5 µg/L (as free CN) (1987)
Aluminum (Al)	*no criteria*	1.5 mg/L	100 µg/L(8) (1987)
Arsenic (As)	0.5 mg/L	0.3 mg/L	5 µg/L (1997)
Cadmium (Cd)	*no criteria*	0.002 mg/L	0. 04 µg/L (10) (2014)
Chromium (Cr)	*no criteria*	*no criteria*	1 µg/L(9) (1997)
Copper (Cu)	0.30 mg/L	0.1 mg/L	2 µg/L(4) (1987)
Iron (Fe)	*no criteria*	*no criteria*	0.3 mg/L (1987)
Nickel (Ni)	0.025 mg/L	0.5 mg/L	0.025 mg/L (10) (1987)
Selenium (Se)	*no criteria*	*no criteria*	1 µg/L (1987)
Total Ammonia (NH_3)	*no criteria*	16 mg N/L	1.83 mg N/L(5) (2001)
Nitrate (NO_3)	*no criteria*	20 mg N/L	2.94 mg N/L(7) (2012)
Chloride (Cl)	*no criteria*	1,000 mg/L	120 mg/L(6) (2011)
Fluoride (F)	*no criteria*	*no criteria*	0.12 (2002)
Sulfate (SO_4)	*no criteria*	*no criteria*	128(11)

PARAMETER	DISCHARGE CRITERIA & WATER QUALITY GUIDELINES		
	MMER (1)	*Water License* (2) *(Part F)*	*CCME* (3) *(guideline date)*

Notes:

(1) MMER criteria corresponding to the maximum average monthly concentration (schedule 4)

(2) Water License (Part F) criteria for Third Portage Lake corresponding to the maximum average concentration (2015)

(3) CCME criteria as per the Water Quality Guidelines for the Protection of Aquatic Life for freshwater and long-term exposure. Criteria referenced from www.ccme.ca in Feb. 2017.

(4) The copper discharge criterion depends on hardness. A Third Portage Lake hardness level is approx. 12 mg/L as $CaCO_3$. For hardness between 0 to 82 mg/L $CaCO_3$, the copper limit is set at 2 µg/L.

(5) The ammonia concentration limit depends on temperature and pH (an increase in temperatures and pH leads to a more stringent ammonia concentration limit). In this case, 2.22 mg/L of NH_3, or 1.83 mg N/L was determined based on an average pH of 7.5 in Third Portage Lake and a maximum measured temperature of approx. 15°C.

(6) This is the long-term chloride concentration limit. The short term concentration limit is 640 mg/L.

(7) This is the long-term nitrate concentration limit (13 mg/L as NO_3). The short term concentration limit is 550 mg/L.

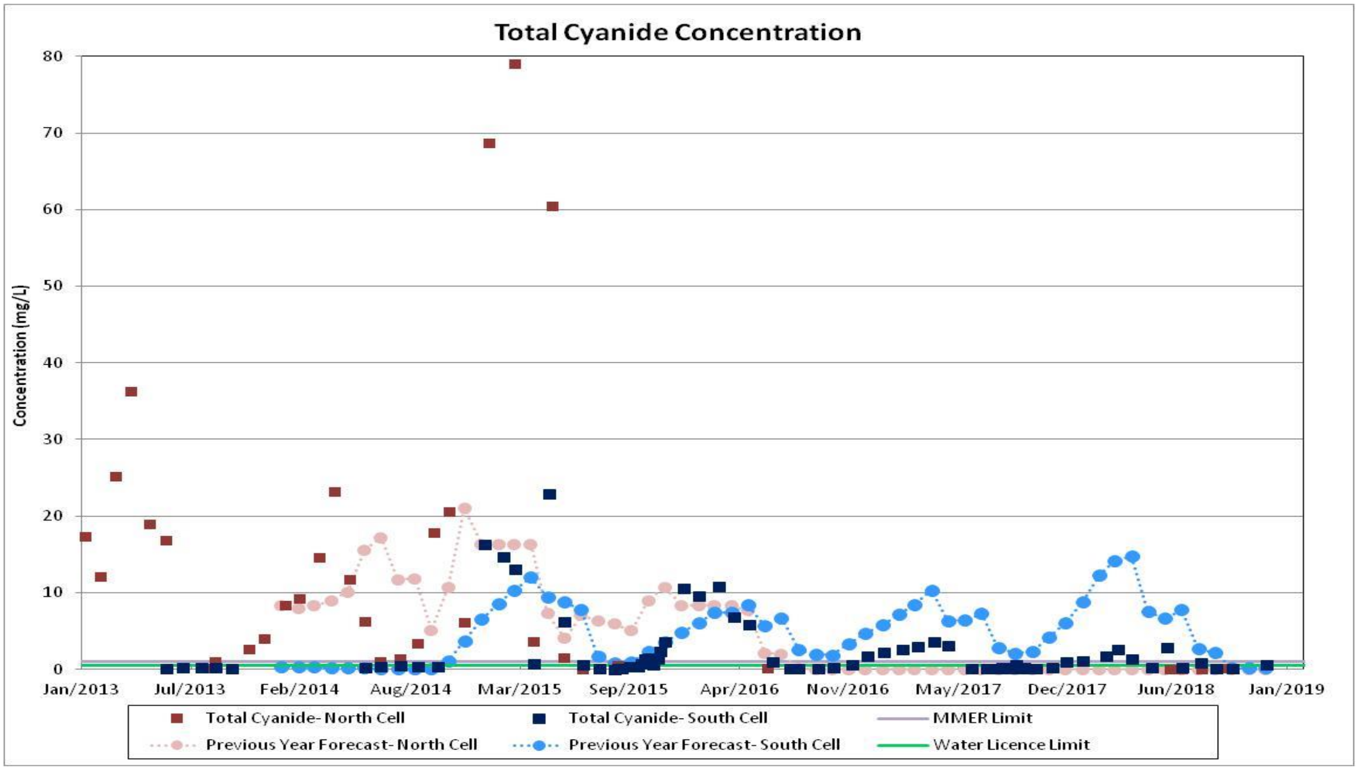
(8) Aluminum discharge criterion depends on the pH. Value shown is for a water pH > 6.5.

(9) Chromium value is based on hexavalent form (Cr(VI)).

(10) Cadmium and nickel discharge criterion depends on hardness. Third Portage Lake hardness level is approx. 12 mg/L as $CaCO_3$. For hardness between 0 to 17 mg/L $CaCO_3$, the limit is set at 0.04 µg/L for cadmium. For hardness between 0 to 60 mgL $CaCO_3$, the limit is set at 0.025 µg/L for nickel.

(11) Threshold value for sulfate based on BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

Figure 2-1: Concentration in the North and South Cell TSF Reclaim Ponds



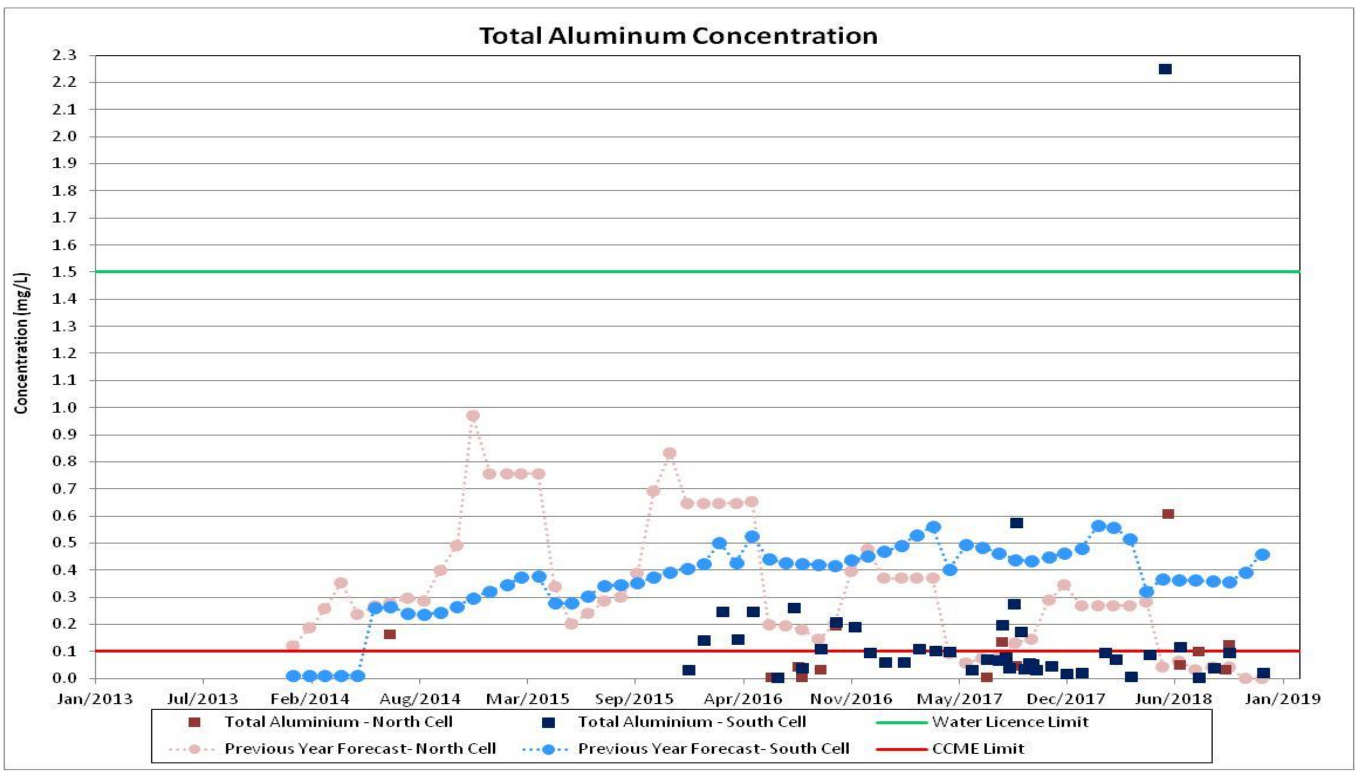
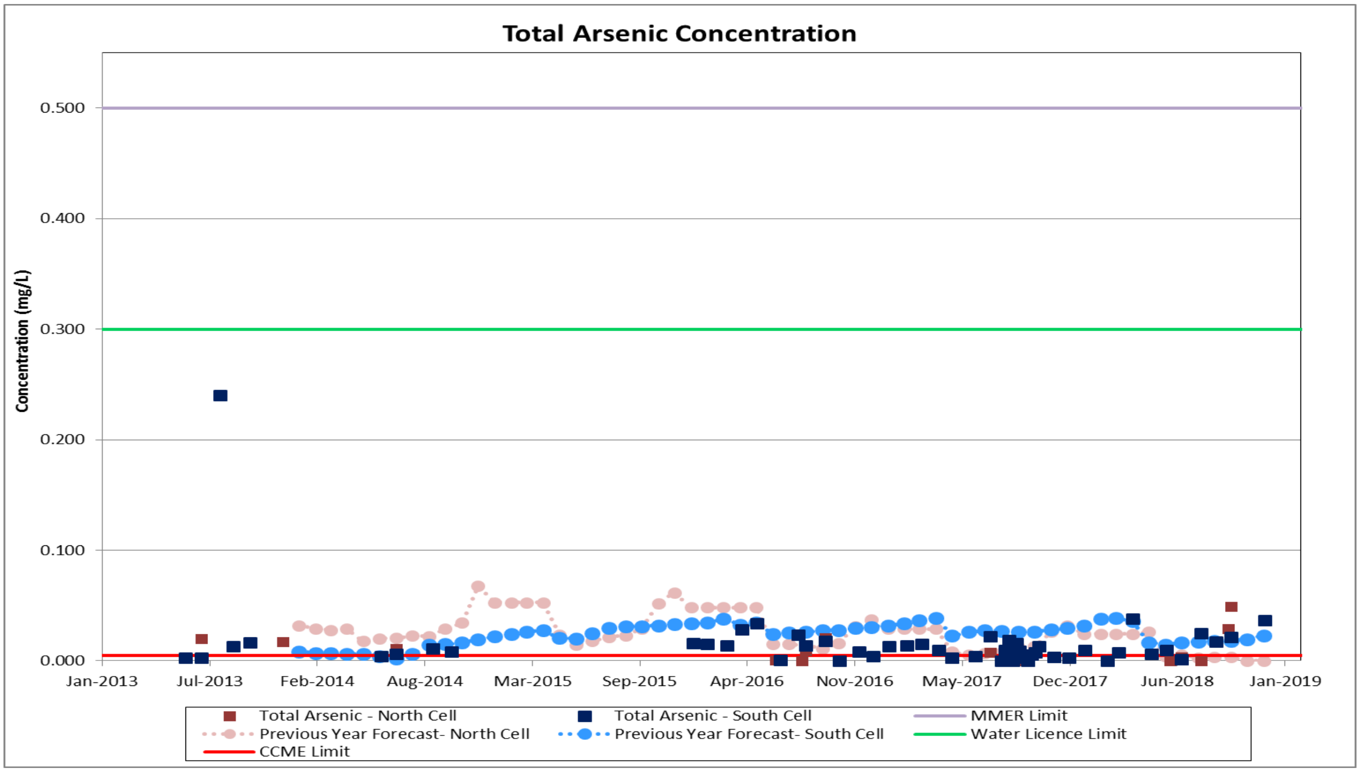


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds



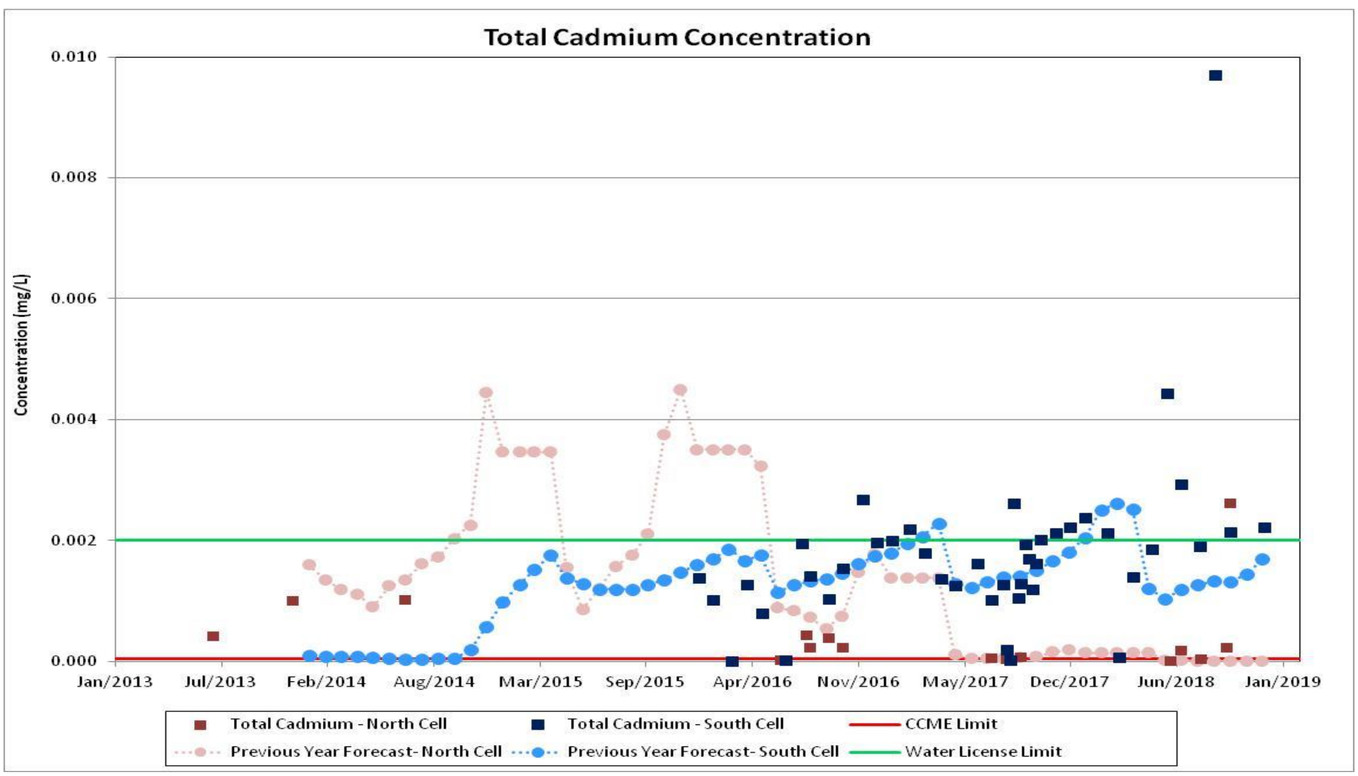
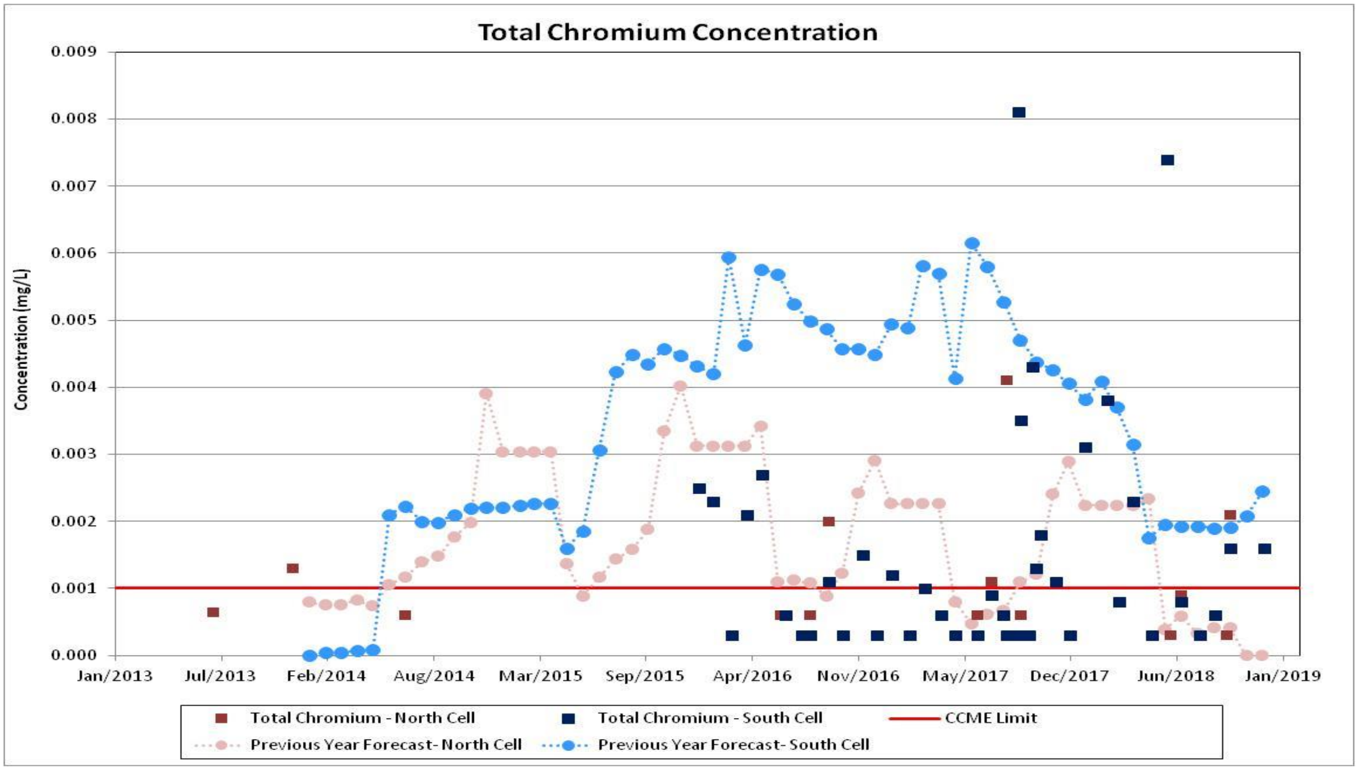


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds



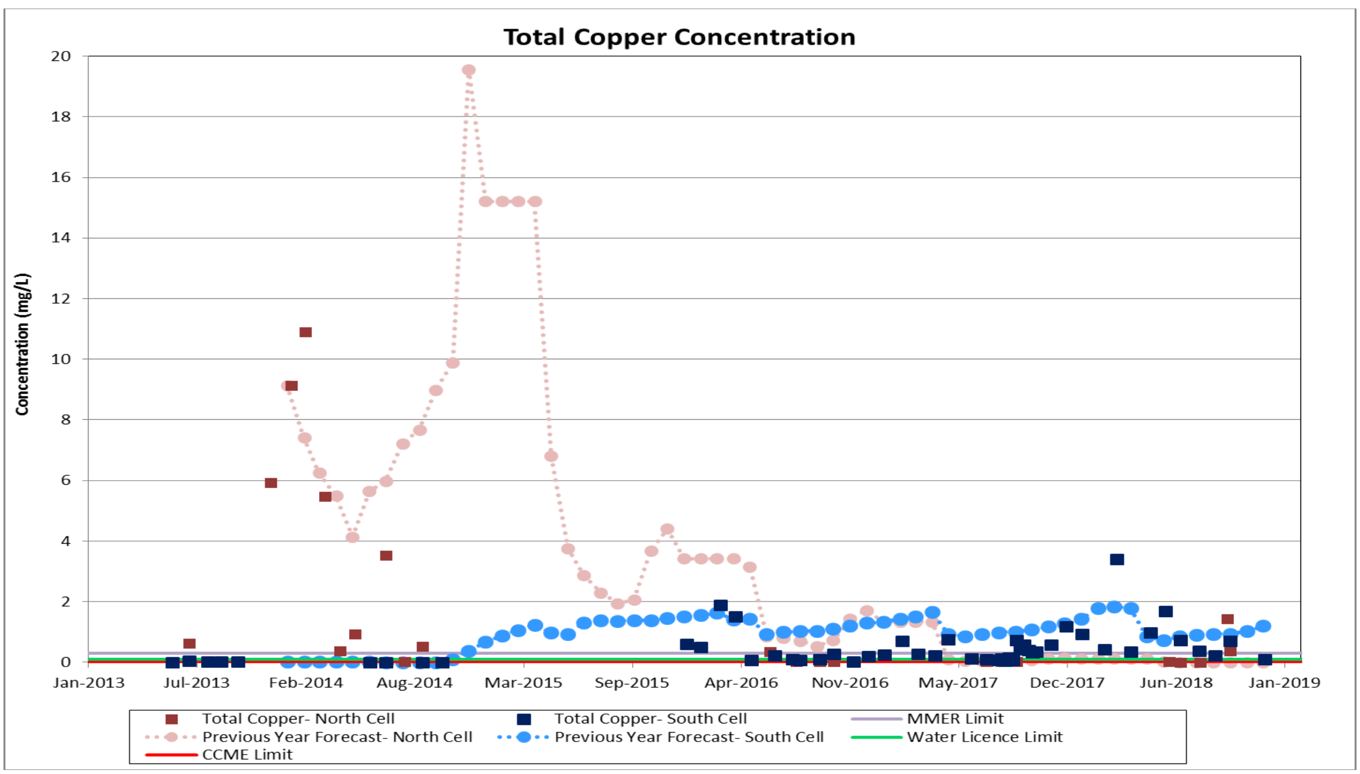
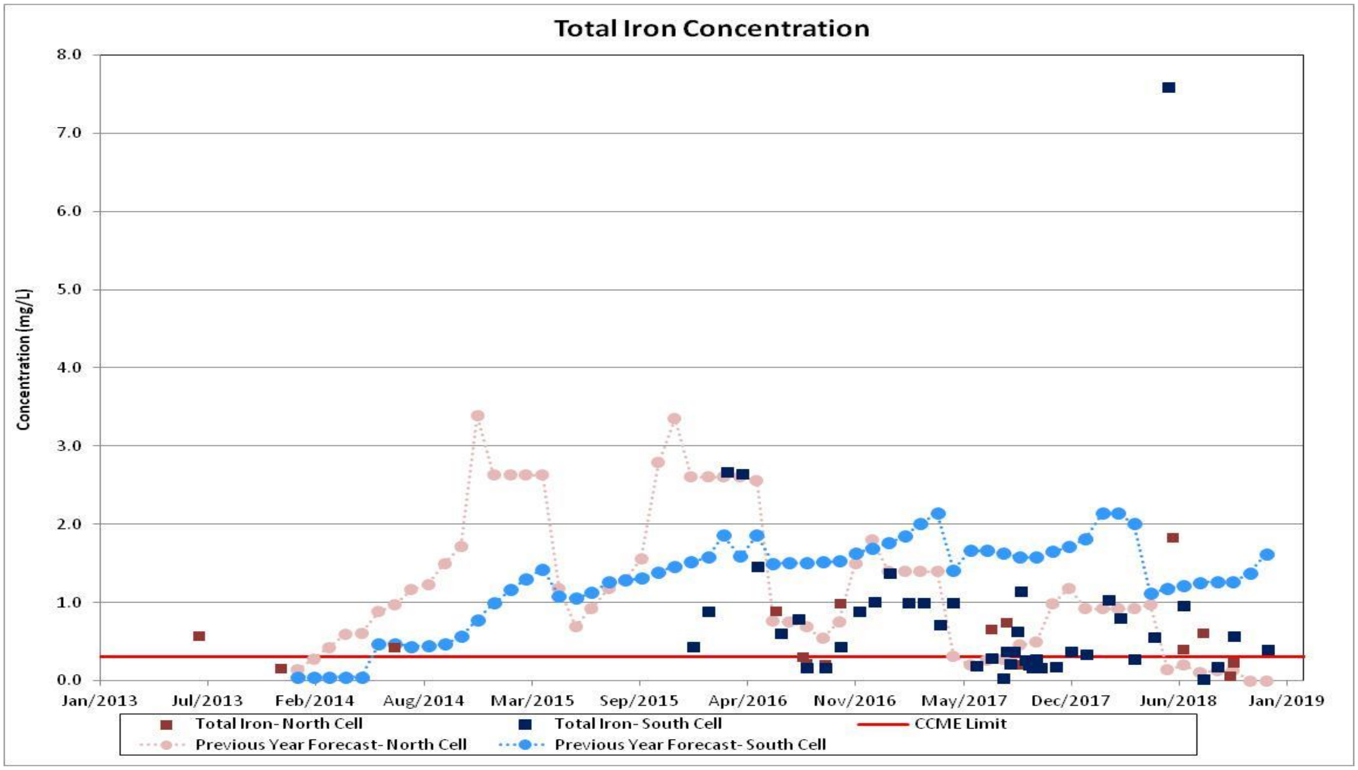


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds



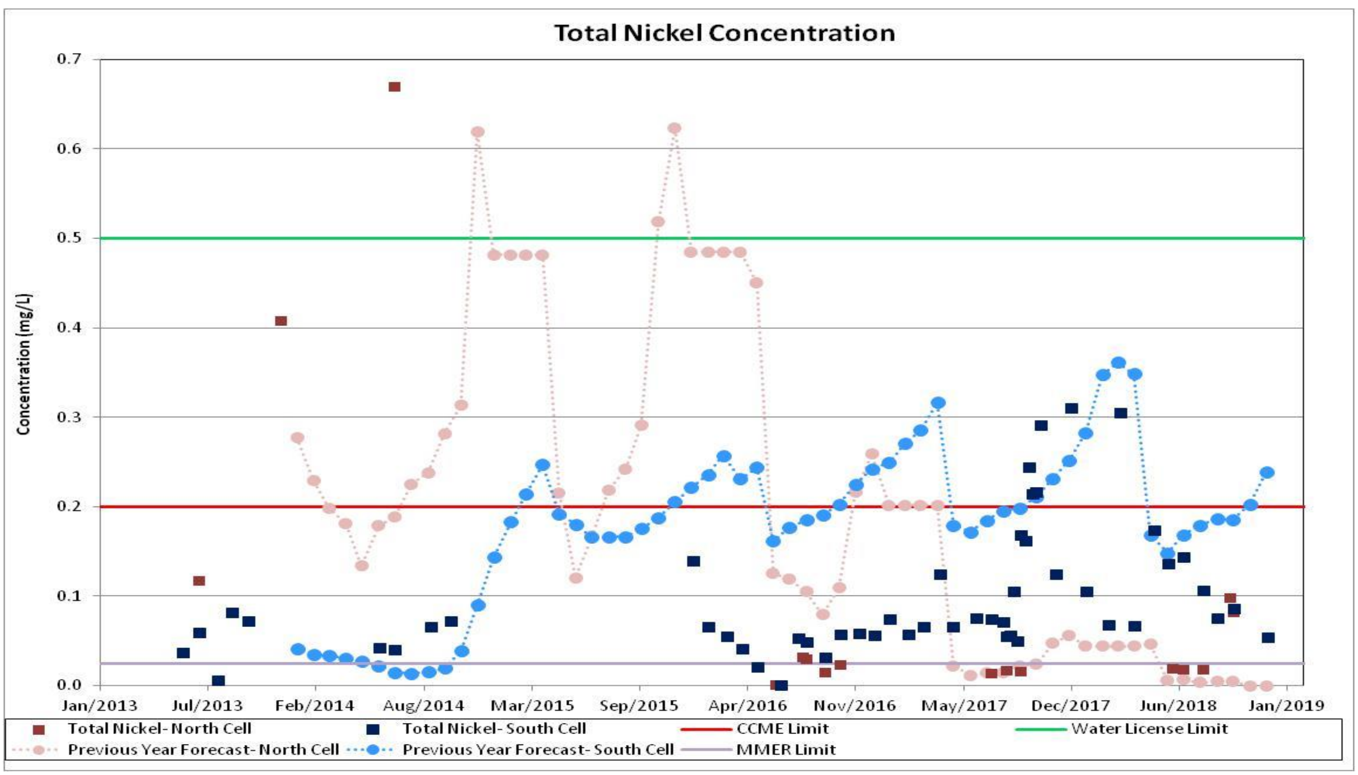
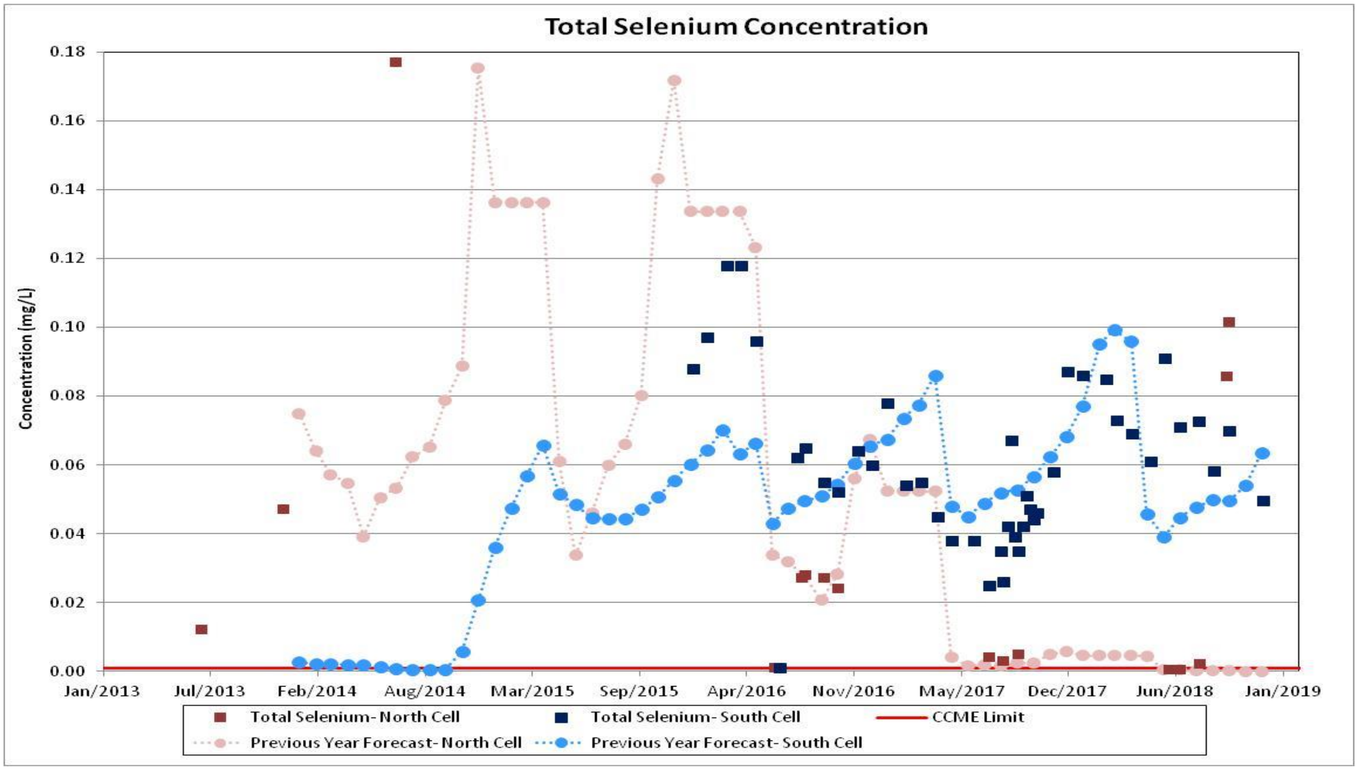


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds



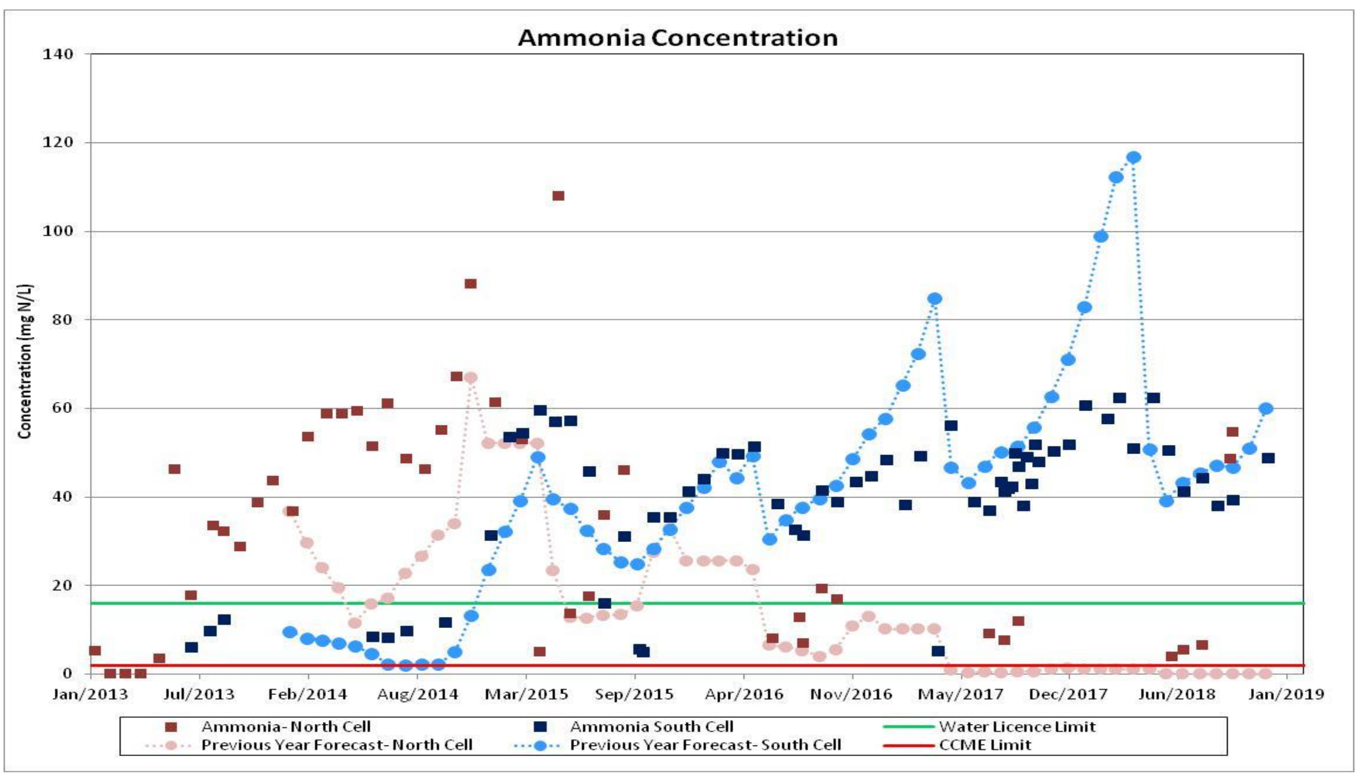
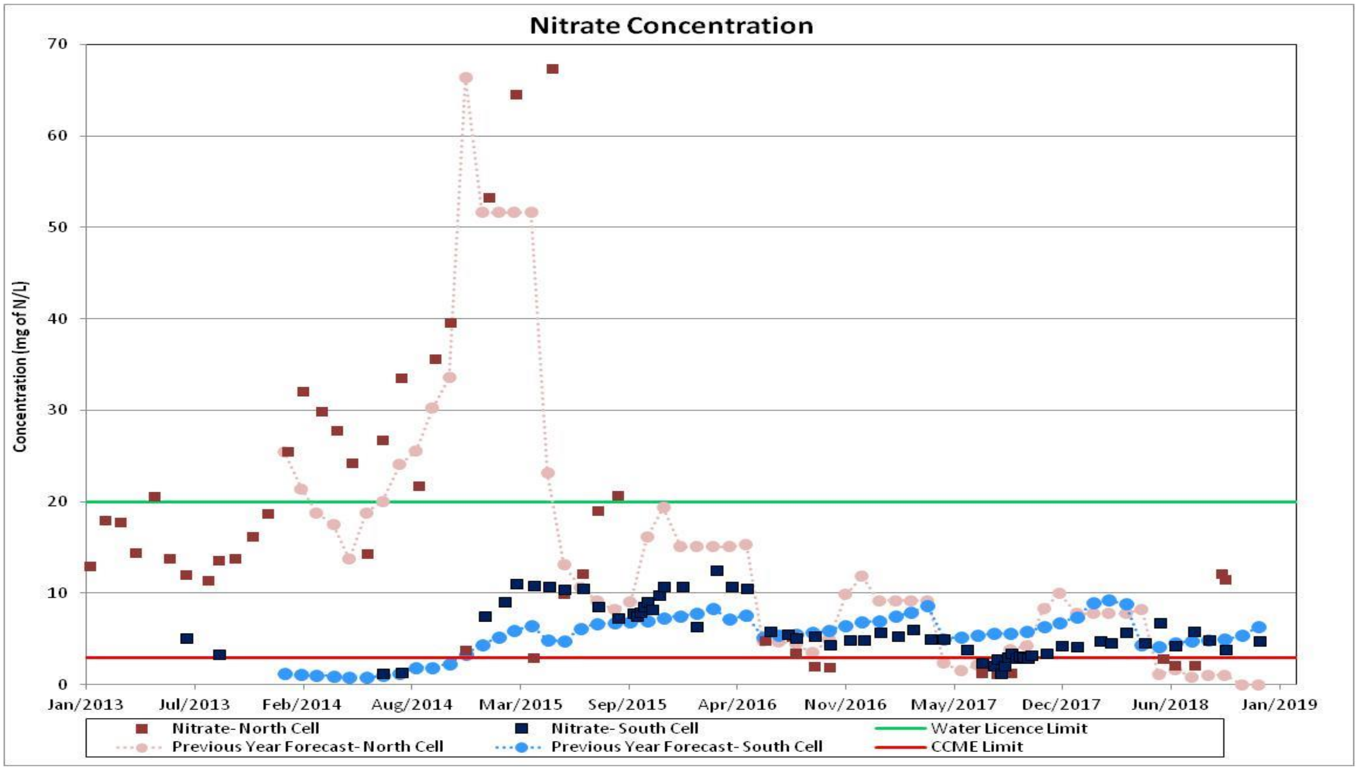


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds



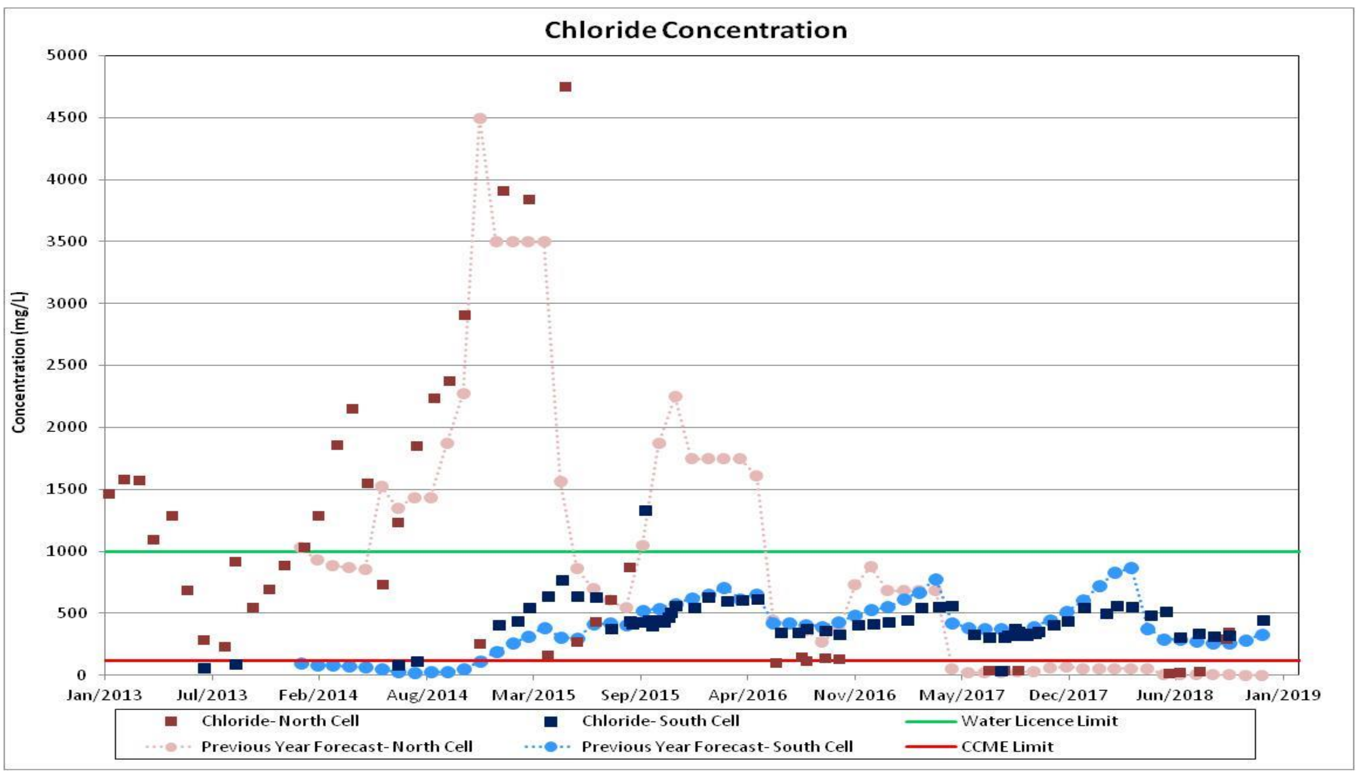


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds

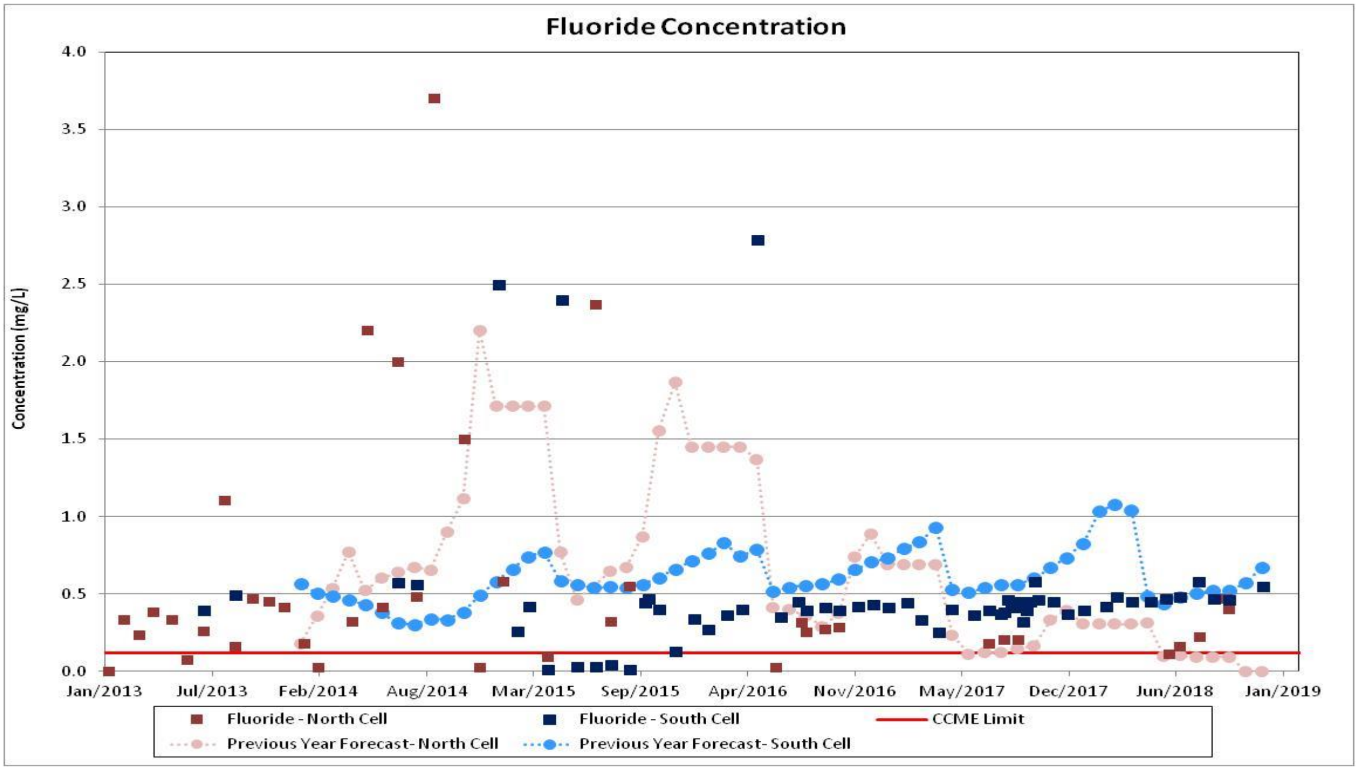


Table 2-3 summarizes the observations that can be made based on the measured values and forecasted concentrations as shown in Figure 2-1. For some parameters, the graphs observations have been divided into North Cell TSF Reclaim Pond (NC) and South Cell TSF Reclaim Pond (SC). The forecasted values are based on the previous model (SLI 2018).

Table 2-3: Observations from Measured and Forecasted Concentrations in the North and South Cell TSF Reclaim Ponds

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Cyanide	**NC:** Measured concentrations were very low in 2017 since there is no tailing deposition in the North Cell. **SC:** Concentrations in the South Cell is also low, with a small increase between January and May 2018, reducing during the summer. The measured data demonstrated that cyanide volatilization does occur efficiently during the summer months.	**NC:** As there is no tailings deposition in the North Cell since 2015, cyanide volatizes in the summer and its concentration slowly reduces in the cell with time. As of winter 2018, it was forecasted that there wouldn't be cyanide in the cell. **SC:** Forecasted concentrations follow the same trend as the measured values in 2018. The model and measured values confirm that very little natural cyanide degradation occurs during the winter months, but increases significantly in the warmer spring/summer months.
Total Metals (general)	See specific parameters for details	The current forecasting model is based on a mass balance using the water balance around the site and does not take into account possible geochemical reactions that could help precipitate the metals out of the water column phase at equilibrium. For this reason, some of the forecasted values can be higher than the measured values. See specific parameters for additional details.
Total Aluminum	**NC & SC:** Measured values are relatively low and have a small variation in 2018. For comparison purposes only, the measured concentrations are below Water License discharge criteria, and close to the CCME limit.	**NC:** Forecasted concentrations were similar to measured values. **SC:** Forecasted concentrations were higher than the measured values.
Total Arsenic	**NC & SC:** Measured concentrations are relatively low. For comparison purposes only, the measured concentrations are below Water License discharge criteria, and arsenic is lower than the MMER discharge criterion.	**NC:** In the fall of 2018, the measured values were higher than the forecasted values. In 2018, tailings were deposited in the NC TSF between August and October, which was not accounted for in the 2017 WMP. **SC:** Forecasted concentrations are similar to the measured ones.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Cadmium	**NC:** Measured concentrations are generally very low, except for one data point in the fall 2018. **SC:** Measured concentrations are higher than the forecasted ones.	**NC:** Forecasted values were in general similar to the measured value, except for one data point in the fall 2018. In 2018, tailings were deposited in the NC TSF between August and October, which was not accounted for in the 2017 WMP. **SC:** Forecasted values in 2018 where lower than what was measured. This could be due to higher concentration present in the mill effluent.
Total Chromium	**NC:** Measured concentrations are generally similar to the forecasted ones. **SC:** Measured concentrations are generally lower than the forecasted ones.	**NC & SC:** Forecasted concentrations were generally higher than the measured values. Refer to Total Metals observations.
Total Copper	**NC:** In general, measured total copper concentrations are close to zero (0). **SC:** In general, measured concentration are below the forecasted values, except for two (2) points during summer, which could be explained by a lower volume in runoff water and snow melt than anticipated.	**NC & SC:** Forecasted concentrations increased in the winter months and then decreased in the summer months. The concentrations then start to gradually increase during the 4th quarter of 2018. This trend is attributed to the additional volume of snow melt and runoff water that enters the Reclaim Pond in the spring and summer months.
Total Iron	**NC:** Measured concentrations were generally similar to the forecasted values. **SC:** Measured concentrations were generally lower than the forecasted values.	Refer to Total Metals observations.
Total Nickel	**NC:** Measured values are lower or similar to the forecasted values. **SC:** Measured values didn't follow the forecasted pattern which is to have higher concentrations in fall/winter rather than spring/summer. However, the measured values were generally similar to or lower than the forecasted values.	Refer to Total Metals observations.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Selenium	**NC:** Measured concentrations were low until fall 2018. It then increased when tailings were deposited in the NC between August and October. **SC:** Measured concentrations in 2018 did not follow the same trend as forecasted.	**NC:** Forecasted values were in general similar to the measured value, except for one data point in the fall 2018. In 2018, tailings were deposited in the NC TSF between August and October, which was not accounted for in the 2017 WMP. **SC:** Forecasted concentrations increased in the winter months and then decreased in the summer months. The concentrations then start to gradually increase during the 4th quarter of 2018. This trend is attributed to the additional volume of snow melt and runoff water that enters the Reclaim Pond in the spring and summer months. However, this was not observed in 2018 over the summer months
Ammonia	Ammonia is produced by the hydrolysis of cyanate, which is a by-product of the cyanide destruction system. Therefore, when the cyanide destruction system is operating efficiently, it is expected that the concentration of ammonia will increase in the Reclaim Ponds. The decrease observed in the summer could be attributed to the additional volume of snow, ice melt and runoff water that enters the Reclaim Pond in the spring and summer months and/or natural biological degradation over the summer months. **NC:** Measured values are higher during the September and October of 2018. **SC:** Total ammonia concentration increased from January to May, decreased during the summer months and started to rise once more during fall/winter.	To calculate the forecasted concentrations, the model takes into consideration an ammonia load coming from the hydrolysis of cyanate (CNO-), the by-product of the cyanide destruct process. The ammonia loading considered in the model is based on the loading produced when ore from Portage Pit were processed at the mill. **NC:** As there are no tailings deposition in North Cell at the start of 2018, forecasted total ammonia concentration is close to zero. However, between August and October 2018, tailings were deposited in the NC TSF, which was not accounted for in the 2017 WMP. **SC:** Forecasted concentrations for total ammonia in the South Cell TSF were more conservative than the measured value.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Nitrate	**NC:** Nitrate concentrations are generally low. However, peaks are observed in September and October 2018, caused by the deposition of tailings during that period. **SC:** Nitrate concentrations increased during winter and remain more or less stable for the rest of the year.	**NC:** During the fall, forecasted values are lower than the measured ones. Deposition of tailings in the NC TSF was not planned in the 2017 WMP. **SC:** Forecasted nitrate concentrations showed a gradual increase over the winter and a drop in the summer months. The measured values followed a similar trend, but were lower than the forecasted values until May. After this period, measured values are similar to forecasted ones.
Chloride	The primary source of chloride found in the TSF Reclaim Ponds is most likely from the use of calcium chloride in the winter months as an anti-freeze solution on the ore and a dust suppressant in the Mill dome. **NC:** As there is no tailing deposition in North Cell at the start of 2018, chloride concentration is low in this cell. There is an increase which is timed with the deposition of tailings in the fall 2018. **SC:** Measured values from 2018 are similar to the ones in 2016 and 2017. A decrease in chloride concentrations is noted during the summer months.	**NC:** The measured values are similar to the forecasted ones, except for the values in the fall 2018. Deposition of tailings in the NC TSF was not planned in the 2017 WMP. **SC:** Forecasted concentrations are similar to the measured values, except for March and April 2018. During these two (2) months, the model anticipated an increase in concentration which was not measured. This could be due to either a reduction in use of calcium chloride on site or a change in Reclaim Water consumed.
Fluoride	Fluoride concentrations in the North Cell were lower than the measured concentrations in the South Cell. **NC:** Not a lot of data is available for 2018. However, it is possible to note that fluoride concentration is increasing between August and October 2018, which coincide with tailings deposition in the NC. **SC:** Fluoride concentrations were more or less constant during the year.	**NC:** During summer/fall 2018, forecasted values are lower than measured values. Deposition of tailings in the NC TSF was not planned in the 2017 WMP. **SC:** During winter months, forecasted values are higher than measured ones. The values measured in the summer seem to follow the forecasted values in 2018.

2.4 Mill Effluent

A review of the chemical analysis for the Mill Effluent was undertaken by SLI in order to identify the impact of the Mill Effluent water quality on the water quality observed in the North and South Cell TSF Reclaim Ponds. The Mill Effluent is tested twice daily for gold (solid and dissolved) and iron (dissolved), copper (dissolved) and cyanide (CN-WAD) using the on-site lab, which is not accredited for environmental water quality chemical analysis. These chemical analyses were provided to SLI between January 2013 and December 2018.

Figure 2-2 shows the monthly average dissolved metal concentrations and cyanide (CN-WAD) in the Mill Effluent sampled at the final tailings sampling point 360-SA-008. This figure illustrates the following:

> Dissolved iron and copper concentrations are present in the Mill Effluent. Thus the main source of iron and copper in the TSF Reclaim Pond comes from the Mill Effluent.

> There is a relationship between copper and cyanide concentrations at the Mill Effluent. This is clearly represented in

> Figure 2-2 where the two trends behaved similarly in 2018. A low concentration of CN-WAD is generally associated with less cyanide required to extract the gold in certain ore type, resulting in less copper catalyst required in the cyanide destruction. Until 2016, iron concentrations also followed the trends of copper and cyanide.

> Compared to the values of 2016, the peaks observed in 2017 and 2018 for copper and CN-WAD are generally higher, as shown in

> Figure 2-2.

Figure 2-2: Mill Effluent Monthly Average 2018: Iron, Copper and Cyanide (CN-WAD)

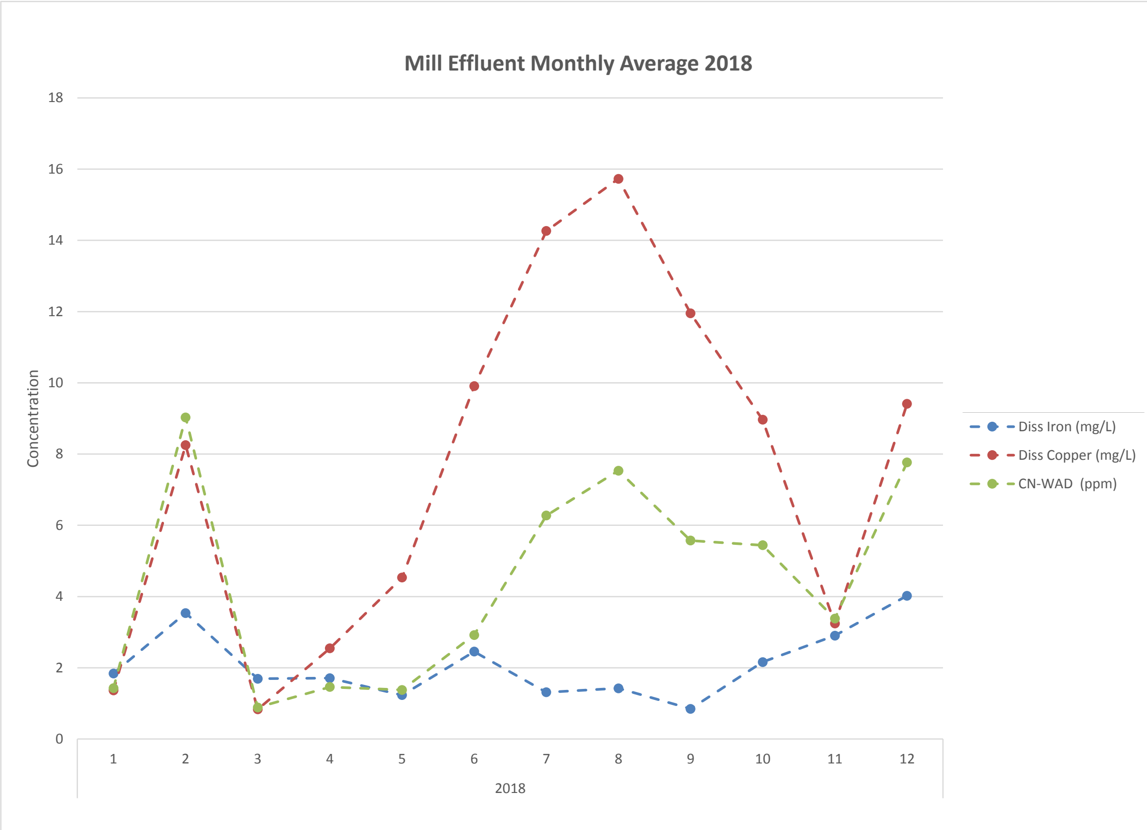
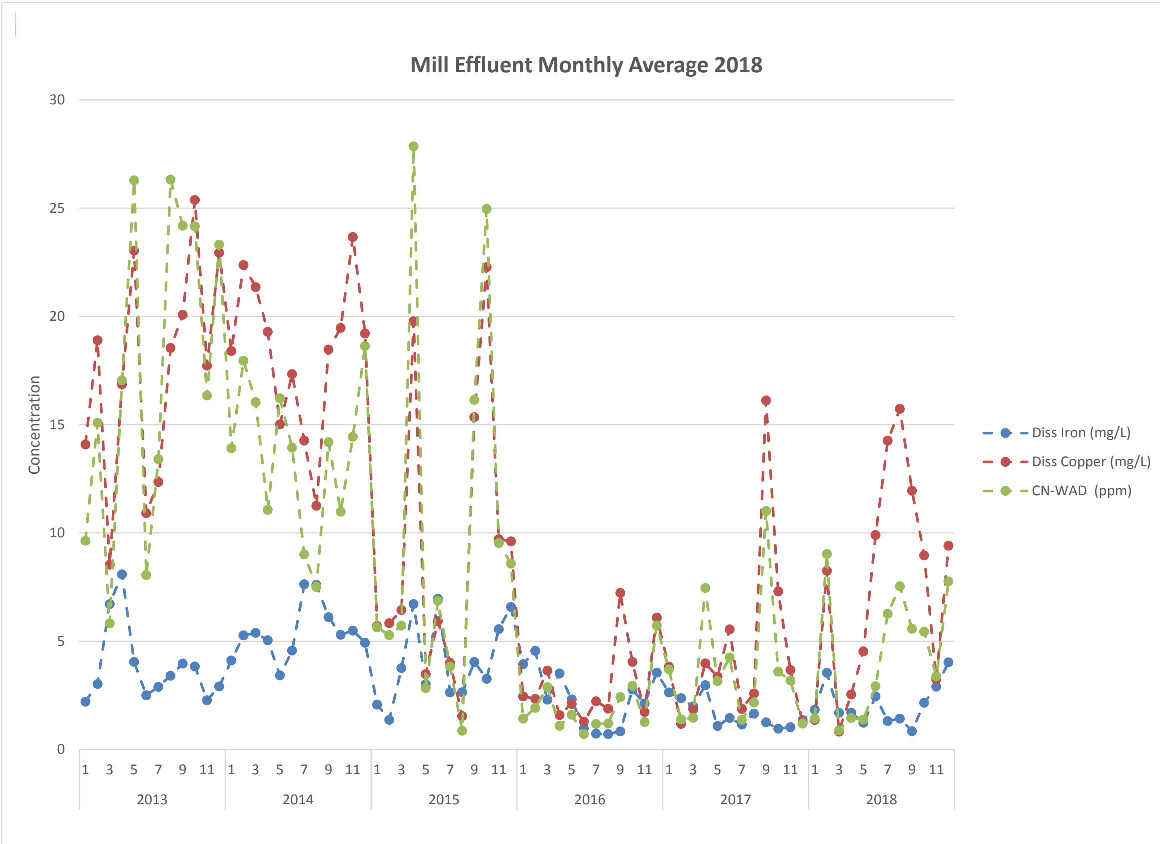


Figure 2-3: Mill Effluent Monthly Average 2016 to 2018: Iron, Copper and Cyanide (CN-WAD)



2.4.1 Additional Mill Effluent Water Quality Results

Agnico analyzed four (4) different samples of the water fraction of Mill Effluent after cyanide destruction in order to have representative data of the tailings water being discharged to the South Cell TSF in 2018. These samples are taken punctually throughout the year, every quarter. The water quality analysis was completed by an external accredited laboratory.

The chemical analysis results of the quarterly Mill Effluent samples taken in 2018 are presented in Appendix A and concern parameters were plotted in Figure 2-4 and Figure 2-5.

Figure 2-4: Mill Effluent Concentrations Sampled in 2018 – Metals

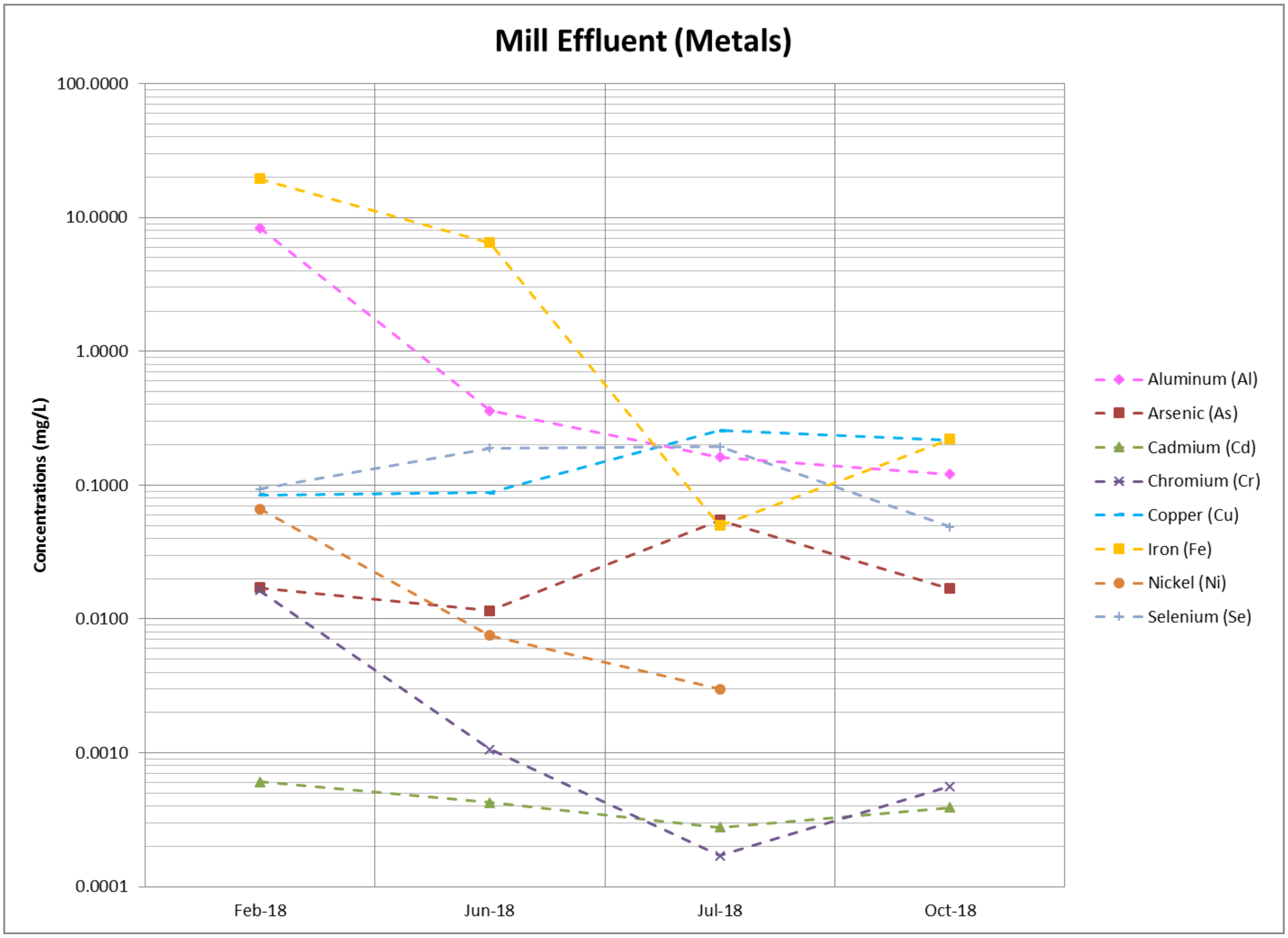


Figure 2-5: Mill Effluent Concentrations Sampled in 2018 – Ions

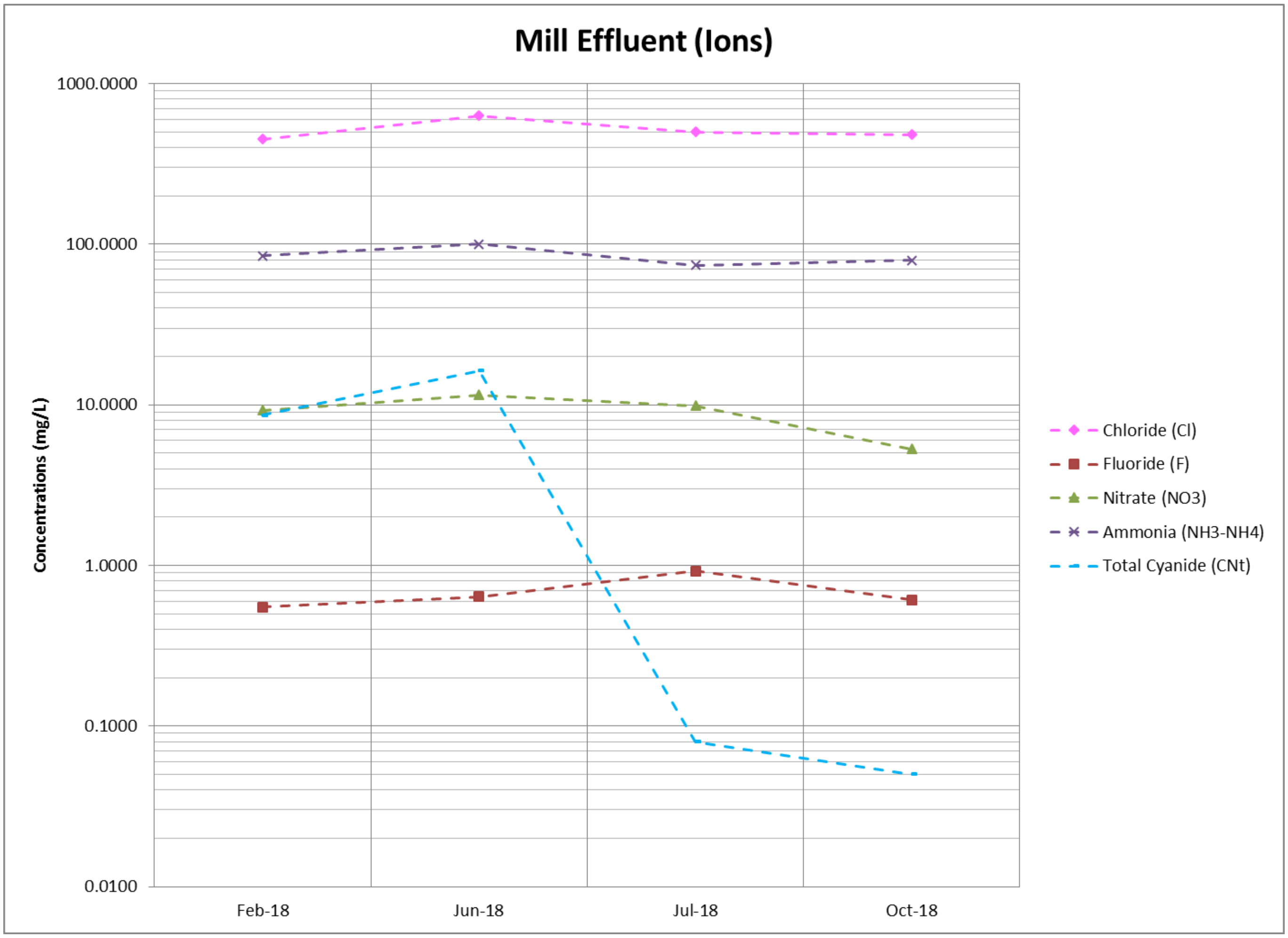


Table 2-4 compares the yearly average Mill Effluent samples between 2015 and 2018 and South Cell TSF Reclaim Pond water quality for the concerned parameters.

Table 2-4: Mill Effluent Concentrations Sampled Quarterly in 2018

PARAMETER	MILL EFFLUENT CONCENTRATION (mg/L)				SOUTH CELL (mg/L)
	Average 2015	*Average 2016*	*Average 2017*	*Average 2018*	*Average 2018*
Total Cyanide (CNt)	18.2	9.3	20.4	6.263	1.03
Aluminum (Al)	0.629	0.326	1.541	2.249	0.26
Arsenic (As)	0.036	0.026	0.018	0.025	0.02
Cadmium (Cd)	0.0020	0.0003	0.0072	0.0004	0.003
Chromium (Cr)	0.002	0.001	0.009	0.005	0.002
Copper (Cu)	11.0	3.6	5.3	0.161	3.41
Iron (Fe)	5.9	2.8	6.9	6.533	1.16
Nickel (Ni)	0.423	0.024	0.982	0.026	0.12
Selenium (Se)	0.131	0.166	0.076	0.131	0.07
Ammonia (NH_3-NH_4)	127	105	79	84	51
Nitrate (NO_3)	15.9	13.3	12.7	8.978	4.91
Chloride (Cl)	775	558	630	515	444
Fluoride (F)	0.545	0.645	0.335	0.680	0.47

With regard to the Mill Effluent measurements from 2018, they are similar to those from 2016, except for aluminum, copper, iron and nitrate. Aluminum and iron are higher in 2018 when compared to 2016 values, whereas copper and nitrate are lower in 2018 than 2016. Iron and chromium have very low concentrations in the third quarter when compared to the first one. Also, arsenic concentrations vary between each sample, ranging from 0.012 to 0.055 mg/L approximately. Regarding cyanide, values for the first two (2) samples of the year are similar, but its concentration was drastically reduced by two (2) orders of magnitude in July and October.

The average concentrations in the Mill Effluent remains higher than the average measured concentrations in the South Cell in 2018, except for copper and nickel. These results indicate that the main parameters of concern identified in the South Cell TSF Reclaim Pond can be traced to the Mill Effluent.

2.5 Central Dike Downstream Pond

2.5.1 General

Since December 2015, Agnico has been depositing tailings into the South Cell (formerly Attenuation Pond) as per their water management plan. As expected, the operating water level in the South Cell is currently higher than it was when the area was operating as an Attenuation Pond only. Due in part to the higher hydraulic gradient, seepage flows are being observed downstream of Central Dike located to the east of the South Cell Tailings Storage Facility (TSF). The water is accumulating at the base of Central Dike and being mixed with snowmelt runoff water and possible underground water resurgence. In order to compensate for this unexpected accumulation, Agnico is presently recirculating the accumulated water downstream of Central Dike back to the South Cell Reclaim Pond to control the pond of water accumulates at the base of Central Dike to an elevation of 115 masl, per the action plan on the Central Dike.

In September 2015, approximately 50,431 m^3 of pond water was transferred to Goose Pit as part of the water management plan around the Central Dike Downstream Pond. This steady state test proved the 1:1 used in the water balance meaning if the D/S pond is recirculated, there is globally no net loss of water in the South Cell. In 2016, 2017 and 2018, Agnico continued to recirculate the accumulated water downstream of Central Dike back to the South Cell TSF Reclaim Pond in order to maintain a constant water elevation at approximately 115 masl in the downstream pond. Between August and October 2017, about 332,177 m^3 of pond water was transferred to Goose Pit from the Central Dike Downstream Pond. In 2018, no Reclaim Water was transferred from Central Downstream Poind to Goose Pit.

Water samples from the Central Dike Downstream Pond were also routinely collected during the year (sampling point ST-S-5) as per Water License requirement.

2.5.2 Water Balance

Table 2-6 presents the estimated monthly inflows and outflows around the Central Dike Downstream Pond for 2018 based on:

- the seepage volume from the South Cell TSF to the Central Dike Downstream Pond estimated by Agnico; and,
- the total volume pumped back to the South Cell TSF;

Agnico is still under assessment and validation for understanding of the water balance. Note however that the volume of seepage estimated in 2018 from South Cell TSF to Central Dikes Downstream Pond is almost 50% lower than the volumes transferred in 2016 and 2017. A possible reason for this is that the tailings deposited in the South Cell TSF are creating a less permeable layer that reduces the seepage flow out of the South Cell TSF.

Table 2-5: Estimated Monthly Inflows and Outflows to Central Dike D/S Pond for 2018

Date	Estimated Seepage Flow from South Cell TSF to Central Dike D/S Pond	Volume of Water Transferred from Central Dike D/S Pond to South Cell TSF
	m^3/month	m^3/month
Jan-18	282,067	225,715
Feb-18	35,766	189,026
Mar-18	63,828	206,319
Apr-18	204,773	175,832
May-18	118,206	177,925
Jun-18	195,645	195,645
Jul-18	295,465	195,987
Aug-18	343,456	205,314
Sep-18	189,297	189,297
Oct-18	293,919	191,783
Nov-18	123,734	171,406
Dec-18	191,654	176,167
Total 2018	**2,337,810**	**2,300,416**
Total 2017	**4,366,869**	**4,623,032**
Total 2016	**4,212,334**	**4,597,687**

2.5.3 Water Quality

The water analysis taken from the Central Dike Downstream Pond are tabulated and presented in Appendix A. Table 2-6 summarizes the data for key parameters of concern and compares the measurements to the average values measured in the South Cell TSF Reclaim Pond in 2018.

The data confirm that one of the main influent streams to the Central Dike Downstream Pond is from the South Cell TSF Reclaim Pond. The water in the Central Dike Downstream Pond has detectable concentrations of all of the key parameters of concern found in the South Cell TSF Reclaim Pond.

The measured values in the South Cell TSF are higher than the values measured in the Central Dike Downstream Pond for all parameters but arsenic, iron, chloride and fluoride.

The lower concentration detected for these parameters may indicate that either some of the parameters are subject to a natural degradation process, precipitating out of solution in the Central Dike D/S Pond or are being reduced through anaerobic microbial reaction as the water seeps through the Central Dike. Furthermore, under anaerobic condition, iron reducing bacteria could be reducing the ferric oxide in the soil to a soluble ferrous hydroxide, thus increasing the total iron concentration in the Central Dike D/S Pond.

Table 2-6: Water Quality in Central Dike D/S Pond for 2018

PARAMETER	Central Dike Downstream Pond (ST-S-5) (mg/L)			South Cell TSF Reclaim Pond (ST-21) (mg/L)		
	Min	Mean	Max	Min	Mean	Max
Total Cyanide (CNt)	0.06	**0.14**	0.28	0.02	**1.03**	2.82
Aluminum (Al)	0.003	**0.01**	0.02	0.006	**0.256**	2.250
Arsenic (As)	0.01	**0.04**	0.06	0.0003	**0.0157**	0.0377
Cadmium (Cd)	0.00003	**0.0009**	0.002	0.0001	**0.0028**	0.0097
Chromium (Cr)	0.0003	**0.0007**	0.003	0.0003	**0.0021**	0.0074
Copper (Cu)	0.001	**0.005**	0.011	0.10	**0.90**	3.41
Iron (Fe)	0.03	**1.68**	2.50	0.02	**1.16**	7.59
Nickel (Ni)	0.01	**0.02**	0.04	0.054	**0.120**	0.305
Selenium (Se)	0.0003	**0.011**	0.022	0.050	**0.071**	0.091
Total Ammonia-Nitrogen (mg N/L)	25	**31**	38	38	**51**	63
Nitrates (NO_3) (mg N/L)	0.01	**0.07**	0.39	3.8	**4.9**	6.8
Chloride (Cl)	362	**460**	599	309	**444**	560
Fluoride (F)	0.47	**0.55**	0.66	0.39	**0.47**	0.58

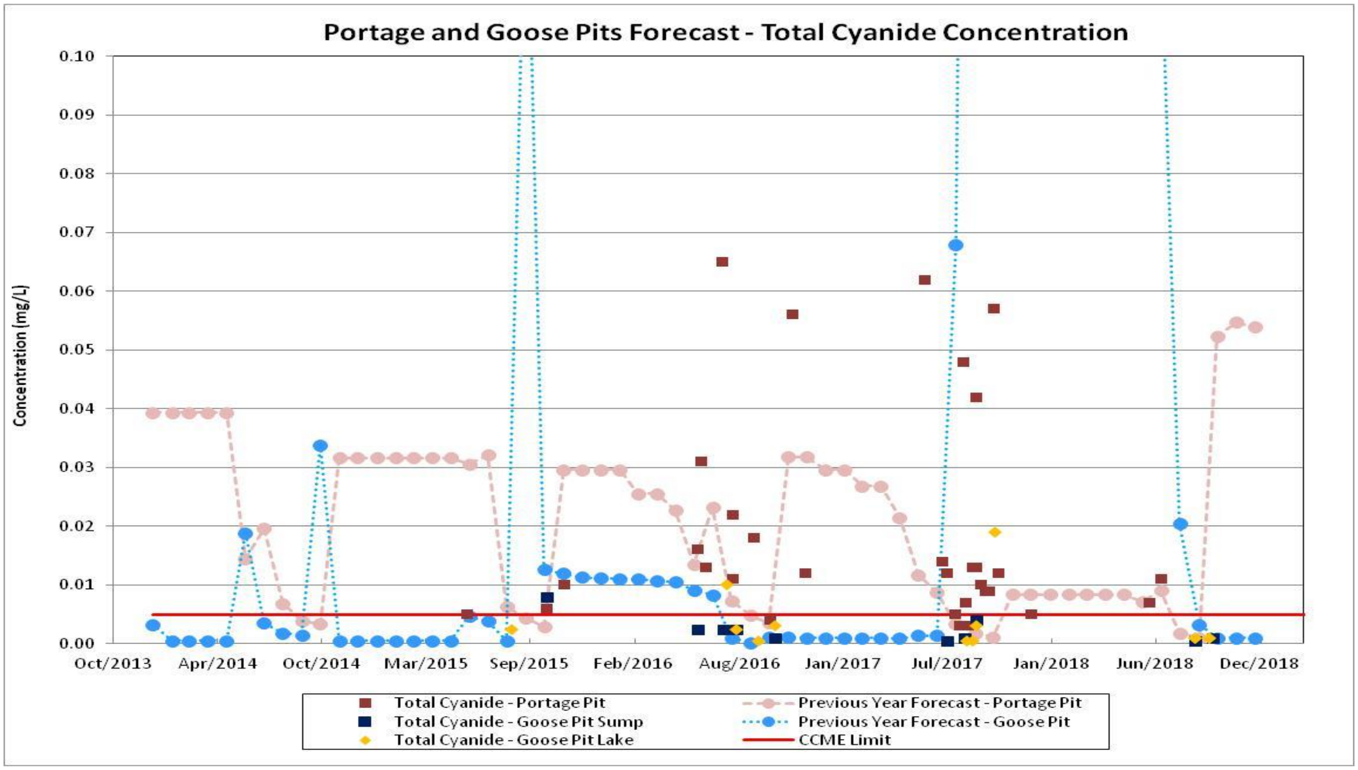
2.6 Portage and Goose Pits

Runoff water and seepages collected in Portage Pit A was transferred to Pit E from July 2017 to March 2018. Since April 2018, runoff water and seepages collected in Portage Pit E were transferred to Pit A. While in Goose Pit, as of June 2015, runoff water and seepages are allowed to accumulate in Goose Pit as mining is completed. Furthermore, as part of the water management plan around the Central Dike Downstream Pond in 2017, approximately 332,177 m^3 of pond water was transferred to Goose Pit. No Reclaim Water was transferred in 2018 to Goose Pit.

Water quality analysis of samples taken from Portage Pit A (ST-17) and Pit E (ST-19), and in Goose Pit (ST-20) in 2018 are tabulated in Appendix A. For Goose Pit, water samples were collected in the pit sump and pit lake.

Figure 2-6 presents the measured and forecasted concentration in Portage and Goose Pits for the concerned parameters that are being monitored in the North and South Cell TSF Reclaim Ponds and on Mill Effluents.

Figure 2-6: Concentrations in Portage and Goose Pits



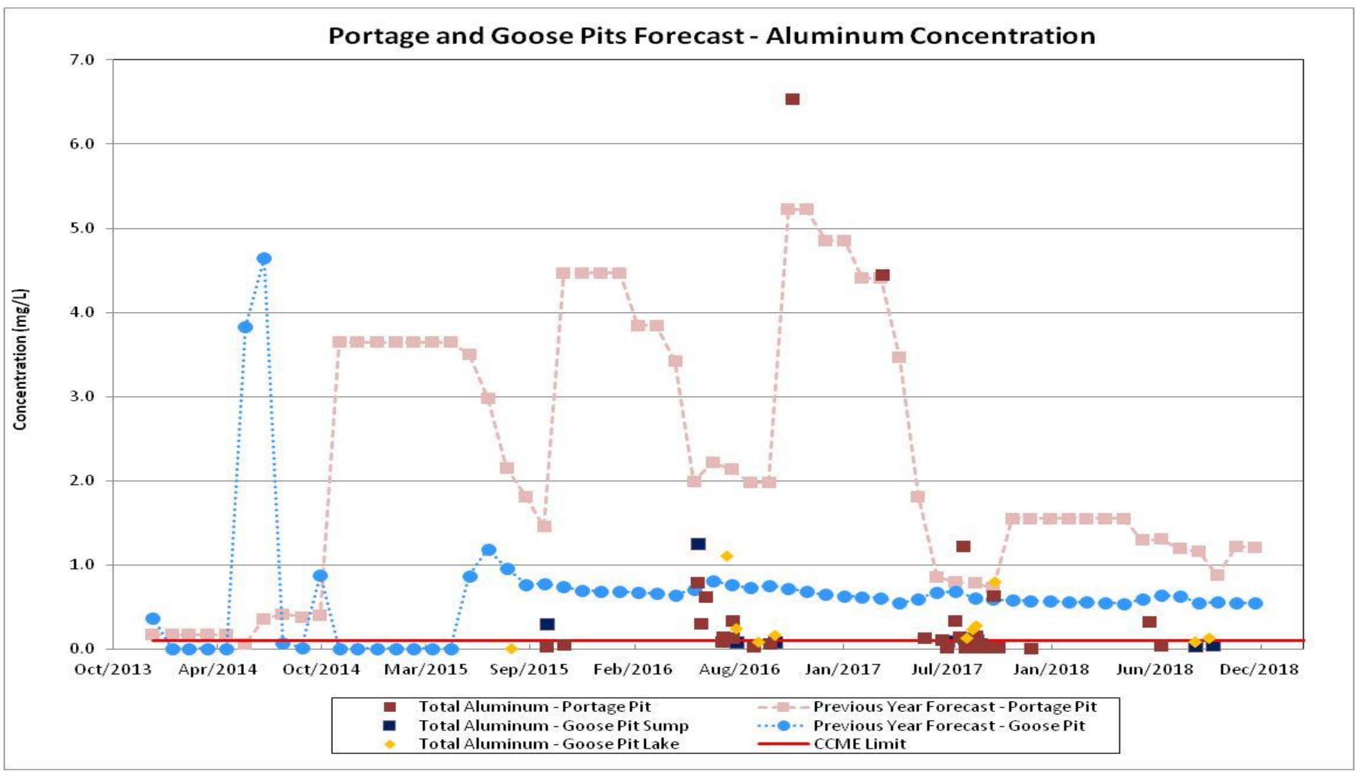
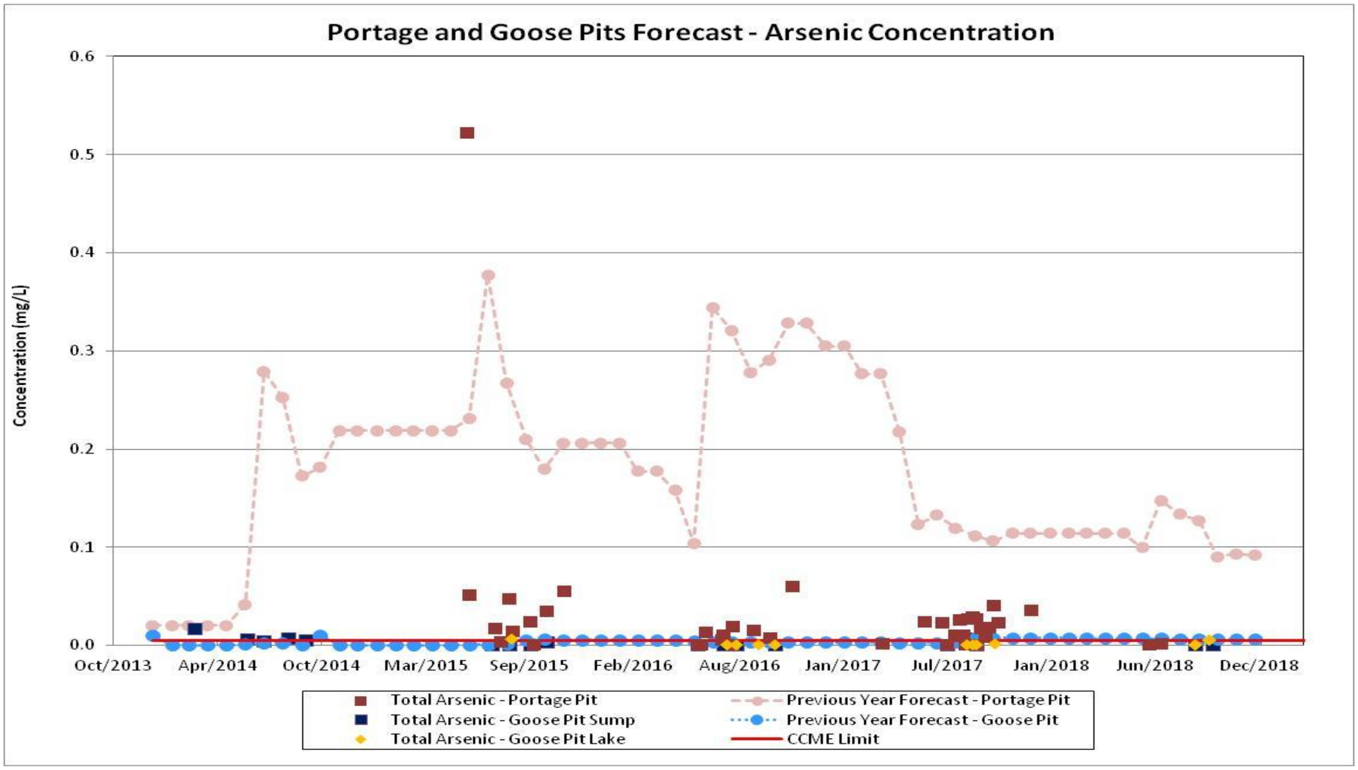


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



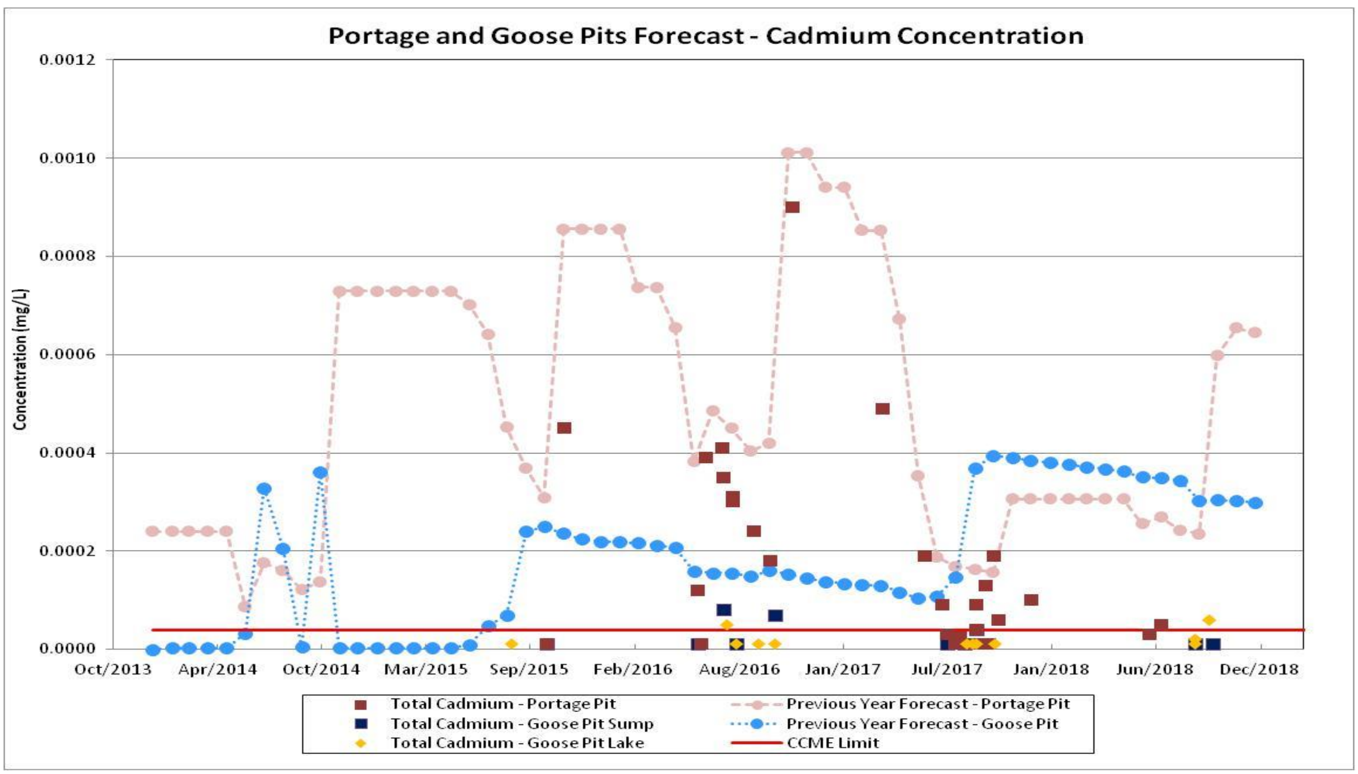
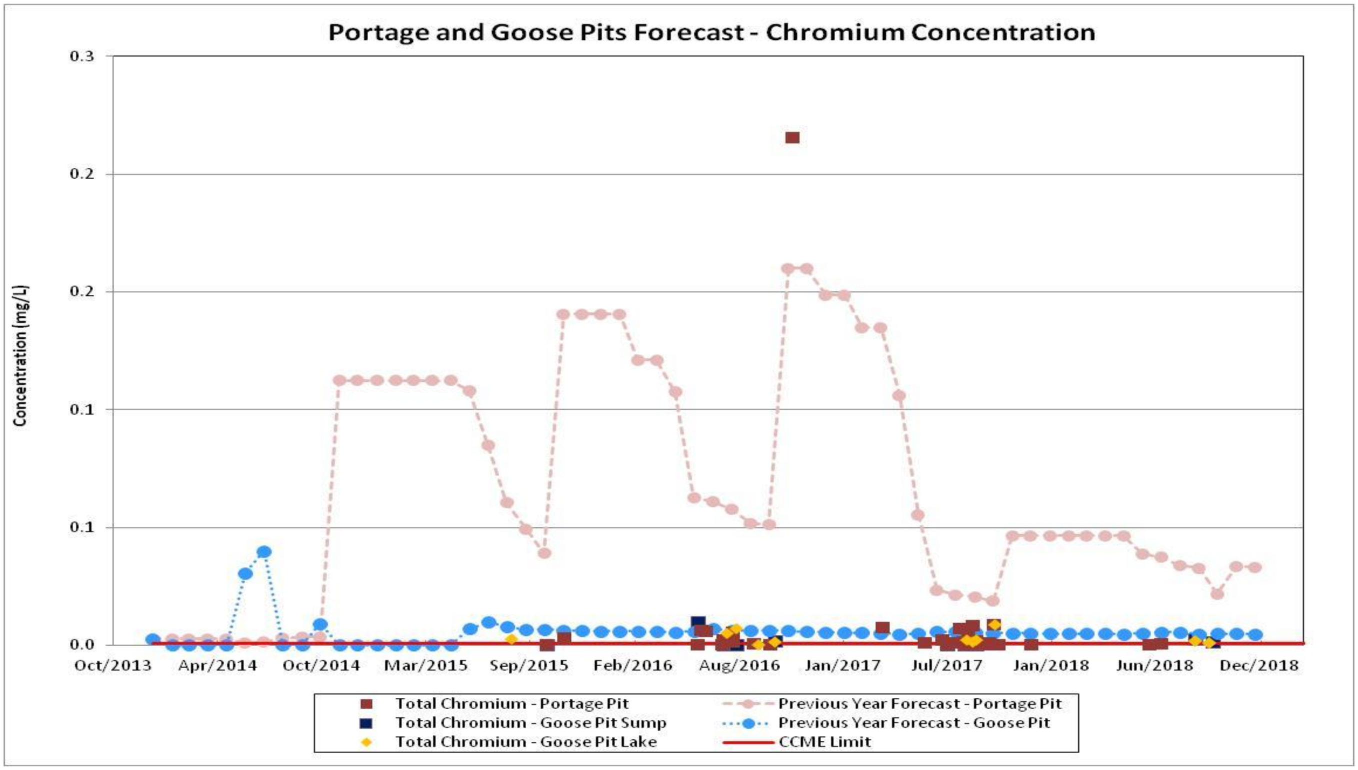


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



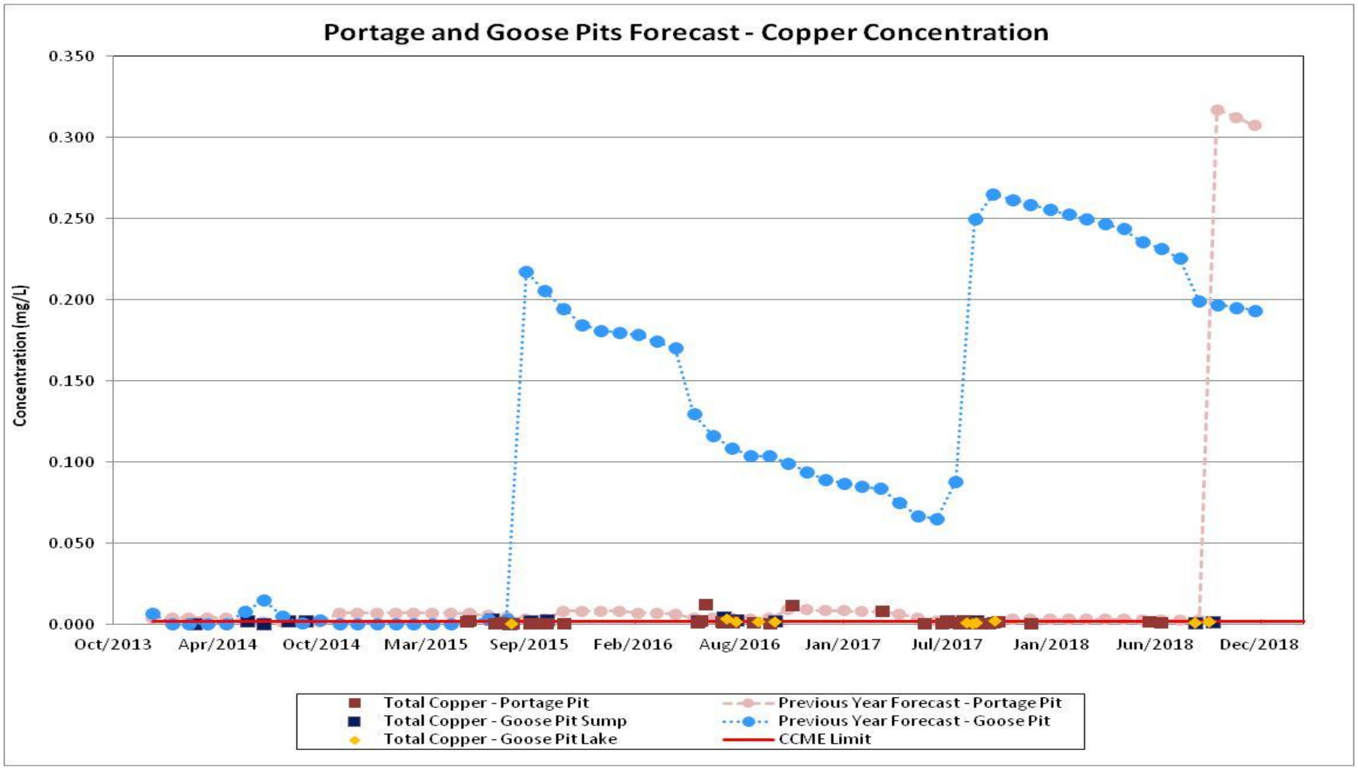
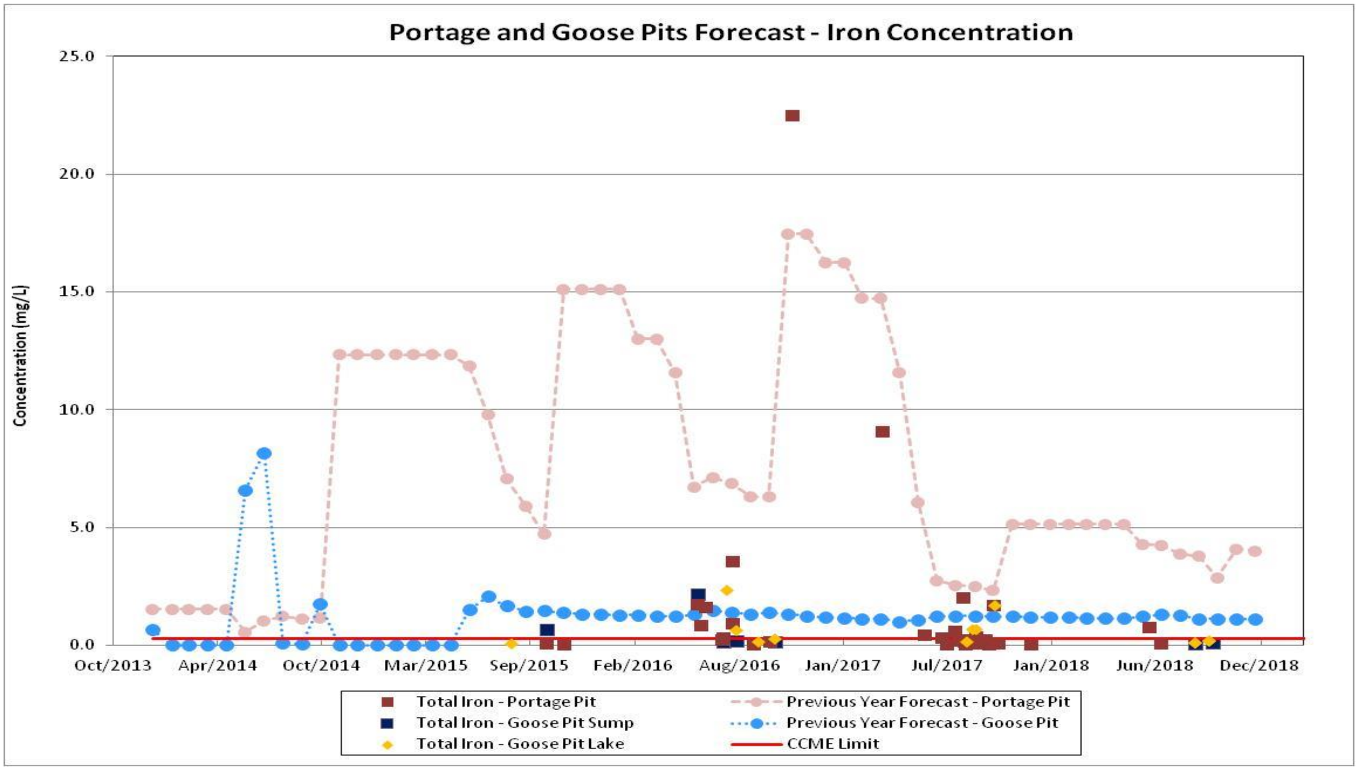


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



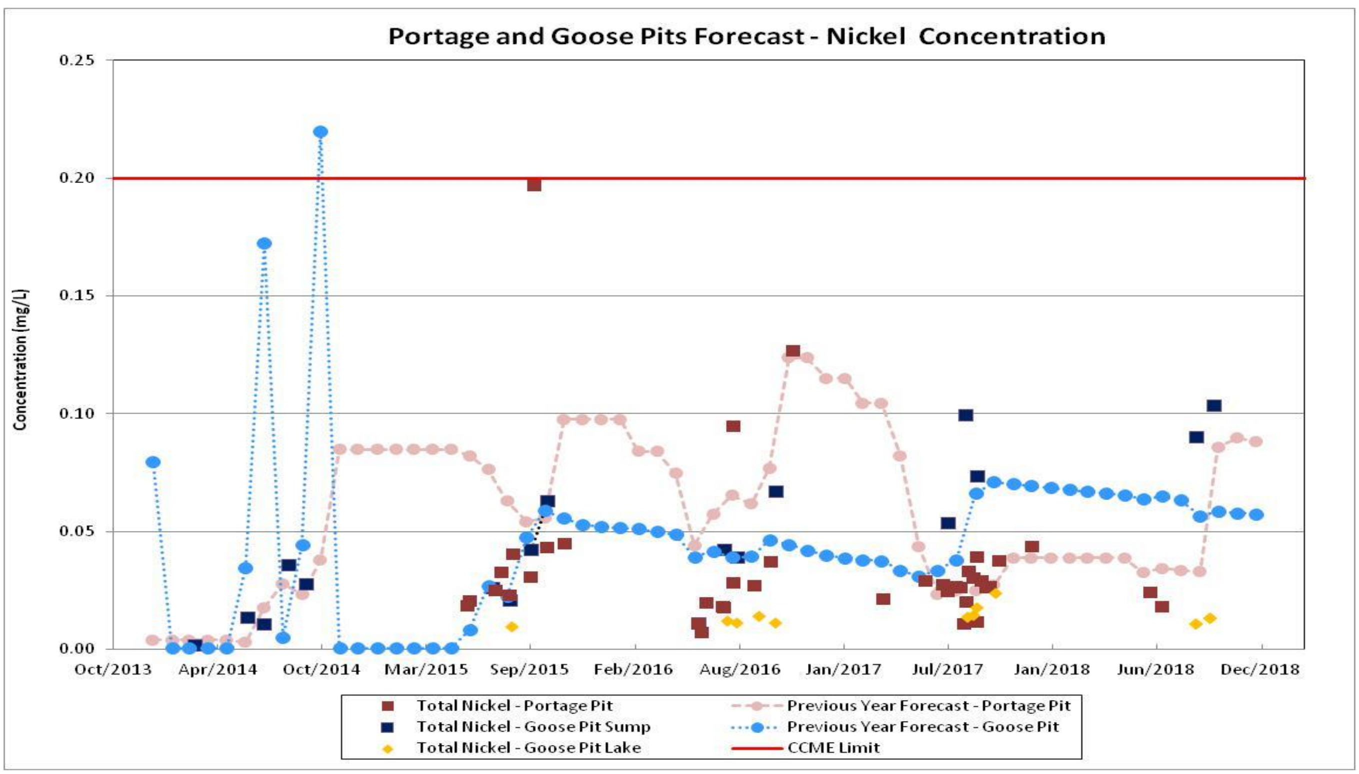
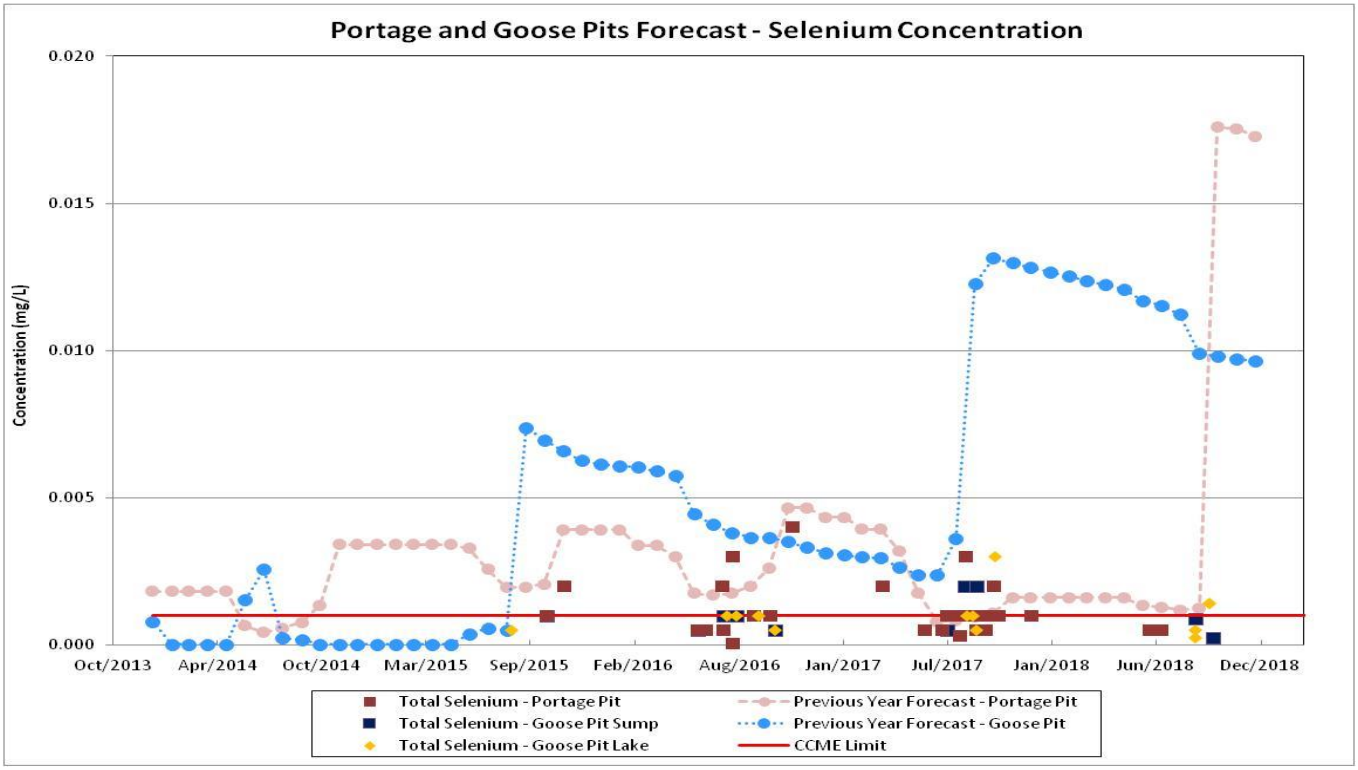


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



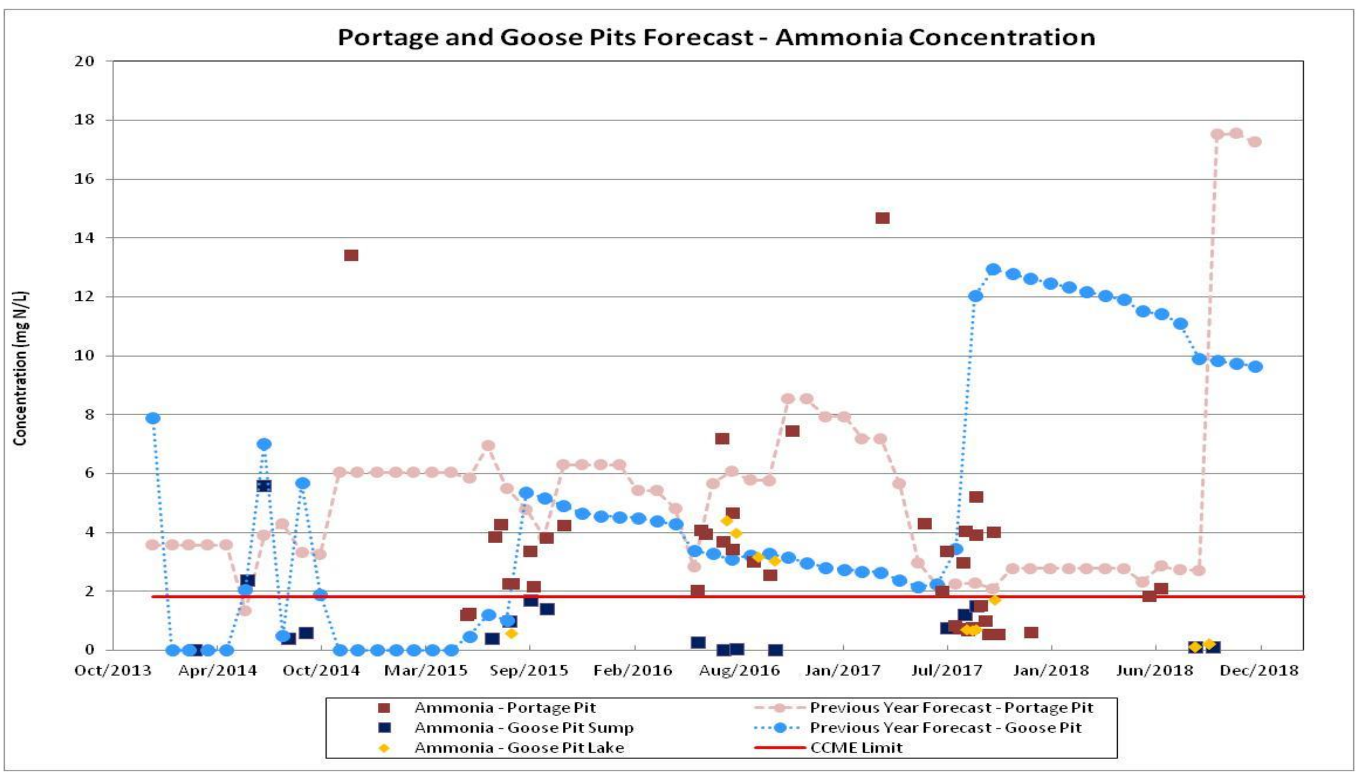
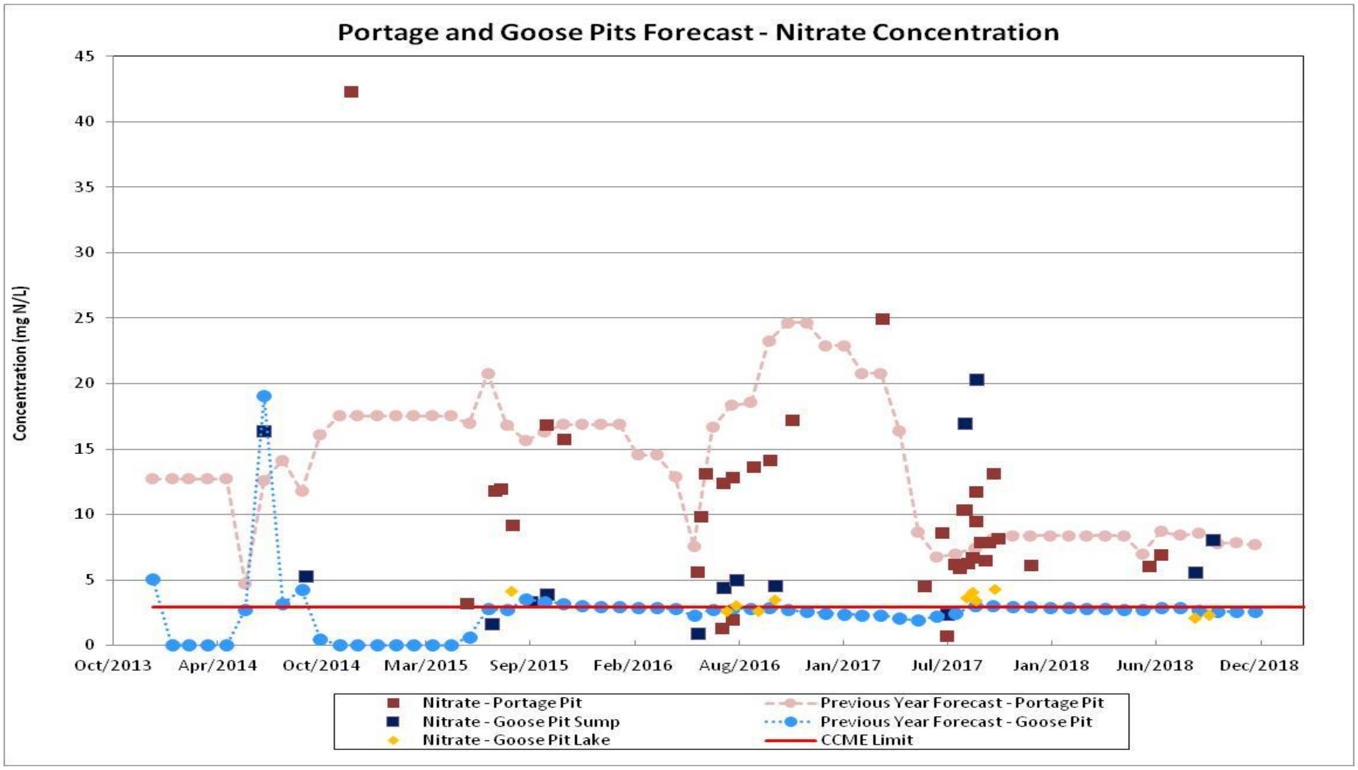


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



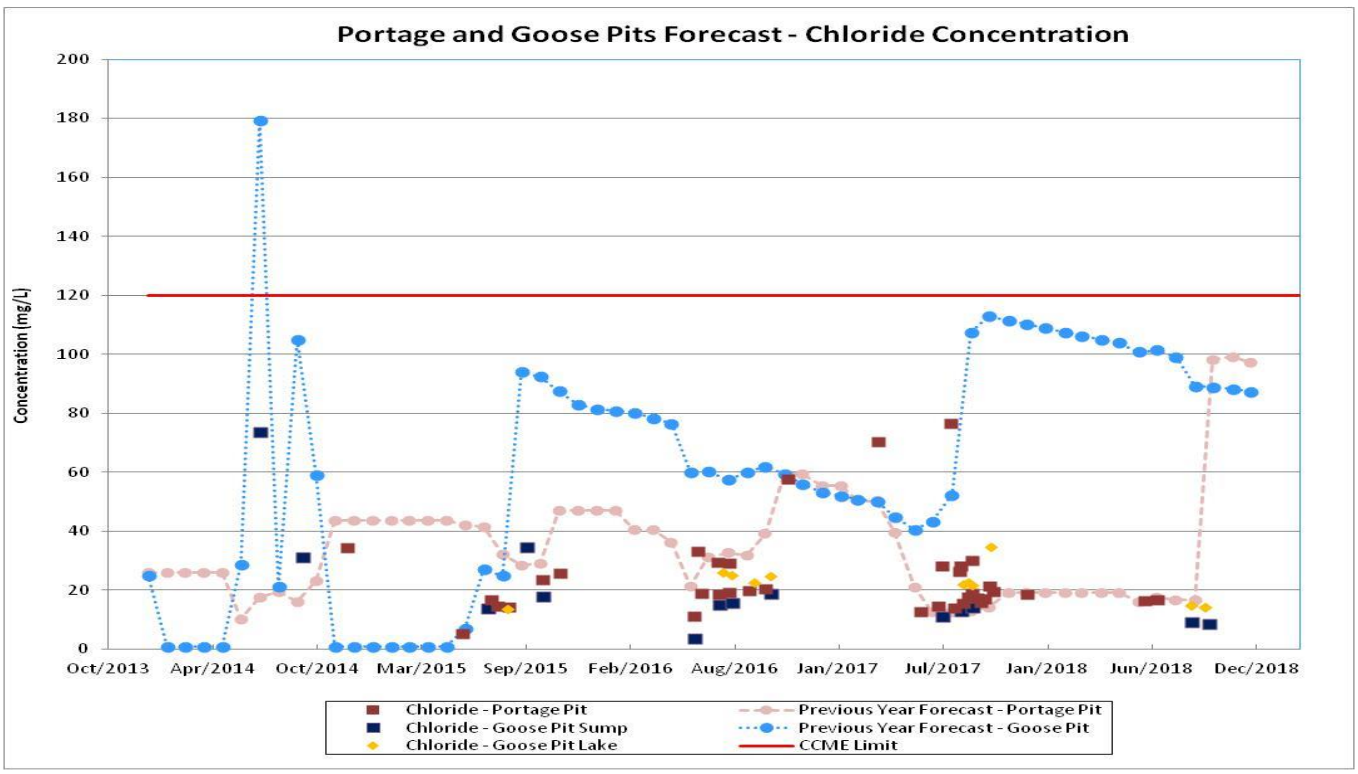
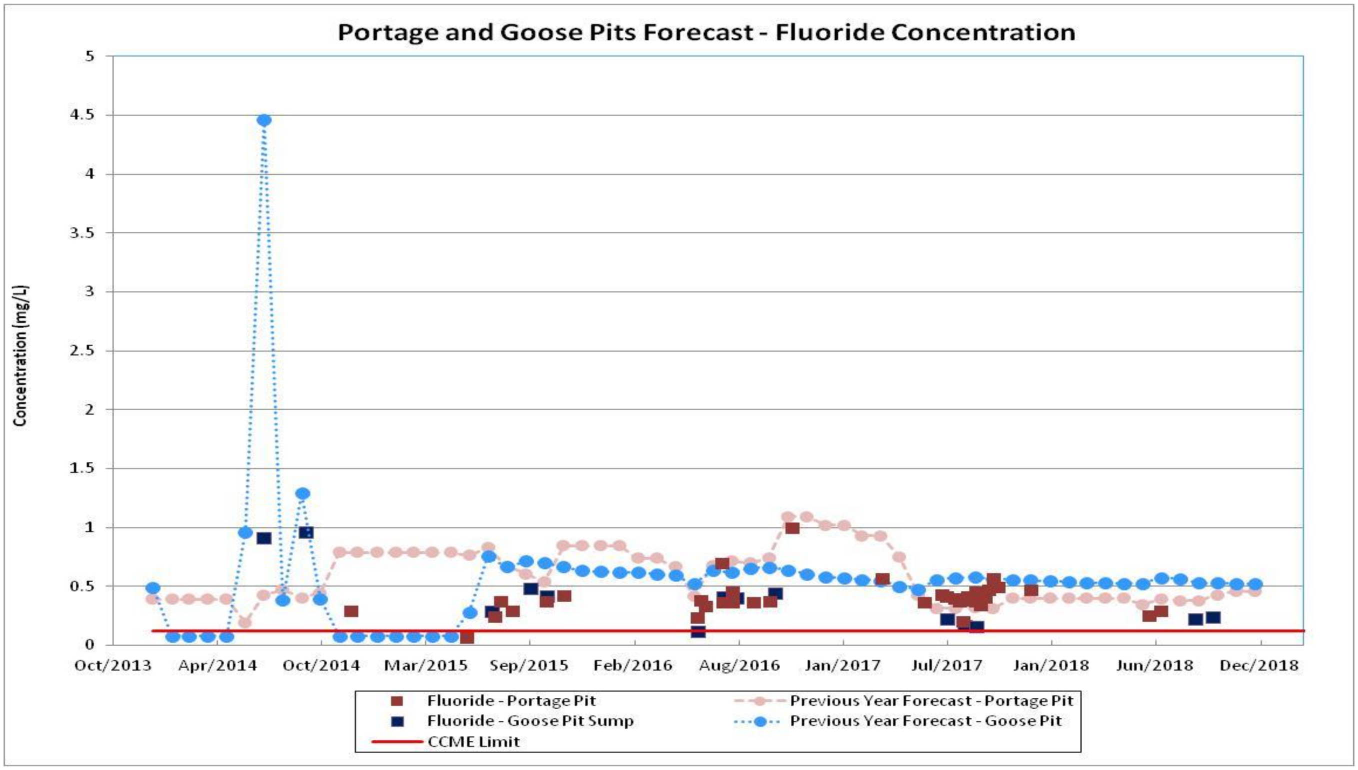


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



The data presented in Figure 2-6 indicate that the previous water quality forecast model for Portage Pit was generally more conservative. For Goose Pit, the previous water quality forecast model was also conservative and seems to over-estimate the impact of the Central Dike downstream pond water transfer to Goose Pit in September 2015.

From the graphs shown in Figure 2-6, the following observations can be made based on the measured and forecasted concentrations: To facilitate the reading, Portage Pit has been abbreviated as PP and Goose Pit as GP. One key observation to note is that in last year's water management plan, it was forecasted that Reclaim Water would be transferred to Portage Pit at the end of deposition planned in September 2018. Consequently, an increase in concentrations for the majority of the parameters was expected s at the end of 2018 for the Portage Pit forecasted values. As this transfer did not occur, the forecasted increase did not materialized in 2018.

Table 2-7: Observations from Measured and Forecasted Concentrations in Portage and Goose Pits

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total cyanide	The measured concentrations in 2018 in Portage and Goose Pits are below 0.02 mg/L.	Not a lot of sampling values are available and therefore it is difficult to compare if the forecasted values follow the same trend as the measured concentrations. **PP:** Measured values increase when forecasted values also increase around June approximately. No large increase was observed as of October 2018 since no Reclaim Water was transferred to Portage Pit as was planned in the 2017 WMP. **GP:** Forecasted and measured values are similar.
Aluminum	Total concentrations in Portage Pit and Goose Pit are below 1.0 mg/L.	**PP:** The forecasted concentration in the previous model indicated a seasonal variability (increase in winter, then decrease in summer). The few data available show that measured concentration decreases during summer. **GP:** Forecasted values are higher than measured ones.
Arsenic	Measured values are relatively low and have a small variation in 2018. For comparison purposes only, the measured concentrations are below CCME limit.	**PP:** Forecasted values are higher than the measured ones. **GP:** Measured and forecasted concentrations are similar.
Cadmium	For comparison purposes, it is possible to see that measured concentrations are close to the CCME guideline.	**PP & GP:** Forecasted values are one order of magnitude higher than the measured concentrations. No large increase was observed as of October 2018 in Portage Pit since no Reclaim Water was transferred to Portage Pit as was planned in the 2017 WMP.
Chromium	For comparison purposes, it is possible to see that measured concentrations are close to the CCME guideline.	**PP:** Forecasted values are considerably higher than the measured values. **GP:** Forecasted values are slightly higher than measured values.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Copper	Measured values are relatively low. For comparison purposes only, the measured concentrations are below CCME limit.	**PP:** Forecasted values are considerably higher than the measured values. No large increase was observed as of October 2018 since no Reclaim Water was transferred to Portage Pit as was planned in the 2017 WMP. **GP:** Forecasted values are considerably higher than the measured values
Iron	Measured concentrations were below 1 mg/L.	**PP:** Forecasted values are much higher than the measured values. **GP:** forecasted values are generally higher than the measured values.
Nickel	Measured values are relatively low. For comparison purposes only, the measured concentrations are below CCME limit.	**PP:** Forecasted values are more conservative than the measured values. **GP:** Forecasted values are lower than measured concentrations.
Selenium	Measured values are relatively low. For comparison purposes only, the measured concentrations are below CCME limit.	**PP:** Forecasted values are much higher than the measured values. No large increase was observed as of October 2018 since no Reclaim Water was transferred to Portage Pit as was planned in the 2017 WMP **GP:** Forecasted values are higher than measured ones.
Total ammonia	**PP:** Measured values are relatively low. For comparison purposes only, the measured concentrations are below or a little bit above the CCME limit. **GP**: Measured concentrations in 2018 are lower than those in 2016. This is to be expected since the pit is not active since June 2015 and is undergoing natural reflooding.	**PP:** Forecasted concentration in the previous model showed a seasonal variability (increase in winter, then decrease in summer). No large increase was observed as of October 2018 since no Reclaim Water was transferred to Portage Pit as was planned in the 2017 WMP **GP:** Forecasted concentration indicated an increased in September 2015 (i.e. when Central Dike downstream pond water was transferred) followed by a decrease in the following months. The measured data does not closely follow this trend and are an order of magnitude lower than the forecasted data.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Nitrate	**PP:** The two (2) measured concentrations in the summer are similar and very between 6 and 7 mg/L. **GP:** Measured concentrations in the Goose Pit Sump in 2018 and higher than those in 2017. However, measured values in Goose Pit Lake in 2018 are lower than those in 2017.	**PP:** Forecasted values are an order of magnitude higher than the measured values. **GP:** Forecasted values are lower than the measured concentrations.
Chloride	**PP:** Measured concentrations since 2015 are consistent, with only a few peaks. Concentrations for 2018 are around 17 mg/L. **GP:** Measured concentrations in 2018 are a little bit lower than in 2017. Chloride concentrations in Goose Pit Sump is around 9 mg/L whereas in Goose Pit Lake, it is approximately 14 mg/L. Seepage to the pit is most likely the main contributor of chloride measured in the pit lake.	**PP:** The forecasted concentration in Portage Pit in the previous model indicated a seasonal variability (increase in winter, then decrease in summer). No large increase was observed as of October 2018 since no Reclaim Water was transferred to Portage Pit as was planned in the 2017 WMP **GP:** For Goose Pit, the forecasted concentration indicated an increase in September 2015 (i.e. when Central Dike downstream pond water was transferred) followed by a decrease in the following months. The available measured data started to reduce in 2018.
Fluoride	**PP:** Measured values in 2018 are a little bit lower than in 2017 (0.25 instead of 0.45 mg/L). **GP:** Measured values in 2017 and 2018 are very similar, around 0.25mg/L.	**PP:** Forecasted values are higher than the measured values. **GP:** Forecasted concentration indicated an increase in September 2015 (i.e. when Central Dike downstream pond water was transferred) followed by a decrease in the following month until June 2015. Once natural reflooded started, the concentration varied seasonally, but slowly decreased over time. There is not sufficient available measured data to assess the seasonal variability However, the measured values seems to be decreasing over time and are lower than the forecasted values.

2.7 Ammonia Loading to Environment at Meadowbank

Ammonia that is found in the TSF Reclaim Water at Meadowbank originates mainly from the hydrolysis of cyanate, the by-product produced following cyanide destruction. To a lesser extent, ammonia also comes from un-reacted ammonium nitrate based explosive used in Portage, Goose and Vault pits and from the treated effluent from the mine site sewage treatment plant which is discharged to the Stormwater Management Pond. The Stormwater Management Pond is pumped twice yearly to the South Cell TSF. In 2018, as per the Water License, there was no discharge of North or South Cell TSF Reclaim Water to Third Portage Lake.

From August to October 2017, approximately 332,177 m^3 of pond water from the Central Dike D/S Pond was transferred to Goose Pit, which had a the SC direct effect in drawing down the volume in TSF Reclaim Pond. The average ammonia concentration measured over these three months was approximately 46 mg N/L. Thus, using this average concentration value of ammonia, the total load of ammonia transferred to Goose Pit between August to October 2017 is evaluated at approximately 15,277 kg of ammonia (expressed as N). Again, there was no discharge of water within Goose Pit to Third Portage Lake. This additional load of ammonia in Goose Pit is taken into account in this year's forecasting model.

In 2018, no Reclaim Water or Central Dike Downstream Pond water was transferred from the South Cell to Portage or Goose Pits.

3.0 Updated Mass Balance Model

3.1 Description

The water quality updated mass balance model presented in this Technical Note was developed to help forecast trends in water quality in the Portage Area of Meadowbank for different parameters of interest. The starting date for the model was arbitrarily set for January 2014 in order to keep in-line with the previous models. The end date of the model is set when the dikes will be breached in 2030.

This mass balance model was based on the following:

- Flows and volumes provided in the Water Balance - DEP_PLAN_2019_V1B (Agnico 2018);
- Assumptions presented below in section 3.2;
- Chemical analyses for ST-21 (North and South Cell TSF Reclaim Pond) (2014-2018);
- Chemical analyses for Third Portage Lake (2015);
- Chemical analyses for the Mill Effluent (quarterly samples taken in 2018);
- Chemical analyses for Portage North Pit (ST-17, Pit A) and Portage South Pit (ST-19, Pit E) (from January 2013 to July 2018);
- Chemical analysis for Goose Pit (samples taken in the sump pit and in the lake, ST-20) (from January 2013 to September 2018);
- East Dike (ST-8) seepage and Saddle Dam 3 (ST-32) sumps sampled in 2018;
- Stormwater management pond water sampled in 2018;

- Saddle Dam 1 seepage (ST-S-2) and Portage Rock Storage Facility (RSF) runoff (ST-16) (2015 to 2018).

Furthermore, this year's water quality forecast mass balance model will also include the following changes:

- Considering that the CCME water quality guidelines apply to total concentrations of a given parameters, the water quality forecast will focus solely in forecasting total concentrations.
- In previous water quality forecast model, an estimation of the contaminant loads from the pit seepages was evaluated and taken into account in the model to account for the influence of pit seepage and other contaminants on the pit water quality.
- Deposition of Whale Tail pit tailings is forecast to start in July 2019 until December 2021. The tailings will be deposited in the North and South Cells TSF.
- East Dike seepage is transferred to Second Portage Lake during the deposition of tailings in the North and South Cell TSF. East Dike seepage is allowed to flow to Portage Pit once deposition is completed.

3.2 Assumptions

The assumptions used in the development of the mass balance model for the Portage Area of Meadowbank were the following:

i. For simplification of the model, the North and South Cell TSF Reclaim Ponds and the Portage and Goose Pits are assumed to be completely mixed systems.

ii. The main source of cyanide, copper, iron, selenium, other metals, ammonia (i.e. via the hydrolysis of cyanate), nitrate, chloride, sulfates and total dissolved solids in the TSF Reclaim Pond is the Mill Effluent.

iii. The influent loading from Portage pit, Goose pit, Stormwater Management Pond, Portage RSF, Saddle Dam 1 sump, Saddle Dam 3 sump and East Dike seepage into the Reclaim Ponds was included in this year water quality forecasting model.

iv. All other inflow contaminant concentrations from precipitation runoff are assumed to be negligible and have similar water characteristics as Third Portage Lake water.

v. The water quality of the Mill Effluent is assumed to be constant over time for all parameters, except for ammonia, chloride, sulfates and total dissolved solids (TDS). For ammonia, the water quality for this parameter will continue to vary due to the hydrolysis of cyanate to ammonia. For chloride, the water quality for this parameter will continue to increase due to the continued use of calcium chloride as a dust suppressant in the mill and crusher. For sulfates, the oxidation of sulphide produced in the ore will continue to contribute to the sulfate loading in the Mill Effluent. The overall TDS in the Mill Effluent will continue to increase due to the increase in ammonia, chloride and sulfate.

vi. Following tailings deposition in the North and South Cell TSF, it is assumed that the water accumulated in these areas is transferred to Portage Pit and will have a water quality similar to non-contact runoff water.

vii. For simplification of the model, the parameters are assumed to be inert: they do not degrade or react with other elements in the system, with the exception of cyanide.

viii. Cyanide modeling:

- For the purpose of the model, it is assumed that the Mill Effluent will meet at a minimum Agnico's CN-WAD operational target of 15 mg/L at all times, which is assumed to correspond to a total cyanide concentration of 18.2 mg/L.
- The total cyanide in the TSF Reclaim Pond is comprised of free cyanide and metal-cyanide complexes (weak and strong metal cyanide complexes). As per discussions with Agnico, most of the iron and metal-cyanide complexes are precipitated in the mill. However, since the reaction is not complete or perfect, some dissolved iron- and metal-cyanide complexes are expected to remain in the Mill Effluent. Therefore it was assumed that 10% of the total cyanide concentration was bound as strong iron-cyanide complexes, and that another 10% of the total cyanide concentration was present as weak metal-cyanide complexes (cyanide bound with copper, zinc, and nickel). The balance is presented as free cyanide (i.e. HCN and CN^-). This agrees with values observed at other gold mine tailings sites (Simovic, 1984). These same proportions are assumed to apply to the cyanide at the Mill Effluent.
- For this model, natural cyanide degradation is only considered for the summer months.

ix. For this analysis, it is assumed that no treatment will take place at the North or South Cell TSF Reclaim Pond or at the Portage or Goose Pits during operations and closure.

3.3 Limitations

The limitations of the Meadowbank water quality mass balance model and ensuing results and conclusions presented in this Technical Note are listed below:

i. In order to simplify the model, the mass balance model assumes that the pond and pits are completely mixed systems. Consequently, the results from this model provide an indication of the concentrations in the ponds and pits and should not to be considered as an absolute value at this time. Future monitoring results both for flows and water quality will provide for a better indication of concentrations of contaminants.

ii. The mass balance model is based on the water quality analysis results provided by Agnico:

- Water quality data provided for ST-21 is taken from samples collected at the surface of the North and South Cell TSF Reclaim Pond.
- Water quality data measured from samples taken of the Mill Effluent.

iii. The model does make some allowances for the impact that changes in the TSF that will have on the TSF Reclaim Pond water quality over time (i.e. water body surface area on natural cyanide degradation in the summer months, free water volume in the pond on the forecasted concentration measurements).

iv. The model is based on a monthly time-step and the resulting concentrations provided represent monthly values.

v. It should be noted at this point that the model should be used as a means to evaluate at a high level the impact of Mill Effluent on the future water quality in the North and South Cell TSF Reclaim Pond and Portage and Goose Pits.

vi. Furthermore, this model is intended as a mass balance model for the Portage Area and should be updated and calibrated on a yearly basis as additional water quality data, pond volumes and flows in the Portage Area become available. Refer to section 6.3 for recommendations on improving the mass balance.

3.4 Input Parameters

3.4.1 General

The mass balance model for the Portage area of Meadowbank was developed originally in 2012 to forecast the long-term concentration of cyanide, copper, iron, ammonia, nitrate and chloride in the North and South Cell TSF Reclaim Pond and in Portage and Goose Pits. Since 2015, the report also evaluated a broader selection of parameters: alkalinity, hardness, aluminum, silver, arsenic, barium, cadmium, chromium, manganese, mercury, molybdenum, nickel, lead, selenium, zinc, fluoride, sulphate and total dissolved solids.

The mass balance model is based on the assumptions presented in section 3.2 and on the following input parameters:

- Mill effluent concentration (refer to section 3.4.2 for more details);
- Shake flask extraction leaching test results conducted in 2018 on tailings from ores from Portage and Vault Pit (concentration in the liquid portion) were used to compute the loading coming from the leaching of the tailings.
- Mill Effluent when processing Whale Tail ore: Average results from metallurgical test obtained from “Combined Ore” samples taken in Mar 2015 and May 2016;
- Leaching of tailings from Whale Tail ore: Average results from metallurgical test obtained from “Combined Ore” samples taken in Mar 2015 and May 2016.
- Initial concentration in the North and South Cells TSF Reclaim Pond;
- Initial concentration in the Portage and Goose Pits sumps;
- Runoff from the Portage RSF;
- Sumps from Saddle Dam 1, Saddle Dam 3 and East Dike seepage;
- Runoff water quality similar to Third Portage Lake;
- Stormwater Management Pond concentration used to compute the influent loading to the TSF Reclaim Pond;
- Agnico 2018 Water Balance which defines all of the input and output flows in the North and South Cell TSF, Central Dike downstream pond, Portage Pit and Goose Pit.

3.4.2 Mill Effluent Concentration

Table 3-1 presents the Mill Effluent concentrations considered for the input parameters of the mass balance based on the ore produced from Portage/Goose/Vault pits. The average of the four samples taken in 2018 was used in the model. For certain parameters, the concentration used for the model was increased or decreased so that the forecasted concentrations in 2018 were closer to the measured values taken in 2018 in the South Cell TSF Reclaim Pond (values in parenthesis).

The key parameters are also compared to the values used in the previous water quality forecast models based on the 2012 to 2017 WMP.

Table 3-1: Mill Effluent Concentrations Selected for the Mass Balance Model (Meadowbank Site Ore)

PARAMETER	MILL EFFLUENT CONCENTRATION (mg/L)						
	2018 WMP Forecast	**2017 WMP Forecast**	**2016 WMP Forecast**	**2015 WMP Forecast**	**2014 WMP Forecast**	**2013 WMP Forecast**	**2012 WMP Forecast**
Alkalinity	88 (as $CaCO_3$) (150% of 58)	94 (as $CaCO_3$)	66 (as $CaCO_3$)	74.75 (as $CaCO_3$)			
Hardness	1167 (as $CaCO_3$)	1538 (as $CaCO_3$)	1313 (as $CaCO_3$)	1690 (as $CaCO_3$)			
Aluminum (Al)	0.022 (1% of 2.249)	0.154 (10% of 1.54)	0.326	0.116 (dissolved)			
Silver (Ag)	0.0004 (1% of 0.039)	0.0039 (20% of 0.019)	0.005	0.028 (dissolved)			
Arsenic (As)	0.013 (50% of 0.025)	0.018	0.026	0.0337 (dissolved)			
Barium (Ba)	0.109 (120$ of 0.091)	0.127	0.128	0.1245 (dissolved)			
Cadmium (Cd)	0.004 (10x of 0.00043)	0.002 (30% of 0.0072)	0.00031	0.00197 (dissolved)			
Chromium (Cr)	0.001 (20% of 0.005)	0.002 (20% of 0.009)	0.001	0.0005 (dissolved)			
Copper (Cu)	2.409 (15 x of 0.161)	1.582 (30% of 5.272) (for North Cell in 2014: 9.9)	3.569 (for North Cell in 2014: 9.9)	10.503 (dissolved)	6.795 (dissolved)	7.8 (dissolved)	28.3 (dissolved)
Iron (Fe)	1.307 (20% of 6.533)	1.387 (20% of 6.933)	0.832 (30% of 2.772)	0.43 (dissolved)	0.14 (dissolved)	0.8 (dissolved)	11.8 (dissolved)
Manganese (Mn)	0.009 (10% of 0.086)	0.523 (10 x 0.052)	0.013	0.00714 (dissolved)			
Mercury (Hg)	0.000005	0.000625 (50 x 0.000013)	0.000005	0.000016 (dissolved)			
Molybdenum (Mo)	0.941	0.695 (60% of 1.158)	0.966	0.8555 (dissolved)			

PARAMETER	MILL EFFLUENT CONCENTRATION (mg/L)						
	2018 WMP Forecast	2017 WMP Forecast	2016 WMP Forecast	2015 WMP Forecast	2014 WMP Forecast	2013 WMP Forecast	2012 WMP Forecast
Nickel (Ni)	0.077 (30% of 0.026)	0.295 (30% of 0.982)	0.024	0.423 (dissolved)			
Lead (Pb)	0.00016 (1% of 0.016)	0.006 (50% of 0.012)	0.002	0.00037 (dissolved)			
Selenium (Se)	0.118 (90% of 0.131)	0.076	0.166	0.202 (dissolved)			
Strontium (Sr)	2.350	2.775	2.13				
Thallium (Tl)	0.00005	0.00022 (2 x 0.00011)	0.00003				
Uranium (U)	0.008	0.019	0.013				
Zinc (Zn)	0.0002 (1% of 0.019)	0.012 (5% of 0.247)	0.003	0.139 (dissolved)			
Fluoride (F)	0.34 (50% of 0.68)	0.34	0.645	0.545			
Nitrate (NO3)	4 (50% of 9)	6 (mg N/L) (50% of 13) (for North Cell in 2014: 32)	13 (mg N/L) (for North Cell in 2014: 32)	15.925 (mg N/L)	27.9 (mg N/L)	31.6 (mg N/L)	9.9 (mg N/L)
Total Cyanide (CNt)	18.2	15 (80% of 20) (for North Cell in 2014: 30)	18	18.1675	111	15	16.7
Total Ammonia (NH_3-NH_4)	North Cell: + 15 South Cell: + 39 (mg N/L/month)	North Cell: + 15 South Cell: + 39 (mg N/L/month)	North Cell: + 15 South Cell: + 40 (mg N/L/month)	+ 50 (mg N/L/month)	+41 (mg N/L/month)	+45 (mg N/L/month)	17.1 (mg N/L)
Chloride	North Cell: Winter: +2000 Summer: +500 South Cell: Winter: +300 Summer: +75 (in mg/L/month)	North Cell: Winter: +2000 Summer: +500 South Cell: Winter: +300 Summer: +75 (in mg/L/month)	North Cell: Winter: +2000 Summer: +500 South Cell: Winter: +300 Summer: +75 (in mg/L/month)	North Cell: Winter:+2000 Summer: +1000 South Cell: Winter: +700 Summer: +350 (in mg/L/month)	+1500 (mg/L/mth)	+600 (mg/L/mth)	674

PARAMETER	MILL EFFLUENT CONCENTRATION (mg/L)						
	2018 WMP Forecast	2017 WMP Forecast	2016 WMP Forecast	2015 WMP Forecast	2014 WMP Forecast	2013 WMP Forecast	2012 WMP Forecast
Sulphate (SO_4)	North Cell: +600 South Cell: + 400 (mg/L/month)	North Cell: +600 South Cell: + 400 (mg/L/month)	North Cell: +600 South Cell: + 1400 (mg/L/month)	+ 1600 (mg/L/month)	+2400 (mg/L/month)		
Total dissolved solids	North Cell: Winter: +3929 Summer: +1444 South Cell: Winter: +1854 Summer: +1481 (in mg/L/month)	North Cell: Winter: +3929 Summer: +1444 South Cell: Winter: +1854 Summer: +1481 (in mg/L/month)	North Cell: Winter:+3929 Summer: +1444 South Cell: Winter: +1937 Summer: +1564 (in mg/L/month)	North Cell: Winter:+4964 Summer: +3307 South Cell: Winter: +2810 Summer: +2230 (in mg/L/month)	-		

Please note the items below on the parameters used for the mill effluent when processing Meadowbank Mine site ore for the 2018 updated water quality forecast model:

> **Ammonia:** To evaluate the concentration of ammonia that may be added to the TSF Reclaim Pond on a monthly basis, the difference in concentration of CN-WAD before and after the cyanide destruction system was evaluated.

> > In 2018, on average, 79 mg/L of CN-WAD was removed and converted to cyanate (CNO^-), compared to104 mg/L in 2017 and 108 mg/L in 2016. Assuming that 70% of the cyanate is hydrolyzed to ammonia (NH_3), it was evaluated that on average approximately 30 mg N/L of ammonia was added to the Mill Effluent.

> > For the purpose of the model, it is assumed that 39 mg N/L of ammonia is added to the Mill Effluent every month when tailings are deposited in the South Cell TSF. This value was selected based on the measured values observed in the South Cell TSF Reclaim Pond. This additional ammonia load is added to the load already present in the Reclaim Water. When tailings were previously deposited in the North Cell TSF in 2014 and 2015, it was assumed that 15 mg N/L of ammonia was added to the Mill Effluent. This value was selected based on the measured values from the North Cell TSF Reclaim Pond.

> **Nitrate and Total Cyanide:** A higher nitrate and total cyanide concentration is considered in the Mill Effluent when tailings were deposited in the North Cell TSF in 2014. These values were selected based on the measured values from the North Cell TSF Reclaim Pond.

> **Chlorides:** Calcium chloride is used on site each year in the winter months as an anti-freeze solution on the ore and a dust suppressant in the Mill dome. This contributes to an increase in chloride concentration observed in the Mill Effluent and Reclaim Pond. To account for this trend, when tailings were deposited previously in the North Cell TSF in 2014 and 2015, it was assumed that 500 mg/L of

chloride is added to the Mill Effluent during the summer months (June, July, August, and September) and 2000 mg/L during the winter months. In the South Cell, 75 mg/L is assumed to be added in the summer months while 300 mg/L is added in the winter months. This additional chloride load is added to the load already present in the Reclaim Water. These values were selected by adjusting the model to fit with the measured chloride values in the Reclaim Ponds from 2015 to 2018.

> **Sulfates:** Measured data showed that sulfate tends to accumulate in the Mill Effluent and Reclaim Pond. The sulfate most likely originates from the oxidation of sulfide in the ore and the oxidation of the residual sulfur dioxide (SO_2) left after the cyanide detoxification treatment system. To account for this trend, 400 mg SO_4/L is added per month in the Mill Effluent when the tailings are deposited in the South Cell TSF. When tailings were deposited previously in the North Cell TSF in 2014 and 2015, 600 mg/L SO_4/L was assumed to be added per month in the Mill Effluent. These values were selected by adjusting the model to fit with the measured values in the Reclaim Ponds from 2014 to 2018.

> **TDS:** The concentration of the total dissolved solids (TDS) added in the Mill Effluent is the sum of chloride, sulfate, ammonia, and sodium equivalent.

> **Copper:** A higher copper concentration is considered in the Mill Effluent for the year 2014 when tailings were deposited in the North Cell TSF. This value was selected based on the measured values from the North Cell TSF Reclaim Pond.

> **Metal parameters**: In order to obtain the forecasted concentrations that are in the same order of magnitude as the measured values found in the North and South Cell TSF from 2014 to 2018, a percentage adjustment factor was applied to the average measurements taken of the Mill Effluent in 2018 for certain parameters. The adjustment factors used in the model are shown in

> Table 3-1.

As of July 2019, ore from Whale Tail pit located at the Amaruq site will be milled at Meadowbank and the tailings will be deposited in the North and South Cell TSF. The geochemical behavior of the ore body from Whale Tail pit is different from the ore produced from Portage/Goose/Vault pits. Table 3-2 presents the Mill Effluent concentrations considered for the input parameters of the mass balance based on the ore produced from Whale Tail pit. The values are based on Mill Effluent sampled from pilot test trials conducted with Whale Tail pit ore body.

Table 3-2: Mill Effluent Concentrations Selected for the Mass Balance Model (Whale Tail Pit Ore)

PARAMETER	MILL EFFLUENT CONCENTRATION (mg/L)
Alkalinity	102 (as $CaCO_3$)
Hardness	1345 (as $CaCO_3$)
Aluminum (Al)	0.764
Silver (Ag)	0.00054
Arsenic (As)	0.452
Barium (Ba)	0.080

PARAMETER	MILL EFFLUENT CONCENTRATION (mg/L)
Cadmium (Cd)	0.00004
Chromium (Cr)	0.041
Copper (Cu)	3.569
Iron (Fe)	1.71
Manganese (Mn)	0.0095
Mercury (Hg)	0.161
Molybdenum (Mo)	0.000005
Nickel (Ni)	0.115
Lead (Pb)	0.319
Selenium (Se)	0.008
Strontium (Sr)	0.70
Thallium (Tl)	0.0000
Uranium (U)	0.003
Zinc (Zn)	0.01
Fluoride (F)	0.19
Nitrate (NO3)	6.69
Total Cyanide (CNt)	18.2
Total Ammonia (NH_3-NH_4)	North Cell: + 15 South Cell: + 30 (mg N/L/month)
Chloride	North Cell: Winter: +2000 Summer: +500 (in mg/L/month) South Cell: Winter: +300 Summer: +75 (in mg/L/month)
Sulphate (SO_4)	North Cell: +600 South Cell: + 400 (mg/L/month)
Total dissolved solids	North Cell: Winter: +3929 Summer: +1444 (in mg/L/month) South Cell: Winter: +1854 Summer: +1481 (in mg/L/month)

3.4.3 Concentrations used in the Model

As noted previously, the mass balance model arbitrarily begins in January 2014 to fit the previous models. The initial concentrations selected for the following streams are based on the following:

> North Cell TSF Reclaim Pond corresponds to the January 8th, 2014 chemical analysis results from station ST-21.

> Concentrations selected for the South Cell TSF Reclaim Pond (former Attenuation Pond) correspond to the 12-month (2014) average concentration results from station ST-18 (current Attenuation Pond). When there was no or little data available, the average values from 2010 to 2014 were used. In general, the concentrations observed in the Attenuation Pond had little variation from one month to the other.

> The initial concentrations of all parameters in the Portage and Goose were assumed to be the average of 2013. For Portage Pit, the average concentrations measured in 2013 in Pit E (ST-19) were used. For Goose Pit, the average concentrations measured in 2013 in the Goose Pit sump (ST-20) were used.

For the other water inputs, the water quality was based on the following:

> Runoff from the Portage RSF is based on the average concentration measured in 2015 and 2018 at sampling station ST-16.

> Saddle Dam 1 sump that is transferred to the North Cell is based on the average concentration measured from 2015 to 2018 at sampling stationST-S-2.

> Saddle Dam 3 sump that is transferred to the South Cell is based on the average concentration measured in 2016 and 2018 at sampling station ST-32.

> East dike seepage quality is based on the average concentrations measured in 2016 to 2018 at sampling station ST-8.

> Stormwater Management Pond quality is based on the value measured in July 2018.

> Surface runoff water is assumed to be of similar quality as Third Portage Lake. The water quality for Third Portage Lake is based on the average concentration obtained in summer 2015 in the East Basin.

> The average leaching rate inferred from the results obtained from the Shake Flask Extraction (SFE) Leach Tests conducted on the tailings produced from Portage/Goose/Vault ore bodies in 2018 were used to account for possible leaching of contaminants from the tailings. However, the leaching rates were reduced for silver, mercury and thalium in order to have forecasted concentrations similar to the measured values.

> Average leaching rate inferred from the results obtained from SFE Leach Tests on tailings from Whale Tail ore tests conducted in 2015 and 2016 were used.

Table 3-4 and Table 3-4 summarize the water quality characteristics used in the water quality forecast model based on total metals. Measurements that are higher than CCME guidelines for Protection of Aquatic Life are also highlighted in the table, which are used for comparison purpose only.

Table 3-3: Leaching Rate Used in Water Quality Forecast Model

PARAMETERS	UNITS	LEACHING OF TAILS FROM PORTAGE / GOOSE / VAULT (kg/ton)	LEACHING OF TAILS FROM WHALE TAIL PIT (kg/ton)
		From SFE Leach Test- Avg 2018 tests	From SFE Leach Test- Avg 2015/2016 tests
Alkalinity	mg $CaCO_3$/L	3.50E-02	5.47E-02
Hardness	mg $CaCO_3$/L	1.85E-01	5.43E-01
Total dissolved solids	mg/L	0 (4)	1.18E+00
Total Aluminum (Al)	mg/L	1.27E-04	4.41E-05
Total Silver (Ag)	mg/L	1.62E-06	8.67E-09
Total Arsenic (As)	mg/L	2.26E-06	5.88E-04
Total Barium (Ba)	mg/L	9.03E-06	1.18E-04
Total Cadmium (Cd)	mg/L	0 (4)	1.03E-08
Total Chromium (Cr)	mg/L	3.97E-08	3.00E-08
Total Copper (Cu)	mg/L	7.75E-08	2.89E-06
Total Iron (Fe)	mg/L	1.17E-05	1.03E-03
Total Manganese (Mn)	mg/L	2.08E-04	2.33E-08
Total Mercury (Hg)	mg/L	6.72E-07	5.53E-05
Total Molybdenum (Mo)	mg/L	1.00E-08	6.67E-09
Total Nickel (Ni)	mg/L	1.03E-04	4.36E-05
Total Lead (Pb)	mg/L	1.33E-06	9.33E-06
Total Selenium (Se)	mg/L	9.67E-08	6.67E-07
Total Strontium (Sr)	mg/L	2.27E-05	1.79E-04
Total Thallium (Tl)	mg/L	2.39E-06	3.33E-09
Total Uranium (U)	mg/L	2.50E-08	2.79E-07
Total Zinc (Zn)	mg/L	2.66E-06	1.00E-06
Chloride	mg/L	0 (4)	3.20E-02
Fluoride (F)	mg/L	3.37E-04	1.07E-04
Sulfate (SO_4)	mg SO_4/L	4.33E-01	8.47E-01
Total Cyanide (CNt)	mg/L	0 (4)	5.84E-03
Total Ammonia (NH_3 + NH_4)	mg N/L	0.00E+00	3.60E-03
Nitrate (NO_3)	mg N/L	1.36E-03	4.00E-04

Table 3-4: Concentrations used in the Water Quality Forecast Model

PARAMETERS	UNITS	RECLAIM ST-21 NORTH CELL	ATTEN. POND / SOUTH CELL	PORTAGE RSF TO NORTH CELL	SADDLE DAM 1 SUMP TO NORTH CELL	SADDLE DAM 3 SUMP TO SOUTH CELL	EAST DIKE SEEPAGE TO PORTAGE	STORM WATER MGMT POND	THIRD PORTAGE LAKE	PORTAGE PIT ST-19	GOOSE PIT ST-20	CCME GUIDELINES	WATER LICENSE MEADOWBANK MAX. AVG. CONC.
		January-08-14	Average 2014	Average 2015/18 sampled at ST-16	Average 2015/18 sampled at ST-S-2	Average 2016/18 sampled at ST-32	Average 2016/18 sampled at ST-8	July 2018	Average- East Basin Summer 2015	Average 2013	Average 2013	Long Term, Based on 3PL quality	Part F of License
Alkalinity	mg $CaCO_3$/L	135	106	69	58	153	29	129	9.1	72.2	129.8	n/a	n/a
Hardness	mg $CaCO_3$/L	1329	362	178	191	269	40	134	12	274	130	n/a	n/a
Total dissolved solids	mg/L	1329	1437	297	303	414	50	293	22	320	326	n/a	1400
Total Aluminum (Al)	mg/L	0.119 (1)	0.010 (1)	0.235	0.325	4.600	0.043	0.229	0.0075	0.1720	0.3708	0.1	1.5
Total Silver (Ag)	mg/L	0.0001 (1)	0.0001 (1)	0.000	0.000	0.000	0.0001	0.000	0.000005	0.00005	0.00005	0.00025	n/a
Total Arsenic (As)	mg/L	0.032 (1)	0.008 (1)	0.025	0.023	0.006	0.001	0.004	0.0005	0.0202	0.0099	0.005	0.3
Total Barium (Ba)	mg/L	0.094 (1)	0.051 (1)	0.019	0.017	0.108	0.008	0.020	0.0037	0.0110	0.0219	n/a	n/a
Total Cadmium (Cd)	mg/L	0.00160	0.00010	0.00007	0.00003	0.00008	0.00002	0.00001	0.000003	0.000240	0.000000	0.00004	0.002
Total Chromium (Cr)	mg/L	0.0008	0 (4)	0.002	0.003	0.024	0.001	0.002	0.0001	0.0027	0.0026	0.001	n/a
Total Copper (Cu)	mg/L	9.135	0.033 (1)	0.033	0.009	0.039	0.001	0.003	0.0006	0.0042	0.0069	0.002	0.1
Total Iron (Fe)	mg/L	0.140 (1)	0.047 (1)	0.895	0.896	9.738	0.100	0.880	0.017	1.5	0.7	0.3	n/a
Total Manganese (Mn)	mg/L	0.065 (1)	2.898 (1)	2.430	0.233	1.591	0.012	0.410	0.002	0.257	0.108	n/a	n/a
Total Mercury (Hg)	mg/L	0.000000	0.000117	0.000163	0.000212	0.000032	0.000010	0.000005	0.000003	0.000080	0.000005	0.000026	0.0004
Total Molybdenum (Mo)	mg/L	0.596 (1)	0.026 (1)	0.013	0.012	0.004	0.001	0.004	0.0002	0.0664	0.0082	0.073	n/a
Total Nickel (Ni)	mg/L	0.277 (1)	0.041 (1)	0.038	0.028	0.140	0.001	0.011	0.00059	0.00394	0.07973	0.025	0.2
Total Lead (Pb)	mg/L	0.002 (2)	0.000 (1)	0.001	0.003	0.009	0.001	0.000	0.00003	0.00131	0.00192	0.001	0.1
Total Selenium (Se)	mg/L	0.075 (1)	0.003 (1)	0.001	0.001	0.002	0.001	0.003	0.00003	0.00183	0.00080	0.001	n/a
Total Strontium (Sr)	mg/L	0.743 (3)	0 (4)	0.159	0 (4)	0 (4)	0 (4)	0.29	0.0132	0 (4)	0 (4)	n/a	n/a
Total Thallium (Tl)	mg/L	0.005 (3)	0 (4)	0.002	0.002	0 (4)	0.005	0.0004	0.000005	0.0020	0.0016	0.0008	n/a
Total Uranium (U)	mg/L	0.010 (3)	0 (4)	0.006	0 (4)	0 (4)	0 (4)	0.002	0.000049	0 (4)	0 (4)	0.015	n/a
Total Zinc (Zn)	mg/L	0.010 (1)	0.010 (1)	0.003	0.077	0.031	0.003	0.005	0.002	0.016	0.015	0.03	0.4
Chloride	mg/L	1035	98	10	7	17	1	52	0.793	26.117	24.978	120	1000
Fluoride (F)	mg/L	0.180	0.565	0.191	0.210	0.350	0.073	0.860	0.0793	0.3900	0.4922	0.12	n/a
Sulfate (SO_4)	mg SO_4/L	2115	542	33	141	160	10	30	5	224	77	128 (5)	n/a
Total Cyanide (CNt)	mg/L	8	0.346	0.003	0.011	0.026	0.003	0.002	0.0005	0.0393	0.0033	0.005	0.5
Total Ammonia (NH_3 + NH_4)	mg N/L	37	10	0.515	0.486	4.428	0.010	1.320	0.015	3.6	7.9	1.83	16
Nitrate (NO_3)	mg N/L	26	1	8	8	15	0.42	0.06	0.0331	12.7	5.1	2.94 (6)	20

Notes :

(1) No total concentration value measured. Estimated using dissolved concentration value divided by the ratio of dissolved/total concentration values from sample taken in July 1, 2014 from the North Cell.

(2) Used dissolved concentration value when the value is higher than the total concentration measured.

(3) No data available for sample taken on Jan 8, 2014. Use data sampled on July 1 2014.

(4) No data. Assume negligible.

(5) Threshold value for sulfate based on BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

(6) Value based on the threshold concentration for classification of an oligotrophic lake in terms of nutrient concentrations (Nurnberg 1996).

(7) [pink box] Indicate values higher than CCME Guidelines (Long Term), or other criterion, based on Third Portage Lake water quality. Provided as a guide to help identify potential parameters of concern.

3.5 Cyanide Decay

The water quality model developed during this study takes natural cyanide degradation into account: the most important mechanism in the natural degradation of cyanide is the volatilization of hydrogen cyanide (HCN). In fact, tests carried out in Canada found that volatilization of HCN accounted for 90% of cyanide removed from solution in a tailings impoundment (Botz and Mudder, 2000).

Oxidation of cyanide ions (CN-) to orthocyanate (OCN) with atmospheric oxygen is possible but extremely slow when compared to HCN volatilization. Similarly, the probability of microbial degradation of cyanide to carbon dioxide, ammonia, nitrite and nitrate is low due to the limited presence of microorganisms and low nutrient levels in tailings water.

Cyanide volatilization can be summarized as a two (2) step process presented in

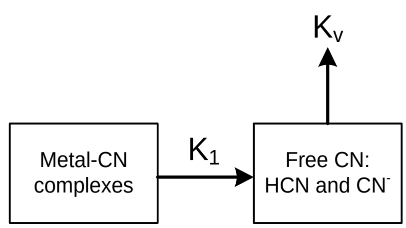
Table 3-11below:

i. First, metal-cyanide complexes dissociate to free cyanide (HCN and CN^-) based on a first-order decay constant (k_1). Note that: (1) equilibrium between HCN and CN- is based on pH; (2) a first order decay constant signifies that the final concentration (Cf) can be estimated as, Cf=Cie-kt, where k is the first order decay constant);

i. It is then followed by HCN volatilization based on a first-order decay constant (k_v).

ii. Both decay constants k_1 and k_v depend on the presence of UV light (sun) and air (wind), and water temperature and pH. The volatilization decay constant, k_v, also depends on the surface area to volume ratio of the pond.

Figure 3-1: Cyanide Volatilization Process



Since both constants depend to a great extent on temperature, UV light and air, separate constants were determined for summer (May to October) and winter (November to April) conditions. The decay constants were based on laboratory values recorded by Simovic (1984). The assumptions made for the development of the cyanide decay constants were the following:

- Summer conditions: an average water temperature of 10°C, presence of air and UV light. Furthermore, since metal-CN dissociation and HCN volatilization by air and UV is particularly important in the summer months, the decay constant factors in the physical property of the tailings impoundment, represented by the open surface area to volume ratio. Multiplying the decay constant by this ratio takes into account the accelerated reaction due to a large exposed surface area of the Reclaim Pond.
- Winter conditions: no natural cyanide degradation occurs.

- The pH in the Reclaim Pond is maintained constant at 8.0, which means that most (94%)[1] of the free cyanide will be present as HCN. Note that as the pH decreases, the proportion of free cyanide as HCN increases, which increases cyanide degradation through volatilization.
- As stated in section 3.2, it was assumed that 10% of the total cyanide concentration was bound as iron-cyanide complexes, another 10% as metal (copper, nickel and zinc) cyanide complexes, and 80% as free cyanide. This agrees with values observed at other gold mine tailings impoundments.

It should be noted that these decay constants (referred to as k_0) were established based on an hourly time step, and were not deemed reliable for longer time-periods (i.e. months). Therefore, the summer and winter decay constants obtained based on volatilization conditions and assumptions, were calibrated so as to represent more accurately and conservatively the expected cyanide concentrations on a monthly time-step.

Table 3-5 presents the assumptions and cyanide decay constants used in the water quality model.

Table 3-5: Natural Cyanide Degradation – Assumptions and Constants

DECAY CONSTANT	DESCRIPTION	WINTER CONDITIONS[2]			SUMMER CONDITIONS		
		Conditions	k_0	Calibrated value (k)	Conditions	k_0	Calibrated value (k)
K_1	Metal-CN dissociation	4° No air No UV	n/a	n/a	10° Air (wind) UV (sunlight)	0.01443/hr	2.11/month
K_V (3)	HCN volatilization		n/a	n/a		2.382 cm/hr	58.0 m/month

[1] The dissociation constant for HCN is pKa = $10^{-9.2}$.
[2] During the winter, most of the Reclaim Pond is covered in ice and/or snow. Assume no natural degradation of cyanide is occurring.
[3] In the summer k_v strongly depends on the presence of air and UV, and thus it also depends on the surface area to volume ratio (A/V). Therefore, the k_v value for the summer season has units of cm/h or m/month and should be multiplied by A/V.

3.6 Portage and Goose Pit Groundwater Seepage Loading

In previous water quality forecast model, in order to account for the contaminant loads originating from underground water seepages and surface runoff on PAG rock surface area into the pits, a contaminant loading rate per month reporting to the pits were estimated based on a monthly mass balance around the pit using the following information:

> Runoff volume flowing into and pumped out of Portage and Goose Pits in 2015 and 2016;

> Estimated water volume in Portage and Goose Pits in 2015 and 2016; and,

> Concentration measurements from samples taken in Portage Pit (Pit A, ST-17) and Goose Pit (sump, ST-20) in 2015 and 2016 on a monthly basis. The measurements made in the pit sump implicitly measure the impact on groundwater seepage and surface water contact on PAG rock on the pit sumps water quality.

A monthly mass balance was then performed around the pits and a contaminant load was calculated to take in account the changes in measured concentration observed in the monthly grab sample for that month. Contaminant loadings were estimated for each month of the year. The following assumptions were taken in estimating the contaminant loads:

> No samples were taken during the winter months in the pits due to difficulties in accessing the pits for sampling during that time of the year. It is assumed that contaminant loadings during the winter months are negligible since seepage flows into the pit are very low during this period and forms an ice sheet along the pit wall.

> Measured concentrations taken in the pit for a given month is assumed to be representative of the average concentrations for that month.

> Monthly contaminant loadings was estimated by calculating the difference between the load estimated in the pit lake for the month (i.e. measured concentration multiplied by the sum of the pit volume and pit water transferred to the TSF Reclaim Pond for the month) and the initial load estimated for the previous month. A positive value indicates an increase in contaminant loads to the pit water.

> When a negative load was calculated, the absolute value was considered in order to have a conservative loading estimate.

> Contaminant loads were estimated based on the 2015 and 2016 flow and concentration measurements taken at the pits. For any given month, the contaminant loads retained for the model is based on the average of the estimated loading rate evaluated using 2015 and 2016 data, multiplied by an adjustment factor to obtain forecasted values that are in the same order of magnitude as the measured values.

> In order to have a conservative loading estimate to the pit, it is assumed that the contaminant loads from the seepage will remain constant throughout the years until the pits are completely flooded. In reality, the seepage rate into the pit should decrease as the water level rises in the pit since the hydraulic head between the pit and the surrounding groundwater level will decrease. By making this assumption, the model assumes a conservative contaminant loading from the seepages to the pit over the entire life of mine.

Table 3-6 and Table 3-7 present the estimated contaminant loading rates for each parameter to Portage Pit and Goose Pit respectively. These data were used in 2016 water quality forecast model to take into account the underground water seepages and surface runoff in contact with PAG rock. The same data was used for 2017 and 2018 water quality forecast. The model assumes that the loading rates are fixed over time since the pit seepage flow is also assumed to be constant. For Goose Pit, no loading rates were estimated for the month of November since no samples were taken during that time. However, higher loading rates were assessed in the month of June which assumes that all of the ice sheets formed on the pit wall over the winter months melt and contribute to the overall contaminant loading to the pit lake.

Table 3-6: Estimated Contaminant Loading Rates to Portage Pit

Parameters (kg/month)	Jan - May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alkalinity	--	245	3768	2089	1916	1834	8097	--
Hardness	--	334	15808	8052	4658	12370	20859	--
Total dissolved solids	--	697	31945	14246	12312	11936	24288	--
Total Aluminum (Al)	--	0.00	32.36	10.83	14.79	3.74	327.71	--
Total Silver (Ag)	--	0.00	0.00	0.00	0.00	0.00	0.00	--
Total Arsenic (As)	--	2.13	25.60	0.61	0.03	1.69	3.82	--
Total Barium (Ba)	--	0.00	0.25	0.17	0.29	0.96	2.04	--
Total Cadmium (Cd)	--	0.00	0.01	0.00	0.00	0.00	0.06	--
Total Chromium (Cr)	--	0.00	0.10	0.19	0.23	0.00	11.01	--
Total Copper (Cu)	--	0.01	0.02	0.04	0.01	0.03	0.54	--
Total Iron (Fe)	--	0.00	69.63	34.57	44.16	8.88	1129.10	--
Total Manganese (Mn)	--	0.00	1.06	2.51	1.24	7.80	35.57	--
Total Mercury (Hg)	--	0.00	0.00	0.00	0.00	0.00	0.01	--
Total Molybdenum (Mo)	--	0.00	3.92	1.42	1.50	11.38	1.20	--
Total Nickel (Ni)	--	0.08	1.58	1.39	0.60	1.65	4.74	--
Total Lead (Pb)	--	0.00	0.00	0.00	0.22	0.18	0.41	--
Total Selenium (Se)	--	0.00	0.00	0.02	0.06	0.06	0.21	--
Total Strontium (Sr)	--	0.00	0.00	0.00	0.00	0.00	0.00	--
Total Thallium (Tl)	--	0.00	0.03	0.00	0.00	0.16	0.01	--
Total Uranium (U)	--	0.00	0.00	0.00	0.00	0.00	0.00	--
Total Zinc (Zn)	--	0.02	0.24	0.01	0.04	0.01	1.45	--
Chloride (Cl)	--	21	1109	440	394	809	2059	--
Fluoride (F)	--	0.24	28.23	9.79	7.96	5.79	34.97	--
Sulphate (SO4)	--	182	12661	5177	5651	8314	10586	--
Total Cyanide (CNt)	--	0.02	1.06	0.61	0.50	0.32	2.86	--
Total Ammonia ($NH_3 + NH_4$)	--	5	309	96	61	7	280	--
Nitrate (NO_3)	--	13.00	979.68	340.71	312.33	510.60	142.48	--

Table 3-7: Estimated Contaminant Loading Rates to Goose Pit

Parameters (kg/month)	Jan - May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alkalinity	--	5280	8621	2719	638	2593	--	--
Hardness	--	11478	31585	1202	17802	12686	--	--
Total dissolved solids	--	19054	47207	9340	25975	12900	--	--
Total Aluminum (Al)	--	119.10	107.03	2.52	0.46	18.95	--	--
Total Silver (Ag)	--	0.00	0.00	0.00	0.00	0.00	--	--
Total Arsenic (As)	--	0.02	0.05	0.08	0.01	0.22	--	--
Total Barium (Ba)	--	1.14	1.41	0.16	0.11	2.10	--	--
Total Cadmium (Cd)	--	0.001	0.008	0.007	0.0001	0.008	--	--
Total Chromium (Cr)	--	0.95	0.92	0.00	0.00	0.20	--	--
Total Copper (Cu)	--	0.24	0.33	0.16	0.01	0.05	--	--
Total Iron (Fe)	--	205.12	188.18	3.54	0.98	37.41	--	--
Total Manganese (Mn)	--	10.35	0.88	3.76	0.27	12.82	--	--
Total Mercury (Hg)	--	0.00	0.00	0.00	0.00	0.00	--	--
Total Molybdenum (Mo)	--	0.25	0.61	0.05	0.04	0.86	--	--
Total Nickel (Ni)	--	1.07	3.97	0.17	1.49	4.74	--	--
Total Lead (Pb)	--	0.01	0.00	0.00	0.00	0.00	--	--
Total Selenium (Se)	--	0.05	0.06	0.01	0.01	0.00	--	--
Total Strontium (Sr)	--	0.00	30.29	8.90	5.81	3.46	--	--
Total Thallium (Tl)	--	0.09	0.05	0.00	0.00	0.15	--	--
Total Uranium (U)	--	0.0	0.8	0.3	0.2	0.2	--	--
Total Zinc (Zn)	--	0.66	0.62	0.01	0.01	0.30	--	--
Chloride (Cl)	--	872	4117	736	3556	1257	--	--
Fluoride (F)	--	27.55	101.14	10.99	41.45	6.83	--	--
Sulphate (SO4)	--	5739	21121	2913	12597	7509	--	--
Total Cyanide (CNt)	--	0.57	0.07	0.05	0.03	0.72	--	--
Total Ammonia ($NH_3 + NH_4$)	--	64	161	17	194	41	--	--
Nitrate (NO_3)	--	85.07	439.18	113.77	144.62	10.42	--	--

4.0 Water Quality Forecast Results

4.1 Results

The results of the mass balance model around the North and South Cell TSF Reclaim Ponds, Portage Pit and Goose Pit are presented in the Figure 4-2 to Figure 4-16, for the parameters of concern that were identified in last year's model, and new ones detected in this year's forecast, specifically:

- Aluminum
- Arsenic
- Cadmium
- Chromium
- Copper
- Iron
- Mercury(new)
- Nickel
- Lead (New)
- Selenium
- Fluoride
- Total ammonia

The following parameters are also presented in the figures since they were identified as elements that could represent a potential long-term contamination risk:

- Cyanide (total)
- Chloride
- Nitrate

Sulfate and total dissolved solids are also presented in order to present the forecasted changes in these parameters over time.

The graphs show the forecasted monthly concentrations of the parameters from 2014 to end of 2029. Breaching is assumed to occur in 2030. A total of two (2) graphs are presented per parameter: the first shows the forecasted concentration in the North and South Cells TSF Reclaim Ponds and the second shows the forecasted concentration in the Portage and Goose Pits, assuming that the water is pumped without treatment.

The Water License and Canadian Council of Ministers of the Environment (CCME) limits (refer to Table 2-1) were also included in the figures, where applicable. For items with no CCME guideline, Agnico will meet site specific criteria (or background within the range of natural variability) developed through review of the final closure plan by regulatory agencies.

Again, it is important to remember that the results presented in the figures in section 4 of this report are based on the input parameters presented in section 3. It is also important to note that the results from this model assume that no the treatment of Reclaim Pond effluent is undertaken and provide only a forecast of the concentrations of the selected parameters. These results must be reviewed while keeping in mind the assumptions and limitations described in sections 3.2 and 3.3.

4.2 Discussions

4.2.1 Key Dates

The mass balance model presented in this Technical Note is based on the WB 2018. The following key dates are important to keep in mind while reviewing the forecasted concentration data presented in Figure 4-2 to Figure 4-16:

> November 2014: The former Attenuation Pond becomes the South Cell and TSF Reclaim Pond.

> May 2015: Start of natural re-flooding of Goose Pit with surface runoff water only.

> September 2015: Transfer of 50,431 m^3 of Central Dike Downstream Pond water to Goose Pit.

> October 2015: End of deposition in the North Cell TSF.

> July 2017: Allow runoff water and ground water to accumulate in the Portage Pit A or Pit E.

- August to October 2017: Approximately 332,177 m^3 of pond water is transferred from Central Dike Downstream Pond to Goose Pit.
- August to October 2018: Deposition in North and South Cell TSF.
- May 2019: Deposition resumes in North Cell TSF.
- June 2019: End of deposition of tailings from Portage/Vault pits.
- July 2019: Start of deposition of tailings from Whale Tail pit.
- June 2019 to September 2026: Pumping water from Third Portage Lake to Portage Pit every summer.
- June 2020: End of deposition in the North Cell TSF.
- September 2020: North Cell TSF Reclaim Pond is completely empty. The pond is maintained empty in the subsequent years by transferring the accumulated runoff water to the South Cell TSF Reclaim Pond.
- June 2021: Start of water transfer from South Cell TSF Reclaim Pond to Portage Pit.
- December 2021: End of deposition in the South Cell TSF.
- As of January 2022: Allow East Dike Seepage to accumulate in the Portage Pit.
- April 2022: South Cell TSF Reclaim Pond is completely empty. The pond is maintained empty in the subsequent years by transferring the accumulated runoff water to Portage Pit.
- June to August 2026: Pumping water from Third Portage Lake to Goose Pit.
- Summer 2026: Water level in Portage Pit is higher than 130 masl. Portage and Goose pits are now hydraulically linked.

4.2.2 Volumes Transferred

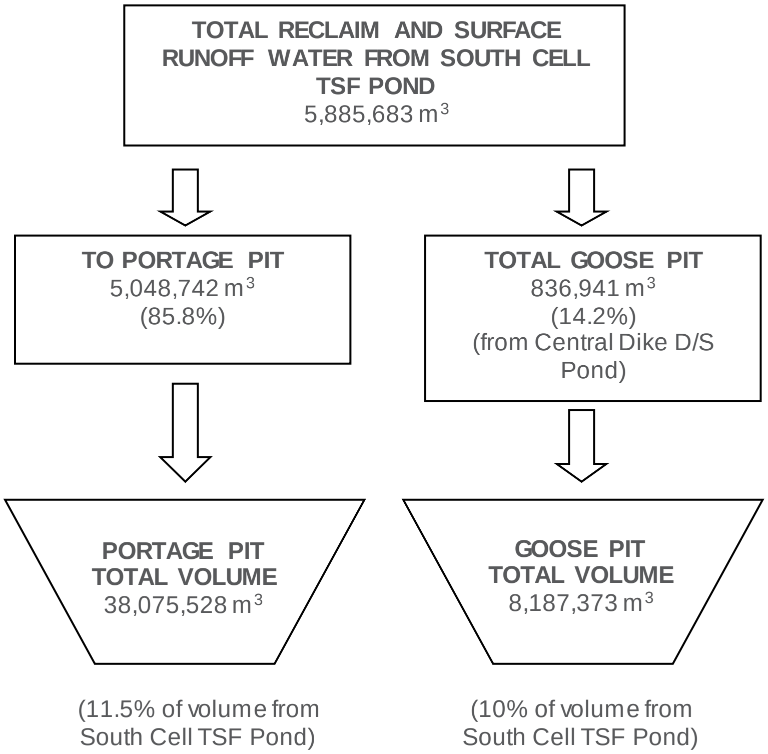
Based on the WB 2018, the Reclaim Water from South Cell will be transferred to Portage Pit in June 2021, September 2021 and April 2022 (323,000, 316,200 and 18,492 m^3 respectively), for a total of approximately 657,716 m^3. The Reclaim Water originates mainly from the Mill Effluent. After, runoff accumulating in the North and South Cells will be transferred to Portage Pit until closure (2029). A total runoff volume from 2021 to 2029 of about 4,391,026 m^3 of water will be transferred from the North and South Cell TSF to Portage Pit.

Furthermore, in September 2015, some Central Dike Downstream Pond water was transferred to Goose Pit (approx. 50,431 m^3) as part of the water management approach to perform a steady state seepage analysis. Another 332,177 m^3 of pond water was transferred to Goose Pit between August and October 2017 to follow the Central Dike action plan to reduce the volume of water in the South Cell. Based on the WB 2018, approximately 454,333 m^3 of Central Dike Downstream Pond could be transferred to Goose Pit in 2019. Thus, the total volume of pond water transferred to Goose Pit from Central Dike Downstream Pond is approximately 836,941 m^3.

Almost 85.8% of the South Cell TSF Reclaim and runoff water are transferred to Portage Pit. Note that for Goose Pit, the volume shown considers a water level at 130 masl and the volume for Portage Pit takes into account the Goose Pit volume between elevations 130 to 133.6 masl.

Figure 4.1 summarizes the volume of water transferred from South Cell TSF to Portage and Goose Pit.

Figure 4-1: Summary of Water Transfer from South Cell TSF to Portage and Goose Pits



4.2.3 Forecasted Concentrations in the North and South Cell TSF Reclaim Pond

The forecasted concentrations in the North and South Cell TSF Reclaim Pond are presented in Figure 4-2 to Figure 4-16.

Based on the model for forecasting concentrations in the North and South Cell TSF Reclaim Pond, the following notes and observations can be made:

i. For the metal parameters, the fluctuations observed from 2014 to 2022 are primarily due to seasonal variability (runoff from nearby areas, snow and ice melt, temperature, etc.). Furthermore, the forecasted concentrations are generally more conservative than the field measurements.

ii. Natural degradation of cyanide during summer plays a significant role in reducing the measured concentration of total cyanide in the TSF Reclaim Ponds and it is taken into account in the forecasting model.

iii. For ammonia, it is important to note that

   a. the mass balance model developed here does not include seasonal variability (sunlight, microbial or algae degradation of ammonia, etc.), and

   b. ammonia concentrations can vary significantly depending on temperature, pH, sunlight, algae activity, etc. Ammonia concentrations may be lower in the summer and higher in the winter. The forecasted concentrations in the South Cell TSF Reclaim Pond between 2014 and 2018 are more conservative than the measured values.

iv. Similarly, for nitrate, it is important to remember that

a. the mass balance model developed here does not include seasonal variability, and

b. ammonia decomposes to nitrate, therefore nitrate concentrations can vary significantly depending on temperature, pH, sunlight, algae activity, etc. Nitrate concentrations may be lower in the winter and higher in the summer. The forecasted values from 2014 to 2018 are in the same range as the measured values in the North Cell. For the South Cell, the forecasted values are in the same range as the measured value. However, between 2014 to mid-2016, measured values were higher than forecasted concentrations. After this, the model is conservative.

v. Guidelines:

a. For comparison purposes, the forecasted concentrations in the North and South Cells TSF Reclaim Ponds for almost all the parameters are above the Water License discharge criteria.

b. For comparison purposes, almost all forecasted concentrations in the North and South Cells TSF Reclaim Ponds for the parameters of concern are also above the CCME guidelines for the protection of aquatic life.

c. However, it is important to note that no water in the TSF Reclaim Pond during tailings deposition is discharged to the environment. Thus, the Water License discharge criteria are not applicable but are rather used as a comparison herein. Also, the dikes around Portage and Goose Pits will only be breached once the water quality in the pits meets the CCME guidelines or site specific criteria.

4.2.4 Forecasted Concentration in Portage and Goose Pits

Table 4-1 presents the forecasted concentration of all parameters for Portage and Goose Pits in December 2029 at mine closure. The first forecasted values were obtained by the mass balance approach and the second set of values were obtained with the geochemical modeling tool PHREEQC, simulating equilibrium concentration in the pits at closure, before dike breaching.

Based on the model for forecasting of the concentrations in Portage and Goose Pits, the following notes and observations can be made (note that items i. to v. concern the forecast model using the mass balance approach, while items vi. to viii. concern results obtained with the PHREEQC analysis):

i. This year's water quality forecast takes into account the extension of the Life of Mine at Meadowbank which adds the processing of ore body coming from the Whale Tail Pit at the Amaruq site. The ore body from Whale Tail pit has a different geochemical behavior when compared to the Portage/Goose/Vault ore bodies. It has a higher potential to leach certain metals, such as arsenic, mercury and lead. For this reason, mercury and lead were identified as new parameters of concern in the model this year.

ii. For this year's water quality forecast, only total concentrations are considered since CCME guidelines, which are used herein in this report for comparison purposes only, applies to total concentrations. Most forecasted concentrations meets the CCME guidelines in December 2028, except for the following parameters:

   a. **Total Aluminum:** Higher forecasted total concentration than the CCME guidelines in Portage Pit, Goose Pit and mixed pit conditions. The aluminum load coming from the mill effluent and the pit seepages contributed in increasing the total load forecasted at closure.

   b. **Total Arsenic**: Higher forecasted total concentration than the CCME guidelines in Portage Pit and mixed pit conditions. The arsenic load coming from the mill effluent and the pit seepages contributed in increasing the total load forecasted at closure.

   c. **Total Cadmium**: Higher forecasted total concentration than the CCME guidelines in Goose Pit and in mixed pit conditions. A higher load of cadmium is forecasted in Portage and Goose Pits due to the higher concentration value considered in the Mill Effluent for this parameter. Furthermore, for Goose Pit, the higher load is also due in part to the additional volume transferred from the Central Dike Downstream Pond to this pit in 2017 and is forecast to occur in 2019.

   d. **Total Chromium**: Forecasted concentrations are higher than the CCME guidelines in Portage Pit, Goose Pit and mixed pit conditions. The chromium load from the mill effluent and the pit seepages contributed in increasing the total load forecasted at closure.

   e. **Total Copper**: Forecasted concentrations remains higher than the CCME guidelines in Portage Pit, Goose Pit and mixed pit conditions. The main load for this parameter comes from the mill effluent.

   f. **Total Mercury** (new): Higher forecasted concentration than the CCME guidelines are observed for Portage Pit, Goose Pit and mixed pit conditions. One of the possible causes of this is the processing of ore bodies from the Whale Tail pit.

   g. **Total Iron**: Higher forecasted total concentration than the CCME guidelines in Portage Pit, Goose Pit and mixed pit conditions. The iron load reporting to the pits comes from the mill effluent and the pit seepages.

h. **Total Lead** (new): Total forecasted concentration slightly higher than the CCME guidelines in Portage Pit, Goose Pit and mixed pit conditions. One of the possible causes of this is the processing of ore bodies from the Whale Tail pit.

i. Total Nickel: Slightly higher forecasted total concentration than the CCME guidelines in Goose Pit. A higher load of nickel is forecasted in Goose Pit is due in part by the additional volume of pond water that was transferred to this pit in 2017 and possibly in 2019.

j. **Total Selenium**: Total forecasted concentration remains slightly higher than the CCME guidelines in Portage Pit, Goose Pit and mixed pit conditions.

k. **Fluoride**: Forecasted concentration is higher than the CCME guidelines in Goose Pit and slightly higher in Portage Pit and mixed pit conditions. The fluoride load to the pits comes from the mill effluent and from the pit seepages.

l. **Sulfate** (new): For this year's forecast, the sulfate forecasted concentrations are compared against a threshold value based on BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013). At closure, sulfate concentration in Goose Pit is higher than the threshold value. However, under mixed pit conditions, the concentration is lower than the threshold value.

m. **Total Ammonia**: Ammonia forecasted concentrations are higher than the CCME guidelines in Goose Pit. A higher load of ammonia is forecasted in Goose Pit since additional volume of pond water was transferred to this pit in 2017 and possibly 2019.

n. **Total Nitrogen Equivalent**: For this parameter, a threshold concentration based on the classification of an oligotrophic lake in terms of nutrient concentration was used for comparison purpose. Third Portage Lake is considered as a highly oligotrophic lake. The CCME guidelines do not have a specific criterion for this parameter. The sum of the forecasted concentrations for total ammonia nitrogen and total nitrate nitrogen remains more elevated than this threshold concentration in Portage Pit, Goose Pit and mixed pit conditions.

iii. Table 4-2 compares the forecasted concentration for the parameters of concern listed above against the forecasted concentrations measured in last year's water quality forecast model. The main difference between the two models are:

a. Additional volume of pond water from Central Dike Downstream Pond is added in Goose Pit in 2019 which was not accounted for in last year's model.

b. Deposition of Whale Tail tailings in the North and South Cell TSF.

c. Extension of tailings deposition until Dec. 2021.

d. Extension of the LOM at Meadowbank site, extended the pit flooding period by one (1) year.

e. Different concentrations considered for the Mill Effluent in this year's model (refer to Table 3-1 to compare the concentration values used this year's model against past models.)

iv. It is important to note that the water quality in the pits will be subject to CCME guidelines or site specific criteria once the water level in the Goose and Portage Pits are equal to the water level in Third Portage Lake, and the dikes are breached.

v. It is also important to note that once the water elevation in the pits reaches a level above 130 m, both Portage and Goose Pits will be hydraulically connected. This should help in attenuating some of the concentrations in Portage Pit. As shown in Table 4-1, when assuming complete mixing of both pits, the concentrations of the parameters listed in item ii. are reduced, but not sufficiently to meet the CCME guidelines.

vi. There are no CCME guidelines for sulfate and TDS. As for chlorides, it meets the CCME guidelines. The forecasted concentrations for these parameters however will be higher than the background concentrations measured in Third Portage Lake.

vii. When using the USGS geochemical modelling tool PHREEQC (USGS 2015) to evaluate the equilibrium concentration of total copper in the water column, the forecasted concentration is evaluated to be around 0.0001 to 0.0003 mg/L in both pits, an order of magnitude lower than the CCME guideline. Thus, at equilibrium, most of the copper could precipitate out as an oxide, hydroxide or co-precipitate and adsorb to iron oxy-hydroxides.

viii. When using the USGS geochemical modelling tool PHREEQC (USGS 2015) to evaluate the equilibrium concentration of the other metal parameters listed in item ii., except for cadmium, chromium, mercury and selenium, the equilibrium concentrations are significantly lower than the CCME guidelines in the mixed pit conditions. Thus, at equilibrium, most of these metals could precipitate out as an oxide, hydroxide or co-precipitate and adsorb to iron oxy-hydroxides.

ix. For comparative purpose only, the total nitrogen equivalent concentration (i.e. sum of ammonia and nitrate) is higher than the threshold concentration for classification of an oligotrophic lake (i.e. a lake characterized by a low accumulation of dissolved nutrient salts, supporting but a sparse growth of algae and other organisms, and having a high oxygen content owing to the low organic content) in terms of nutrient concentration (Nurnberg 1996), even after the using the PHREEQC modeling tool. However, both the mass balance model and PHREEQC modeling tool do not take into account any natural nitrogen degradation cycle that could occur over the summer months. However, if an increase in ammonia and nitrate concentrations is observed in the TSF Reclaim Ponds and in the pit water after transfer, the total nitrogen issue will have to be re-assessed at closure. Natural degradation could be sufficient to reduce the total nitrogen concentration, or active treatment solutions such as mechanical aeration could be implemented. Note that there is no specific CCME guideline for total nitrogen equivalent.

Consequently, the parameters listed in item ii. are parameters that will be monitored and re-evaluated in next year's water quality forecast. However, some parameters are below the CCME guidelines when looking at the equilibrium concentrations evaluated using PHREEQC. The parameters that could remain a concern are cadmium, chromium, mercury, selenium and fluoride.

4.2.5 Comparison of Forecasted Values

Figures 4-17 to 4-20 compare the different forecasted concentrations in the North and South Cells for dissolved copper and chloride assessed using Agnico Water Balance model developed in 2012, 2013, 2014, 2015, 2016, 2017 and the most recent WB 2017. The figures also show the evolution of the forecasted concentration against the actual measured concentration of copper and chlorides.

Based on these figures, the following notes and observations can be made:

i. Since 2012/2013, the Water Balance model provided by Agnico has improved and is reflecting more accurately the volumes of water managed around the North and South Cells TSF.

ii. For each water quality update, an effort is made to adjust the model to align the forecasted value with the measured values. As shown in the figures 4-17 and 4-18, the dissolved copper concentrations that were initially forecasted in the North and South cells were much higher than the values measured on site. The model was adjusted using dissolved copper concentrations measured in the TSF and in the Mill Effluent to calibrate the model.

iii. Unlike copper which can precipitate out of solution as a copper hydroxide precipitate, chloride builds up in a closed loop system. The water quality forecast model initially underestimated its build-up in the TSF Reclaim Pond. The model was then adjusted to account for this build-up.

The site Water Balance and Water Quality Forecast model will continue to be updated on a yearly basis, using the actual volumes and measured concentrations to calibrate the models.

Table 4-1: Summary of Forecasted Concentrations in Portage and Goose Pits at Closure

PARAMETERS	UNITS	CCME GUIDELINES	3rd PORTAGE LAKE (avg. Summer 2015)	AT CLOSURE, BEFORE BREACHING DEC. 2029					
				PORTAGE PIT		GOOSE PIT		ASSUME COMPLETE MIX	
				Mass Balance Conc.	PHREEQC Eq. Conc.	Mass Balance Conc.	PHREEQC Eq. Conc.	Mass Balance Conc.	PHREEQC Eq. Conc.
pH (assumed)			7.17	7.5	7.5	7.5	7.9	7.5	7.6
Alkalinity	mg $CaCO_3$/L	n/a	9	18	11.8	50	31.7	23	14.8
Hardness	mg $CaCO_3$/L	n/a	12	54	54	218	218	83	83
Total dissolved solids	mg/L	n/a	22	101	45	402	174	155	64
Total Aluminum (Al)	mg/L	0.10	0.01	0.16	0.00009	0.44	0.00012	0.21	0.00010
Total Silver (Ag)	mg/L	0.00025	0.000005	0.00005	0.00005	0.00017	0.00017	0.00007	0.00007
Total Arsenic (As)	mg/L	0.005	0.00051	0.018	0.000014	0.013	0.000005	0.017	0.000013
Total Barium (Ba)	mg/L	n/a	0.0036575	0.006	0.00559	0.019	0.00731	0.009	0.00514
Total Cadmium (Cd)	mg/L	0.00004	0.0000025	0.00003	0.00002	0.00024	0.00019	0.00007	0.00005
Total Chromium (Cr)	mg/L	0.001	0.000113	0.005	0.002	0.004	0.003	0.005	0.003
Total Copper (Cu)	mg/L	0.002	0.000595	0.042	0.00018	0.140	0.00139	0.060	0.00029
Total Iron (Fe)	mg/L	0.30	0.02	0.50	6.34E-08	0.85	2.66E-08	0.56	5.10E-08
Total Manganese (Mn)	mg/L	n/a	0.00155	0.024	2.00E-11	0.072	3.67E-12	0.032	1.33E-11
Total Mercury (Hg)	mg/L	0.000026	0.000003	0.001917	0.001536	0.001951	0.001876	0.001923	0.001664
Total Molybdenum (Mo)	mg/L	0.073	0.000194	0.007	0.00673	0.046	0.04514	0.014	0.01360
Total Nickel (Ni)	mg/L	0.025	0.000593	0.008	0.00468	0.032	0.02058	0.012	0.00751
Total Lead (Pb)	mg/L	0.001	0.000025	0.0040	1.09E-06	0.0028	7.99E-06	0.0038	2.17E-06
Total Selenium (Se)	mg/L	0.001	0.000025	0.0003	0.0003	0.0056	0.0056	0.0012	0.0012
Total Strontium (Sr)	mg/L	n/a	0.013	0.021	0.0003	0.207	0.0007	0.054	0.0003

PARAMETERS	UNITS	CCME GUIDELINES	3rd PORTAGE LAKE (avg. Summer 2015)	AT CLOSURE, BEFORE BREACHING DEC. 2029					
				PORTAGE PIT		GOOSE PIT		ASSUME COMPLETE MIX	
				Mass Balance Conc.	PHREEQC Eq. Conc.	Mass Balance Conc.	PHREEQC Eq. Conc.	Mass Balance Conc.	PHREEQC Eq. Conc.
Total Thallium (Tl)	mg/L	0.0008	0.000005	0.0003	0.0001	0.0007	0.003	0.0003	0.0006
Total Uranium (U)	mg/L	0.015	0.000049	0.0001	0.002	0.0030	0.004	0.0006	0.003
Total Zinc (Zn)	mg/L	0.03	0.0015	0.002	0.00572	0.004	0.073	0.003	0.01723
Chloride (Cl)	mg/L	120	0.7925	10	10	68	68	20	20
Fluoride (F)	mg/L	0.12	0.07925	0.12	0.12	0.43	0.43	0.17	0.17
Sulphate (SO_4)	mg SO4/L	128 (2)	5.1	50	50	196	196	76	76
Total Cyanide (CNt)	mg/L	0.005	0.0005	0.0001	0.0001	0.0001	0.00009	0.0001	0.0001
Total Ammonia (NH_3 + NH_4)	mg N/L	1.83	0.0145	1.2	-	3.4	-	1.6	-
Nitrate (NO_3)	mg N/L	2.94	0.03305	1.0	-	1.8	-	1.1	-
Total N equivalent	mg N/L	0.35 (1)	0.04755	2.1	2.1	5.2	5.2	2.7	2.7

Notes:

1) Value based on the threshold concentration for classification of an oligotrophic lake in terms of nutrient concentrations (Nurnberg 1996).

2) Threshold value for sulfate based on BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

(Pink shading) Mass balance forecasted concentration or PHREEQC analysis concentration higher than the CCME guidelines.

Table 4-2: Comparison of Parameters of Concerns Concentrations (2018 WMP vs 2017 WMP)

PARAMETERS	UNITS	CCME GUIDELINES	AT CLOSURE, BEFORE BREACHING					
			FORECASTED VALUE BASED ON 2018 WMP (DEC. 2029)			FORECASTED VALUE BASED ON 2017 WMP (DEC. 2028)		
			Portage Pit	Goose Pit	Mixed Pit	Portage Pit	Goose Pit	Mixed Pit
Total Aluminum (Al)	mg/L	0.10	0.16	0.47	0.21	0.15	0.45	0.20
Total Arsenic (As)	mg/L	0.005	0.018	0.013	0.017	0.012	0.002	0.010
Total Cadmium (Cd)	mg/L	0.00004	0.00003	0.00024	0.00007	0.00006	0.00011	0.00007
Total Chromium (Cr)	mg/L	0.001	0.005	0.004	0.005	0.004	0.004	0.004
Total Copper (Cu)	mg/L	0.002	0.042	0.140	0.060	0.022	0.052	0.027
Total Iron (Fe)	mg/L	0.30	0.50	0.85	0.56	0.49	0.83	0.55
Total Mercury (Hg)	mg/L	0.000026	0.001917	0.001951	0.001923	0.000017	0.000023	0.000018
Total Nickel (Ni)	mg/L	0.025	0.008	0.032	0.012	0.008	0.029	0.012
Total Lead (Pb)	mg/L	0.001	0.0040	0.0029	0.0038	0.0004	0.0003	0.0004
Total Selenium (Se)	mg/L	0.001	0.0003	0.0056	0.0012	0.0013	0.0027	0.0016
Fluoride (F)	mg/L	0.12	0.12	0.43	0.17	0.12	0.42	0.17
Sulphate (SO_4)	mg SO4/L	128 (2)	50	196	76	49	158	68
Total Ammonia (NH_3 + NH_4)	mg N/L	1.83	1.2	3.4	1.6	1.4	3.1	1.7
Total N equivalent	mg N/L	0.35 (1)	2.1	5.2	2.7	2.3	4.8	2.7

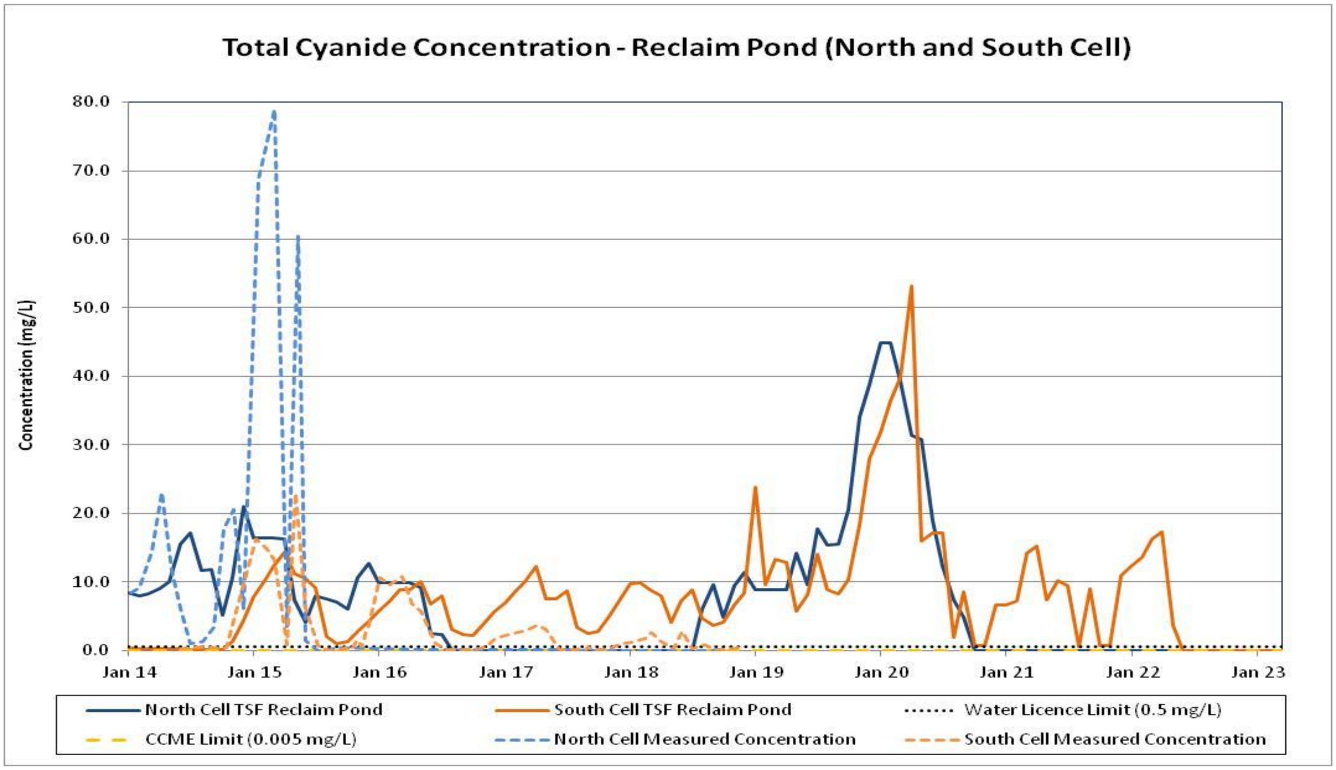
Note:

1) Value based on the threshold concentration for classification of an oligotrophic lake in terms of nutrient concentrations (Nurnberg 1996).

2) Threshold value for sulfate based on BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

[pink shading] Mass balance forecasted concentration higher than the CCME guidelines.

Figure 4-2: Total Cyanide Forecasted Concentration



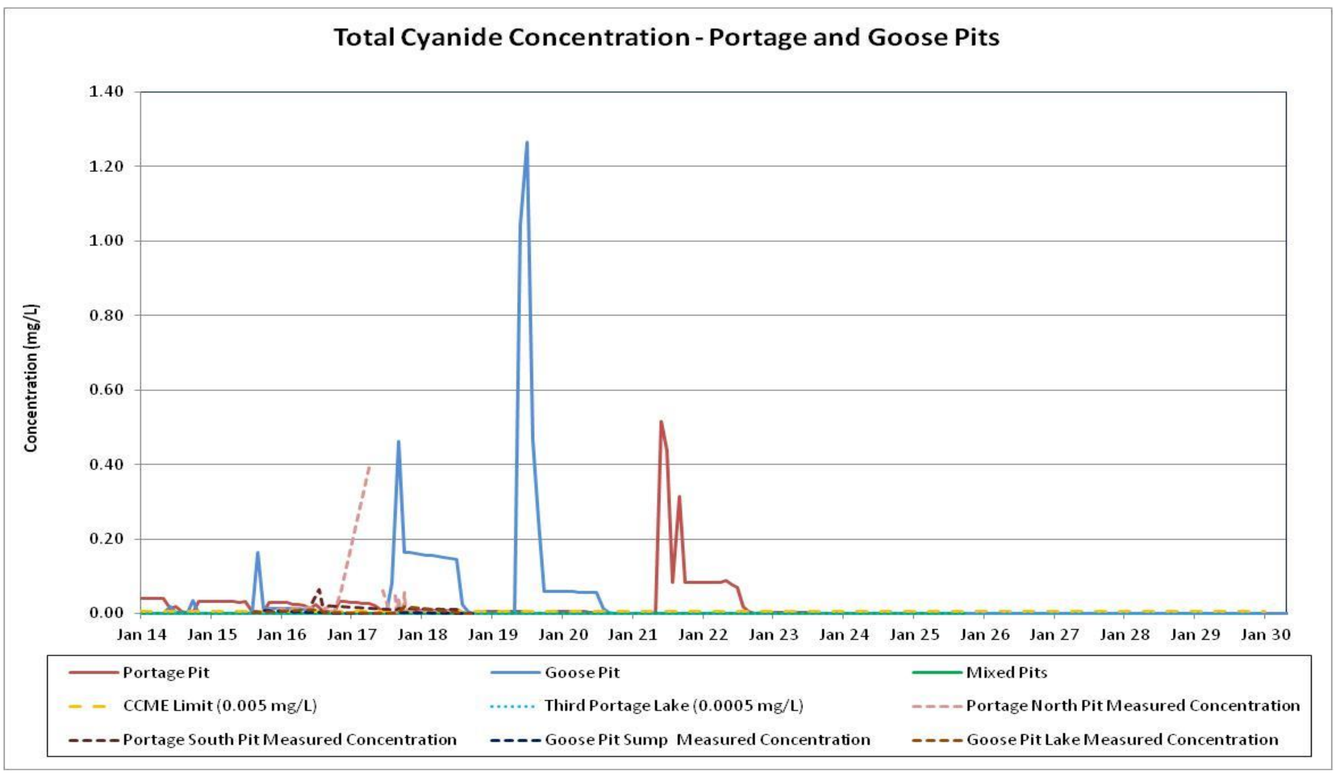
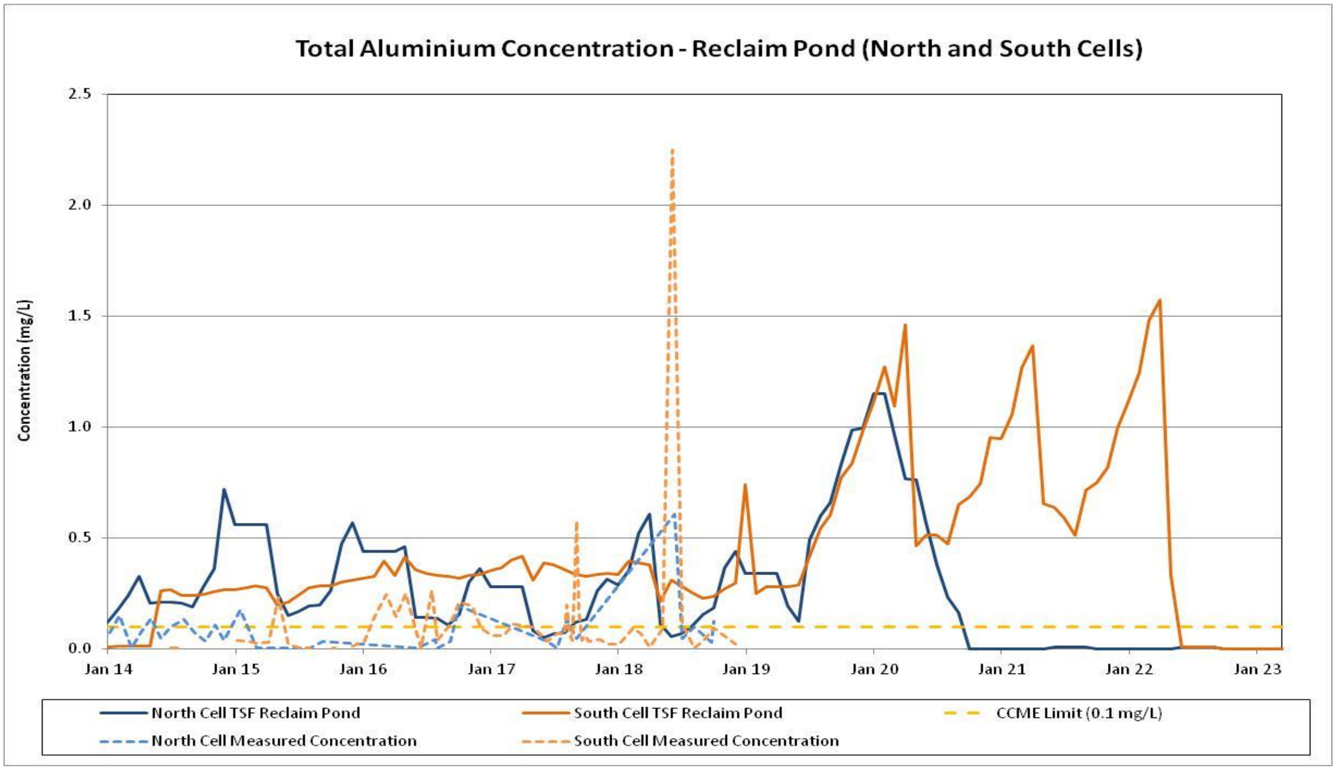


Figure 4-3: Total Aluminum Forecasted Concentration



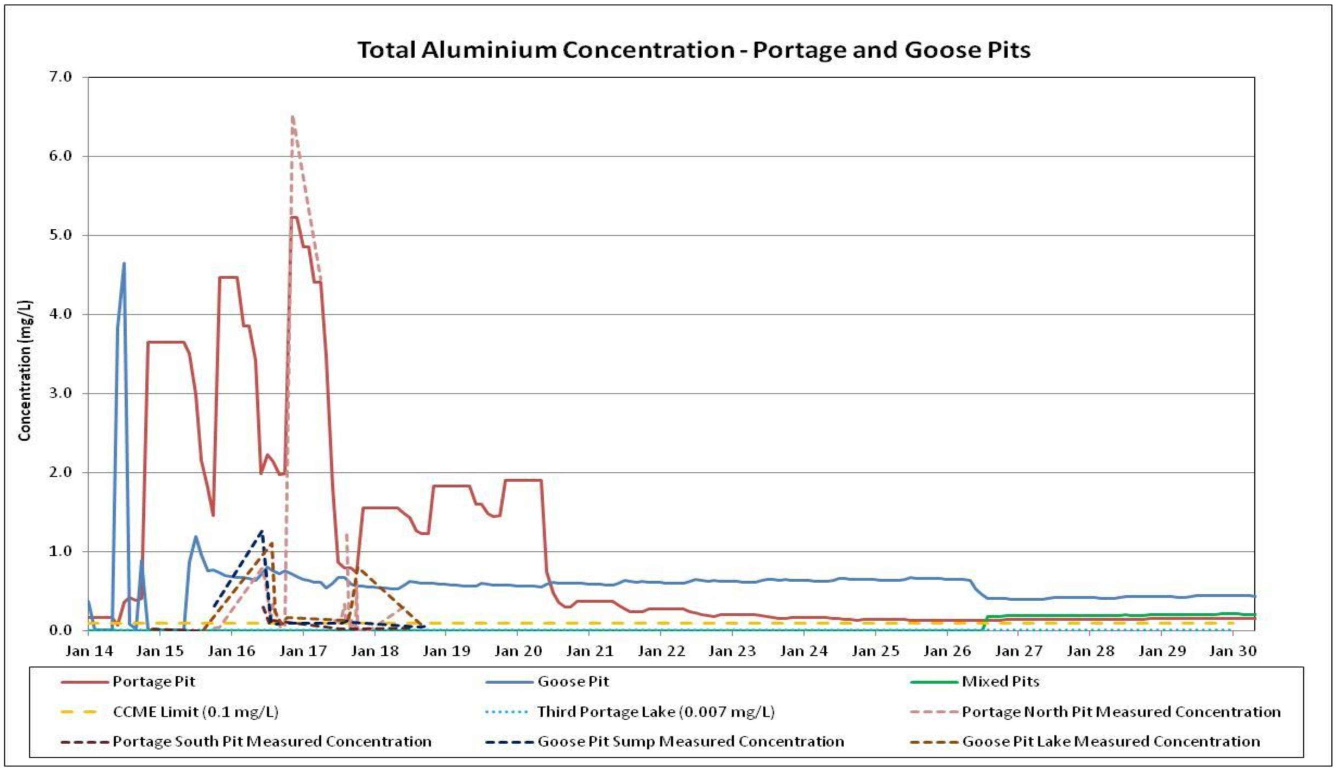
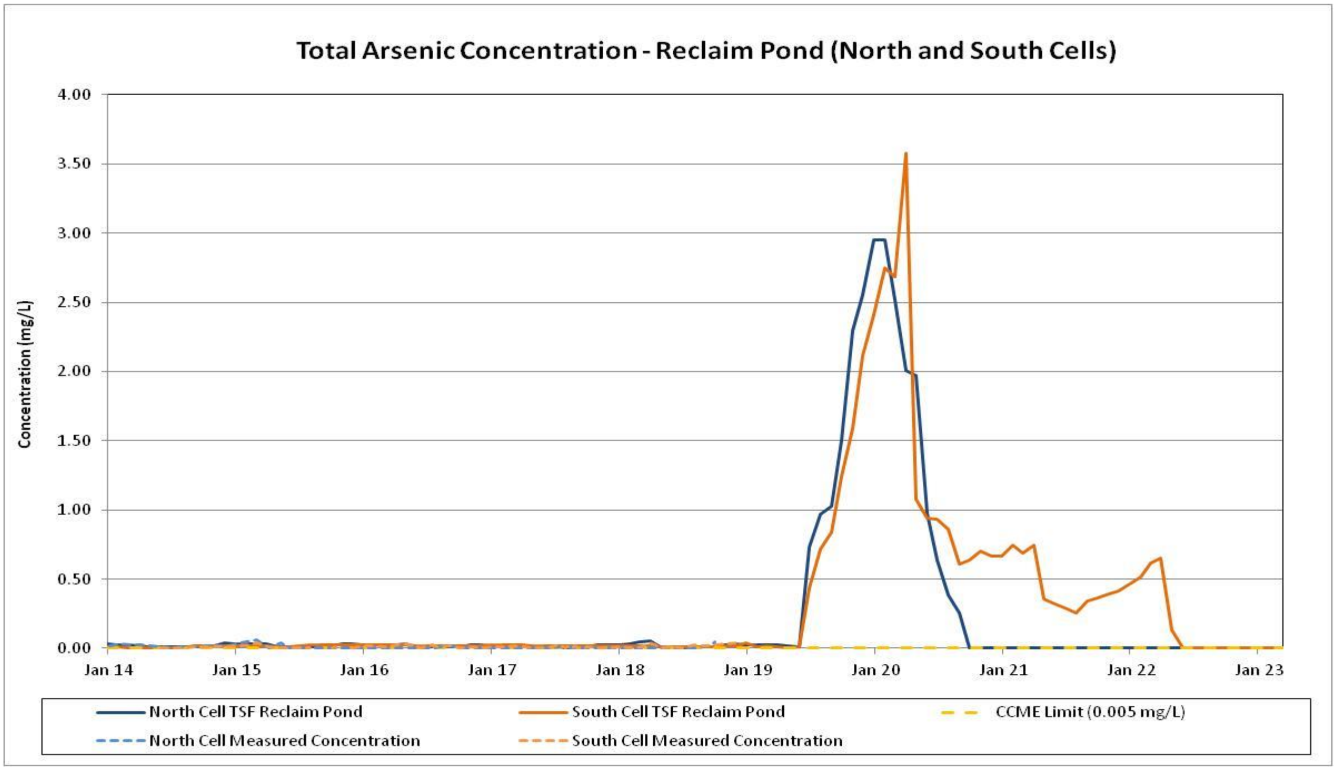


Figure 4-4: Total Arsenic Forecasted Concentration



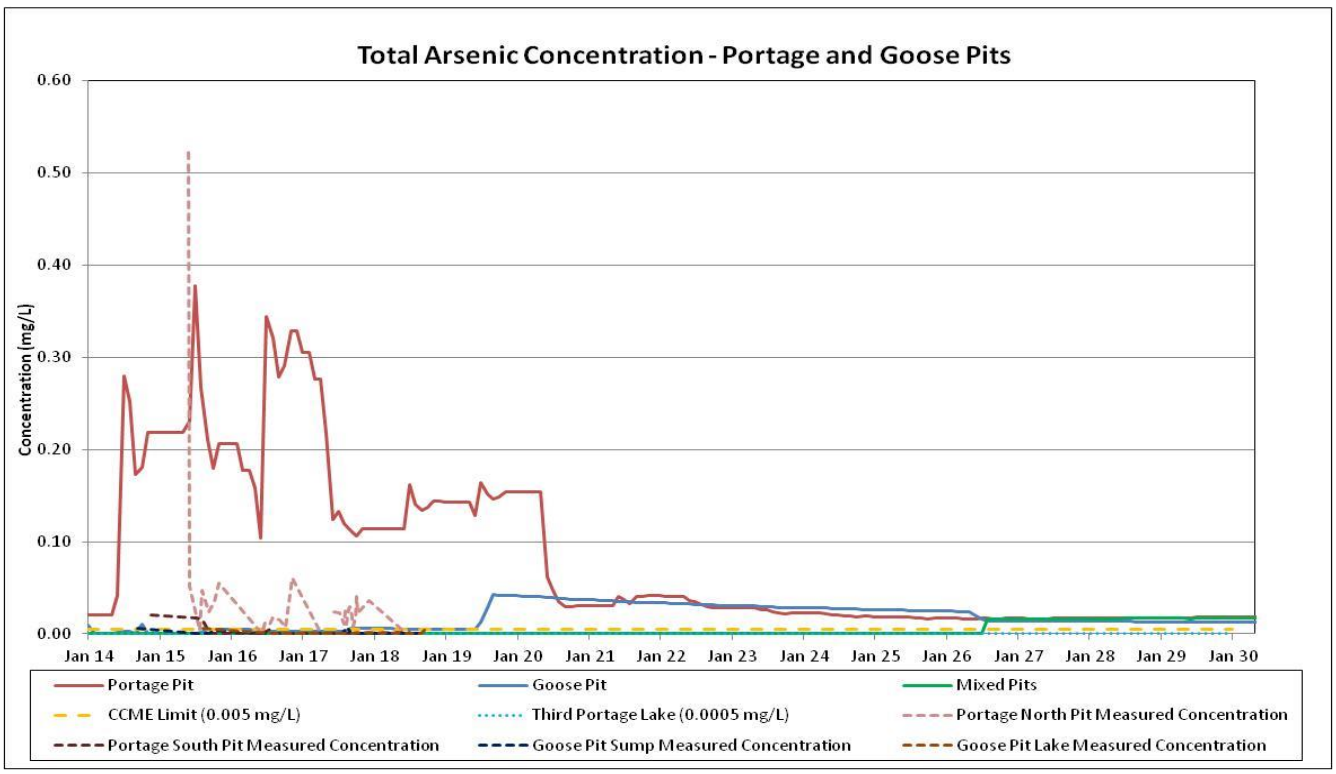
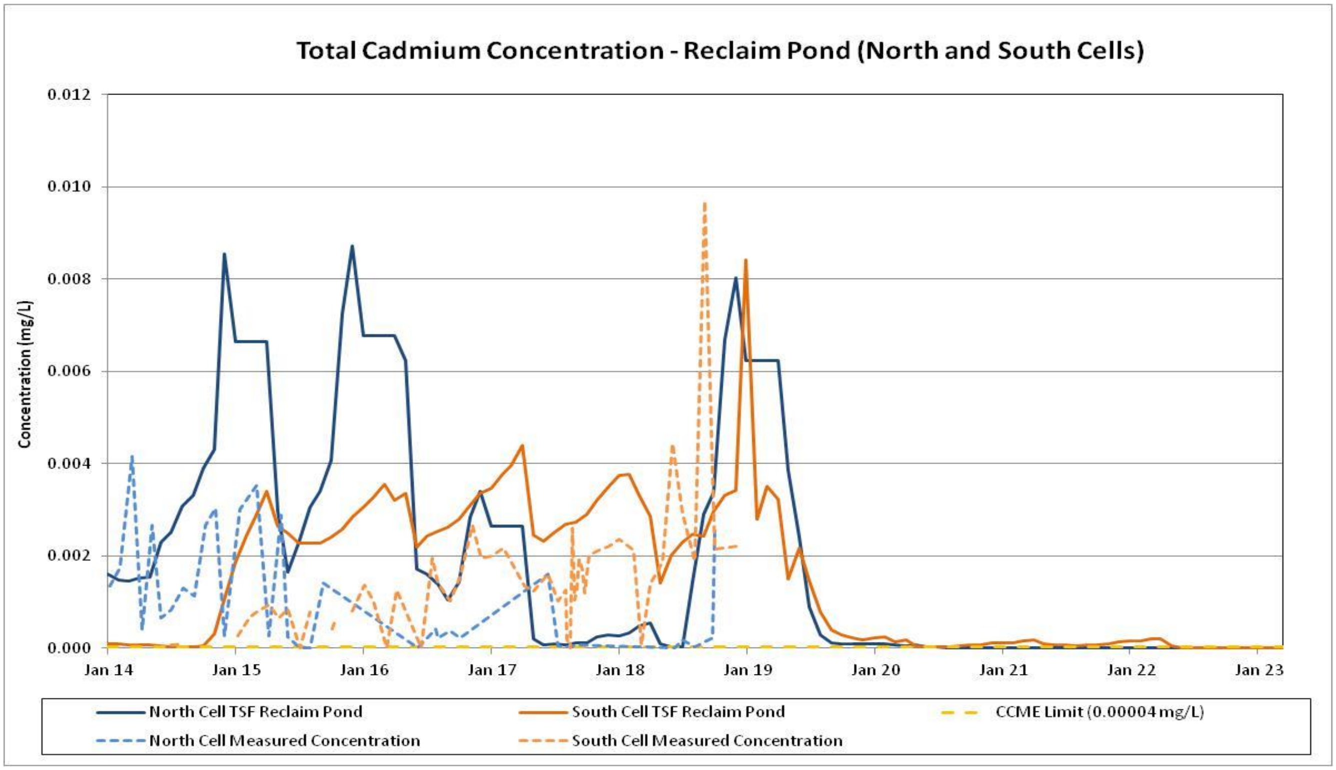


Figure 4-5: Total Cadmium Forecasted Concentration



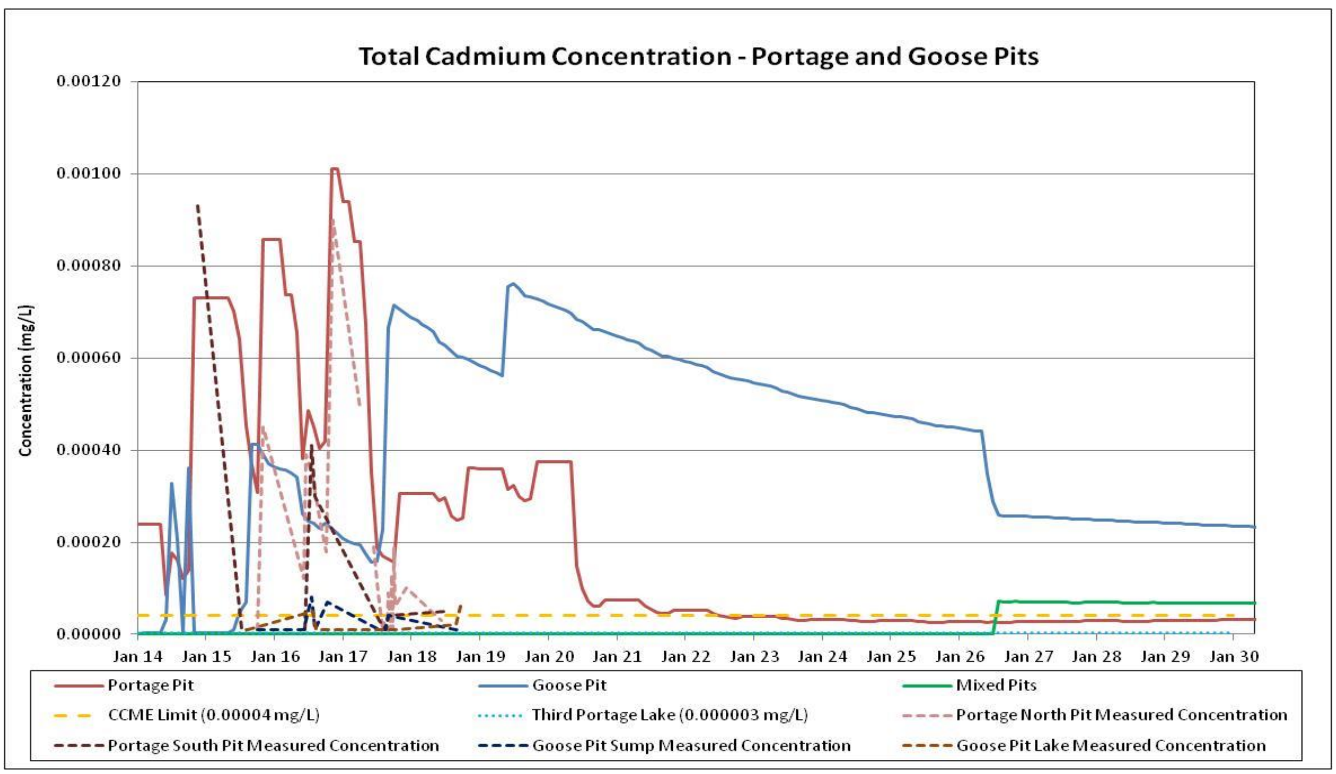
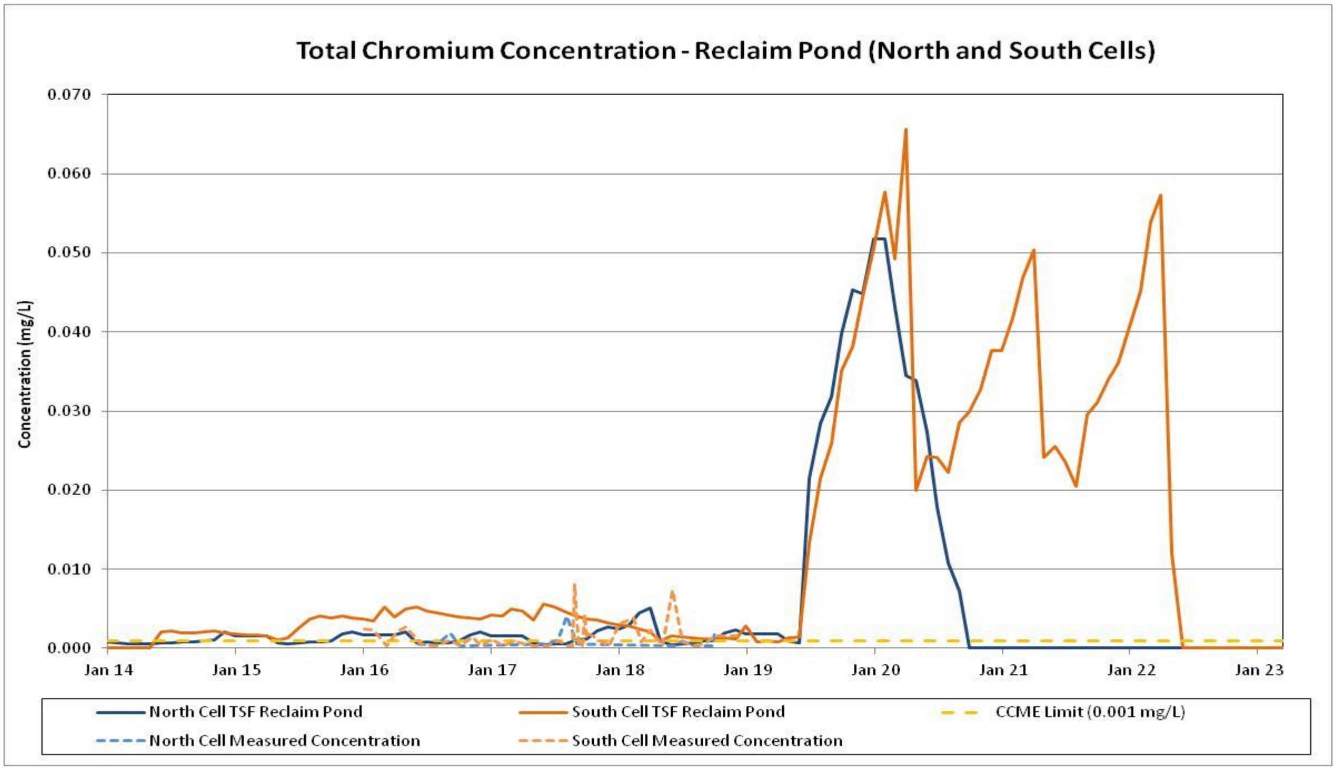


Figure 4-6: Total Chromium Forecasted Concentration



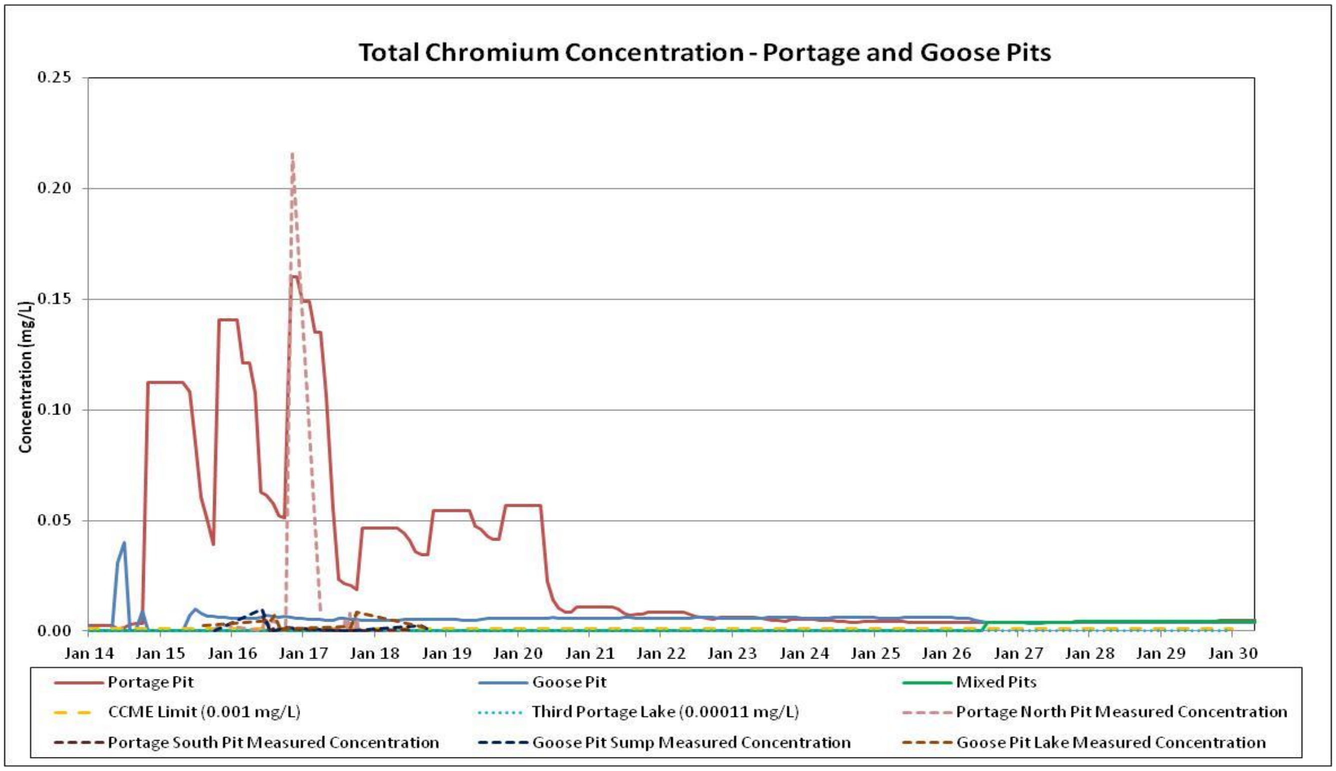
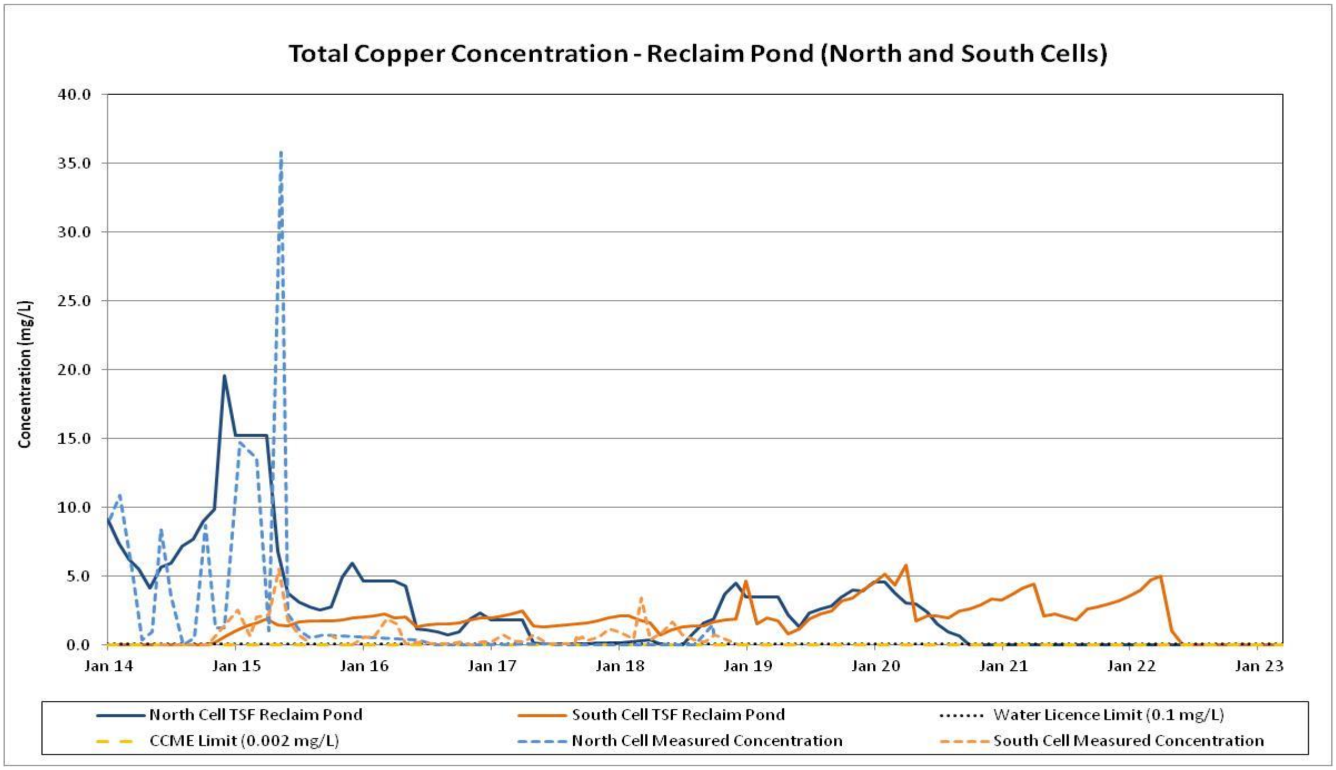


Figure 4-7: Total Copper Forecasted Concentration



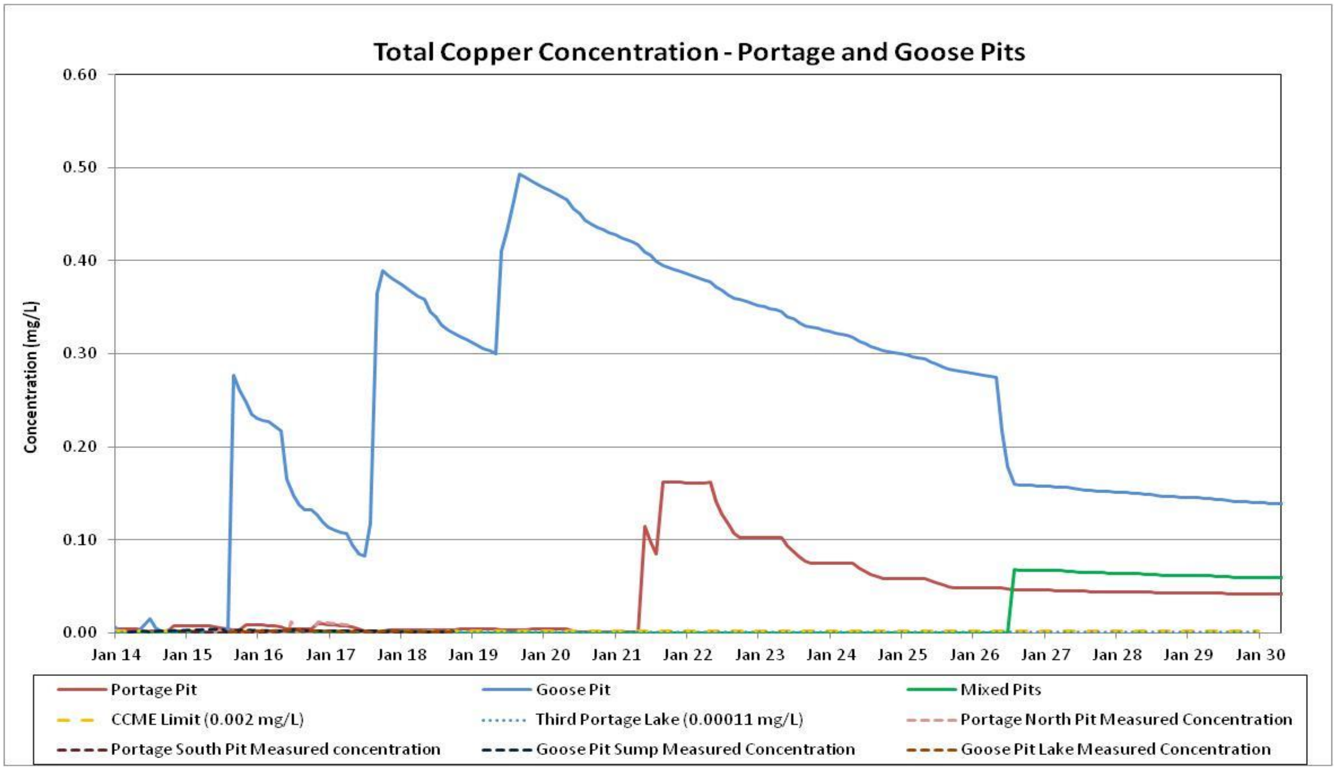
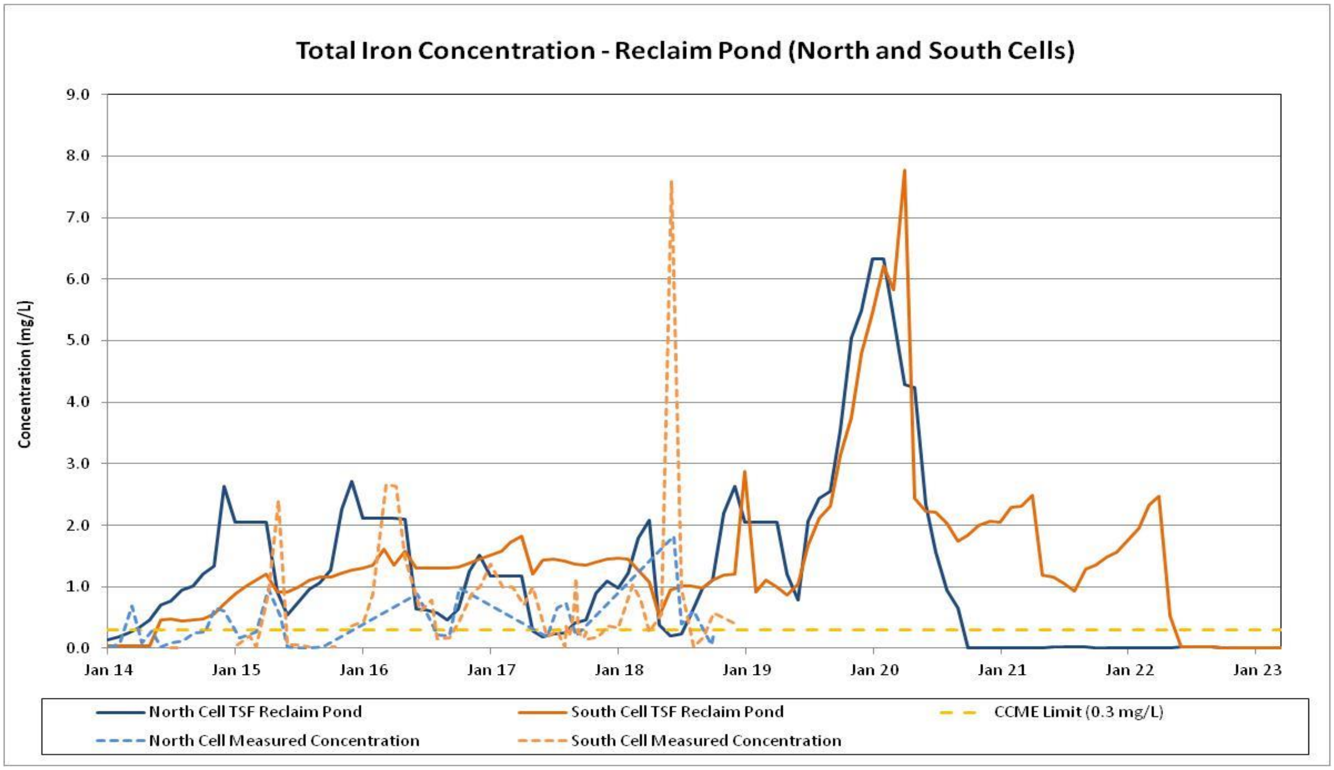


Figure 4-8: Total Iron Forecasted Concentration



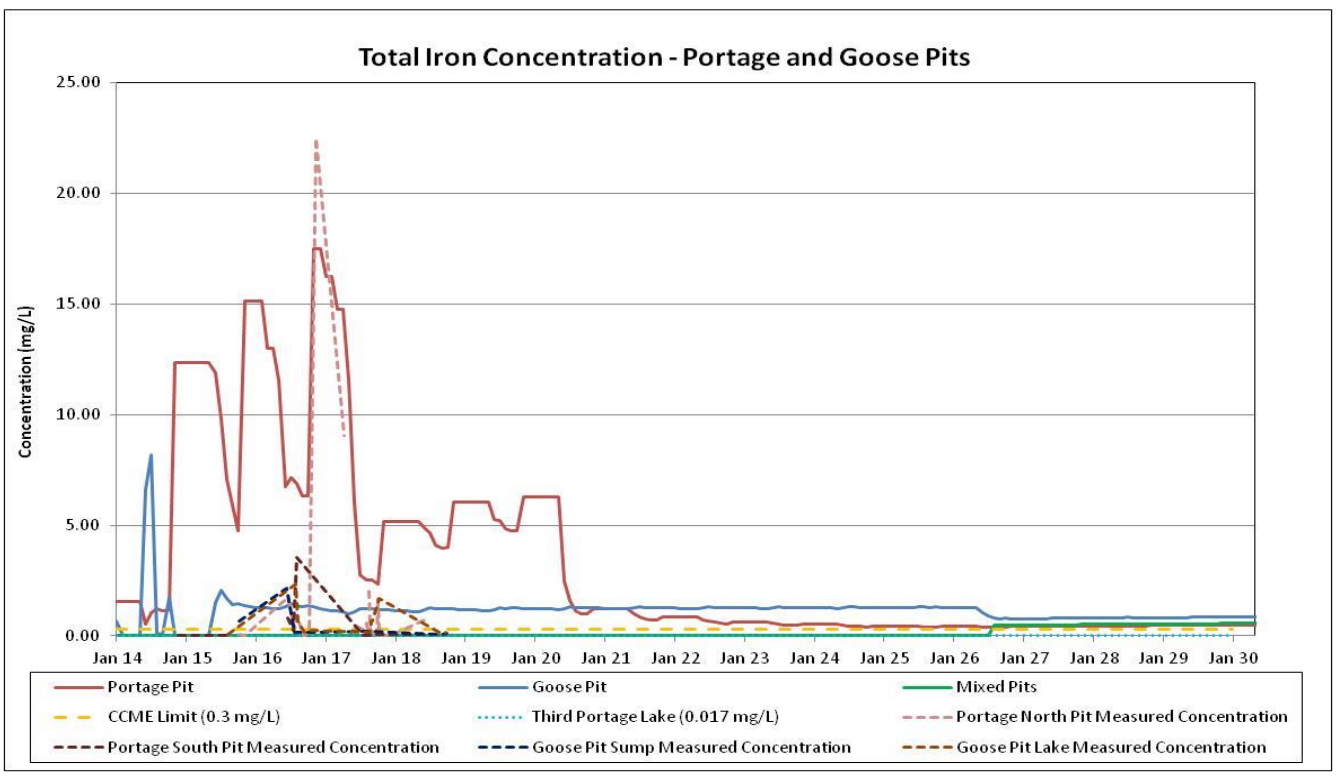
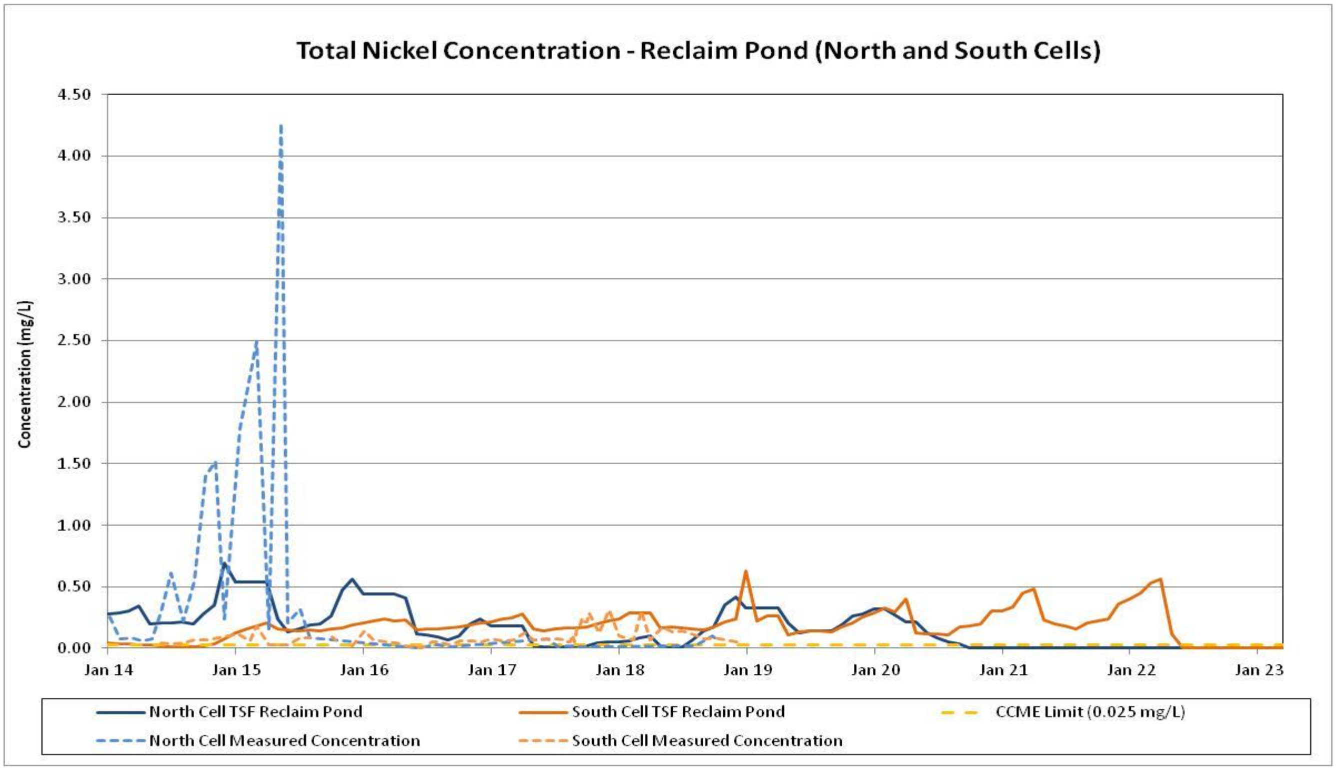


Figure 4-9: Total Nickel Forecasted Concentration



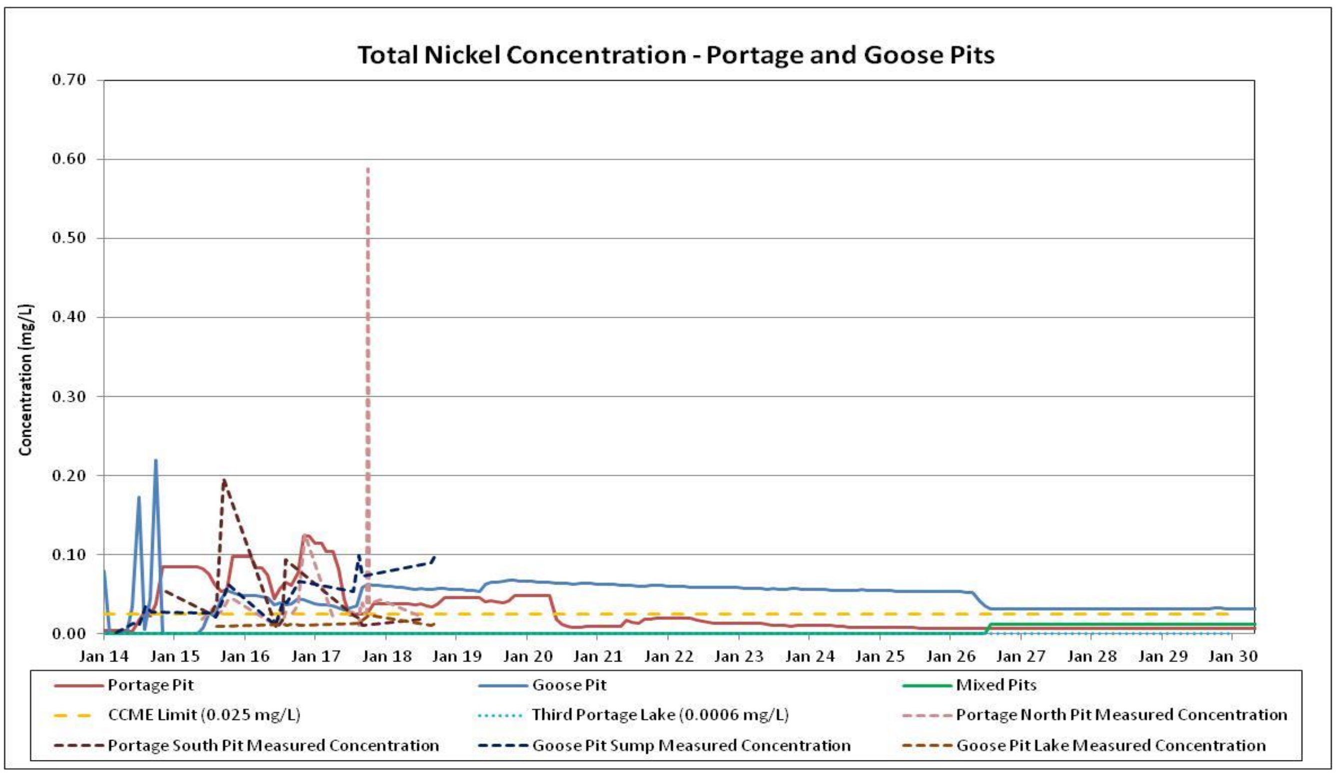
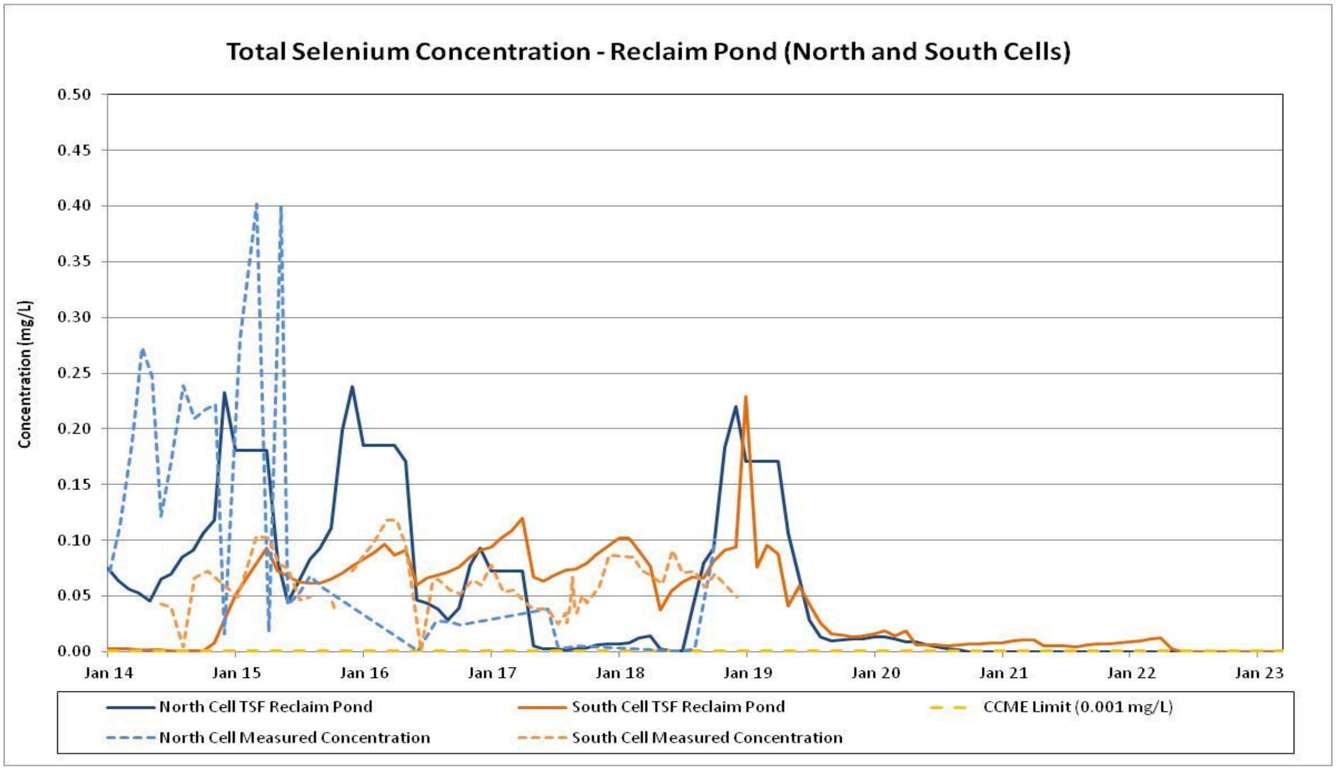


Figure 4-10: Total Selenium Forecasted Concentration



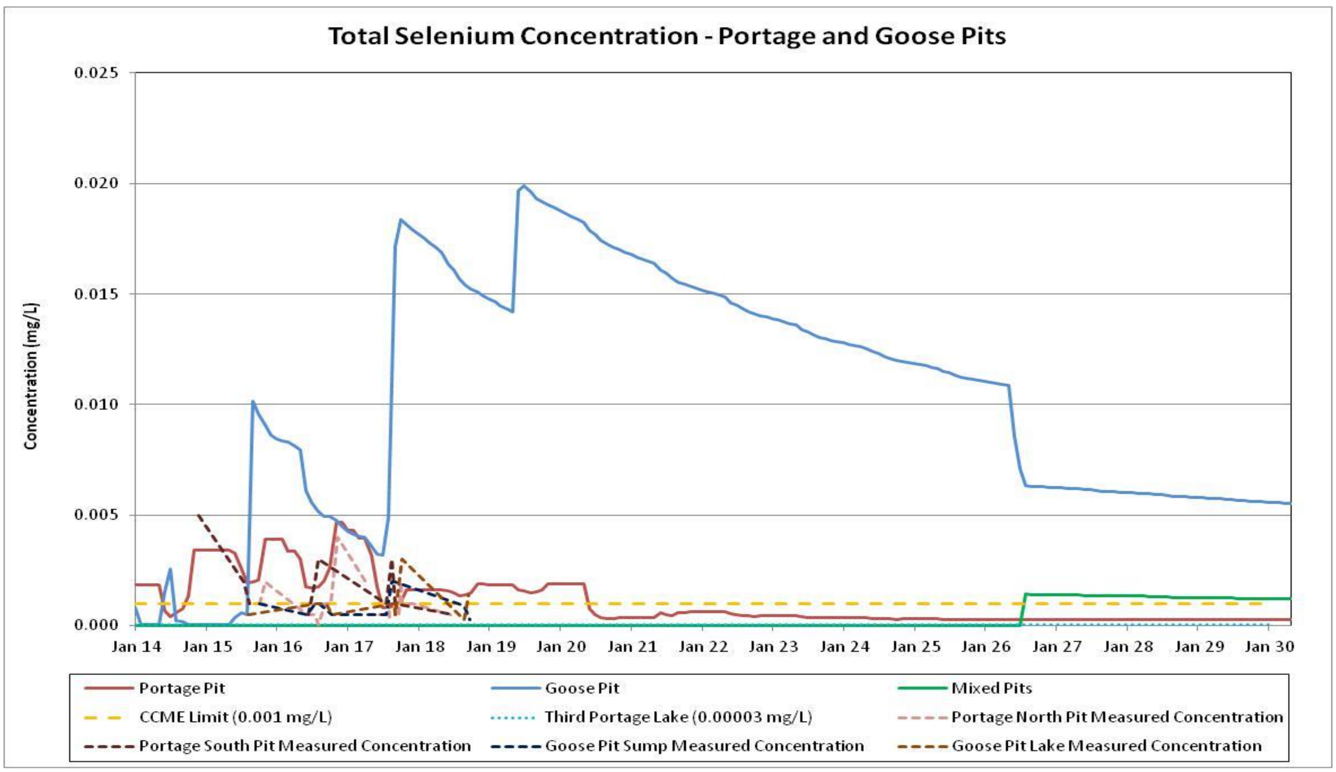
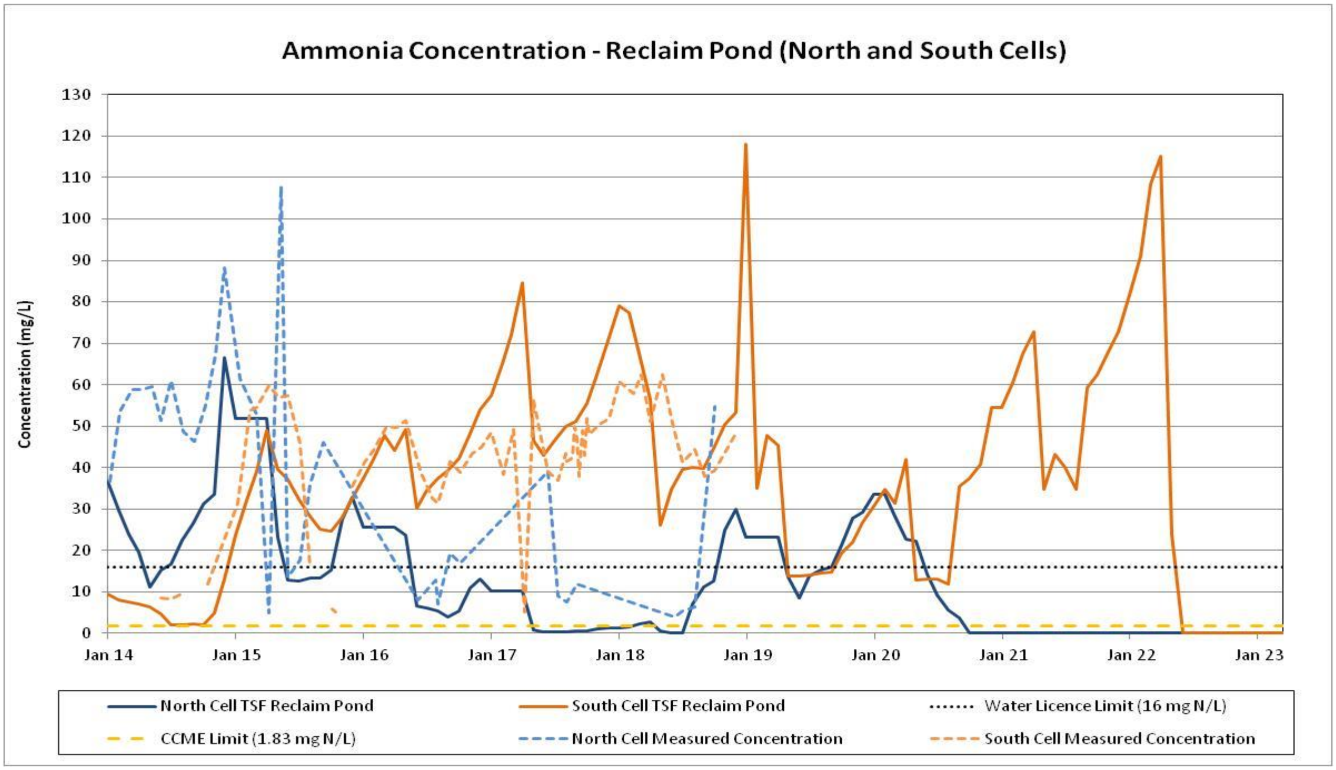


Figure 4-11: Total Ammonia Forecasted Concentration



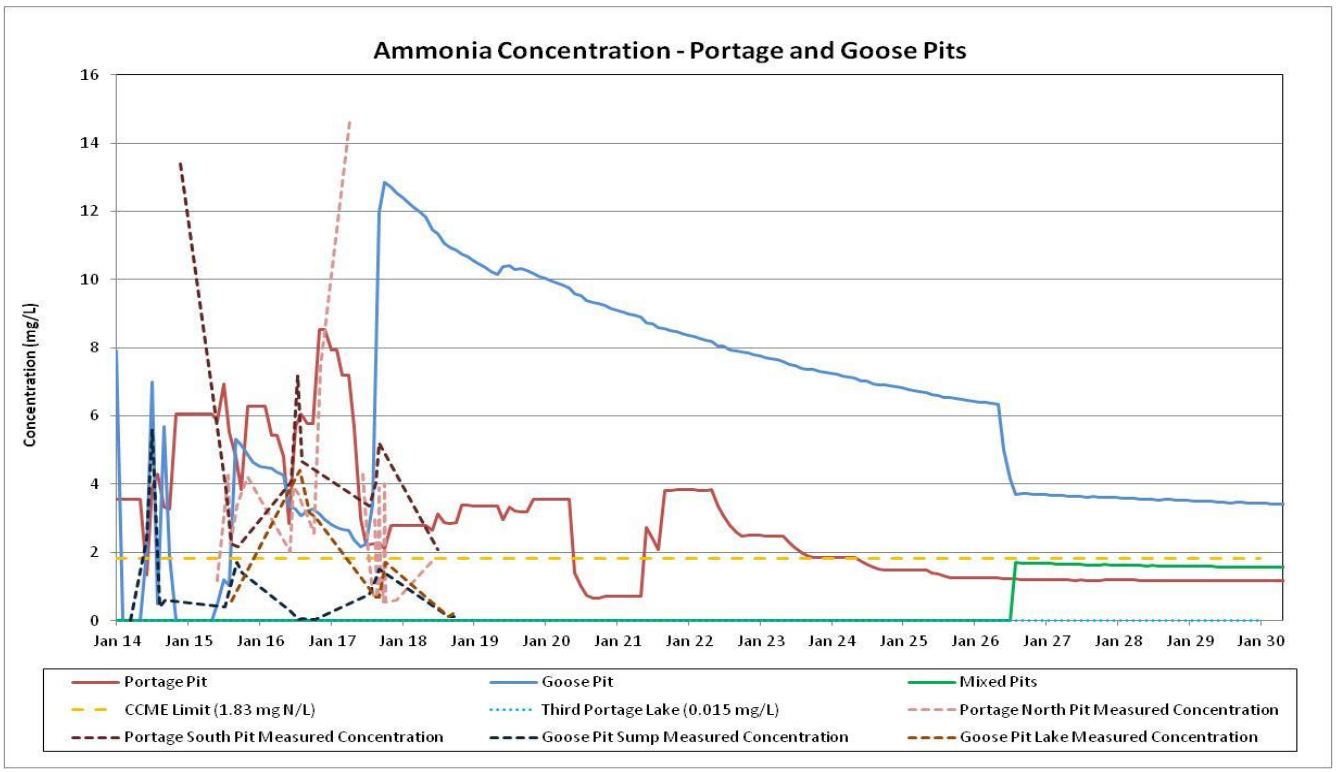
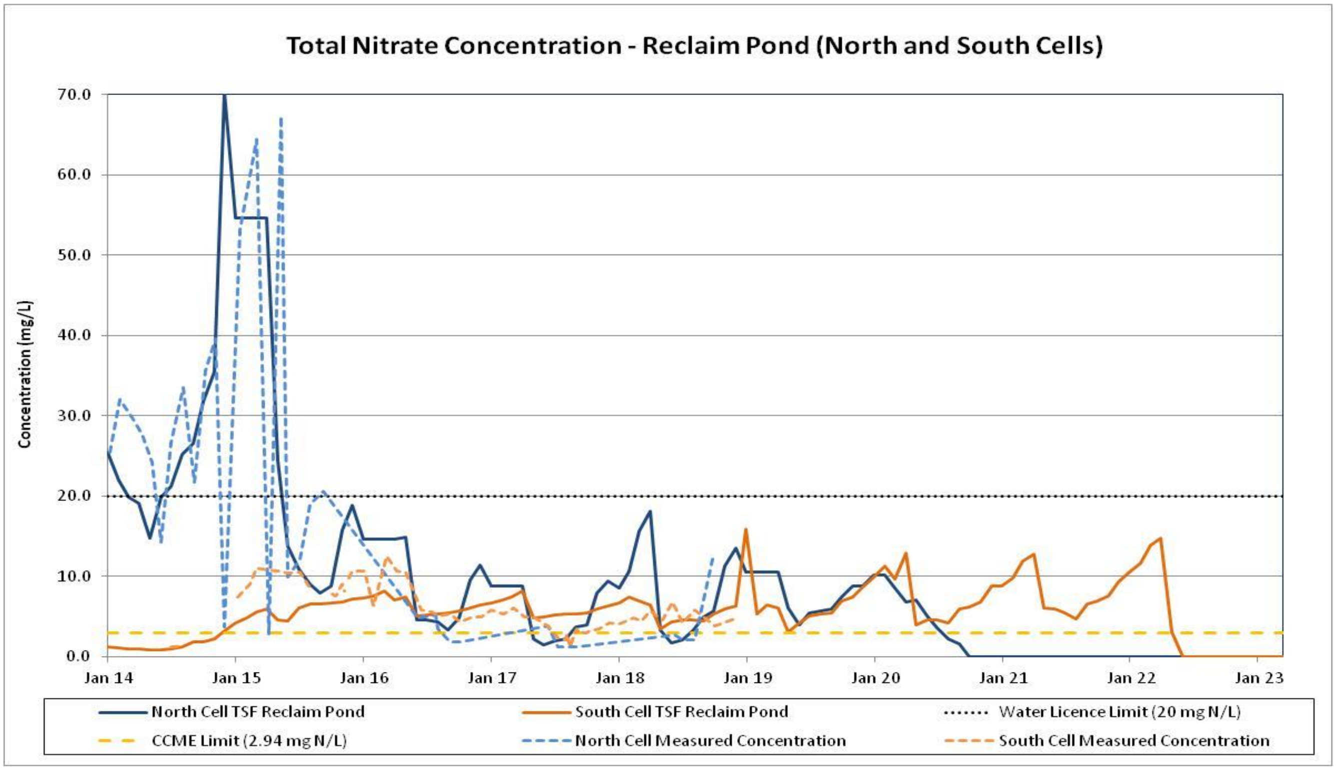


Figure 4-12: Nitrate Forecasted Concentration



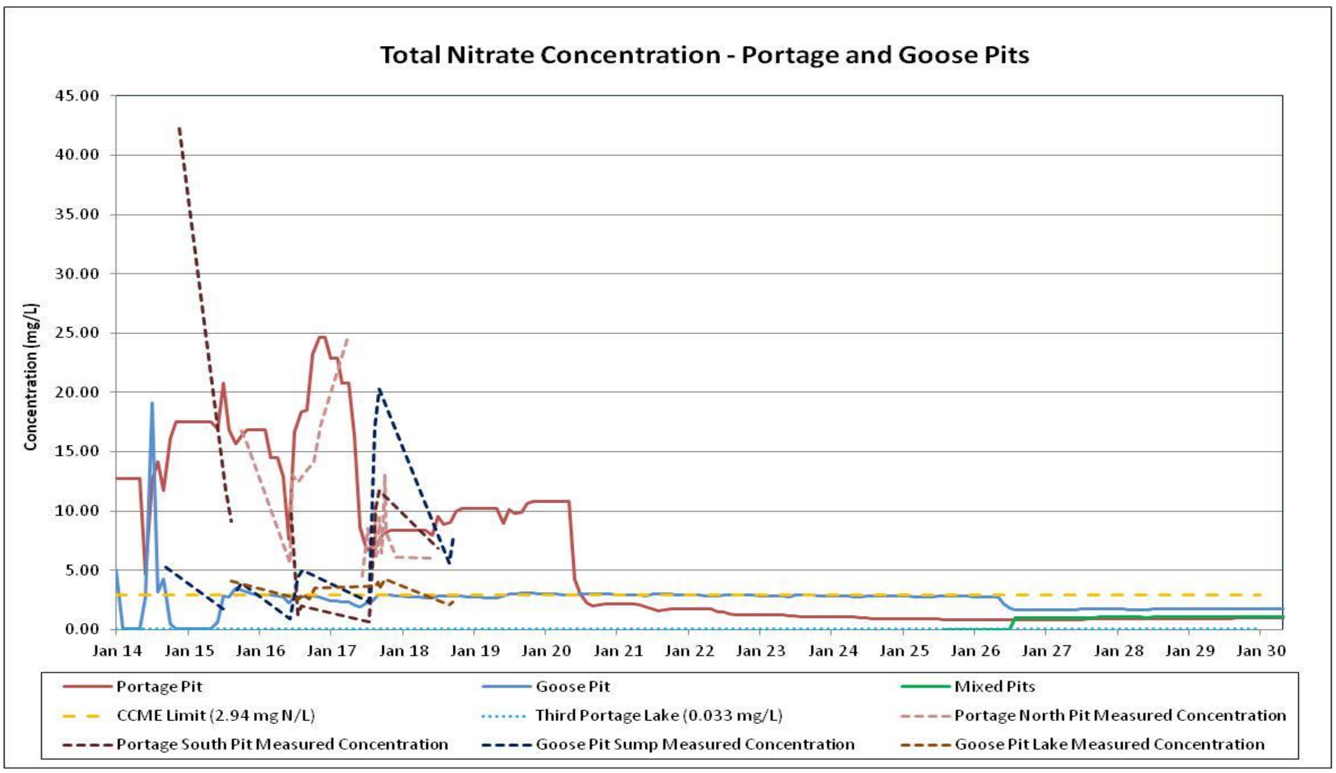
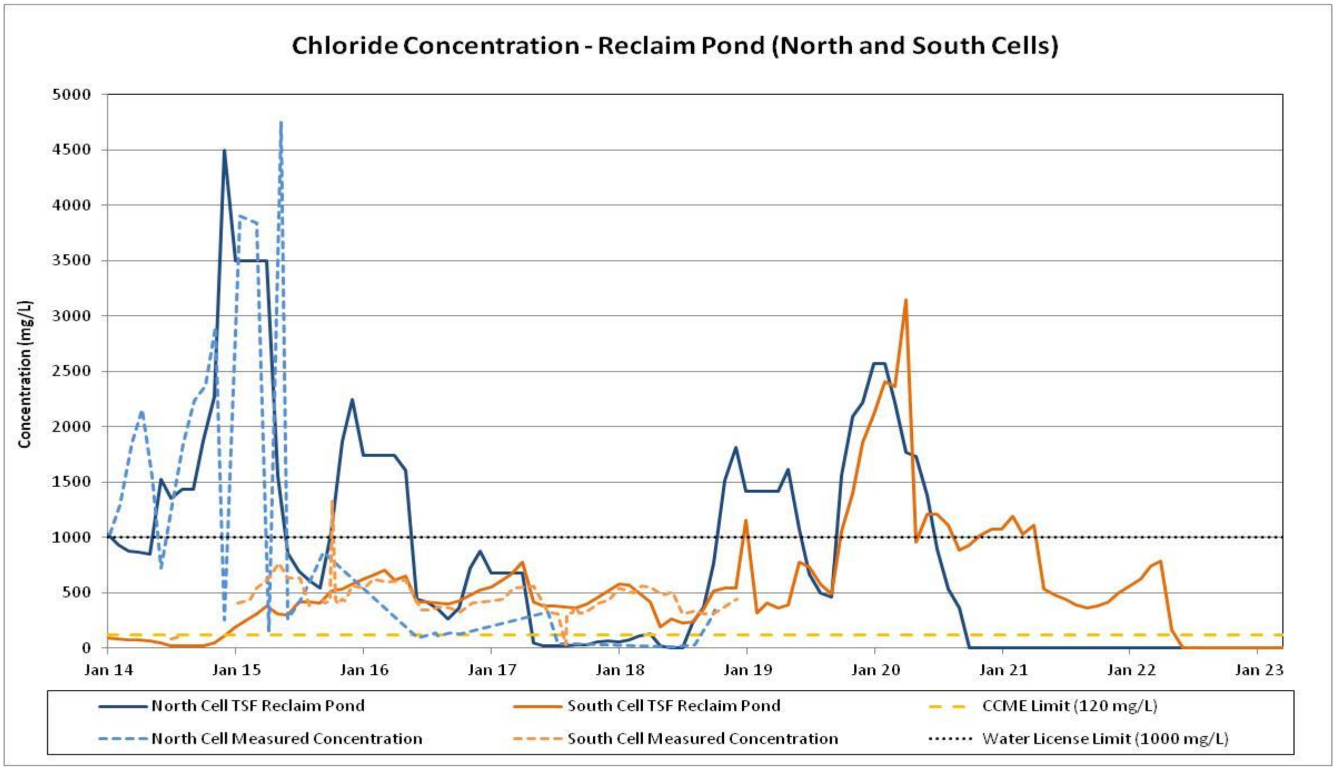


Figure 4-13: Chloride Forecasted Concentration



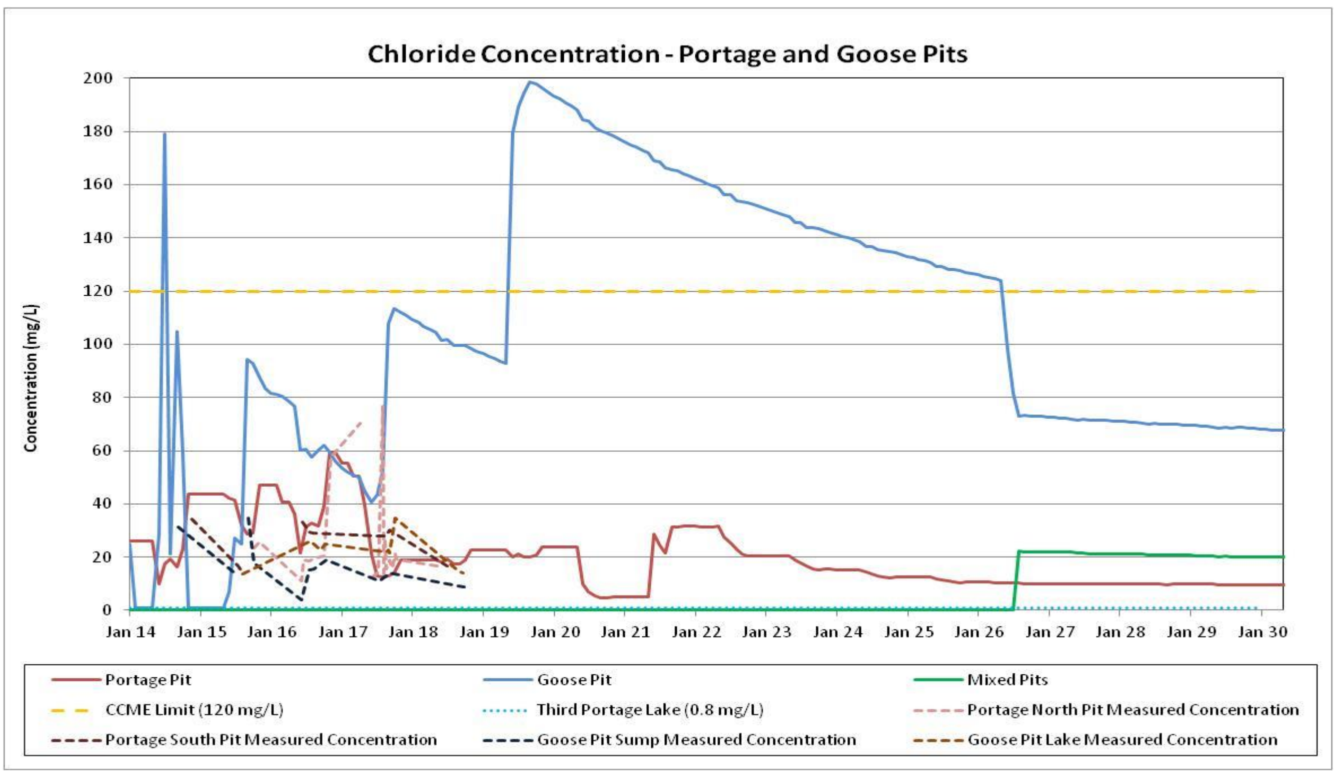
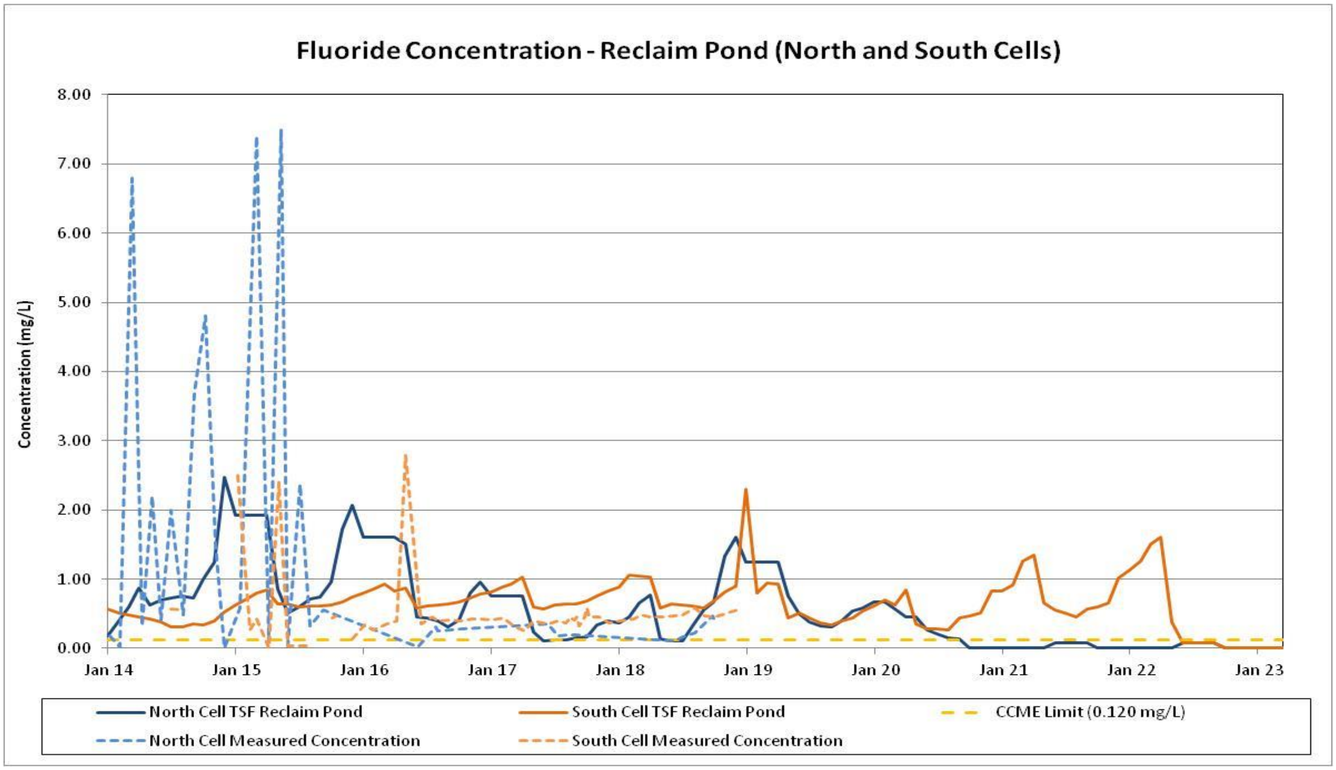


Figure 4-14: Fluoride Forecasted Concentration



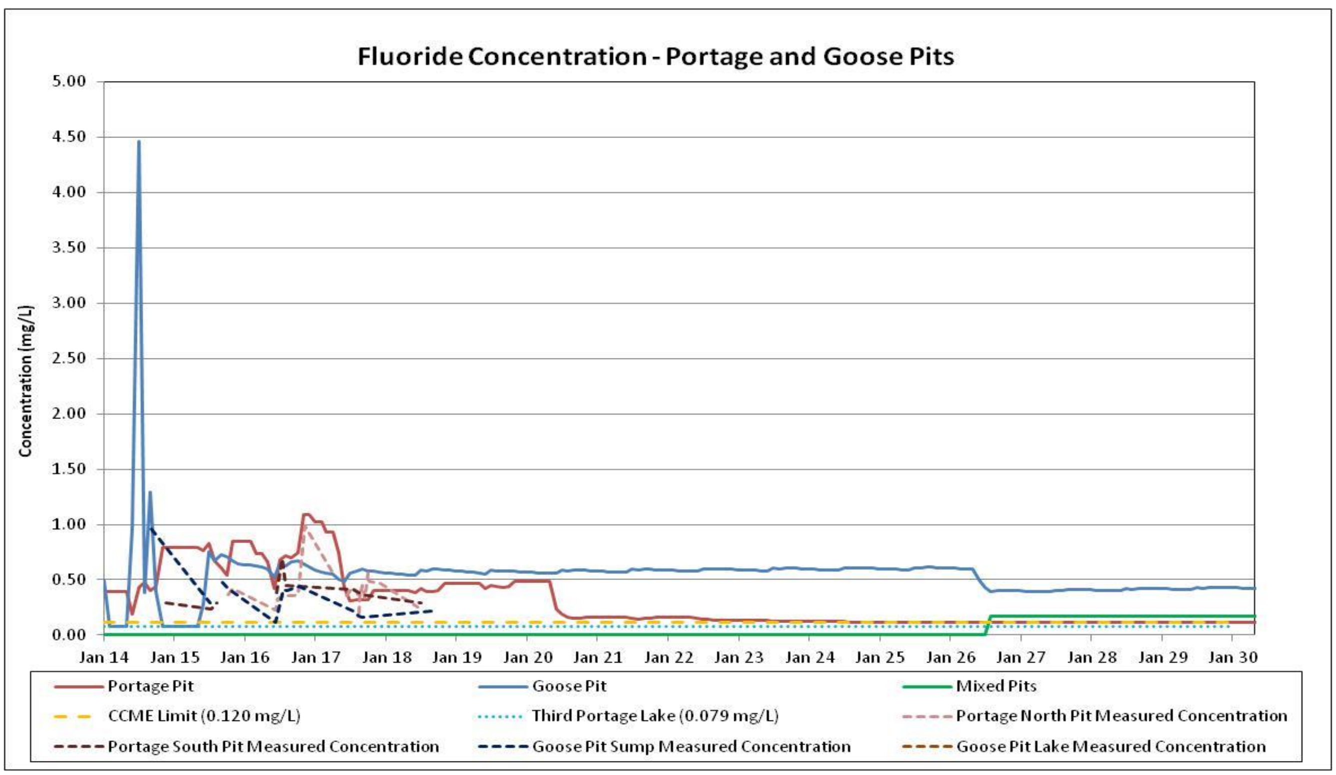
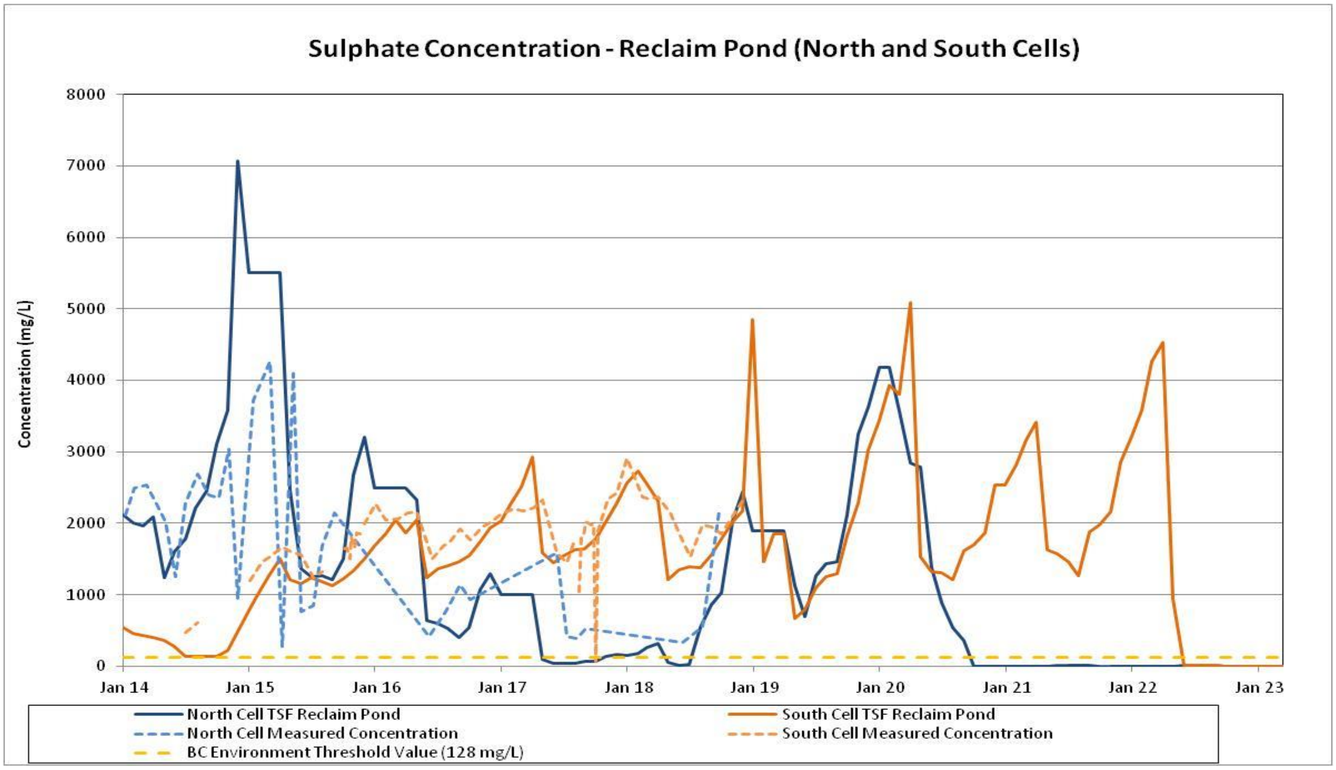


Figure 4-15: Sulphate Forecasted Concentration



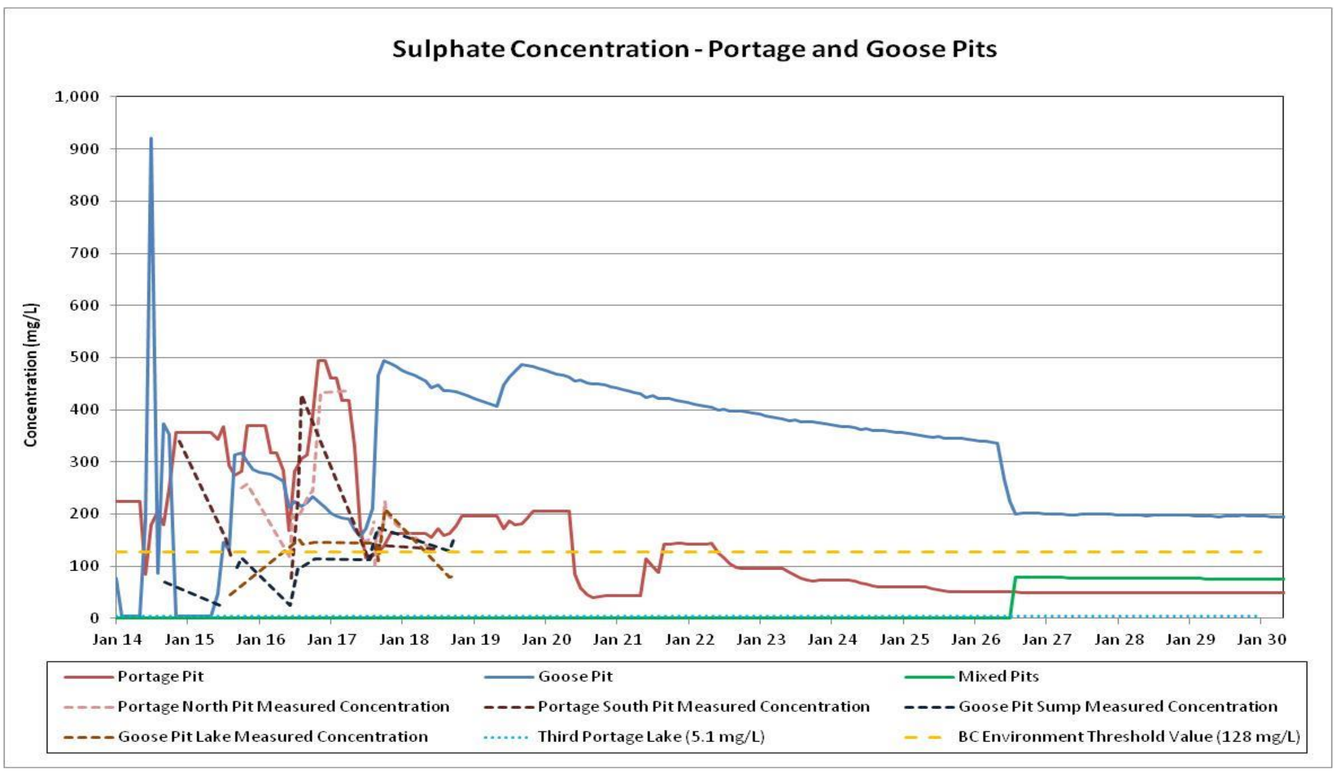
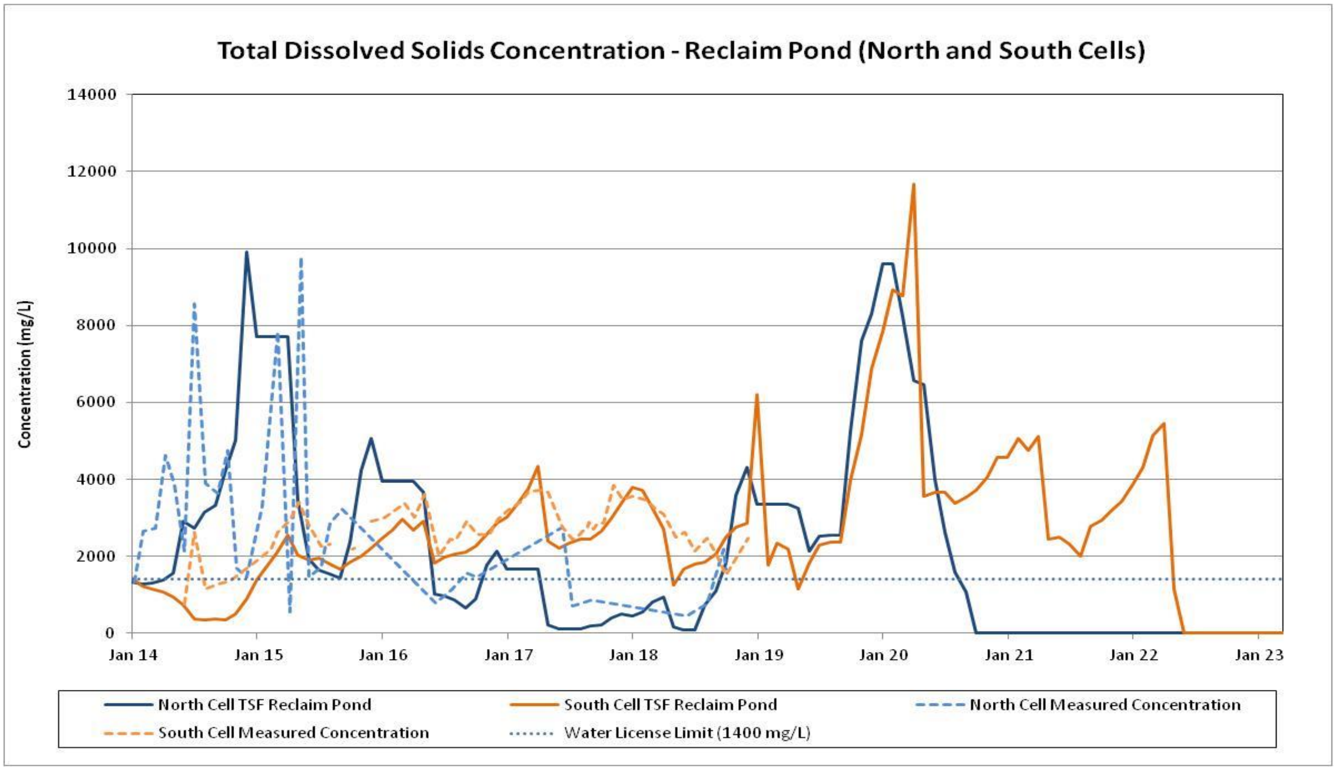


Figure 4-16: Total Dissolved Solids Forecasted Concentration



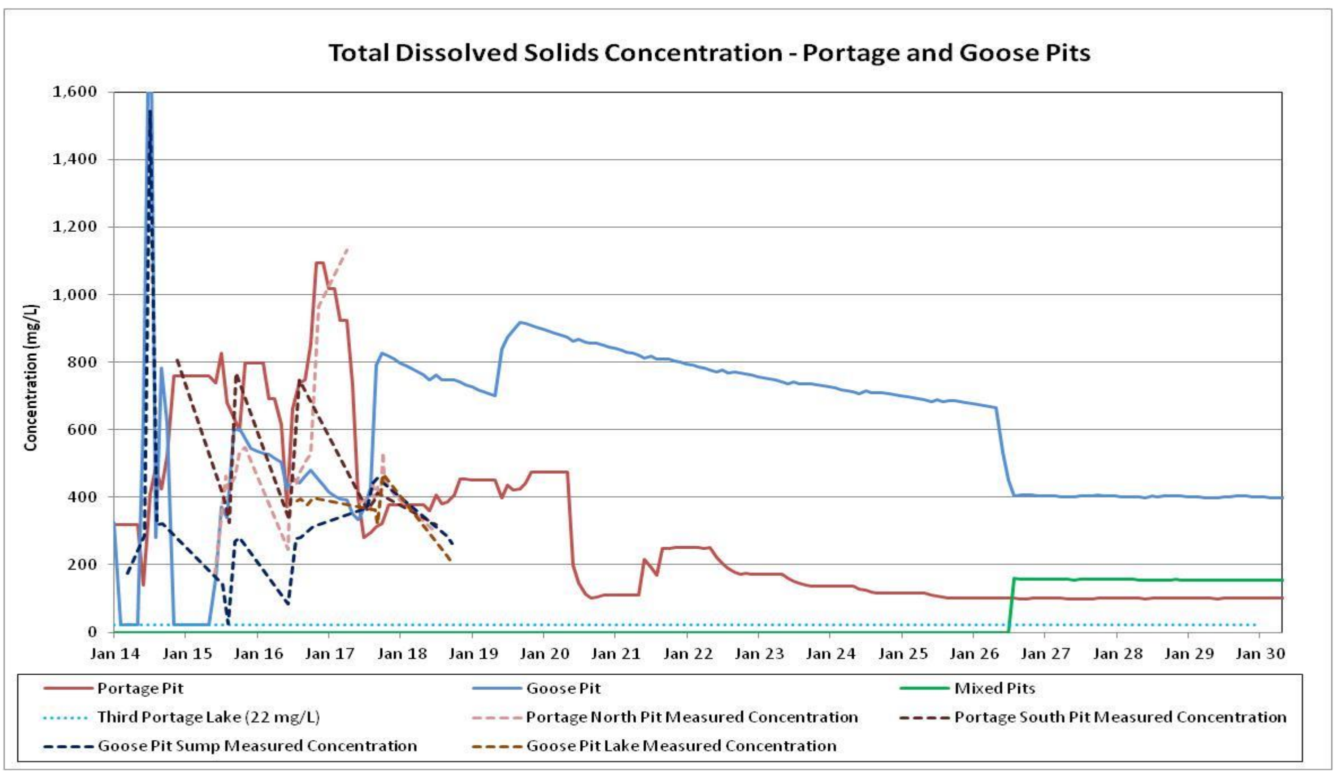


Figure 4-17: Comparison of Forecasted Dissolved Copper – North Cell TSF Reclaim Pond

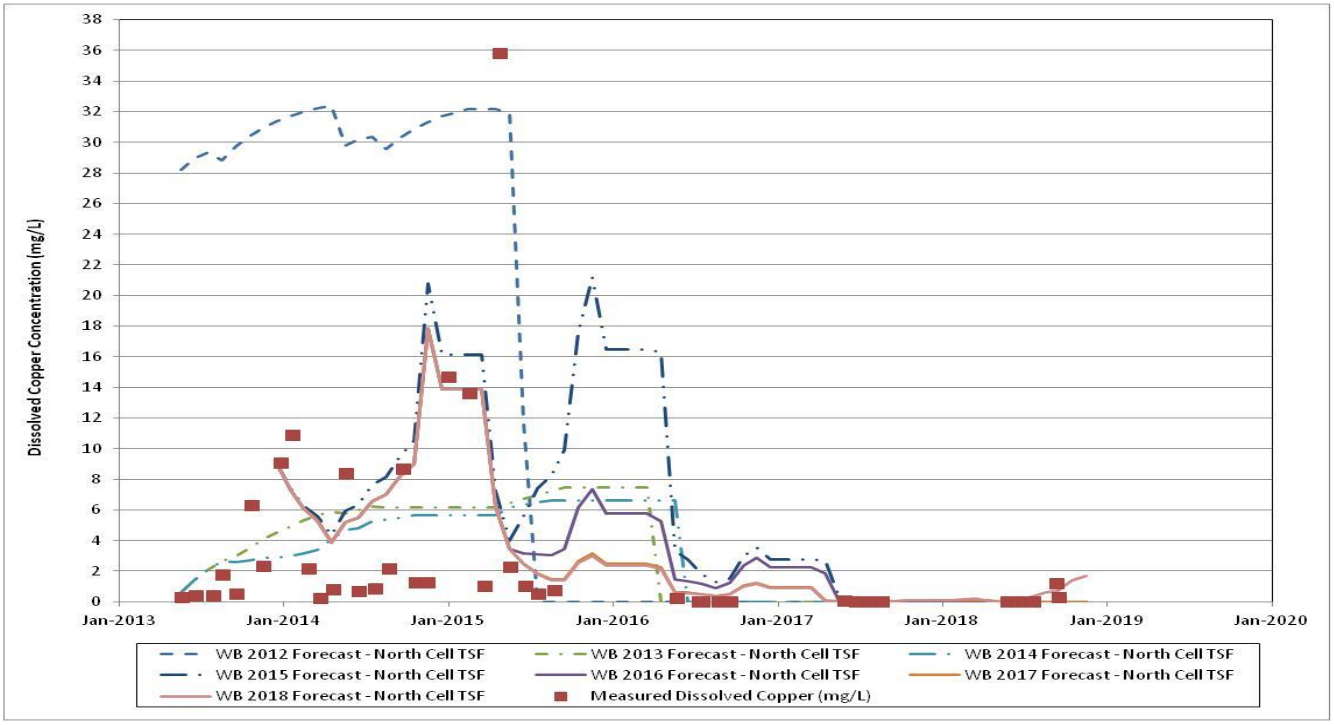


Figure 4-18: Comparison of Forecasted Dissolved Copper – South Cell TSF Reclaim Pond

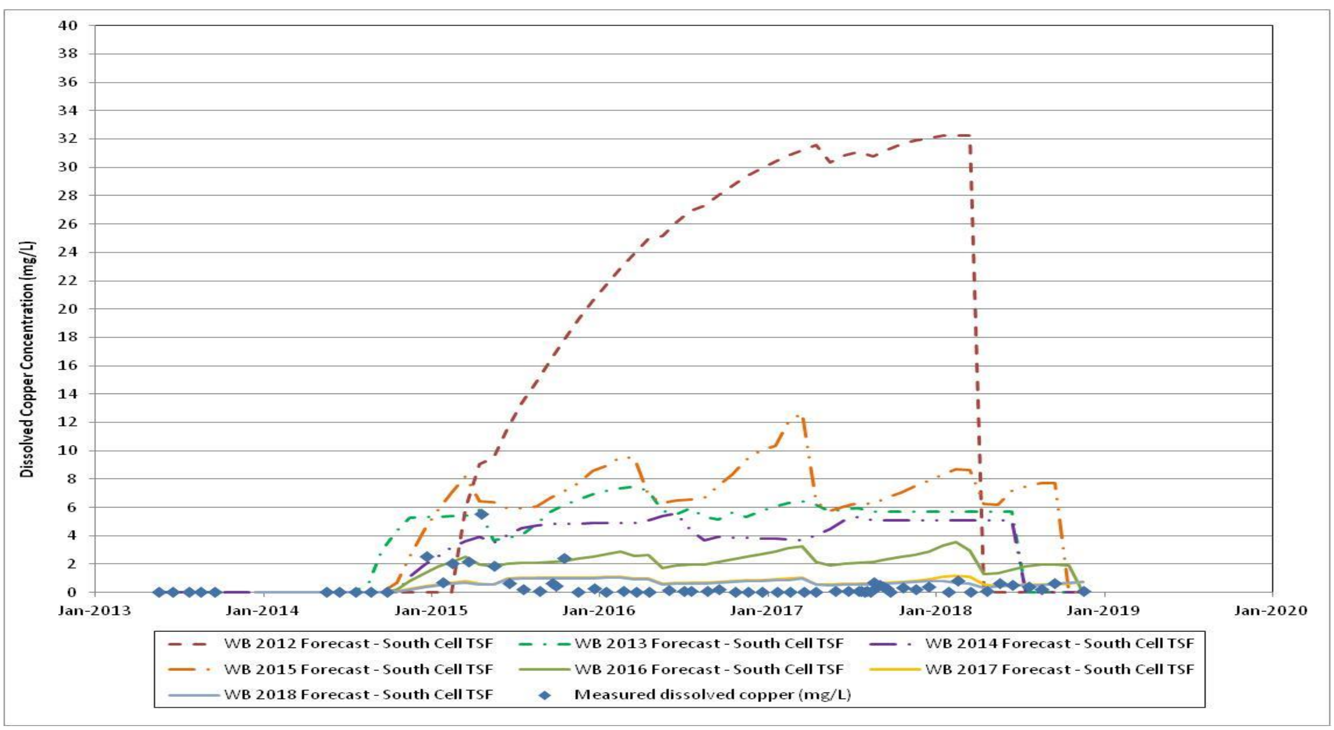


Figure 4-19: Comparison of Forecasted Chloride – North Cell TSF Reclaim Pond

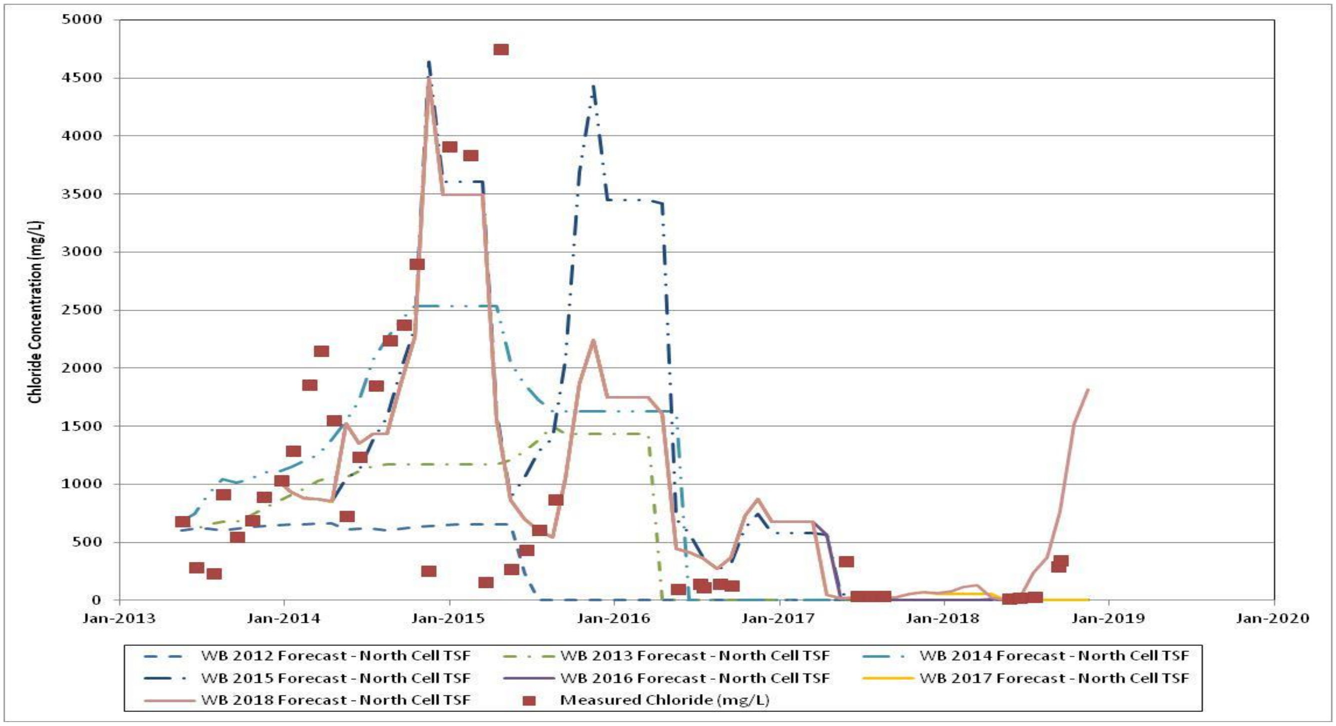
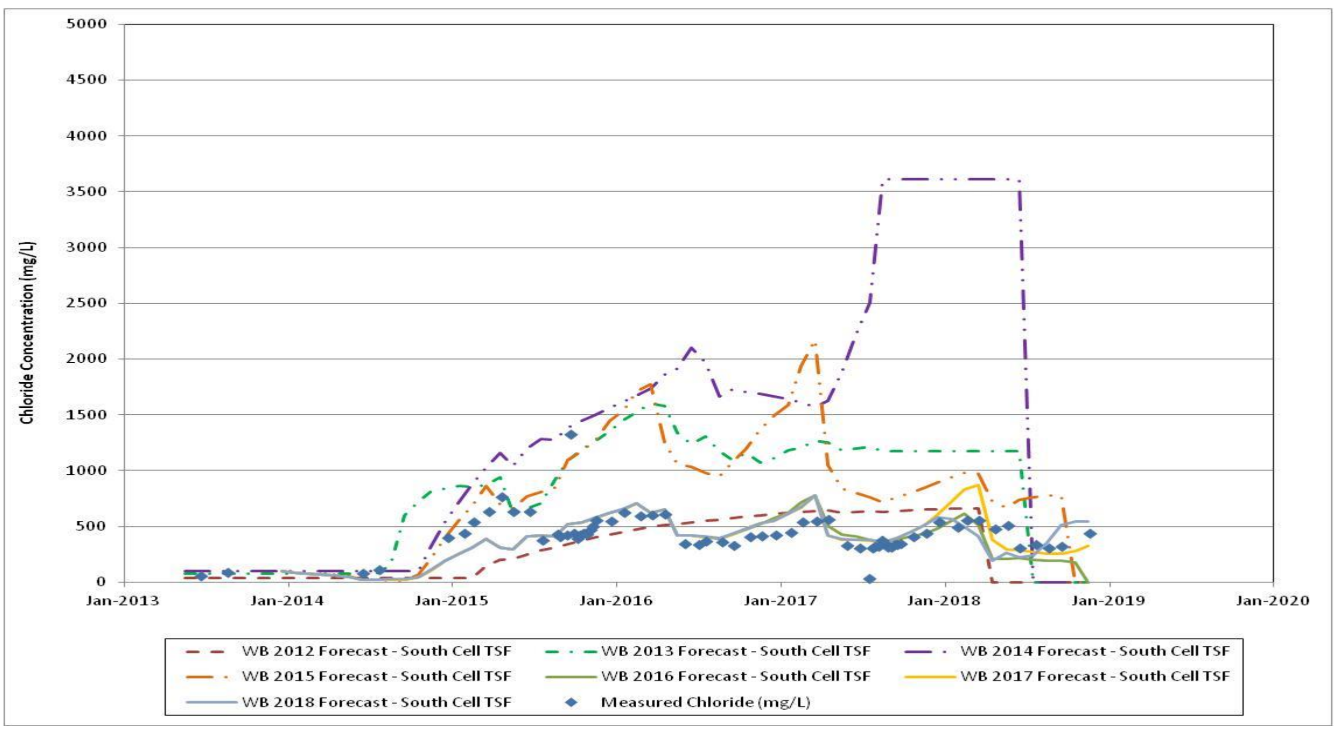


Figure 4-20: Comparison of Forecasted Chloride – South Cell TSF Reclaim Pond



4.3 Treatment Requirements

4.3.1 Possible Treatment Approach

Based on the results of the water quality forecast mass balance presented in section 4.2.4, treatment may be required for heavy metals, fluoride, arsenic, selenium and total nitrogen, as well as for suspended solids. Treatment of the Reclaim Water in the South Cell TSF will be done prior to its transfer to Portage Pits.

The water treatment plant will be designed to treat the specific parameters of concern and could consist of one or a combination of the following treatment approaches:

- If high metal concentrations persist, such as iron, copper, aluminum and chromium, they can be removed through pH adjustment: caustic or lime can be added to the effluent to increase the pH to 9, causing the formation of metal hydroxide precipitates, which settle out. The different treatment options that may be considered to implement the precipitation of heavy metals are listed below:
  - A water treatment plant (WTP) will need to be installed at Meadowbank and it will be designed for metal precipitation with the addition of lime or caustic dosing system. The water from the South Cell TSF pond can be pumped to the WTP for treatment, with the treated water recycled back to the pond. Alternatively, the pH of the mill effluent could be raised prior to discharge to the TSF.
  - Treatment in situ at South Cell TSF Reclaim Pond or at Portage pit.
  - pH adjustment of the treated water will be required prior to its release or reconnection to the surface water by dike breaching.
  - TSS removal will be an important part of the treatment system. As the forecasted data showed, a fraction of the metal present in the water column is as a particulate.
  - If required, additional pre-treatment steps can be added, depending on the actual water quality to be treated, such as and oxidation step to help oxidize any metal complexes, or post-treatment such as media filter and ion exchange for final polishing.
- If fluoride and/or arsenic concentrations could present an issue, one of the most efficient techniques to reduce their concentration is by coagulation-clarification/filtration process. Possible treatment options includes the following:
  - The existing Water Treatment Plant (WTP) can be used to coagulate and clarify the Reclaim Water. The water from the South Cell TSF pond can be pumped to the WTP for treatment, with the treated water recycled back to the pond.
  - For fluoride, aluminum sulphate can be used to adsorb the ion and co-precipitate onto the aluminum hydroxide floc.
  - For arsenic, it can be co-precipitated using an iron based coagulant, such as ferric sulphate, to form a ferric-arsenate precipitate.
  - A small portable treatment unit could also be installed on the outskirts of Portage Pit.
- Selenium is present in the Reclaim Water mostly as a selenate (Se(VI)) species. If selenium remains an issue, one possible treatment option is to adsorb the selenium on a specialized media. Other treatment that could be considered is biotreatment or chemical reduction followed by coagulation using an iron based coagulant. If the selenium was in the form of selenite (Se(IV)), it could also be removed by coagulation-clarification via co-precipitation.
- Further polishing of the treated water could be realized if required to reduce the total dissolved salts, such as chloride and sulfate, by ion exchange or nanofiltration.

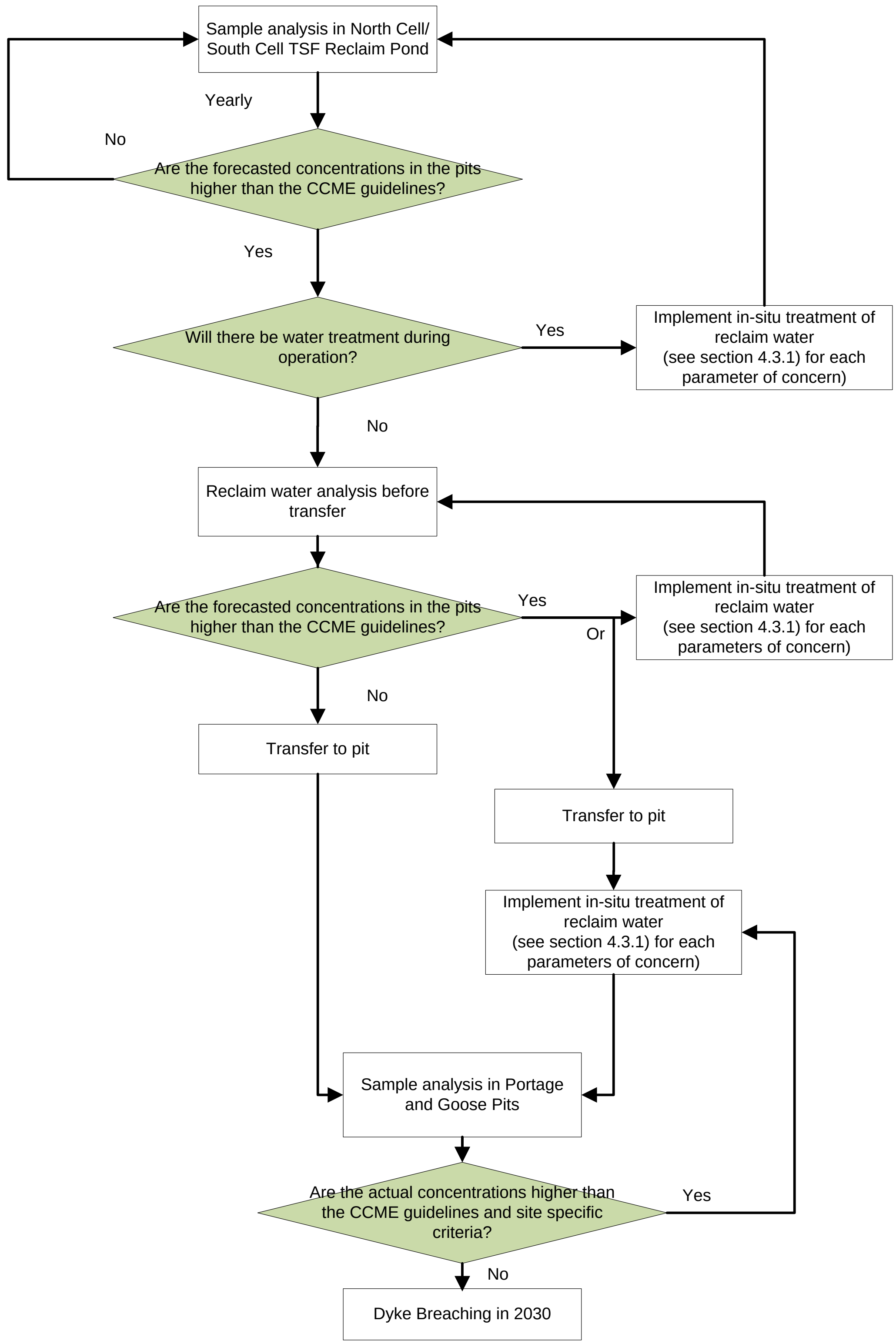
- If high total nitrogen concentrations persist, even after simulating or testing during one summer the effects of natural degradation in the pits at Meadowbank, more active treatment solutions could be implemented, such as:
    - Mechanical aerations could be installed in either the South Cell TSF Reclaim Pond, or in Portage pit.
    - The Reclaim Water in the South Cell TSF can be treated “in-situ” by either stripping or biological treatment process.
    - Alternative treatment technology like snow making could be considered.
    - pH adjustment of the treated water, near neutral pH, in order to ensure that most of the ammonia present is as ammonium (NH_4+) instead of un-ionized ammonia (NH_3).
- Further polishing of the treated water could be realized if required to reduce the total dissolved salts, such as chloride and sulfate, by ion exchange or nanofiltration.
- Sludge generated from the treatment process could be thickened and/or dewatered and stored in the North Cell or South Cell tailings storage facilities and capped with NPAG rockfill at closure.

These technologies should be studied and evaluated in detail to determine if they are applicable to site and effluent conditions at Meadowbank. Laboratory and/or in-situ pilot tests should also be considered to validate the treatment method to be selected if required.

4.3.2 Water Treatment Decision Flow Process

Figure 4-21 presents a high-level decision tree flow process that could be used by Agnico to help in their decision on when to consider implementing a water treatment technology and the type of water treatment technology to implement based on the parameters of concern.

Figure 4-21: Water Treatment Decision Flow Process



5.0 Vault Water Quality Forecasting

The Vault area is located around 10 km North East of the facilities of the Portage Area of Meadowbank, including among others a mining pit, an attenuation pond, a rock storage facility and a water treatment plant.

Water is transferred from Vault Pit to the Vault Attenuation Pond. Until 2018, when required, water from the Attenuation Pond could undergo treatment for total suspended solids. Since the water quality in the Vault Attenuation Pond was meeting the Water License discharge criteria, it was discharged each summer directly to Wally Lake. The water treatment plant, which was designed for total suspended solids removal, was transferred in 2018 to the Amaruq site. In 2018, no water was discharged to Wally Lake.

Based on the WB 2018, flooding of the Vault Pit is expected to occur from 2020 to 2026, and Vault Dike will be breached in 2029 if water quality criteria are met.

A review of the chemical analysis for water samples collected in the Vault area was undertaken by SLI in order to identify contaminants that were currently either above the discharge criteria or present in significant concentration. The discharge criteria applied to mining effluents discharged to the environment in this case is the Water License (Nunavut Water Board License, 2015). The CCME guidelines were also used as a guide to identify potential parameters that may become a problem, should they be discharged to the environment without appropriate treatment and dispersion in the receiving environment.

5.1 Review of Vault Water Quality Data

5.1.1 Review of Water Quality Discharged to Environment

A compilation of actual measured water quality data from the Vault Area sampled in 2018 was performed. The average and maximum for each parameter monitored for the Meadowbank Water Quality Forecast Model is presented in Table 5-1. Total metals were used in this analysis. For measured values that were below the detection limit, a value equal to half of the detection limit was considered in the analysis.

The yellow cells represent the concentrations that are higher than CCME guidelines for Protection of Aquatic Life, which are used for comparison purpose only. The water discharge to Wally Lake is governed by the Water License requirements only, including MMER. Any parameters measured at the discharge to Wally Lake (ST-10) that have concentrations that are above the Water License discharge criteria would be highlighted in red, which is not the case based on the samples taken in 2018.

In 2018, no water was discharged to Wally Lake. All of the water was contained within the Vault Attenuation Pond and surrounding pits. Furthermore, the concentrations of metals, chlorides and sulfates in the water sampled in the Vault Pit and the Vault Attenuation Pond are relatively low compared to the Water License requirements. Finally, all samples measured in the exposure area of Wally Lake have concentrations below the CCME guidelines.

Only ammonia and nitrate concentrations, specifically in the Vault Pit, are relatively elevated when compared to CCME guidelines and are discussed further in section 5.2.4.

5.1.2 Ammonia Loading to Environment

In 2018, no water was discharge to Wally Lake. Thus, for 2018, there is no ammonia loading discharged to the environment.

Table 5-1: Average and Maximum Concentrations Measured in the Vault Area for 2018

Parameters	Units	Vault Pit (ST-23)		Phaser Pit (ST-41/42)		Vault Attenuation Pond (ST-25)		Discharge to Wally Lake (ST-10)		Exposure Area in Wally Lake (ST-MMER-2-EEM-WLE)		CCME Guidelines	Water License Vault, Max. Avg Conc.
		Avg 2018	Max. 2018	Avg 2018	Max. 2018	Avg 2018	Max. 2018	No Discharge in 2018		Avg 2018	Max. 2018		Part F of License
Alkalinity	mg $CaCO_3$/L	107	156	97	174	36	46			11	15	n/a	n/a
Hardness	mg $CaCO_3$/L	287	525	250	384	102	118			8	12	n/a	n/a
Total Aluminum (Al)	mg/L	0.2	0.4	0.1	0.2	0.3	0.7			0.009	0.032	0.1	1.5
Dissolved Aluminum (Al)	mg/L	0.013	0.031	0.031	0.090							0.1	1
Total Silver (Ag)	mg/L			0.00005	0.00005	0.00005	0.00005					0.00025	n/a
Total Arsenic (As)	mg/L	0.003	0.006	0.002	0.004	0.000	0.001			0.0004	0.0010	0.005	0.1
Total Barium (Ba)	mg/L	0.029	0.051	0.091	0.145	0.024	0.032					n/a	n/a
Total Cadmium (Cd)	mg/L	0.00009	0.00028	0.00006	0.00018	0.00006	0.00017			0.00001	0.00002	0.00004	0.002
Total Chromium (Cr)	mg/L	0.001	0.001	0.001	0.002	0.001	0.003					0.001	n/a
Total Copper (Cu)	mg/L	0.001	0.002	0.010	0.023	0.007	0.009			0.000	0.0003	0.002	0.1
Total Iron (Fe)	mg/L	0.336	0.780	0.335	0.690	0.500	0.930			0.009	0.010	0.3	n/a
Total Manganese (Mn)	mg/L	0.165	0.454	0.222	0.518	0.129	0.233					n/a	n/a
Total Mercury (Hg)	mg/L	0.000005	0.000005	0.00000 5	0.000005	0.00001	0.00001			0.000005	0.000005	0.000026	0.004
Total Molybdenum (Mo)	mg/L	0.060	0.098	0.019	0.043	0.006	0.012			0.0005	0.0005	0.073	n/a
Total Nickel (Ni)	mg/L	0.006	0.008	0.011	0.023	0.012	0.019			0.0003	0.0003	0.025	0.2
Total Lead (Pb)	mg/L	0.0012	0.004	0.001	0.005	0.0003	0.0003			0.0002	0.0002	0.001	0.1
Total Selenium (Se)	mg/L	0.001	0.002	0.001	0.002	0.000	0.001			0.0004	0.0006	0.001	n/a
Total Zinc	mg/L	0.001	0.002	0.006	0.011	0.009	0.017			0.0008	0.0020	0.03	0.2
Ammonia (unionized NH_3)	mg N/L	0.07	0.09	0.143	0.530	0.006	0.010			0.0050	0.0050	0.016	n/a
Total Ammonia Nitrogen (NH_3-NH_4)	mg N/L	3.1	4.6	8.0	28.5	0.9	1.3			0.0260	0.0500	1.83	20
Chloride	mg/L	25	44	8	16	7	9					120	500
Fluoride (F)	mg/L	0.20	0.22	0.18	0.22	0.15	0.20					0.12	n/a
Nitrate (NO_3)	mg N/L	4.9	6.3	15.8	45.0	2.7	4.1			0.018	0.030	2.94	50
Total Cyanide (CNt)	mg/L	0.049	0.105	0.108	0.506	0.002	0.006			0.001	0.005	0.005	n/a

Parameters	Units	Vault Pit (ST-23)		Phaser Pit (ST-41/42)		Vault Attenuation Pond (ST-25)		Discharge to Wally Lake (ST-10)		Exposure Area in Wally Lake (ST-MMER-2-EEM-WLE)		CCME Guidelines	Water License Vault, Max. Avg Conc.
		Avg 2018	Max. 2018	Avg 2018	Max. 2018	Avg 2018	Max. 2018	No Discharge in 2018		Avg 2018	Max. 2018		Part F of License
Sulphate (SO4)	mg SO_4/L	183	356	131	239	75	105					128 (1)	n/a
Total dissolved solids	mg/L	370	488	344	530	181	211					n/a	1400

Notes:

- Red: Measured concentration higher than Water License requirement,
- Yellow: Measured concentration higher than CCME guidelines. Value highlighted for comparison purpose only.

1) Threshold value for sulfate based on BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).

5.2 Vault Water Quality Forecast

5.2.1 Model Description

A mass balance model was developed to assess the water quality forecast trends in the Vault Area for ammonia and nitrate. The starting date for the model was set for June 2014. The end date of the model was set when the dikes at Vault will be breached in 2029.

5.2.2 Assumptions

The assumptions used in the development of the mass balance model for the Vault Area of Meadowbank were the following:

i. The Vault Attenuation Pond is a combination of Pond A, B, C and D. The model does not take into consideration the transfers between Pond A, B, C and D, only transfers inside and outside the Vault Attenuation Pond.

ii. The model considers water transfers to the Vault Attenuation Pond from Vault Pit, Phaser Pit, Phaser Lake and runoff from its catchment area.

iii. The model does not take into consideration the variations of volume due to ice (no free volume, as well as ice ratio and water/ice entrapment).

iv. The water quality from Vault Pit is assumed to be constant over time for ammonia and nitrate.

v. The water mass balance is performed around the Vault Attenuation Pond. The volume of water transferred out of the Vault Attenuation Pond to the water treatment plant or Wally Lake is assumed to be completely discharged to the lake.

vi. It is assumed that the primary source of ammonia and nitrate loading is from Vault Pit. All other inflow contaminant concentrations (Phaser Pit, Phaser Lake, runoffs, etc) are assumed to have a negligible impact on ammonia and nitrate loadings.

vii. For simplification of the model, ponds and pits are assumed to be completely mixed systems.

viii. For simplification of the model, the parameters are assumed to be inert: they do not degrade or react with other elements in the system.

ix. For this analysis, it is assumed that the water treatment plant between the Attenuation Pond and Wally Lake does not reduce the concentration of ammonia and nitrate.

5.2.3 Input to Model

The mass balance model is based on the assumptions above and on the following water quality sampled at:

- Vault Pit (ST-23);
- Vault Attenuation Pond (ST-25);
- Final Effluent to Wally Lake (ST-10).

The initial concentration of parameters in the Vault Attenuation Pond is assumed to be the average of 2014-2015 measurements (i.e. ammonia = 2.2 mg N/L; nitrate = 4.7 mg N/L).

For the Vault Pit, the average of 2014-2015 measurements was used for the forecasted years 2014 and 2015 (i.e. ammonia = 18 mg N/L; nitrate = 46 mg N/L). As of 2016, the forecast model uses the average 2016 measurements (i.e. ammonia = 5 mg N/L; nitrate = 20 mg N/L). This was done to take into account the lower average concentrations measured for ammonia and nitrate in 2016 compared to the measurements taken in 2015. In 2017, an ammonia concentration of 19 mg N/L and nitrate concentration of 40 m N/L coming from the Vault Pit was used in order to better match the forecasted values with the measured values. As of 2018, average values of ammonia and nitrate concentrations measured in 2018 were used (3.1 mg N/L and 4.9 mg N/L respectively).

Measurements taken at the final effluent to Wally Lake and in the Vault Attenuation Pond (ATP) was used to compare the forecasted results.

5.2.4 Forecasting Results

5.2.4.1 Ammonia

Ammonia concentrations sampled in Vault Pit are elevated because of the use of ammonium-nitrate explosives during the mining process. Figure 5-1 presents the concentrations monitored in Vault Pit, Vault Attenuation Pond and at the final effluent to Wally Lake.

Two monitored values in Vault Pit exceeded the Water License limit in 2014 and 2015; all values measured from 2016 to 2018 were below the limit. All of the sample taken in the Vault Attenuation Pond (ATP) and the final effluent towards Wally Lake were below the Water License discharge requirements.

When forecasting the concentration of the effluent discharged to Wally Lake until closure, the forecasted concentration of ammonia reached a peak of about 3.7 mg-N/L in 2015 and then decreased to a concentration below 1 mg-N/L before closure.

Agnico is required to meet the criteria for discharge to Wally Lake as stated in the Type A Water License which is set at 20 mg N/L. No exceedance occurred and is foreseen with the current Vault water quality forecasting model.

Figure 5-2 shows the forecasted concentration, the monthly loadings and the cumulative loadings of ammonia in the treated effluent discharged to Wally Lake.

5.2.4.2 Nitrate

Nitrate concentrations sampled in the Vault Pit are also found to be elevated because of the use of ammonium-nitrate explosives for the pit development. Figure 5-3 presents the concentrations monitored in Vault Pit, Vault Attenuation Pond and at the final effluent towards Wally Lake.

Measured nitrate concentrations in the Vault Pit were below the Water License limit of 50 mg N/L. The monitored values in Vault Attenuation Pond and in the final effluent are also well below the Water License requirements.

The forecasted trend of nitrate concentration in the effluent discharged to Wally Lake until closure is similar to ammonia. There is a rise of nitrate to about 8.6 mg-N/L in 2015 and then decreased to a concentration below 1 mg-N/L before closure.

Since the Water License discharge limit for nitrate is 50 mg N/L, no exceedance is foreseen.

Figure 5-4 shows the forecasted concentration, the forecasted monthly loadings and the cumulative loadings of nitrate in the treated effluent discharged to Wally Lake.

5.2.4.3 Final Remarks

In conclusion, the forecasted concentrations for nitrate and ammonia in the treated effluent discharged to Wally Lake from the Vault area are expected to remain below the discharge requirements as defined in the Type A Water License. The primary source of ammonia and nitrate in the water comes from the use of ammonium-nitrate based explosive in the development of the Vault Pit.

Figure 5-1: Measured Ammonia Concentration in Vault Area

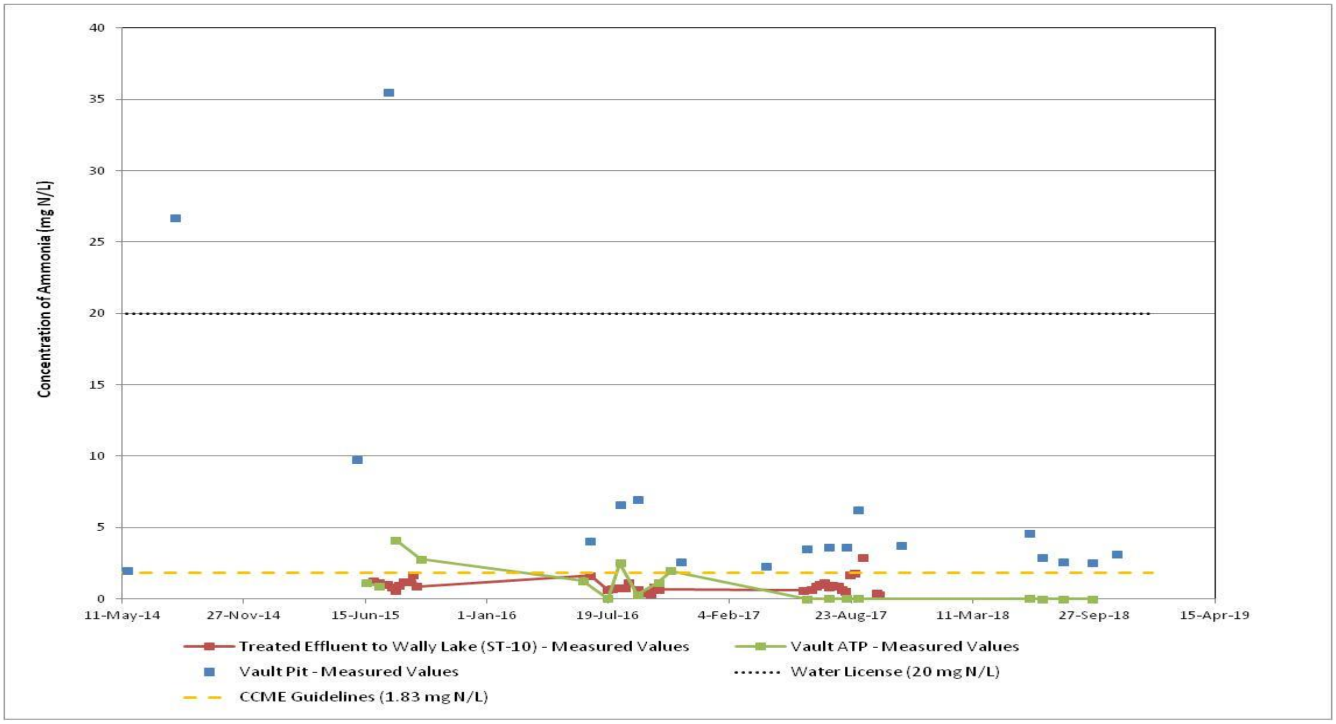


Figure 5-2: Forecasted Ammonia Concentration in Vault Area

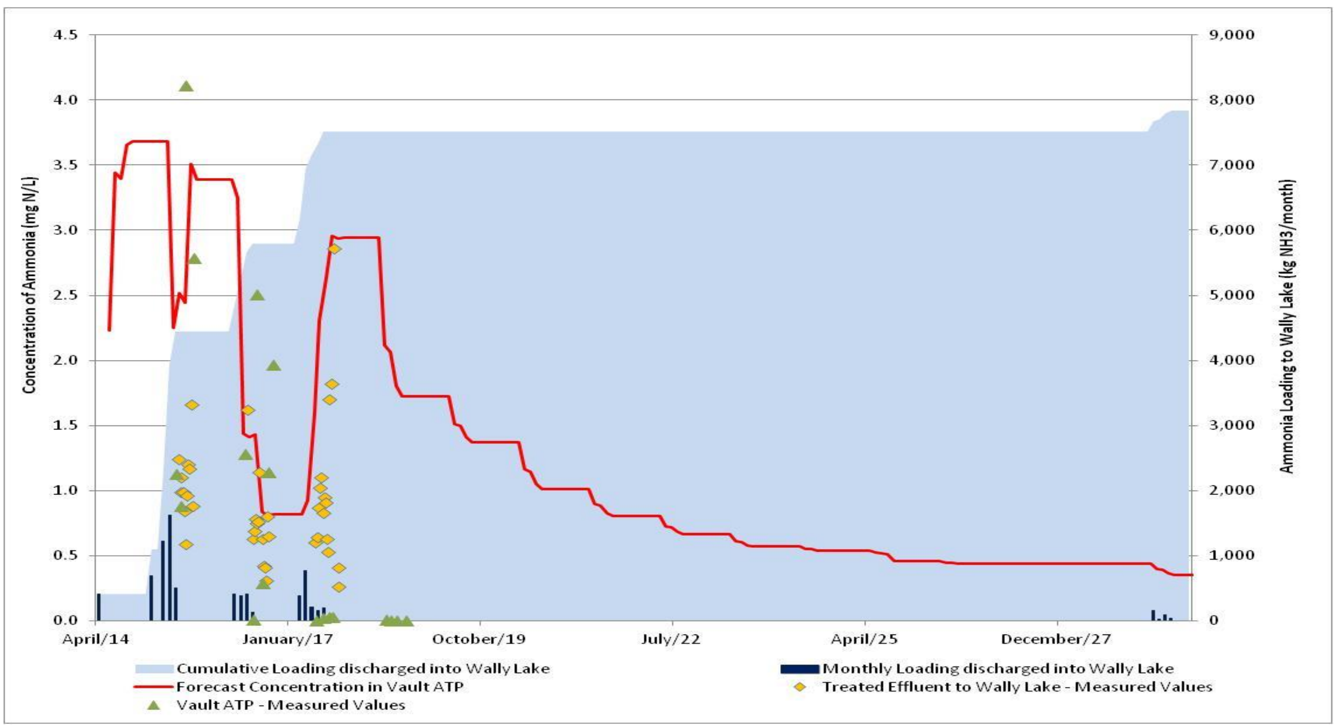


Figure 5-3: Measured Nitrate Concentration in Vault Area

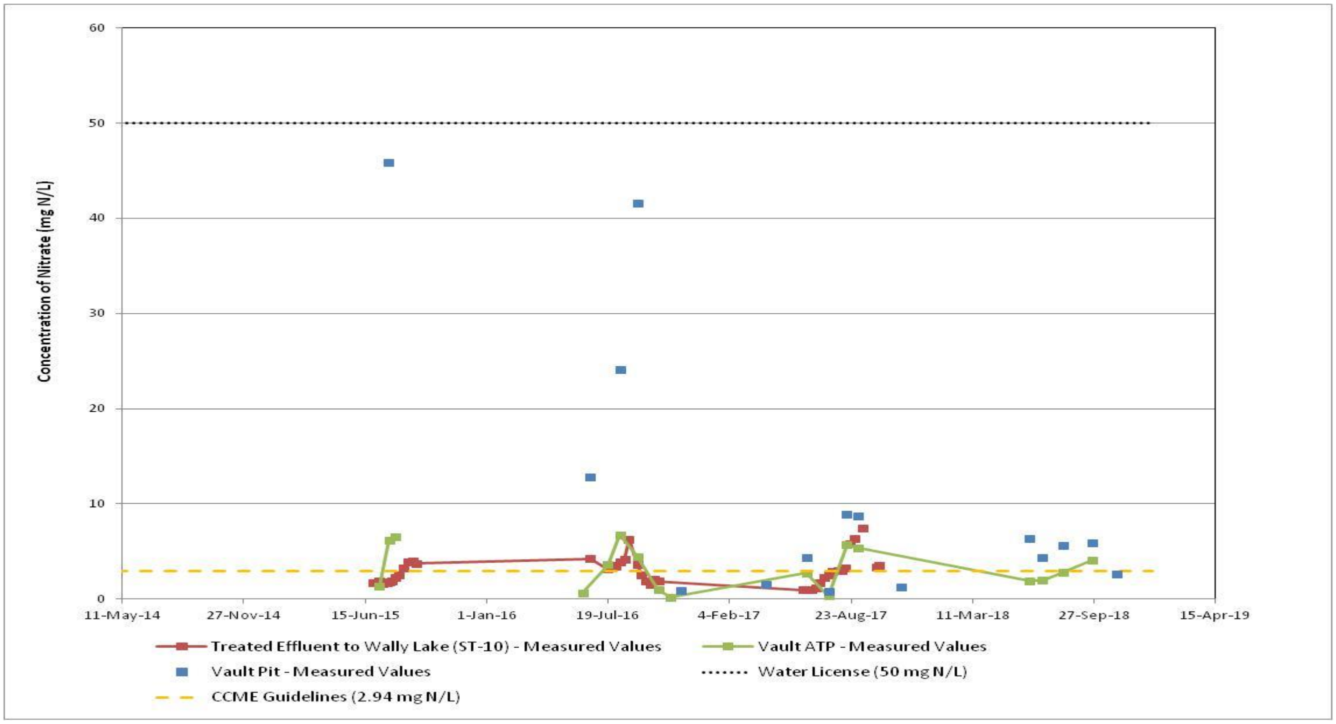
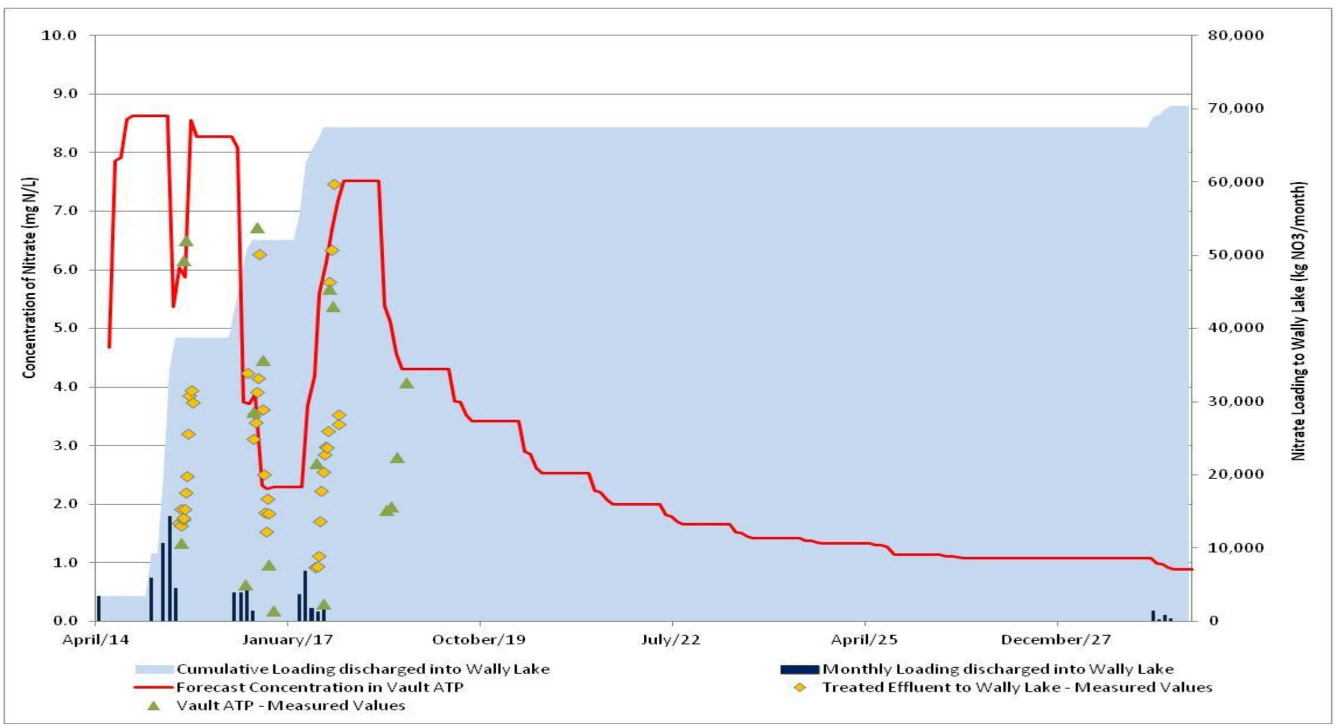


Figure 5-4: Forecasted Nitrate Concentration in Vault Area



6.0 Conclusion

Based on the WB 2018 developed by Agnico, the objective of this Technical Note was to forecast the long term concentration of different contaminants in the North and South Cells TSF Reclaim Pond and in the Portage and Goose Pits from 2014 until closure in 2029. The water quality mass balance model was updated to forecast these long-term concentrations.

The WB 2018 integrates the extension of the Life of Mine (LOM) of Meadowbank Mine by construction and operating the Whale Tail Pit, a satellite deposit located on the Amaruq property, and continuing mine operations and milling at Meadowbank.

6.1 Limitations

It is important to understand the limitations of the mass balance model and of this Technical Note. The limitations are presented in section 3.3 and are briefly summarized below:

- In order to simplify the model, the mass balance model assumes the following:
  - Pond and pits are completely mixed systems;
  - No change in the water quality of the Mill Effluent;
  - A monthly time-step.
- The mass balance model is based on a set of water quality analysis results provided by Agnico:
  - Water quality data provided for ST-21 is taken from samples collected at the surface of the North and South Cell TSF Reclaim Pond;
  - Water quality data available for the Mill Effluent;
  - Water quality data of various inflows and outflows of the North and South Cell TSF Reclaim Ponds.

6.2 Results Summary and Treatment

Based on the results of the water quality forecast mass balance presented in section 4.2, the following parameters of concerns were detected since their forecasted concentrations were higher than the CCME guidelines:

- Total Aluminum
- Total Arsenic
- Total Cadmium
- Total Chromium
- Total Copper
- Total Iron
- Total Lead (new, in Portage and Goose Pits and Mixed-Pit)
- Total Mercury (new, in Portage and Goose Pits and Mixed-Pit)
- Total Nickel
- Total Selenium
- Fluoride
- Sulphate
- Total Ammonia / Total Nitrogen Equivalent

All of the parameters listed above were identified in last year's water quality forecast report, for the exception of lead, mercury and sulphate. The increasing trend from year to year in the number of parameters forecasted to exceed the CCME guidelines in the pits a mine closure can be attributed to the following:

1. In past Water Quality Forecast Reports, the forecasting of the metal concentrations was based on the dissolved fraction since it was assumed that the suspended particles should settle out in the pit and not be re-mobilized in the water column once the dike is breached. Since 2017, only total concentrations of the metals were considered in order to assess its impact if the suspended particles did not settle out in the pit. This approach results in a more conservative assessment and results in identifying additional parameters of concerns.
2. This year's model also accounts for the extension of the LOM of Meadowbank with the additional milling and deposit of tailings produced from Whale Tail pit ore body. The ore body from Whale Tail pit has a different geochemical behavior than the ore extracted from Portage/Goose/Vault pits. This leads to higher lead and mercury forecasted concentration at closure, which was not detected in the previous year's model.
3. This year's model also compared sulphate forecasted concentrations against a threshold value based on BC Environment guideline for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).
4. The water quality forecast model was also adjusted based on the mill effluent sampled during that year. The quality of the mill effluent varies from year to year. In 2015, higher concentrations of dissolved copper, dissolved silver and dissolved selenium in the mill effluent were measured in the mill effluent and used in the model when compared to the 2014 model, resulting in the identification of silver and selenium as additional parameters of concern. Silver was not identified as a parameter of concern based on the WB 2016 model and the mill effluent sampled that year. In the water quality forecast model based on the WB 2017, forecasted nickel concentration was detected to be slightly higher than the CCME guidelines in Goose Pit due in part to the higher concentration measured in the mill effluent that year.
5. Furthermore, as of 2017, the water quality forecast model considers the concentration loads from the pit seepages, which result in an increase in the loads of certain parameters into the pit water. For total aluminum, total arsenic, total chromium, total iron and fluoride, the higher forecasted concentrations can be attributed to these additional seepage loads to Portage Pit and Goose Pit. The analytical results from the groundwater sampled around the Portage and Goose Pits also confirm this observation. Parameters such as aluminum, arsenic and chromium are measured in very low but detectable concentrations in the groundwater. Fluoride is also present in the groundwater sampled around the Portage and Goose Pit.
6. The water quality forecast model provides a conservative estimate, especially with regard to the pit seepage loadings that were assumed to be constant throughout the years until the pits are completely flooded. This is a conservative assumption. There should be a decrease in seepage flow since the hydraulic gradient between the pit water and groundwater level will decrease over time.

When evaluating the theoretical forecasted equilibrium concentrations using the PHREEQC modelling tool, most of the metals could precipitate out of solution, or be adsorb onto particles, to values below the CCME guidelines over the long term. Though these results are encouraging, water treatment at closure may still be required to ensure that the closure criteria are met.

Treatment could be undertaken at the Reclaim Pond or in the Portage Pit if the trends shown in the model reveal to be true in the field. A potential treatment option for the removal of the metals in Reclaim Water prior to discharge in Portage Pit is caustic or lime precipitation, while aeration is recommended for total nitrogen reduction via ammonia volatilization. Coagulation with as aluminum sulfate could be used to adsorb the fluoride ion onto the aluminum hydroxide precipitate. Coagulation with ferric sulfate could be used to co-precipitate the arsenic as a ferric arsenate precipitate. Additional treatment steps could be considered once the actual nature of the water to treat is known, such as the addition of an oxidation step to help oxidize metal complexes, or additional polishing steps, like filtration or ion exchange.

Selenium forecasted concentration remains close to the CCME guideline. This parameter still requires close monitoring. Speciation analysis of the selenium in the South Cell TSF Reclaim Pond (ST-21) indicates it is mostly in the selenate form (Se(VI)) instead of selenite form (Se(IV)). Selenite (Se(IV)) can be easily removed by coagulation. However, selenate (Se(VI)) cannot be removed easily by chemical precipitation. Other forms of treatment would need to be considered, such as adsorption onto a specialized media, biotreatment, or chemical reduction followed by coagulation with a ferric based coagulant.

For the Vault area, ammonia and nitrate are the parameters of concern, but no actual or forecasted concentration exceeds the Type A Water License discharge requirements for this area.

It is important to note that the water quality in the pits will be subject to CCME guidelines or site specific criteria once the water level in the Goose and Portage Pits are equal to the water level in Third Portage Lake. The dikes will only be breached once the water quality in the pits meets these criteria.

6.3 Recommendations

The water quality forecast mass balance developed for this study is intended as an updated model (from SNC 2012 model) for the mass balance in the Portage Area. Therefore, in order to improve the accuracy of the model so that it can better forecast the concentration of certain parameters in the Reclaim Pond or Portage and Goose Pits, the following studies, tests and monitoring are recommended.

1. Continue the current monthly monitoring program of all inflows and outflows of the North and South Cells TSF Reclaim Pond for cyanide, a complete total and dissolved metal scan, ammonia, nitrate, fluoride, chloride, sulfates, total dissolved solids (TDS) and total suspended solids.
2. Continue the current monitoring program of the water in the South Cell TSF Reclaim Pond for cyanide, total and dissolved metal scan, ammonia, nitrate, fluoride, chloride, sulfates, total dissolved solids (TDS) and total suspended solids. It is understood that this recommendation is required as per the water license.
3. Regular monitoring of pit water quality (Portage and Goose) should also be undertaken, when the site can be safely accessed, and analyzed for cyanide, total and dissolved metals, ammonia, nitrate, chloride, fluoride, sulfates, total dissolved solids (TDS) and total suspended solids. This information will be useful in developing and calibrating a water quality forecast model of the pit water quality based on loadings from surface runoff and possible underground water seepage.
4. If possible quantify the seepage flows or volumes entering the Portage and Goose Pits. The study should also attempt to evaluate the seepage rate into the pits as a function of the hydraulic difference between the water level in the pit and in Third Portage Lake.
5. Once transfer of South Cell Reclaim Water to the Portage Pit begins, regular (at least monthly) monitoring of all outflows of the TSF Reclaim Pond for all parameters should be undertaken, including TSS to ensure low level during transfer.

6. Once Portage and Goose Pits are hydraulically connected, it is recommended to sample the water at different points in the pit area in order to evaluate the mixing efficiency over the entire area. The samples should be taken at different depths over the entire area of the flooded pits before and after the filling season.
7. Continue to sample and analyze, as per the Water License requirement, water from the Vault Pit and Vault Attenuation Pond and include ammonia and nitrate in the list of parameters to analyze for.
8. Perform a bench scale water treatment test to evaluate the contaminant removal efficiency using treatment approaches such as lime neutralization, coagulation/flocculation with aluminum sulfate or ferric sulfate, and coagulation/flocculation with proprietary coagulants designed for metal removal, as well as alternative treatment options.

7.0 References

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- SLI (2018). Meadowbank Water Quality Forecasting Update for the 2017 Water Management Plan. Document No. 653278-0000-40ER-0001, Rev. 00, March 2018.

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Appendix A

Water Quality Data

1. Attenuation Pond (ST-18) / South Cell TSF Reclaim Pond (ST-21)
2. North Cell TSF Reclaim Pond (ST-21)
3. Central Dike Downstream Pond (ST-S-5)
4. Portage Pit, Pit A (ST-17)
5. Portage Pit, Pit E (ST-19)
6. Goose Pit Sump and Goose Pit Lake (ST-20)
7. Final Effluent Discharge to Wally Lake (ST-10)
8. Vault Pit Sump (ST-23)
9. Vault Attenuation Pond (ST-25(a))
10. Wally Lake Exposure Area (ST-MMER-2-EEM-WLE)
11. Phaser Pit (ST-41 and ST-42)
12. Mill Effluent Quarterly Samples

Date	Année	*pH	*Turbidity	Conductivity	DO	Alkalinity	Dissolved Aluminum	Dissolved Silver	Dissolved Arsenic	Ammonia-nitrogen (NH3-NH4)	Dissolved Barium	Dissolved Cadmium	Calcium (Ca)	Chloride	Copper	Dissolved Copper	Total cyanide	Cyanide WAD	CN Free	Cyanate	D.O.C	Thyocyanate	Hardness
Units			NTU			mg CaCO3/L	mg/L	mg/L	mg/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L			mg/L	mg/L	mg/L	mg/L	mg CaCO3/L
4-Jun-13	2013	6.75	17.32	496		80									0.0063		0.117						
4-Jul-13	2013	7.4	12.83	924		97	0.009	<0,0002	<0,0005	6.15	0.04535	<0,00002		60.1	0.03385	0.0178	0.1725						320
8-Aug-13	2013	7.2	13.25	1224		108				9.8					0.0189		0.236						
2-Sep-13	2013	7.88	24.8	1420		116	0.021	<0,0001	0.0064	12.4	0.061	0.00008		91.3	0.0169	0.0045	0.193						396
3-Oct-13	2013	7.57	30.7	1472		121									0.0099		0.039						
3-Jun-14	2014	6.86	38.9	1830		113				8.5					0.0076		0.247						
1-Jul-14	2014	7.78	26.3	1021		96	0.006	0.0001	0.0041	8.4	0.0447	0.00007		84.4	0.0064	0.0041	0.34						318
5-Aug-14	2014	7.83	8.11	1497		103	0.006	0.0001	0.0068	9.7	0.0462	0.0001		112		0.0052	0.462						406
7-Sep-14	2014					114									0.0054		0.346						
13-Oct-14	2014					106				11.8					0.0065		0.336						
6-Jan-15	2015					117	0.037		0.0203	31.3	0.0827	0.00026		406		2.561	16.29						893.5444
10-Feb-15	2015					116	0.036		0.022	53.7	0.1157	0.00068		439		0.6986	14.71						1099
4-Mar-15	2015					126	0.024		0.0379	54.6	0.1208	0.00079		543		2.045	13.08						1224
7-Apr-15	2015					113	0.029		0.0126	59.7	0.1296	0.00094		638		2.165	0.762						1325
5-May-15	2015					80	0.232		<0.0005	57	0.1062	0.00066		770		5.541	22.93						1395
1-Jun-15	2015					76	0.022		0.0005	57.3	0.107	0.00086		637		1.857	6.13						1329
6-Jul-15	2015					107	0.006		0.0005	45.8	0.0772	0.00002		633		0.6646	0.638						1315
3-Aug-15	2015					157	0.006		0.0005	16.1	0.0581	0.00078		378		0.1869	0.047						1029
1-Sep-15	2015																0.0025						
8-Sep-15	2015					150	0.006		0.0015	31.2	0.0485	0.00061		436		0.0618	0.078						1176
13-Sep-15	2015													411			0.024						
28-Sep-15	2015													427			0.34						
6-Oct-15	2015					135	0.003		0.0025	5.79	0.0585	0.00043		1329		0.6453	0.307						1222
13-Oct-15	2015					137	0.003		0.0081	5.09	0.0453	0.00063		445		0.485	0.272						1100
20-Oct-15	2015													399			0.676						
26-Oct-15	2015													429			1.37						
2-Nov-15	2015					137	0.01		0.0088	35.4	0.0535	0.00081		445		2.403	1.45						1263
10-Nov-15	2015													431			0.56						
19-Nov-15	2015													471			1.28						
23-Nov-15	2015													505			2.37						
1-Dec-15	2015					144	0.014	0.0003	0.00025	35.4	0.076	0.0008		562		0.0155	3.58						1461
5-Jan-16	2016	8.5	4.75			141	0.055	0.00005	0.012	41.3	0.091	0.00138		548	0.610	0.2914	10.6	0.477					1303
1-Feb-16	2016	8.2	16.4			126	0.018	0.001	0.0164	44.1	0.110	0.0011		630	0.508	0.0412	9.51	0.405	0.009				1567
8-Mar-16	2016	7.4	13.65			132	0.024	0.0003	0.0112	50.0	0.137	0.00001		599	1.882	0.0719	10.79	0.392	0.008				1497
5-Apr-16	2016	8.6	10.88			129	0.02	0.0037	0.0218	49.7	0.105	0.00107		608	1.501	0.0526	6.82	0.372	0.022				1561
3-May-16	2016	8.78	13.2			117	0.04	0.0009	0.0363	51.4	0.110	0.00095		614	0.082	0.0131	5.77	5.41	0.008				1237
16-Jun-16	2016	8.5	15.1			93	0.022	0.0006	0.0096	38.6	0.078	0.00044		348	0.223	0.1646	0.977	0.056	0.045				916
18-Jul-16	2016	7.14	19.5			126	0.047	0.0016	0.0192	32.7	0.084	0.00182		344	0.086	0.0787	0.08	0.033	0.018				1073
2-Aug-16	2016	8.07	2.56			133	0.015	0.0006	0.0097	31.3	0.088	0.00154		372	0.069	0.0751	0.094	0.045		0.005		212	1273
6-Sep-16	2016	8.51	18.13			132	0.053	0.00005	0.00025	41.6	0.089	0.00112		364	0.109	0.0887	0.072	0.041	0.023	35			1210
3-Oct-16	2016	7.93	6.98			122	0.078	0.0002	0.00025	38.9	0.069	0.00118		332	0.263	0.2160	0.161	0.109	0.087	36		193	1301
8-Nov-16	2016	8.13	7.81			120	0.056	0.0001	0.0089	43.4	0.087	0.00235		407	0.023	0.0108	0.586	0.093	0.069	214		211	1272
5-Dec-16	2016	7.76	4.51			127	0.059	0.00005	0.0046	44.8	0.094	0.00191		417	0.206	0.0191	1.66	0.212	0.019	51		240	962
3-Jan-17	2017	8.68	4.98			134	0.037	0.00005	0.0142	48.4	0.111	0.00217		430	0.249	0.0250	2.19	0.199	0.016	371		227	1284
6-Feb-17	2017	8.57	11.3			135	0.003	0.0003	0.0116	38.3	0.095	0.00189		447	0.709	0.0094	2.56	0.251	0.008	97.5		239	1404
6-Mar-17	2017	8.77	7.85			132	0.039	0.0001	0.0153	49.3	0.095	0.00181		545	0.274	0.0157	2.96	0.078	6.06	114		239	1261
6-Apr-17	2017	8.35	8.19			128	0.072	0.0003	0.0098	5.2	0.108	0.00152		551	0.214	0.0226	3.62	0.615	0.007	98.8		238	1333
1-May-17	2017	8.38	13.2			125	0.025	0.00005	0.0057	56.2	0.085	0.00117		563	0.750	0.0229	3.02	0.795	0.007			93.5	
12-Jun-17	2017	8.14	11			104	0.008	0.00005	0.0057	39.0	0.044	0.00085		333	0.110	0.0838	0.143	0.11	0.0025	0.005		92.7	980
10-Jul-17	2017	8.02	5.88			123	0.003	0.00005	0.0282	37.0	0.040	0.00092		307	0.105	0.0730	0.1	0.037	0.0025	23.1		75.5	828
1-Aug-17	2017	8.13	6.15			138	0.047	0.00015	0.00025	43.4	0.053	0.00121		34	0.071	0.0673	0.112	0.069	0.008	0.005		119	1192
7-Aug-17	2017	8.16	9.92			133	0.111	0.00025	0.0086	41.4	0.090	0.000025		310	0.110	0.1055	0.228	0.097	0.024	0.005		0.05	1740
14-Aug-17	2017	7.94	3.1			144	0.078	0.00005	0.0128	41.9	0.064	0.00001		323	0.055	0.0473	0.105	0.066	0.017	0.005		0.025	1238
21-Aug-17	2017	8.13	4.44			139	0.003	0.00005	0.0011	42.4	0.084	0.00146		323	0.147	0.0772	0.139	0.1	0.0025	0.05			2228
28-Aug-17	2017			7.8		127	0.047	0.00005	0.0099	50.0	0.104	0.00041		377	0.073	0.0525	0.213	0.094	0.0025	0.213			1175
3-Sep-17	2017	8.38	15.1			128	0.543	0.0025	0.0077	47.0	0.082	0.00125		356	0.716	0.6841	0.538	0.341	0.043	0.005		0.025	1350
11-Sep-17	2017	7.97	8.01	7.5		124	0.074	0.00005	0.0041	38.0	0.086	0.00195		320	0.420	0.3656	0.08	0.074	0.007	0.005		73.1	1178
18-Sep-17	2017	8.13	3.58	10.74		122	0.037	0.0007	0.00025	49.0	0.079	0.00158		321	0.581	0.5192	0.195	0.181	0.185				1026
25-Sep-17	2017	8.06	2.27	7.3		121	0.202	0.0006	0.009	43.0	0.072	0.00115		340	0.400	0.4074	0.113	0.094	0.056	0.005		4.24	952
2-Oct-17	2017	8.01	4.94			112	0.018	0.00005	0.0091	51.8	0.063	0.00191		338	0.315	0.2982	0.096	0.061		44.4			918
9-Oct-17	2017	7.64	5.17			123	0.003	0.00005	0.0166	48.1	0.012	0.00001		351	0.340	0.0010	0.123	0.062	0.1				959
7-Nov-17	2017			8		123	0.189	0.00005	0.0062	50.3	0.083	0.00234		407	0.568	0.3560	0.194	0.025	0.042	43.9		43.7	991
4-Dec-17	2017	8.6	16.2			122	0.033	0.00005	0.0067	51.8	0.080	0.00171		440	1.192	0.2401	1	0.073	0.43	0.01		70.1	1214
2-Jan-18	2018	8.27	12.4	3.27	9.74	127	0.015	0.00005	0.0104	60.8	0.0819	0.00212		543	0.9318	0.3781	1.08	0.023	0.013	59.5		0.085	1343
13-Feb-18	2018					112	0.031	0.00005	0.00025	57.8	0.1376	0.00143		499	0.4288	0.0149	1.76	0.069	0.42	105		170	1516
6-Mar-18	2018	8.25	14.3	2.2		117	0.003	0.00005	0.0083	62.5	0.1895	0.00006		560	3.409	0.8201	2.57	0.019		150		112	1620
2-Apr-18	2018	8.47	5.16	4.32	10.06	113	0.014	0.00005	0.0272	51.1	0.0847	0.00144		556	0.3385	0.0271	1.29	0.04	0.764	109		152	1164
7-May-18	2018	8.24	7.5	3.92		104	0.032	0.00005	0.00025	62.5	0.103	0.000189		484	0.9857	0.1122	0.172	0.002	0.0025	103		126	1034
4-Jun-18	2018	8.79	83.3	4.01		87	0.039	0.00005	0.0087	50.6	0.0797	0.00454		511	1.682	0.6625	2.82	0.005	0.121	175		35.4	959
2-Jul-18	2018	8.26	12.3	3.39		104	0.035	0.00005	0.0015	41.3	0.0625	0.00263	281	309	0.7239	0.5136	0.204	0.12	0.07	0.005	44.2	127	818
9-Jul-18	2018																		0.068				
6-Aug-18	2018	8.1	9.89	3.42		121	0.0025	0.0002	0.0276	44.4	0.0651	0.00194	253	338	0.3659	0.3854	0.797	0.051		43.3	41.9	72	712
3-Sep-18	2018	7.98	5	3.29		120	0.0025	0.00005	0.012	38	0.0455	0.00107	307	313	0.2344	0.2054	0.023	0.015	0.022	21	37.6	101	887
2-Oct-18	2018	8.16	7.84	3.72		117	0.0025	0.00005	0.0214	39.4	0.633	0.00225	388	324	0.7016	0.6379	0.044	0.024	0.025	31.1	35.6	82.5	1092
6-Nov-18	2018	8.01	13.9	4.49																			
4-Dec-18	2018	8.16	7.53	4.19		152	0.0025	0.00005	0.033	48.8	0.0599	0.00217	445	445	0.0972	0.0662	0.558	0.084	0.026	41.2	67.3	71.3	1291
END OF DATABASE																							

Date	iron (Fe)	Dissolved Iron	Fluoride	Ammonia (as NH3)	Nitrate	Nitrite	Lead	Total dissolved solids (TDS)	TSS	Sulphate	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenum	Dissolved Nickel	Dissolved Lead	Dissolved Selenium	Dissolved Thallium	Dissolved Zinc	aluminum (Al)	Arsenic	barium (Ba)	Cadmium (Cd)	chromium (Cr)
Units		mg/L	mg/L	mg N/L	mgN/L	mgN/L	mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L			
4-Jun-13				0.18			<0.0003	379												0.003			
4-Jul-13		0.005	0.395	0.235	5.1	0.185	0.00245	633.5		277.5	1.8265	0.0001	0.0154	0.04185	<0.0003	0.001	<0,005	<0,001		0.0029			
8-Aug-13				0.35			0.0089	779												0.2403			
2-Sep-13		0.01	0.49	0.12	3.3	0.6	0.0003	806		451	2.44	<0,0001	0.0306	0.0822	<0,0003	0.002	<0,005	0.004		0.0133			
3-Oct-13				0.11			<0,0003	814												0.0163			
3-Jun-14				0.12			0.0003	754												0.0041			
1-Jul-14		0.01	0.57	0.2	1.2	0.27	0.0003	2628		471	2.43	0.0001	0.0237	0.0346	0.0003	0.001	0.005	0.001		0.0061			
5-Aug-14		0.01	0.56		1.3	0.21		1155		612	2.858	0.0001	0.0269	0.041	0.0003	0.004	0.005	0.001					
7-Sep-14				0.18			0.0003	1283												0.0111			
13-Oct-14				0.19			0.0017	1363												0.0084			
6-Jan-15		0.05	2.5		7.45			1924		1200	0.02	0.00038	0.1849	0.1146	0.00015	0.049	0.0025	0.001					
10-Feb-15		0.2	0.26		9.08			2190		1456	0.003	0.00061	0.2755	0.0571	0.00015	0.084	0.0025	0.0005					
4-Mar-15		0.03	0.42		11			2628		1537	0.0254	0.00077	0.3331	0.1832	0.00015	0.104	0.0025	0.002					
7-Apr-15		0.9	0.01		10.8			2946		1670	0.014	0.00058	0.3948	0.0258	0.00015	0.102	0.0025	0.004					
5-May-15		2.4	2.4		10.7			3411		1604	0.0084	0.00057	0.4086	0.0304	0.00015	0.079	0.0025	0.0005					
1-Jun-15		0.05	0.03		10.4			2801		1557	0.057	0.00037	0.3877	0.0287	0.00015	0.075	0.0025	0.003					
6-Jul-15		0.05	0.03		10.5			2270		1235	0.1811	0.00031	0.3019	0.0853	0.00015	0.046	0.0025	0.0005					
3-Aug-15		0.02	0.04		8.51			2328		1316	0.6803	0.00015	0.25	0.0834	0.00015	0.049	0.0025	0.005					
1-Sep-15																							
8-Sep-15		0.01	0.01		7.29			2230		1473	1.018	0.00009	0.244	0.0578	0.00015	0.039	0.0025	0.0005					
13-Sep-15															0.00015								
28-Sep-15																							
6-Oct-15		0.02	0.44		7.77			2184		1650	1.254	0.00007	0.3034	0.0962	0.0003	0.045	0.0025	0.0005					
13-Oct-15		0.02	0.47		7.53			2210		1656	1.129	0.00005	0.2468	0.0668	0.0003	0.036	0.0025	0.0005					
20-Oct-15					7.88					1500					0.0003								
26-Oct-15					8.56					1811					0.0015								
2-Nov-15		0.03	0.4		9.09			2433		1651	0.9792	0.00024	0.3123	0.1404	0.0003	0.048	0.0025	0.001					
10-Nov-15					8.17					1866					0.0003								
19-Nov-15										1852					0.0003								
23-Nov-15					9.77										0.0003								
1-Dec-15		0.36	0.13		10.7			2926		1998	0.1727	0.00028	0.3233	0.018	0.0003	0.072	0.0025	0.0005					
5-Jan-16	0.44	0.14	0.34	2.61	10.7	0.22	0.00015	2992	16	2274	0.0802	0.00007	0.3571	0.0231	0.00015	0.088	0.0025	0.007	0.033	0.0162	0.0908	0.00138	0.0025
1-Feb-16	0.89	0.77	0.27	4.83	6.34	0.23	0.00015	3136	35	2052	0.0575	0.00025	0.4267	0.0165	0.00015	0.097	0.001	0.001	0.142	0.0149	0.1305	0.00102	0.0023
8-Mar-16	2.67	1.22	0.36	2.6	12.5	0.24	0.00015	3386	39	2060	0.0743	0.00021	0.4821	0.013	0.00015	0.113	0.001	0.0005	0.247	0.0138	0.1359	0.00001	0.0003
5-Apr-16	2.64	0.7	0.4	2.94	10.7	0.24	0.0015	3030	23	2142	0.1378	0.0003	0.4613	0.0133	0.00015	0.125	0.001	0.001	0.147	0.028	0.1237	0.00127	0.0021
3-May-16	1.46	1.31	2.79	2.79	10.5	0.22	0.00015	3611	26	2161	0.1118	0.00077	0.5981	0.0113	0.00015	0.103	0.001	0.001	0.249	0.0338	0.1207	0.0008	0.0027
16-Jun-16	0.6	0.02	0.35	0.01	5.79	0.1	0.0003	2017	52	1511	0.0005	0.00001	0.0005	0.0005	0.0003	0.001	0.002	0.001	0.006	0.0005	0.0005	0.00002	0.0006
18-Jul-16	0.79	0.06	0.45	1	5.55	0.14	0.00015	2452	18	1683	0.4181	0.00047	0.4507	0.0539	0.00015	0.067	0.0004	0.0005	0.263	0.0236	0.0846	0.00195	0.0003
2-Aug-16	0.16	0.05	0.39	0.93	5.04	0.12	0.0037	2430	5	1730	0.3433	0.0004	0.4812	0.0502	0.00015	0.066	0.0004	0.0005	0.039	0.014	0.087	0.00141	0.0003
6-Sep-16	0.17	0.03	0.41	1.36	5.28	0.22	0.00015	2914	5	1926	0.2782	0.000005	0.496	0.03	0.00015	0.057	0.0004	0.001	0.11	0.0177	0.0963	0.00103	0.0011
3-Oct-16	0.44	0.04	0.39	0.99	4.32	0.18	0.00015	2580	8	1768	0.322	0.00036	0.431	0.0498	0.00015	0.052	0.0004	0.0005	0.21	0.00025	0.0741	0.00154	0.0003
8-Nov-16	0.89	0.35	0.42	1.73	4.91	0.18	0.0006	2542	13	1945	0.1591	0.00055	0.4696	0.0471	0.00015	0.067	0.0004	0.005	0.192	0.0083	0.0901	0.00267	0.0015
5-Dec-16	1.01	0.66	0.43	1.71	4.89	0.21	0.00015	2968	8	2018	0.2706	0.00044	0.5502	0.0326	0.00015	0.06	0.0004	0.002	0.096	0.004	0.0852	0.00196	0.0003
3-Jan-17	1.37	0.31	0.41	2.46	5.76	0.21	0.0007	3213	14	2137	0.154	0.00044	0.5385	0.0189	0.00015	0.022	0.0004	0.003	0.062	0.0134	0.1133	0.002	0.0012
6-Feb-17	0.99	0.56	0.44	1.82	5.26	0.23	0.00015	3414	7	2199	0.187	0.00045	0.5317	0.0209	0.00015	0.06	0.0004	0.001	0.059	0.0138	0.1098	0.00218	0.0003
6-Mar-17	0.99	1.12	0.33	2.45	6.01	0.35	0.00015	3681	11	2180	0.120	0.0006	0.5714	0.0305	0.00015	0.059	0.0004	0.0005	0.111	0.0151	0.0988	0.00179	0.001
6-Apr-17	0.71	0.43	0.25	0.28	4.93	0.33	0.0045	3730	9	2216	0.229	0.00059	0.5735	0.018	0.0047	0.047	0.0004	0.003	0.102	0.0098	0.1077	0.00136	0.0006
1-May-17	0.99	0.33	0.4	1.61	4.98	0.39	0.00015	3680	16	2322	0.222	0.00027	0.5222	0.0117	0.00015	0.038	0.0004	0.0005	0.1	0.0027	0.0874	0.00125	0.0003
12-Jun-17	0.19	0.05	0.36	0.78	3.86	0.24	0.00015	2750	2	1585	0.407	0.00043	0.2808	0.0641	0.00015	0.032	0.0004	0.0005	0.034	0.0043	0.053	0.00162	0.0003
10-Jul-17	0.29	0.02	0.39	0.45	2.36	0.4	0.00015	2460	7	1445	0.398	0.000005	0.355	0.0738	0.00015	0.029	0.0004	0.0005	0.07	0.0218	0.0408	0.00102	0.0009
1-Aug-17	0.03	0.03	0.37	1.24	2.08	0.16	0.0018	2584	10	1772	0.421	0.00005	0.3883	0.0699	0.00015	0.031	0.0004	0.001	0.069	0.00025	0.0639	0.00127	0.0006
7-Aug-17	0.37	0.02	0.38		2.83	0.15	0.00025	2664	16		0.407	0.000005	0.4215	0.0567	0.00025	0.019	0.0004	0.00025	0.198	0.0095	0.0918	0.0002	0.0003
14-Aug-17	0.21	0.03	0.46	0.87	1.21	0.17	0.00015	2691	3	1037	0.374	0.00015	0.4723	0.0558	0.00015	0.036	0.0004	0.0005	0.078	0.0184	0.0753	0.00002	0.0003
21-Aug-17	0.37	0.03	0.421	1.24	2.09	0.15	0.00015	2717	4	1813	0.338	0.00019	0.5305	0.1055	0.00015	0.038	0.0004	0.0005	0.04	0.00025	0.1558	0.00261	0.0003
28-Aug-17	0.63	0.03	0.41	1.53	3	0.15	0.0095	2896	31	1823	0.291	0.000005	0.5382	0.0441	0.0038	0.039	0.0004	0.002	0.276	0.0158	0.0955	0.00104	0.0081
3-Sep-17	1.14	1.06	0.45	0.73	3.46	0.16	0.0024	2776	35	2014	0.220	0.0002	0.5563	0.1644	0.00015	0.036	0.0004	0.0005	0.577	0.0092	0.0865	0.00129	0.0035
11-Sep-17	0.26	0.02	0.32	0.89	2.94	0.18	0.00015	2702	9	2001	0.143	0.0004	0.5201	0.1518	0.00015	0.041	0.0004	0.0005	0.173	0.0027	0.0931	0.00193	0.0003
18-Sep-17	0.2	0.02	0.39	0.8	3.13	0.19	0.0041	2835	5	1982	0.102	0.00031	0.5566	0.2258	0.00015	0.047	0.0004	0.001	0.037	0.00025	0.0879	0.0017	0.0003
25-Sep-17	0.17	0.02	0.45	0.94	2.97	0.19	0.00015	2832	3	1991	0.160	0.00004	0.5163	0.2213	0.00015	0.049	0.0004	0.0005	0.058	0.0058	0.0689	0.00119	0.0043
2-Oct-17	0.27	0.02	0.58	1.29	2.92	0.16	0.00015	2864		74.2	0.234	0.00027	0.4562	0.2232	0.00015	0.043	0.0004	0.0005	0.052	0.0076	0.0592	0.00162	0.0013
9-Oct-17	0.16	0.005	0.46	1.34	3.21	0.18	0.00015	2852	8	1889	0.223	0.00044	0.063	0.0352	0.0077	0.001	0.0004	0.0005	0.033	0.0131	0.0703	0.00201	0.0018
7-Nov-17	0.18	0.04	0.45	1.31	3.41	0.23	0.00015	3837	8	2343	0.273	0.00054	0.7052	0.1387	0.00015	0.074	0.0004	0.002	0.045	0.0035	0.0716	0.00212	0.0011
4-Dec-17	0.37	0.03	0.37	2.36	4.26	0.2	0.00015	3483	8	2430	0.193	0.00057	0.6202	0.16	0.00015	0.081	0.0004	0.004	0.02	0.003	0.0915	0.00222	0.0003
2-Jan-18	0.339	0.018	0.39	2.17	4.13	0.2	0.00015	3560	4	2909	0.1977	0.00054	0.7035	0.0699	0.00015	0.086	0.0004	0.001	0.021	0.0094	0.0865	0.00237	0.0031
13-Feb-18	1.03	0.59	0.42	1.93	4.82	0.22	0.00015	3464	2	2365	0.4013	0.00067	0.6232	0.0392	0.00015	0.078	0.0004	0.002	0.095	0.00025	0.1532	0.00213	0.0038
6-Mar-18	0.799	0.01	0.48	2.39	4.51	0.2	0.00015	3247	8	2348	0.315	0.000005	0.6277	0.1381	0.00015	0.077	0.0004	0.0005	0.07	0.0076	0.2004	0.00007	0.0008
2-Apr-18	0.27	0.08	0.45	2.09	5.68	0.15	0.00015	3085	5	2372	0.3105	0.0006	0.5523	0.0456	0.00015	0.069	0.0004	0.003	0.008	0.0377	0.08	0.0014	0.0023
7-May-18	0.56	0.02	0.45	2.34	4.6	0.19	0.00015	2488	6	2148	0.3245	0.00001	0.5675	0.0928	0.00015	0.055	0.0004	0.0005	0.089	0.0065	0.1196	0.00186	0.0003
4-Jun-18	7.59	0.02	0.47	3.88	6.77	0.16	0.0235	2628	7	1825	0.1485	0.000005	0.5224	0.0922	0.00015	0.1	0.0004	0.002	2.25	0.0099	0.0806	0.00444	0.0074
2-Jul-18	0.96	0.05	0.48	1.58	4.24	0.08	0.0009	2131	21	1538	0.487	0.00002	0.4249	0.1368	0.00015	0.066	0.0004	0.006	0.118	0.0015	0.0704	0.00293	0.0008
9-Jul-18																							
6-Aug-18	0.02	0.01	0.58	1.04	5.86	5.86	0.0007	2466	10	1977	0.3685	0.000005	0.4502	0.1113	0.00015	0.0799	0.0001	0.003	0.006	0.0248	0.0599	0.0019	0.0003
3-Sep-18	0.18	0.01	0.47	0.87	4.83	0.11	0.0015	2096	5	1950	0.6096	0.000005	0.3694	0.0738	0.00015	0.0591	0.0001	0.002	0.039	0.0173	0.0475	0.0097	0.0006
2-Oct-18	0.57	0.005	0.46	0.3	3.79	0.15	0.0037	1524	12	1847	0.9665	0.000005	0.4334	0.0814	0.00015	0.0773	0.0001	0.004	0.096	0.0216	0.0624	0.00214	0.0016
6-Nov-18																							
4-Dec-18	0.4	0.06	0.55	2.04	4.78	0.13	0.0015	2482	5	2344	0.8173	0.000005	0.4938	0.0484	0.00015	0.0511	0.0001	0.002	0.021	0.0363	0.0574	0.00222	0.0016
END OF DATABASE																							

Date	Magnesium (Mg)	manganese (Mn)	mercury (Hg)	molybdenum (Mo)	Nickel	Potassium (K)	selenium (Se)	Silver (Ag)	Sodium (Na)	thallium (Tl)	Zinc	antimony (Sb)	Beryllium (Be)	lithium (Li)	strontium (Sr)	tin (Sn)	titanium (Ti)	uranium (U)	vanadium (V)	Selenium 4 (Se)	Selenium 6 (Se)	Acidity	Ferrous Iron Fe2+
Units					mg/L						mg/L									mg/L	mg/L		
4-Jun-13					0.0371						0.001												
4-Jul-13					0.0593						0.008												
8-Aug-13					0.0056						0.007												
2-Sep-13					0.0822						0.009												
3-Oct-13					0.0718						<0.001												
3-Jun-14					0.0427						0.002												
1-Jul-14					0.0398						0.04												
5-Aug-14																							
7-Sep-14					0.0659						0.006												
13-Oct-14					0.0727						0.012												
6-Jan-15																							
10-Feb-15																							
4-Mar-15																							
7-Apr-15																							
5-May-15																							
1-Jun-15																							
6-Jul-15																							
3-Aug-15																							
1-Sep-15																							
8-Sep-15																							
13-Sep-15																							
28-Sep-15																							
6-Oct-15																							
13-Oct-15																							
20-Oct-15																							
26-Oct-15																							
2-Nov-15																							
10-Nov-15																							
19-Nov-15																							
23-Nov-15																							
1-Dec-15																							
5-Jan-16		0.080	0.00036	0.337	0.1396		0.088	0.0002		0.0025	0.007												
1-Feb-16		0.081	0.00027	0.400	0.0659		0.097	0.0007		0.001	0.002												
8-Mar-16		0.114	0.00021	0.482	0.0553		0.118	0.0003		0.001	0.001												
5-Apr-16		0.195	0.0003	0.464	0.0408		0.118	0.0041		0.001	0.004												
3-May-16		0.137	0.00056	0.504	0.021		0.096	0.0007		0.001	0.007												
16-Jun-16		0.001	0.00001	0.001	0.0005		0.001	0.0017		0.002	0.001												
18-Jul-16		0.418	0.00044	0.454	0.0531		0.062	0.0019		0.0004	0.001												
2-Aug-16		0.355	0.00042	0.478	0.0491		0.065	0.0005		0.0004	0.005									0.005	0.061		
6-Sep-16		0.317	0.00017	0.518	0.0312		0.055	0.00005		0.0004	0.001									0.006	0.047		
3-Oct-16		0.368	0.00032	0.465	0.0572		0.052	0.0001		0.0004	0.0005									0.003	0.049		
8-Nov-16		0.159	0.00065	0.450	0.0588		0.064	0.00005		0.0004	0.006									0.002	0.05		
5-Dec-16		0.271	0.00049	0.537	0.0566		0.06	0.00005		0.0004	0.006									0.001	0.045		
3-Jan-17		0.174	0.00042	0.537	0.0742		0.078	0.00005		0.0004	0.005									0.001	0.06		
6-Feb-17		0.231	0.00042	0.571	0.0573		0.054	0.00005		0.0004	0.001									0.001	0.038		
6-Mar-17		0.138	0.00056	0.543	0.0657		0.055	0.00005		0.0004	0.001									0.001	0.03		
6-Apr-17		0.286	0.0005	0.538	0.124		0.045	0.0003		0.0004	0.166									0.003	0.022		
1-May-17		0.254	0.00027	0.509	0.0654		0.038	0.00005		0.0004	0.0005									0.002	0.014		
12-Jun-17		0.450	0.00032	0.359	0.0752		0.038	0.00005		0.0004	0.0005									0.004	0.017		
10-Jul-17		0.406	0.000005	0.359	0.0739		0.025	0.0002		0.0004	0.0005									0.003	0.018		
1-Aug-17		0.426	0.000005	0.426	0.0714		0.035	0.00005		0.0004	0.002									0.003	0.021	8	0.01
7-Aug-17		0.423	0.000005	0.420	0.055		0.026	0.00025		0.0004	0.005									0.004	0.023	4	0.01
14-Aug-17		0.412	0.00016	0.521	0.0558		0.042	0.00005		0.0004	0.0005									0.002	0.02		
21-Aug-17		0.622	0.00015	0.977	0.1055		0.067	0.00005		0.0004	0.0005												
28-Aug-17		0.308	0.000005	0.494	0.0498		0.039	0.00005		0.0004	0.003											8	0.19
3-Sep-17		0.220	0.000005	0.563	0.1684		0.035	0.0025		0.0004	0.003												
11-Sep-17		0.160	0.00044	0.537	0.1622		0.042	0.0007		0.0004	0.0005									0.002	0.033	6	0.01
18-Sep-17		0.115	0.0003	0.590	0.2446		0.051	0.0013		0.0004	0.004											5	0.01
25-Sep-17		0.156	0.000005	0.488	0.2147		0.047	0.0006		0.0004	0.0005											7	0.01
2-Oct-17		0.234	0.00028	0.427	0.2159		0.044	0.00005		0.0004	0.0005									0.002	0.037	10	0.04
9-Oct-17		0.223	0.00044	0.510	0.2911		0.046			0.0004	0.0005											8	0.03
7-Nov-17		0.224	0.000618	0.555	0.1241		0.058	0.00005		0.0004	0.001												
4-Dec-17		0.218	0.00054	0.686	0.31		0.087	0.00005		0.0004	0.001												
2-Jan-18		0.2085	0.00045	0.7219	0.1052		0.086	0.00005		0.0004	0.002												
13-Feb-18		0.4385	0.00064	0.7054	0.068		0.085	0.00005		0.0004	0.005												
6-Mar-18		0.3445	0.000005	0.6229	0.3051		0.073	0.0006		0.0004	0.002												
2-Apr-18		0.3162	0.00067	0.5221	0.0668		0.069	0.00005		0.0004	0.004												
7-May-18		0.3818	0.00002	0.6365	0.1738		0.061	0.00005		0.0004	0.0005												
4-Jun-18		0.2235	0.000005	0.5224	0.1361		0.091	0.00005		0.0004	0.007												
2-Jul-18	28.4	0.487	0.00003	0.3821	0.1436	96.6	0.071	0.0002		0.0004	0.02												
9-Jul-18																							
6-Aug-18	19.7	0.298	0.00018	0.4087	0.1061	82	0.0727	0.0001	599	0.0001	0.003												
3-Sep-18	29.4	0.6312	0.00005	0.3779	0.0755	87.2	0.0581	0.00005	575	0.0001	0.003												
2-Oct-18	30.1	0.8848	0.00005	0.4065	0.0863	105	0.0699	0.00005	759	0.0001	0.006												
6-Nov-18																							
4-Dec-18	43.8	0.8694	0.000005	0.4844	0.0544	130	0.0495	0.0001	758	0.0002	0.003												
END OF DATABASE																							

Date	Ferric Iron Fe^{3+}	Total Phosphorus	boron (B)	Dissolved boron (B)	Dissolved beryllium (Be)	Dissolved chromium (Cr)	Dissolved lithium (Li)	Dissolved antimony (Sb)	Dissolved tin (Sn)	Dissolved strontium (Sr)	Dissolved titanium (Ti)	Dissolved uranium (U)	Dissolved vanadium (V)
Units													
4-Jun-13													
4-Jul-13													
8-Aug-13													
2-Sep-13													
3-Oct-13													
3-Jun-14													
1-Jul-14													
5-Aug-14													
7-Sep-14													
13-Oct-14													
6-Jan-15													
10-Feb-15													
4-Mar-15													
7-Apr-15													
5-May-15													
1-Jun-15													
6-Jul-15													
3-Aug-15													
1-Sep-15													
8-Sep-15													
13-Sep-15													
28-Sep-15													
6-Oct-15													
13-Oct-15													
20-Oct-15													
26-Oct-15													
2-Nov-15													
10-Nov-15													
19-Nov-15													
23-Nov-15													
1-Dec-15													
5-Jan-16													
1-Feb-16													
8-Mar-16													
5-Apr-16													
3-May-16													
16-Jun-16													
18-Jul-16													
2-Aug-16													
6-Sep-16													
3-Oct-16													
8-Nov-16													
5-Dec-16													
3-Jan-17													
6-Feb-17													
6-Mar-17													
6-Apr-17													
1-May-17													
12-Jun-17													
10-Jul-17													
1-Aug-17	0.04	0.01											
7-Aug-17	0.42												
14-Aug-17													
21-Aug-17													
28-Aug-17	0.44	0.04											
3-Sep-17													
11-Sep-17	0.26	0.04											
18-Sep-17	0.2	0.04											
25-Sep-17	0.16	0.02											
2-Oct-17	0.23	0.06											
9-Oct-17	0.13	0.03											
7-Nov-17													
4-Dec-17													
2-Jan-18													
13-Feb-18													
6-Mar-18													
2-Apr-18													
7-May-18													
4-Jun-18													
2-Jul-18													
9-Jul-18													
6-Aug-18													
3-Sep-18													
2-Oct-18													
6-Nov-18													
4-Dec-18													
END OF DATABASE													

DATE	ANNÉE	pH	Turbidity	Alkalinity	Dissolved Aluminum	Dissolved Silver	Dissolved Arsenic	Ammonia nitrogen (NH3)	Dissolved Barium	Dissolved Cadmium	Chloride	Copper	Dissolved Copper	Cyanide (total)	CN Free	CN-WAD	Cyanate	Thyocyanate	Hardness	Iron	Dissolved Iron	Fluoride	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenum	Ammonia NH3	Dissolved Nickel	Nitrate (NO3)	Nitrite (NO2)	Lead	Dissolved Lead	Dissolved Selenium	Total Dissolved Solids	TSS	Sulphate	Dissolved Thallium	Dissolved Zinc	Aluminum	Arsenic
Max. Monthly		6.0 - 9.0	15		1			16			1000	0.1		0.5														20		0.1				15				1.5	0.3
Max. Instant.		6.0 - 9.0	15		1			32			2000	0.2		1														40		0.2				30				1.5	0.6
		Units	NTU	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg N/L	mg/L	mg N/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2-Jan-13	2013															20.4																							
5-Jan-13	2013															20.3																							
8-Jan-13	2013	9.04	1.01	115	0.05	<0,005	0.019	5.2	0.107	<0,005	1463		17.17	17.30		19.3			1607		1.60	0	<0,005	0.0002	0.492		0.056	12.9	0.27		<0,005	0.023	4943		2960	<0,01	0.005		
11-Jan-13	2013															19.1																							
14-Jan-13	2013															12.8																							
19-Jan-13	2013															19.7																							
22-Jan-13	2013															17.9																							
30-Jan-13	2013															20.0																							
4-Feb-13	2013															18.7																							
6-Feb-13	2013	9.42	36.70	134	0.34	0.0110	0.012	0	0.101	<0,005	1582		18.55	12.11					2116		1.10	0.33	0.071	0.0003	0.481		0.032	17.9	0.29		<0,005	0.026	568		3125	<0,01	0.569		
10-Feb-13	2013															18.0																							
17-Feb-13	2013															21.4																							
23-Feb-13	2013															22.0																							
28-Feb-13	2013															20.4																							
4-Mar-13	2013															22.0																							
5-Mar-13	2013	9.14	21.90	142	0.02	0.0100	0.010	0	0.144	<0,005	1572		15.21	25.19					1795		0.30	0.23	0.009	<0,0001	0.469		0.041	17.7	0.16		<0,005	0.037	5354		2876	<0,01	<0,005		
10-Mar-13	2013															15.2																							
19-Mar-13	2013															8.4																							
25-Mar-13	2013															7.9																							
31-Mar-13	2013															10.0																							
2-Apr-13	2013	8.90	43.30	113	0.08	<0,005	0.011	0	0.096	<0,005	1092		5.56	36.25					1525		0.67	0.38	<0,005	0.0002	0.332		0.026	14.4	0.34		<0,005	0.019	4242		2248	<0,01	0.015		
6-Apr-13	2013															9.6																							
12-Apr-13	2013															32.8																							
16-Apr-13	2013															17.0																							
21-Apr-13	2013															18.7																							
27-Apr-13	2013															16.5																							
7-May-13	2013	9.00	8.80	105	0.06	0.008	0.015	3.6	0.088	0.001	1287		9.51	18.95					1550		0.67	0.33	<0,0005	0.0002	0.418		0.697	20.5	0.33		<0,0003	0.029	4476		2205	<0,005	0.009		
8-May-13	2013															17.1																							
12-May-13	2013															19.7																							
15-May-13	2013															16.8																							
19-May-13	2013															19.7																							
25-May-13	2013															16.9																							
31-May-13	2013															18																							
4-Jun-13	2013	8.85	17.37	77	0.14	0.004	0.008	46.2	0.057	0.001	683		0.29	16.77		19.1			891		<0,01	0.07	0.0713	<0,0001	0.247		0.088	13.7	0.06		<0,0003	0.008	2954		1276	<0,005	0.001		
8-Jun-13	2013															6.01																							
12-Jun-13	2013															5.21																							
16-Jun-13	2013															3.64																							
20-Jun-13	2013															2.0																							
27-Jun-13	2013															0.0967																							
4-Jul-13	2013	8.28	9.25	127	0.15	<0,0002	0.014	17.7	0.051	0.000	283	0.63635	0.39	0.09					641	0.57	<0,01	0.26	0.4214	<0,0001	0.170		0.096	12.0	0.31	0.004	<0,0021	0.010	1992		1053	<0,005	0.004		0.0197
5-Jul-13	2013															0.156																							
12-Jul-13	2013															0.0829																							
19-Jul-13	2013															0.247																							
25-Jul-13	2013															0.142																							
1-Aug-13	2013															0.237																							
11-Aug-13	2013															0.0829																							
13-Aug-13	2013	7.72	5.65	154	0.14	0.006	0.016	33.5	0.061	0.001	232		0.42	0.05					751		0.01	1.1	0.5621	0.0001	0.222		0.300	11.3	0.90		0.0012	0.010			1169	<0,005	0.004		
14-Aug-13	2013															0.0765																							
19-Aug-13	2013															0.133																							
26-Aug-13	2013															0.242																							
2-Sep-13	2013	8.00	20.10	143	0.20	0.014	0.025	32.3	0.067	0.001	917		1.78	0.99					759		0.38	0.16	0.4087	0.0001	0.309		0.602	13.5	1.10		0.0045	0.009	2020		1457	<0,005	0.015		
6-Sep-13	2013															0.355																							
13-Sep-13	2013															0.501																							
23-Sep-13	2013															0.499																							
3-Oct-13	2013	7.87	9.30	135	0.12	0.011	0.027	28.9	0.065	0.001	547		0.50	0.14		1.77			935		0.01	0.47	0.2476	0.0001	0.398		0.583	13.8	1.00		<0,0003	0.011	1796		1954	<0,005	<0,001		
9-Oct-13	2013															1.99																							
16-Oct-13	2013															2.16																							
22-Oct-13	2013															2.09																							
1-Nov-13	2013															5.69																							
4-Nov-13	2013	7.92	9.21	123	0.04	0.046	0.023	38.8	0.073	0.001	691		6.28	2.55					878		0.01	0.45	0.2819	0.0005	0.507			16.2	0.85		<0,0003	0.024	2233		1971	<0,005	<0,001		
9-Nov-13	2013															4.74																							
14-Nov-13	2013															3.34																							
29-Nov-13	2013															4.85																							
2-Dec-13	2013	6.69	1.15	133	0.10	<0,0001	0.016	43.7	0.081	0.001	888	5.931	2.34	3.99					1122	0.15	0.01	0.41	0.1495	0.0002	0.496		0.386	18.7	0.94	<0,0003	<0,0003	0.047	1866		1979	<0,005	0.002		0.0175
6-Dec-13	2013															4.78																							
14-Dec-13	2013															4.33																							
20-Dec-13	2013															9.27																							
8-Jan-14	2014	7.39	4.6	135	0.072	0.0001	0.021	36.8	0.0838	0.00134	1035	9.135	9.053	8.33					1329		0.03	0.18	0.0595	0.0002	0.5826		0.2525	25.5	0.97	0.0003	0.0016	0.072	1329		2115		0.001		
4-Feb-14	2014	7.45	4.86	120	0.15	0.0107	0.031	53.6	0.0914	0.00173	1289	10.9	10.9	9.17					1428		0.08	0.02	0.0141	0.0004	0.7348		0.0754	32	0.97	0.0011	0.0003	0.113	2660		2496		0.001		
11-Mar-14	2014	8.12	0.98	95	0.006	0.0036	0.024	58.8	0.1096	0.00417	1860	5.466	2.189	14.49					1286		0.69	6.8	0.0035	0.0004	0.6747		0.0871	29.8	0.8	0.0009	0.0003	0.188	2740		2542		0.002		
8-Apr-14	2014	9.25	3.3	110	0.079	0.0041	0.0229	58.8	0.1219	0.0004	2153	0.37	0.2578	23.1					1721		0.09	0.32	0.0005	0.0003	0.1866		0.0578	27.7	0.58	0.0003	0.0003	0.273	4633		2275		0.001		
6-May-14	2014	8.19	10.57	73	0.139	0.0016	0.0162	59.5	0.0826	0.00267	1549	0.9237	0.7796	11.69					949		0.29	2.2	0.003	0.0005	0.3037		0.0756	24.2	0.24		0.0003	0.247	3878		2015		0.007		
3-Jun-14	2014	7.05	13.88	67	0.046	0.0042	0.0085	51.5	0.0512	0.00065	727		8.398	6.21					674		0.02	0.41	0.0447	0.0002	0.2232		0.2941	14.3	0.16		0.0003	0.122	2142		1251		0.001		
1-Jul-14	2014	8.18	3.94	90	0.099	0.0001	0.007	61.1	0.0691	0.00084	1235	3.538	0.7023	0.913					1265	0.42	0.09	2	0.0615	0.0003	0.359		0.6107	26.7	0.19	0.0003	0.0003	0.17	8573		2289		0.001	0.163	0.0107
5-Aug-14	2014	7.8	3.78	89	0.134	0.0001	0.0143	48.7	0.0791	0.0013	1847	0.015	0.8784	1.33					1246		0.12	0.48	0.0212	0.0006	0.5202		0.2237	33.5	0.24	0.0003	0.0003	0.239	3909		2683		0.001		
7-Sep-14	2014	7.32	8.09	84	0.072	0.0222	0.0075	46.3	0.0893	0.00114	2236	0.5292	2.139	3.36					1390		0.25	3.7	0.0269	0.0004	0.5631		0.5444	21.7	0.19		0.0003	0.209	3636		2400		0.001		
7-Oct-14	2014		0.95	93	0.034	0.0333	0.018	55.10	0.1068	0.00266	2372		8.68	17.79					1387		0.26	4.8	0.0285	0.0006	0.65		1.399	35.6	0.19		0.0003	0.217	4746		2359		0.001		
4-Nov-14	2014	7.91	2.41	120	0.109	0.1837	0.0254	67.30	0.1048	0.00303	2902		1.261	20.54					1693		0.65	1.5	0.0261	0.0009	0.721		1.518	39.6	0.20		0.0003	0.222	1694		3033		0.011		
1-Dec-14	2014	7.58	1.21	127	0.040	0.0032	0.0122	88.20	0.0439	0.00026	256		1.267	6.02					659		0.60	0.02	1.355	<0.0001	0.0641		0.2428	3.7	0.30		0.0003	0.016	1461		951		0.001		
15-Jan-15	2015			197	0.176	0.00005	0.0372	61.4	0.1626	0.00302	3907		14.71	68.67					1961		0.17	0.58	0.0236	0.00151	0.9494	0.79	1.787	53.2			0.00015	0.28	3304		3724	0.0025	0.0005		
4-Mar-15	2015			296	0.003	0.00005	0.0643	52.9	0.1226	0.00354	3838		13.6	78.98					1803		0.27	7.4	0.0217	0.00102	1.14	0.8	2.494	64.5			0.001	0.402	7846		4261	0.0025	0.006		
7-Apr-15	2015			24	0.003	0.0056	0.0011	4.99	0.0085	0.00026	159		1.008	3.54					123		0.96	0.09	0.0032	0.00002	0.0668	0.15	0.1586	2.85			0.00015	0.018	559		274	0.0025	0.0005		
11-May-15	2015			374	0.003	0.0069	0.0424	108	0.0507	0.00289	4751		35.8	60.47					1447		0.51	7.5	0.0075	0.00359	1.308	1.93	4.271	67.3			0.00015	0.399	9773		4103	0.0025	0.009		
1-Jun-15	2015			43	0.003	0.0098	0.00025	13.6	0.0233	0.00024	267		2.258	1.45					385		0.03	0.03	0.035	0.035	0.1116	0.09	0.2058	9.93			0.0008	0.042	1474		770	0.0025	0.0005		
6-Jul-15	2015			62	0.003	0.005	0.00025	17.6	0.0289	0.00001	432		1.06	0.009					559		0.005	2.37	0.0529	0.00011	0.1765	0.33	0.3169	12.1			0.00015	0.054	1720		843	0.0025	0.0005		
3-Aug-15	2015			97	0.003	0.0068	0.00025	35.9	0.0809	0.00001	608		0.5371	0.079					1005		0.005	0.32	0.0229	0.00036	0.38	0.71	0.0883	19			0.00015	0.068	2863		1692	0.0025	0.0005		
8-Sep-15	2015			99	0.033	0.00005	0.00025	46.1	0.0874	0.00141	868		0.7407	0.396					1880		0.02	0.55	0.029	0.00053	0.5175	0.62	0.0758	20.6			0.00015	0.057	3232		2140	0.0025	0.0005		
7-Jun-16	2016	7.71	14.55	31	0.006	0.0001	0.0005	8.05	0.0113	0.00008	94.9	0.3547	0.2621	0.112					328	0.88	0.01	0.02	0.0388	0.00003	0.0598	0.07	0.0399	4.82	0.05	0.0003	0.0003	0.017	800	17	416	0.002	0.001	0.006	0.0005
26-Jul-16	2016	7.52	3.1	54	0.003	0.00005	0.00025	12.9	0.0269	0.00037	144	0.0326	0.0237	0.03	0.751	0.015	3.2	124	564	0.3	0.01	0.31	0.1858	0.0004	0.1085	0.16	0.0281	5.22	0.56	0.0021	0.00015	0.026	1166	2	765	0.0004	0.0005	0.043	0.00025
2-Aug-16	2016	7.87	5.15	55	0.003	0.00005	0.0068	7.03	0.0273	0.00023	112	0.047	0.0301	0.038		0.02	0.005	80	514	0.22	0.01	0.25	0.186	0.00005	0.1209	0.1	0.0303	3.46	0.61	0.0032	0.00015	0.029	1244	6	854	0.0004	0.0005	0.003	0.0091
6-Sep-16	2016	8.28	4.98	56	0.011	0.00005	0.00025	19.3	0.0311	0.0003	138	0.0144	0.0139	0.033	0.013	0.016	2.2	77	597	0.2	0.03	0.27	0.2037	0.00005	0.134	0.28	0.0144	1.9	0.46	0.0011	0.00015	0.03	1558	3	1145	0.0004	0.016	0.034	0.0204
3-Oct-16	2016	8.01	18.7	61	0.003	0.00005	0.00025	16.9	0.0217	0.00021	127	0.0161	0.0122	0.031	0.013	0.014	2.0	67	699	0.98	0.01	0.28	0.2394	0.000005	0.112	0.18	0.021	1.81	0.27	0.0053	0.00015	0.023	1457	17	937	0.0004	0.003	0.193	0.00025
12-Jun-17	2017	7.7	55.4	104	0.008	0.00005	0.0057	39	0.0443	0.00085	333	0.1097	0.0838	0.143	0.005	0.11	0.005	92.70	980	0.19	0.05	0.36	0.4074	0.00043	0.2808	0.78	0.0641	3.86	0.24	0.0002	0.00015	0.032	2750	2	1585	0.0004	0.0005	0.034	0.0043
10-Jul-17	2017	8.5	8.5	66	0.003	0.00005	0.0075	9.1	0.0158	0.0001	39.4	0.0096	0.0085	0.042	0.013	0.0005	0.30	5.55	294	0.65	0.005	0.18	0.2008	0.000005	0.0431	0.12	0.0132	1.24	0.13	0.0002	0.00015	0.004	719	15	422	0.0004	0.0005	0.003	0.0075
7-Aug-17	2017	7.65	12.8	78	0.003	0.00005	0.00025	7.58	0.0212	0.00004	36.4	0.0121	0.0059	0.009	0.003	0.002	0.005	8.04	392	0.74	0.005	0.2	0.2337	0.000005	0.0503	0.18	0.0136	1.16	0.14	0.0096	0.00015	0.003	802	15	382	0.0004	0.002	0.134	0.01
3-Sep-17	2017	7.74	6.92	73	0.003	0.00005	0.00025	12	0.023	0.00015	39.3	0.0137	0.0061	0.009	0.003	0.004	0.005	2.76	340	0.2	0.005	0.2	0.1248	0.000005	0.049	0.17	0.0137	1.22	0.12	0.0002	0.0009	0.003	878	2	529	0.0004	0.001	0.046	0.00025
11-Jun-18	2018	7.26	68	42	0.006	0.0001	0.0005	3.98	0.0111	0.00002	15.6	0.0098	0.0045	0.004	0.005	0.003	0.01	0.05	251	1.83	0.02	0.11	0.1296	0.00003	0.0114	0.03	0.0171	2.76	0.05	0.0135	0.00015	0.002	445	52	331	0.0004	0.0005	0.608	0.00025
2-Jul-18	2018	7.63	9.94	50	0.006	0.0001	0.0005	5.42	0.0202	0.00018	24.2	0.0067	0.0087	0.012	0.005	0.005	0.01	5.4	307	0.4	0.01	0.16	0.2616	0.000005	0.0216	0.09	0.0161	2.08	0.08	0.00015	0.00015	0.0005	592	5	421	0.0004	0.005	0.049	0.0033
7-Aug-18	2018	7.73	14.9	72	0.005	0.0001	0.0005	6.47	0.0179	0.00007	28.6	0.0052	0.0028	0.012		0.004	0.01	1.39	376	0.61	0.005	0.22	0.2529	0.000005	0.0303	0.12	0.0169	2.06	0.12	0.00015	0.00015	0.0021	764	10	549	0.0001	0.0005	0.098	0.00025
26-Sep-18	2018			99	0.011	0.0001	0.0272	48.7	0.0669	0.00002	292	1.444	1.231	0.061		0.038	0.16	84.5	993	0.05	0.005	0.47	0.1017	0.000005	0.4922	1.56	0.0845	12.1	0.33	0.00015	0.00015	0.0681	2197	1	2167	0.0001	0.0005	0.032	0.0287
2-Oct-18	2018	8.52	5.29	93	0.037	0.0001	0.0448	54.8	0.1035	0.00234	347	0.3697	0.2755	0.085	0.014	0.017	155	88.2	1260	0.23	0.005	0.4	0.0569	0.00001	0.555	0.85	0.0594	11.5	0.35	0.0003	0.00015	0.0909	1678	14	2169	0.0001	0.001	0.125	0.0492
END OF DATABASE																																							

Indicate values = 1/2 of detection limit

Max. Monthly		0.002			0.0004								0.4										0.1
Max. Instant.		0.004			0.0008								0.8										0.2
DATE	Barium	Cadmium	Chromium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Selenium 4 (Se)	Selenium 6 (Se)	Silver	Thallium	Zinc	Antimony	Beryllium	Lithium	Strontium	Tin	Titanium	Uranium	Vanadium	Cobalt	Lead
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2-Jan-13																							
5-Jan-13																							
8-Jan-13																							
11-Jan-13																							
14-Jan-13																							
19-Jan-13																							
22-Jan-13																							
30-Jan-13																							
4-Feb-13																							
6-Feb-13																							
10-Feb-13																							
17-Feb-13																							
23-Feb-13																							
28-Feb-13																							
4-Mar-13																							
5-Mar-13																							
10-Mar-13																							
19-Mar-13																							
25-Mar-13																							
31-Mar-13																							
2-Apr-13																							
6-Apr-13																							
12-Apr-13																							
16-Apr-13																							
21-Apr-13																							
27-Apr-13																							
7-May-13																							
8-May-13																							
12-May-13																							
15-May-13																							
19-May-13																							
25-May-13																							
31-May-13																							
4-Jun-13																							
8-Jun-13																							
12-Jun-13																							
16-Jun-13																							
20-Jun-13																							
27-Jun-13																							
4-Jul-13	0.058	0.000415	0.00065	0.5	<0,00001	0.1985	0.1168	0.012				0.275	0.0045	0.00135	<0,0005	<0,005	0.804	<0,001	<0,005	0.009	<0,0005		
5-Jul-13																							
12-Jul-13																							
19-Jul-13																							
25-Jul-13																							
1-Aug-13																							
11-Aug-13																							
13-Aug-13																							
14-Aug-13																							
19-Aug-13																							
26-Aug-13																							
2-Sep-13																							
6-Sep-13																							
13-Sep-13																							
23-Sep-13																							
3-Oct-13																							
9-Oct-13																							
16-Oct-13																							
22-Oct-13																							
1-Nov-13																							
4-Nov-13																							
9-Nov-13																							
14-Nov-13																							
29-Nov-13																							
2-Dec-13	0.0826	0.001	0.0013	0.1521	0.00029	0.4997	0.4075	0.047				<0,005	0.002	0.0029	<0,0005	<0,005	1.23	<0,001	0.345	0.019	<0,0005		
6-Dec-13																							
14-Dec-13																							
20-Dec-13																							
8-Jan-14																							
4-Feb-14																							
11-Mar-14																							
8-Apr-14																							
6-May-14																							
3-Jun-14																							
1-Jul-14	0.0774	0.00101	0.0006	0.0674	0.00035	0.3672	0.6694	0.177				0.005	0.01	0.0036	0.0005	0.005	0.743	0.002	0.71	0.01	0.0005		
5-Aug-14																							
7-Sep-14																							
7-Oct-14																							
4-Nov-14																							
1-Dec-14																							
15-Jan-15																							
4-Mar-15																							
7-Apr-15																							
11-May-15																							
1-Jun-15																							
6-Jul-15																							
3-Aug-15																							
8-Sep-15																							
7-Jun-16	0.001	0.00002	0.0006	0.001	0.00001	0.001	0.001	0.001				0.002	0.001										
26-Jul-16	0.028	0.00043	0.0003	0.198	0.00053	0.116	0.031	0.027	0.0005	0.019	0.00005	0.0004	0.0005										
2-Aug-16	0.026	0.00022	0.0006	0.169	0.00005	0.110	0.029	0.028	0.0005	0.026	0.00005	0.0004	0.001										
6-Sep-16	0.031	0.00038	0.002	0.204	0.000005	0.135	0.015	0.027	0.0005	0.024	0.00005	0.0004	0.015										
3-Oct-16	0.021	0.00022	0.0003	0.271	0.000005	0.114	0.023	0.024	0.0005	0.023	0.00005	0.0004	0.005										
12-Jun-17	0.053	0.00162	0.0006	0.450	0.00032	0.359	0.075	0.038	0.0040	0.017	0.00005	0.0004	0.001										
10-Jul-17	0.017	0.00005	0.0011	0.205	0.000005	0.043	0.013	0.004	0.0005	0.004	0.00005	0.0004	0.005										
7-Aug-17	0.022	0.00004	0.0041	0.234	0.000005	0.051	0.017	0.003	0.0005	0.003	0.00005	0.0004	0.002										
3-Sep-17	0.027	0.00007	0.0006	0.175	0.00009	0.049	0.016	0.005			0.00005	0.0004	0.001										
11-Jun-18	0.0111	0.00001	0.0003	0.1502	0.000005	0.0116	0.019	0.0005			0.00005	0.0004	0.0005										
2-Jul-18	0.0202	0.00018	0.0009	0.2564	0.000005	0.0202	0.0182	0.0005			0.00005	0.0004	0.003										
7-Aug-18	0.0176	0.00003	0.0003	0.2573	0.000005	0.0284	0.0175	0.0022			0.00005	0.0001	0.0005										
26-Sep-18	0.0716	0.00023	0.0003	0.1092	0.000005	0.5302	0.0975	0.0858			0.00005	0.0001	0.0005										
2-Oct-18	0.1218	0.00261	0.0021	0.687	0.00001	0.6018	0.0816	0.1014			0.00005	0.0001	0.004										
END OF DATABASE																							

Indicate values = 1/2 of detection limit

CENTRAL DIKE DOWNSTREAM POND (ST-S-5)

Parameter	conductivity	pH	Temperature	Turb	DO	Salinity	CN WAD	Alkalinity	Al	Ag	As	Ammonia nitrogen	Ba	Ca	Cd	Chloride	Cr	Cu	Hardness	Fe	Fluoride	Mg	Mn	Hg
Date	µs/cm		˚C	NTU		ppm	ppm	mg CaCO3/L	mg/L	mg/L	mg/L	mg N/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L		mg/L	mg/L
05-janv-2016	3.19	7.48		9.25			0.864	157	0.011	<0.00005	0.0368	25.3	0.0274		0.00079	500	0.0022	0.0566	1108	1.32	0.49		2.435	0.00008
01-févr-2016	3.40			22.81				160	0.046	<0.00005	0.0434	25.9	0.0347		0.00057	491	<0.0003	0.2502	1123	1.52	0.43		2.078	0.00024
08-mars-2016	2.49	7.05	24.5	10.96			0.389	160	<0.003	<0.00005	0.0457	26.9	0.036		<0.00001	532	<0.0003	0.1463	1309	1.58	0.52		2.38	0.00004
05-avr-2016	4.54	7.65	15.8	13.23			0.374	161	0.01	0.0015	0.0452	30	0.0353		0.0007	520	0.0011	0.0785	1316	1.85	0.53		2.187	0.00006
03-mai-2016	4.87	7.94	10.3	11.6				156	<0.003	<0.00005	0.045	29	0.0413		0.00059	511	0.0046	0.0236	1358	1.34	1.47		2.316	0.00014
05-mai-2016	4.83	8.25	10.3	11.1			0.074																	
06-mai-2016	4.7	7.37	11.5	9.05																				
07-mai-2016	4.61	7.47	8.9	12.18																				
07-juin-2016	4.27	7.89	12.5	7.24				148	0.039	<0.00005	0.0407	27.6	0.0409		0.00063	533	0.0059	0.0171	1368	1.68	0.07		2.072	0.00004
18-juil-2016	4.69	7.96	10.6	15.77				133	0.011	<0.00005	0.048	25.9	0.0295		0.00135	392	<0.0003	0.0054	1074	1.85	0.49		2.002	0.0001
03-août-2016	3450	7.76	8.1	4.1			0.052	137	<0.003	<0.00005	0.0383	22.1	0.0284		0.00099	391	<0.0003	0.0091	1104	1.64	0.49		2.065	<0.00005
06-sept-2016	4.11	7.91	11.6	2.33			0.042	137	0.046	<0.00005	0.0072	28.8	0.0324		0.00054	370	0.0007	0.0061	1106	2.75	0.47		2.339	<0.00005
03-oct-2016	3891	7.27	8.2	11.8			0.039	133	0.015	<0.00005	0.0426	27.5	0.0273		0.00065	359	<0.0003	0.031	1217	2.2	0.49		2.159	<0.00005
08-nov-2016	3570	7.84	8	7.67			0.033	132	0.008	<0.00005	0.0427	29.3	0.0268		0.00168	357	0.001	0.0112	1140	2.01	0.48		2.414	0.0001
05-déc-2016	2620	8.3	7.9	12.5				129	0.047	<0.00005	0.1082	29.5	0.0274		0.00161	458	<0.0003	0.0077	887	5.07	0.48		1.975	0.0001
19-déc-2016	2.45	7.58	8	3.7																				
03-janv-2017	2110	7.99	11.6	6.67				130	0.023	<0.00005	0.0563	28.8	0.0314		0.00134	482	0.0015	0.0074	1222	2.68	0.46		2.358	<0.00005
06-févr-2017	2.57	7.51	13.5	8.62				135	<0.003	<0.00005	0.0472	27.5	0.0216		0.00129	523	<0.0003	0.0056	1229	2.18	0.55		2.448	0.00005
06-mars-2017	3.57	7.36	5	6.43				138	<0.003	<0.00005	0.048	26	0.0256		0.00119	508	<0.0003	0.0087	1009	2.42	0.45		2.44	0.00009
03-avr-2017	4.7	7.59	6.2	3.73			0.101	130	<0.003	<0.00005	0.0307	29.41	0.0174		0.00073	571.7	<0.0003	0.0041	1027	1.89	0.51		2.074	<0.000005
01-mai-2017	2.84	7.71	12.2	7.65			0.109	126	<0.003	<0.00005	0.0395	29.39	0.0212		0.00081	532.3	<0.0003	0.0053	1248	2.36	0.46		2.326	<0.000005
09-mai-2017	3410	7.66	9.8	5.16																				
12-mai-2017	3420	7.42	9.9	3.18																				
16-mai-2017	3230	7.11	5.6	6.98																				
24-mai-2017	3370	7.15	20.6	13																				
27-mai-2017	3380	7.67	11.6	4.72																				
31-mai-2017	2520	7.56	7.7	4.26																				
02-juin-2017	2630	7.6	9.8	4.09																				
04-juin-2017	2380	7.96	5.5	4.68																				
07-juin-2017	2380	7.58	8.1	5.88																				
12-juin-2017	2890	7.42	10	9.52			0.183	117	<0.003	<0.00005	0.0325	34	0.0147		0.00109	98.9	<0.0003	0.0041	925	1.74	0.47		2.155	<0.000005
21-juin-2017	2350	7.52	10.4	11.1																				
23-juin-2017	2720	7.64	8.3	13.2																				
25-juin-2017	2850	7.61	5.8	19																				
28-juin-2017	2510	7.29	12.5	14.4																				
30-juin-2017	1941	7.63	16.8	10.3																				
03-juil-2017	2410	7.77	11.1	4.73																				
09-juil-2017	285	7.89	6.9	17.3																				
10-juil-2017	2.95	7.65	11.1	12.4			0.086	120	<0.003	<0.00005	0.0329	33	0.0202		0.00077	438	0.0009	0.0063	1006	1.29	0.52		2.041	<0.00001
11-juil-2017	3.92	7.44	6.3	10.3																				
12-juil-2017	3.38	7.3	6.9	13.6																				
19-juil-2017				15.2			0.104	122	0.018	<0.00005	0.0174	29.6	0.0225		0.00105	83.2	<0.0003	0.008	1026	1.02	0.46		1.821	0.00006
22-juil-2017	3985	7.63	8.93	14.9				125	<0.003	<0.00005	0.451	24.5	<0.00025	<	0.00043	396	<0.0003	0.0061	900	2.05	0.48		2.091	0.00065
22-juil-2017	3677	7.62	13.24	16.8				120	0.074	<0.00005	0.021	26.1	<0.00025	<	0.00083	349	0.0008	0.0066	876	0.79	0.45		1.542	0.0008
26-juil-2017	2810	7.41	8.1	10.6																				
27-juil-2017	3090	7.49	8	11.9																				
28-juil-2017	2840	7.61	6.6	10.2																				
29-juil-2017	3080	7.94	3.7	13.4																				
31-juil-2017	3150	7.56	2.8	10.7																				
01-août-2017	2960	7.8	5	10.3			0.086	128	0.01	<0.00005	<0.00025	29.7	0.021		0.00074	13.5	<0.0003	0.0057	1211	0.09	0.43			<0.000005
02-août-2017	2660	7.63	7.5	11																				
03-août-2017	2640	7.28	15.2	13.2																				
04-août-2017	2080	7.64	10.8	8.17																				
05-août-2017	2870	7.21	12.4	10																				
06-août-2017	3160	7.45	3	8																				
07-août-2017	3060	7.74	5.6	11.4			0.079	125	<0.0015	<0.00025	0.0292	29.8	0.0243		0.0002	377	<0.00005	0.0005	1841	0.89	0.41		2.152	<0.000005
08-août-2017	3350	7.6	3.4	19																				
09-août-2017	131.2	7.43	5	20.1																				
10-août-2017	3380	7.67	3.2	16.5																				
11-août-2017	3150	7.56	8.4	13.3																				
12-août-2017	2920	7.24	15.7	12.6																				
13-août-2017	3080	7.33	9.4	12.4																				
14-août-2017	2840	7.3	16.2	12.2			0.057	133	0.011	<0.000005	0.0474	28.1	0.0257		<0.00001	389	<0.0003	0.0058	1168	2.04	0.52		2.2433	0.00008
15-août-2017	3050	7.16	7.9	12.3																				
16-août-2017	2810	7.65	14.1	11.2																				
17-août-2017	647	7.54	12.7	7.84																				
18-août-2017	3070	7.2	11.5	11.5																				
19-août-2017	3470	7.39	1.9	8.18																				
20-août-2017	2970	7.51	12.7	14.2																				
21-août-2017	2980	7.63	6.7	8.1	5.9			132	<0.03	<0.00005	0.0344	29.4	0.023		0.00075	358	<0.0003	0.0072	1184	2.24	0.477		2.444	0.00047
22-août-2017	3020	8.14	10.5	2.98																				
23-août-2017	2990	7.31	18.7	11.9																				
25-août-2017	3110	7.32	17.8	12.2																				
28-août-2017	3480	7.8	13	22.4				115	<0.0015	0.0005	0.032	37	0.0334		0.00057	355	0.0078	0.005	1089	1.19	0.44		1.893	<0.000005
03-sept-2017	3310	7.48	2.1	23.4	7.9			120	0.065	<0.00005	0.0399	33	0.0279		0.00062	582	0.003	0.0047	1327	1.96	0.5		2.384	<0.000005
11-sept-2017	3130	7.76	6	17.5	9.89		0.081	122	<0.003	<0.00005	0.0248	27	0.0269		0.00088	362	<0.0003	0.0056	1163	1.65	0.4		2.247	0.00008
18-sept-2017	3140	7.73	15.1	17.6	7.6		0.052	123	<0.003	<0.00005	0.026	35	0.0213		0.0008	366	<0.0003	0.0046	976	2.24	0.45		1.921	0.00003
19-sept-2017																								
20-sept-2017	3.12	7.42	12.5	15.1																				
21-sept-2017	3.27	7.81	1.1	18.5																				
22-sept-2017	3.22	7.22	10.7	18.5																				
23-sept-2017	3.34	7.44	2.1	19																				
24-sept-2017	3.31	7.44	1.9	15.1																				
25-sept-2017	3.04	7.1	13.9	14.9			0.013	122	0.0016	<0.00005	0.03	31.6	0.0209		0.00052	375	0.0008	<0.00025	1003	1.53	0.51		2.048	<0.000005
26-sept-2017																								
27-sept-2017	3350	7.55	2.4	7.55																				
28-sept-2017	3590	6.83	0.3	19.6																				
29-sept-2017	3440	7.1	2.2	14.5																				
30-sept-2017	3550	7.51	0.1	18.8																				
01-oct-2017	3450	7.65	0.1	10.9																				
02-oct-2017	3220	7.2	4.6	17.6			0.051	117	0.031	<0.00005	0.0236	30.8	0.0163		0.00089	382	0.0015	0.0039	980	1.39	0.71		1.958	<0.000005
03-oct-2017	3.28	7.81	0	14.6																				
09-oct-2017	3.29	7.15	0.9	9.06	7		0.036	124	<0.003	<0.00005	0.0332	30.1	0.0192		0.00094	363	0.0014	0.0071	1016	1.29	0.54		1.94	0.00005
06-nov-2017	3.47	7.21	3.1	11.4			0.053	119	0.014	<0.00005	0.0434	27.7	0.0264		0.00096	417	0.0009	0.0051	1021	2.27	0.54		2.084	0.000169
04-déc-2017	3.13	7.83		11.9			0.08	121	<0.003	<0.00005	0.0528	24.9	0.0269		0.00097	376	<0.0003	0.0056	1208	3.24	0.48		2.601	0.00009
02-janv-2018	3.15	7.87	0.9	13.5			0.077	125	<0.003	<0.00005	0.0587	31.4	0.0259		0.001	520	0.0018	0.0063	1175	1.97	0.5		2.362	0.00006
06-févr-2018	3.65	7.59	5.3	13				118	0.009	<0.00005	0.0292	31.3	0.0189		0.00065	428	<0.0003	0.0066	926	2	0.61		1.913	0.00004
05-mars-2018	2.46	7.46	5.7	14.1			0.073	117	0.01	<0.00005	0.0577	29	0.0313		0.00003	579	<0.0003	0.0005	1489	1.73	0.55		2.58	0.00003
02-avr-2018	3.86	7.28	2.5	17			0.117	118	<0.003	<0.00005	0.0485	33.5	0.025		0.00076	599	0.003	0.0041	1099	2.04	0.59		2.34	0.00008
07-mai-2018	3.68	7.61	3.68	15.6			0.09	116	0.011	<0.00005	0.0443	32.5	0.0243		0.00071	496	<0.0003	0.0048	877	2.26	0.54		2.127	<0.000005
04-juin-2018	3.35	7.47	6.8	20.4			0.098	108	0.017	<0.00005	0.0365	25	0.0204	309	0.00189	426	<0.0003	0.003	997	2.29	0.47	54.8	1.617	0.00023
02-juil-2018							0.067	109	<0.003	<0.00005	0.0357	34.4	0.0308	353	0.00165	362	<0.0003	0.0034	1114	1.74	0.57	56.6	2.231	0.00001
06-août-2018	3.45	7.76	9.1	16.4			0.075	117	<0.0025	<0.00005	0.0102	37.7	0.0248	338	0.00125	427	<0.0003	0.0069	1059	0.03	0.66	52.3	2.406	0.00022
03-sept-2018	3.3	7.38	8.8	24.9			0.045	109	<0.0025	<0.00005	0.0397	34.3	0.022	326	0.00058	421	<0.0003	0.0055	1034	1.79	0.51	53.6	2.261	<0.000005
01-oct-2018	3.7	7.8		21.6				108	<0.0025	<0.00005	0.0441	29.1	0.0256	343	0.00107	420	<0.0003	0.006	1109	0.05	0.5	61.4	1.995	<0.000005
05-nov-2018	4.09	7.37	3.1	16.2				113	<0.0025	<0.00005	0.0532	27.4	0.0219	355	0.00005	404	<0.0003	<0.00025	1122	1.81	0.51	57.8	2.211	<0.000005
04-déc-2018								134	<0.0025	<0.00005	0.0466	32.3	0.0233	361	0.00107	433	0.0009	0.0079	1132	2.5	0.58	56.2	2.399	<0.000005

Indicate values = 1/2 of detection limit

Parameter	Mo	Ammonia (NH3)	Ni	Nitrate (NO3)	Nitrite (NO2)	Pb	Se	Potassium	Sodium	Sulphate (SO2-4)	TDS	TSS	Tl	Total Cyanide CNt	CN WAD	CN Free	Zn	Dissolved Al	Dissolved Ag	Dissolved As	Dissolved Ba	Dissolved Cd
Date	mg/L	mg N/L	mg/L	mg N/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg SO4/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
05-janv-2016	0.1882	0.32	0.0991	0.63	0.05	< 0.00015	0.048			1845	2558	4	< 0.005	0.531	0.445	0.08	0.009	< 0.006	< 0.0001	0.0223		0.00079
01-févr-2016	0.2584	0.48	0.1515	2.06	0.06	< 0.00015	0.039			1786	2772	7	< 0.002	0.821	0.712	0.096	0.003	< 0.006	< 0.0001	0.0296		0.00054
08-mars-2016	0.2846	0.44	0.079	1.88	0.1	< 0.00015	0.058			1836	2854	8	< 0.002	0.573	0.423	0.012	< 0.0005		< 0.0001	0.0225		< 0.00001
05-avr-2016	0.2767	0.53	0.0478	1.62	0.12	< 0.00015	0.056			1939	2547	4	< 0.002	0.476	0.374	0.008	0.007	< 0.006	0.0013	0.0267		0.00062
03-mai-2016	0.3273	0.49	0.0287	0.75	0.08	< 0.00015	0.043			2028	3081	3	< 0.002	0.248	0.229		0.003	< 0.006	< 0.0001	0.0328		0.00055
05-mai-2016																						
06-mai-2016																0.074						
07-mai-2016																						
07-juin-2016	0.3268	0.43	0.0237	0.05	0.03	< 0.00015	0.035			2079	2287	1	< 0.002	0.282	0.081	0.082	0.009	< 0.006	< 0.0001	0.0136		0.00037
18-juil-2016	0.3131	0.32	0.0299	0.01	0.05	< 0.00015	0.034			1565	2349	3	< 0.0008	0.134	0.058	0.029	< 0.0005	< 0.006	< 0.0001	0.0204		0.00135
03-août-2016	0.3257	0.39	0.0254	0.04	0.05	< 0.00015	0.028				2296	6	< 0.0008	0.103	0.052		0.004	< 0.006	< 0.0001	0.0145		0.00084
06-sept-2016	0.3347	0.32	0.0105	0.02	0.05	< 0.00015	0.017			1664	2716	4	< 0.0008	0.097	0.042	0.445	0.001	< 0.006	< 0.0001	0.0072		0.00054
03-oct-2016	0.2982	0.34	0.0187	0.1	0.05	< 0.00015	0.012			1657	2493	1	< 0.0008	0.146	0.039	0.021	0.002	< 0.006	< 0.0001	0.0271		0.00065
08-nov-2016	0.3144	0.32	0.0273	< 0.005	0.04	0.0066	0.02			1689	2351	7	< 0.0008	0.129	0.033	0.022	0.016	< 0.006	< 0.0001	0.019		0.00151
05-déc-2016	0.3586	0.27	0.0217	< 0.005	0.07	< 0.00015	0.02			1777	2685	22	< 0.0008	0.134	0.051	0.027	0.019	< 0.006	< 0.0001	0.0237		0.00123
19-déc-2016																						
03-janv-2017	0.3593	0.37	0.0209	< 0.005	0.01	< 0.00015	0.026			1913	2814	4	< 0.0008	0.1	0.058	0.054	0.007	< 0.006	< 0.0001	0.0233		0.00131
06-févr-2017	0.3346	0.5	0.0214	< 0.005	0.02	< 0.00015	0.015			1838	2976	5	< 0.0008	0.136	0.078	0.373	0.013	< 0.006	< 0.0001	0.0181		0.0014
06-mars-2017	0.3369	0.3	0.0249	< 0.005	0.01	0.0011	0.015			1950	3102	8	< 0.0008	0.239	0.099	6.25	0.003	< 0.006	< 0.0001	0.0216		0.00103
03-avr-2017	0.3024	0.28	0.0115	< 0.005	0.03	< 0.00015	0.009			1968	3131	9	< 0.0008	0.179	0.101	0.092	< 0.0005	< 0.006	< 0.0001	0.0128		0.00069
01-mai-2017	0.3659	0.4	0.0155	< 0.005	0.01	< 0.00015	0.015			1881	3161	5	< 0.0008	0.207	0.109	0.107	< 0.0005	< 0.006	< 0.0001	0.0253		0.00069
09-mai-2017																						
12-mai-2017																						
16-mai-2017																						
24-mai-2017																						
27-mai-2017																						
31-mai-2017																						
02-juin-2017																						
04-juin-2017																						
07-juin-2017																						
12-juin-2017	0.2527	0.18	0.0216	0.19	0.02	< 0.00015	0.015			1596	2838	4	< 0.0004	0.325	0.183	0.095	< 0.0005	< 0.006	< 0.0001	0.0167		0.00065
21-juin-2017																						
23-juin-2017																						
25-juin-2017																						
28-juin-2017																						
30-juin-2017																						
03-juil-2017																						
09-juil-2017																						
10-juil-2017	0.3052	0.16	0.0174	0.11	0.02	< 0.0003	0.01			1468	2729	5	< 0.0004	0.247	0.086	< 0.005	0.001	<0.006	< 0.0001	0.0291		0.00082
11-juil-2017																						
12-juil-2017																						
19-juil-2017	0.2753	0.45	0.0201	0.13	0.02	< 0.00015	0.011			1731	2664	13	< 0.0004	0.246	0.104	< 0.005	0.003	< 0.006	< 0.0001	0.0083		0.00133
22-juil-2017	0.2364	0.25	0.0196	0.15	0.01	0.0408	0.014			1656	2717	7	< 0.0004	0.115	0.059	< 0.005	< 0.0005	< 0.006	< 0.0001	0.01		0.00089
22-juil-2017	0.302	0.49	0.028	0.62	0.04	< 0.00015	0.016			1514	2552	13	< 0.0004	0.102	0.085	< 0.005	0.025	< 0.006	< 0.0001	0.0086		0.00083
26-juil-2017																						
27-juil-2017																						
28-juil-2017																						
29-juil-2017																						
31-juil-2017																						
01-août-2017	0.2799	0.3	0.0196	< 0.005	0.04	< 0.00015	0.021			1450	2676	6	< 0.0004	0.343	0.086	0.006	< 0.0005	< 0.006	< 0.0003	< 0.00025	0.018	0.00069
02-août-2017																						
03-août-2017																						
04-août-2017																						
05-août-2017																						
06-août-2017																						
07-août-2017	0.3258	0.48	0.0097	0.2	0.03	< 0.00025	0.005			1654	2592	< 0.5	< 0.0004	0.196	0.079	< 0.005	0.002	0.008	< 0.0005	0.013	0.0226	< 0.000025
08-août-2017																						
09-août-2017												2.3										
10-août-2017												2										
11-août-2017												2.9										
12-août-2017												2.6										
13-août-2017												2.8										
14-août-2017	0.3138	0.36	0.0162	0.02	0.03	< 0.00015	0.018			1159	2642	5.5	< 0.0004	0.141	0.057	0.006	0.003	< 0.006	< 0.0001	0.0118	0.0236	< 0.00001
15-août-2017												4.3										
16-août-2017												2										
17-août-2017												1.4										
18-août-2017												3.6										
19-août-2017												1.6										
20-août-2017												5.8	0.0004									
21-août-2017	0.3149	0.61	0.0169	0.15	0.01	< 0.00015	0.013			1626	2602	5	< 0.0008	0.232	0.105	< 0.005	< 0.0005	< 0.006	< 0.0001	0.018	0.0205	0.00066
22-août-2017																						
23-août-2017												5.7										
25-août-2017																						
28-août-2017	0.2777	0.59	0.0214	0.4	0.05	0.0035	0.021			1513	2652	4	< 0.0004	0.252	0.08	< 0.0025	0.005	0.003	< 0.0001	0.0126	0.0245	< 0.00001
03-sept-2017	0.2974	0.31	0.0145	0.17	0.03	0.0026	0.008			1743	2594	1	< 0.0004	0.185	0.103	0.007	0.007	< 0.006	< 0.0001	0.0081	0.0215	0.00064
11-sept-2017	0.2892	0.33	0.0187	0.15	0.04	< 0.00015	0.011			1892	2593	1	< 0.0004	0.262	0.081	< 0.0025	< 0.0005	< 0.006	< 0.0001	0.0069	0.022	0.00076
18-sept-2017	0.2901	0.2	0.015	0.08	0.02	< 0.00015	0.011			1836	2690	9	< 0.0004	0.279	0.052	0.038	0.001	< 0.006	< 0.0001	0.011	0.0201	0.00077
19-sept-2017																						
20-sept-2017																						
21-sept-2017																						
22-sept-2017																						
23-sept-2017																						
24-sept-2017																						
25-sept-2017	0.2942	0.48	0.0147	0.05	0.02	< 0.00015	0.013	67.3	422	1728	2689	3	< 0.0004	0.049	0.013	0.008	< 0.0005	0.013	< 0.0001	0.0102	0.0207	0.00053
26-sept-2017																						
27-sept-2017																						
28-sept-2017																						
29-sept-2017																						
30-sept-2017																						
01-oct-2017																						
02-oct-2017	0.243	0.64	0.0181	0.35	0.03	< 0.00015	0.013	65.4	414	168	2623	8	< 0.0004	0.18	0.051	0.039	< 0.0005	< 0.006	< 0.0001	0.0085	0.0163	0.00088
03-oct-2017																						
09-oct-2017	0.2817	0.41	0.0264	0.14	0.04	< 0.00015	0.013	72.2	463	1726	2602	8	< 0.0004	0.084	0.036	0.034	< 0.0005	< 0.006	< 0.0001	0.0125	0.0192	0.00073
06-nov-2017	0.296	0.41	0.0187	< 0.005	0.01	< 0.00015	0.013			1947	2714	6	< 0.0004	0.253	0.053	0.035	0.001	< 0.006	< 0.0001	0.017	0.0229	0.00124
04-déc-2017	0.3267	0.25	0.0232	< 0.005	< 0.005	< 0.00015	0.019									0.052						
02-janv-2018	0.3197	0.46	0.0239	0.05	0.02	< 0.00015	0.017			2290	2792		< 0.0004	0.106	0.077	0.06	0.002	< 0.006	< 0.0001	0.0167	0.0259	0.00092
06-févr-2018	0.2601	< 0.005	0.0184	0.01	< 0.005	< 0.00015	0.012			2033	2900	3	< 0.0004	0.127	0.064		< 0.0005	< 0.006	< 0.0001	0.017	0.0305	0.0008
05-mars-2018	0.378	0.41	0.0137	< 0.005	0.01	< 0.00015	0.002			2066	2886	12	< 0.0004	0.114	0.073		< 0.0005	0.01	< 0.0001	0.0267	0.0295	0.00012
02-avr-2018	0.29	0.42	0.0172	< 0.005	< 0.005	< 0.00015	0.006			1928	2614	25	< 0.0004	0.279	0.107	0.053	0.002	< 0.006	< 0.0001	0.0221	0.0242	0.00079
07-mai-2018	0.2627	0.37	0.0161	< 0.005	< 0.005	< 0.00015	0.005			2293	2372	3	< 0.0004	0.138	0.09	0.064	< 0.0005	0.011	< 0.0001	0.013	0.0243	0.00071
04-juin-2018	0.2561	0.29	0.0262	0.39	0.03	< 0.00015	0.014	63.7	590	1867	2309	4	< 0.0004	0.141	0.098	0.094	< 0.0005	< 0.006	< 0.0001	0.0178	0.0213	0.00224
02-juil-2018	0.2922	0.46	0.0327	0.07	0.02	< 0.00015	0.018	85	525	1956	2434	15	< 0.0004	0.108	0.067	0.068	0.006	< 0.006	< 0.0001	0.0042	0.0244	0.00165
06-août-2018	0.3091	0.58	0.0359	0.13	0.03	< 0.00015	0.0223	69.4	638	1979	2479	4	< 0.0001	0.257	0.075	0.036	< 0.0005	< 0.005	< 0.0001	0.0099	0.0248	0.00117
03-sept-2018	0.2911	0.48	0.031	0.11	0.03	< 0.00015	0.0128	70.4	527	1949	2131	3	< 0.0001	0.07	0.045	0.043	< 0.0005	< 0.005	< 0.0001	0.0067	0.0199	0.00058
01-oct-2018	0.2606	0.35	0.0264	0.01	0.02	< 0.00015	0.0143	75.7	566	2005	1654	8	< 0.0001	0.064	0.036	0.049	< 0.0005	< 0.005	< 0.0001	0.0123	0.0256	0.00113
05-nov-2018	0.3016	0.35	0.0088	0.02	0.02	< 0.00015	< 0.00025	78.6	551	1985	1875	4	< 0.0001	0.151	0.054		< 0.0005	< 0.0005	< 0.0001	0.0115	0.0265	0.00003
04-déc-2018	0.2618	0.49	0.0273	< 0.005	< 0.005	< 0.00015	0.0084	85.8	558	1878	2062	7	< 0.0001	0.13	0.058	0.035	0.002	< 0.005	< 0.0001	0.0058	0.0215	0.00115

Indicate values = 1/2 of detection limit

Parameter	Dissolved Cr	Dissolved Cu	Dissolved Fe	Dissolved Mn	Dissolved Hg	Dissolved Mo	Dissolved Ni	Dissolved Pb	Dissolved Se	Dissolved Tl	Dissolved Zn
Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
05-janv-2016	0.0021	0.052	0.1	2.664	< 0.000005	0.187	0.1077	< 0.00015	0.052	< 0.0025	0.003
01-févr-2016	0.0062	0.2288	0.13	2.252	0.00013	0.2525	0.1246	< 0.00015	0.051	< 0.001	0.002
08-mars-2016	< 0.0006	0.1435	0.07	2.303	< 0.000005	0.2719	0.0759	< 0.00015	0.056	< 0.001	< 0.0005
05-avr-2016	< 0.0006	0.072	0.06	2.153	0.00006	0.282	0.0506	< 0.00015	0.063	< 0.001	< 0.0005
03-mai-2016	0.0029	0.0184	0.04	2.239	0.00014	0.326	0.0313	< 0.00015	0.044	< 0.001	< 0.0005
05-mai-2016											
06-mai-2016											
07-mai-2016											
07-juin-2016	0.0027	0.0134	0.05	2.121	0.00005	0.3367	0.022	< 0.00015	0.037	< 0.001	0.003
18-juil-2016	< 0.0006	0.0045	0.05	2.006	0.0001	0.3167	0.0298	< 0.00015	0.036	< 0.0004	< 0.0005
03-août-2016	< 0.0006	0.0055	0.06	1.953	< 0.00005	0.299	0.228	< 0.00015	0.026	< 0.0004	0.001
06-sept-2016	< 0.0006	0.0061	0.04	2.339	< 0.000005	0.3153	0.0099	< 0.00015	0.022	< 0.0004	0.002
03-oct-2016	< 0.0006	0.0047	0.04	2.032	< 0.000005	0.2998	0.0187	< 0.00015	0.014	< 0.0004	0.001
08-nov-2016	< 0.0006	0.0103	1.38	2.308	0.0001	0.2984	0.0244	0.0052	0.018	< 0.0004	0.011
05-déc-2016	< 0.0006	0.0044	0.04	1.785	< 0.00005	0.3479	0.0145	< 0.00015	0.022	< 0.0004	< 0.001
19-déc-2016											
03-janv-2017	0.0015	0.0092	0.07	2.261	< 0.00005	0.3338	0.0211	< 0.00015	0.037	< 0.0004	0.008
06-févr-2017	< 0.0006	0.0042	0.09	2.544	0.00014	0.3611	0.0209	< 0.00015	0.037	< 0.0004	< 0.0005
06-mars-2017	< 0.0006	0.0066	0.05	2.248	0.00009	0.3225	0.0226	< 0.00015	0.024	< 0.0004	< 0.0005
03-avr-2017	< 0.0006	0.0051	< 0.005	2.215	< 0.000005	0.3333	0.0126	< 0.00015	0.024	< 0.0004	< 0.0005
01-mai-2017	< 0.0006	0.0047	0.03	2.34	< 0.000005	0.3414	0.014	< 0.00015	0.014	< 0.0004	< 0.0005
09-mai-2017											
12-mai-2017											
16-mai-2017											
24-mai-2017											
27-mai-2017											
31-mai-2017											
02-juin-2017											
04-juin-2017											
07-juin-2017											
12-juin-2017	< 0.0006	0.0041	0.06	2.022	0.0001	0.2357	0.0217	< 0.00015	0.018	< 0.0004	< 0.0005
21-juin-2017											
23-juin-2017											
25-juin-2017											
28-juin-2017											
30-juin-2017											
03-juil-2017											
09-juil-2017											
10-juil-2017	0.0008	0.0081	0.04	2.071	< 0.000005	0.3108	0.0162	0.0265	0.015	< 0.0004	< 0.0005
11-juil-2017											
12-juil-2017											
19-juil-2017	< 0.0006	0.0073	0.15	1.773	0.0001	0.3174	0.0201	< 0.00015	0.014	< 0.0004	< 0.0005
22-juil-2017	< 0.0006	0.0061	0.03	2.357	0.00057	0.2551	0.0215	0.0408	0.017	< 0.0004	< 0.0005
22-juil-2017	< 0.0006	0.0066	0.02	1.407	0.00076	0.2639	0.0257	< 0.00015	0.013	< 0.0004	< 0.0005
26-juil-2017											
27-juil-2017											
28-juil-2017											
29-juil-2017											
31-juil-2017											
01-août-2017	0.0009	0.0069	0.04		< 0.000005	0.2601	0.02	< 0.00015	0.017	< 0.0004	< 0.0005
02-août-2017											
03-août-2017											
04-août-2017											
05-août-2017											
06-août-2017											
07-août-2017	< 0.00005	< 0.0005	0.1	1.932	< 0.000005	0.2991	0.0089	< 0.00025	0.001	< 0.0004	< 0.0005
08-août-2017											
09-août-2017											
10-août-2017											
11-août-2017											
12-août-2017											
13-août-2017											
14-août-2017	< 0.0003	0.0068	0.04	2.243	< 0.000005	0.3181	0.0184	< 0.00015	0.023	< 0.0004	< 0.0005
15-août-2017											
16-août-2017											
17-août-2017											
18-août-2017											
19-août-2017											
20-août-2017											
21-août-2017	< 0.0003	0.0068	0.04	2.205	0.00009	0.2979	0.0153	< 0.00015	0.013	< 0.0004	< 0.0005
22-août-2017											
23-août-2017											
25-août-2017											
28-août-2017	0.001	0.0065	0.07	1.803	< 0.000005	0.297	0.0214	0.0041	0.015	< 0.0004	0.001
03-sept-2017	< 0.0003	0.0035	0.03	2.342	0.00002	0.2977	0.0145	< 0.00015	0.011	< 0.0004	< 0.0005
11-sept-2017	< 0.0003	0.0052	0.04	2.201	0.00004	0.2863	0.0182	< 0.00015	0.016	< 0.0004	< 0.0005
18-sept-2017	< 0.0003	0.0044	0.06	2.076	0.00018	0.3089	0.0159	< 0.00015	0.015	< 0.0004	< 0.0005
19-sept-2017											
20-sept-2017											
21-sept-2017											
22-sept-2017											
23-sept-2017											
24-sept-2017											
25-sept-2017	< 0.0003	< 0.0005	0.05	2.075	0.0003	0.2983	0.0148	< 0.00015	0.017	< 0.0004	< 0.0005
26-sept-2017											
27-sept-2017											
28-sept-2017											
29-sept-2017											
30-sept-2017											
01-oct-2017											
02-oct-2017	0.0008	0.0033	0.02	1.951	0.00005	0.2466	0.0181	< 0.00015	0.014	< 0.0004	< 0.0005
03-oct-2017											
09-oct-2017	< 0.0003	0.0066	0.05	2.14	0.00009	0.2954	0.0268	< 0.00015	0.015	< 0.0004	< 0.0005
06-nov-2017	< 0.0003	0.0042	0.06	2.054	0.000129	0.2903	0.0191	< 0.00015	0.017	< 0.0004	0.004
04-déc-2017											
02-janv-2018	0.0021	0.0067	0.086	2.4	0.00006	0.3292	0.0233	< 0.00015	0.026	< 0.0004	< 0.0005
06-févr-2018	0.0013	0.0098	0.14	2.514	0.00003	0.2601	0.0237	< 0.00015	0.027	< 0.0004	< 0.0005
05-mars-2018	< 0.0003	< 0.0005	0.017	2.687	< 0.000005	0.39	0.0131	< 0.00015	0.008	< 0.0004	< 0.0005
02-avr-2018	0.0017	0.004	0.1	2.208	0.00008	0.2902	0.0177	< 0.00015	0.01	< 0.0004	< 0.0005
07-mai-2018	< 0.0003	0.0034	0.05	2.127	< 0.000005	0.2627	0.0161	< 0.00015	0.005	< 0.0004	< 0.0005
04-juin-2018	< 0.0003	0.0035	0.07	1.772	< 0.000005	0.2778	0.0295	< 0.00015	0.024	< 0.0004	< 0.0005
02-juil-2018	< 0.0003	0.0111	1.74	2.231	< 0.000005	0.2922	0.0327	< 0.00015	0.027	< 0.0004	0.001
06-août-2018	0.0007	0.0064	0.03	2.232	< 0.000005	0.2857	0.0334	< 0.00015	0.0216	< 0.0001	0.001
03-sept-2018	0.0008	0.0063	0.04	2.154	< 0.000005	0.287	0.0307	< 0.00015	0.0159	< 0.0001	< 0.0005
01-oct-2018	0.0009	0.006	0.05	2.277	< 0.000005	0.2997	0.029	< 0.00015	0.0227	< 0.0001	< 0.0005
05-nov-2018	< 0.0003	< 0.0005	0.02	2.527	< 0.000005	0.3438	0.0099	< 0.00015	0.008	< 0.0001	0.002
04-déc-2018	0.0016	0.0074	0.05	2.14	< 0.000005	0.2594	0.0265	< 0.00015	0.0125	< 0.0001	0.001

Indicate values = 1/2 of detection limit

Date	pH	Turbidity	Conductivity	DO	CN Free	Total Cyanide	Alkalinity	Ammonia-Nitrogen (NH3-NH4)	Ammonia	TDS	TSS	CN-WAD	Chloride
Units	**Units**	**NTU**			**mg/L**	**mg/L**	**mg $CaCO_3$/L**	**mg N/L**	**mg N/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***6.5 to 9.0***	***--***	***--***	***--***	***--***	***0.005***	***--***	***1.83***	***0.016***	***--***	***--***	***--***	***120***
2015-05-28	8.52	9.92			0.005	0.005	60	1.17	0.010	171			5
2015-06-01	8.47	14.24					55	1.24	0.020	192			
2015-07-23	6.99	1.43					76	4.27	0.060	464			15
2015-08-04	6.51	0.48					75	2.26	0.050	426			
2015-09-08	8.44	2.13					86	3.35	0.070	461			
2015-10-05	8.26	1.02				0.006	86	3.80	0.080	532	4		24
2015-11-02	7.9	1.07				0.010	100	4.22	0.100	548	3		26
2016-06-07	8.08	49.2			0.007	0.016	45	2.02	0.050	245	41	0.005	11
2016-06-20	8.13	23.8			0.011	0.013	79	3.94	0.090	473	23	0.010	19
2016-07-18	8.03	18.31					79	3.69	0.090	436	5	0.010	19
2016-08-03	7.91	10.46				0.011	80	3.42	0.090	473	69	0.006	19
2016-09-06					0.003	0.018	84	2.99	0.070	510	0.5	0.003	20
2016-10-03	7.34	4.54			0.006	0.004	86	2.55	0.050	528	5	0.004	20
2016-11-08	7.93	212			0.005	0.056	227	7.46	0.200	964	228	0.006	58
2016-11-30	7.97	5.87				0.012						0.005	
2017-04-04	8.14				0.099	0.392	279	14.680	0.350	1131	673	0.078	70
2017-06-04	7.43	16.4											
2017-06-12	8.08	30.6			0.035	0.062	83	4.300	0.410	387	16	0.031	13
2017-07-10	8	7.47			0.009	0.014	84	2.000	0.005	395	7	0.006	14
2017-08-01	8.15	7.65			0.003	0.005	86	0.830	0.010	372	50	0.001	77
2017-08-07					0.003	0.003	87	0.730	0.010	356	1	0.002	14
2017-08-08	7.8	5.91											
2017-08-14	8	30			0.013	0.048	112	2.970	0.060	442	38	0.020	26
2017-08-21	7.56	5.52	653	9	0.003	0.003	89	0.670	0.010	397	1	0.002	16
2017-08-28					0.003	0.013	77	0.780	0.025	419	7	0.010	18
2017-09-03	8.23	6.27	758	9	0.012	0.042	83	3.900	0.025	430	7	0.023	19
2017-09-11	7.22	2.35	717	11	0.005	0.010	80	1.500	0.005	405	3	0.008	17
2017-09-18	7.65	2.85	610	8	0.003	0.009	79	1.000	0.005	405	3	0.005	16
2017-09-25	7.21	2.54	644		0.005	0.009	82	0.540	0.010	419	5	0.006	17
2017-10-02	8.01	4.94	334		0.033	0.057	79	4.010	0.130	533	51	0.016	21
2017-10-09	7.93	6.1	798	8	0.003	0.012	85	0.550	0.010	453	6	0.002	19
2017-12-03	8.28	3.06	664	9	0.003	0.005	91	0.590	0.010	408	2	0.001	19
2018-06-13						0.007	61	1.82	0.03	303	22	0.005	16.5

Indicate values = 1/2 of detection limit
Indicate values greater than CCME guidelines

Date	Hardness	Fluoride	Nitrate	Nitrite	Sulphate	Aluminium	Arsenic	Barium	Cadmium	Chromium	Copper	Iron
Units	mg CaCO3/L	mg/L	mgN/L	mgN/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CCME Guidelines	***--***	***0.12***	***2.94***	***0.060***	***--***	***0.10***	***0.0050***	***--***	***0.000040***	***0.0010***	***0.0020***	***0.30***
2015-05-28	82	0.06	3.190	0.120	45		0.522				0.0014	
2015-06-01							0.051				0.0022	
2015-07-23	227	0.37	11.900	0.350	165		0.004				0.0012	
2015-08-04							0.048				0.0003	
2015-09-08							0.024				0.0006	
2015-10-05	306	0.37	16.800	0.150	250	0.034	0.035	0.017	0.00001	0.0003	0.0006	0.050
2015-11-02	340	0.42	15.700	0.050	258	0.050	0.055	0.016	0.00045	0.0029	0.0003	0.040
2016-06-07	127	0.23	5.570	0.110	117	0.794	0.000	0.009	0.00012	0.0003	0.0008	1.710
2016-06-20	264	0.33	13.100	0.150	197	0.625	0.013	0.014	0.00039	0.0059	0.0120	1.600
2016-07-18	222	0.36	12.400	0.050	193	0.148	0.010	0.013	0.00035	0.0021	0.0010	0.320
2016-08-03	259	0.36	12.800	0.050	205	0.332	0.019	0.015	0.00031	0.0053	0.0011	0.920
2016-09-06	250	0.36	13.600	0.040	235	0.034	0.015	0.018	0.00024	0.0007	0.0008	0.040
2016-10-03	329	0.37	14.100	0.030	244	0.064	0.008	0.015	0.00018	0.0003	0.0007	0.150
2016-11-08	690	0.99	17.200	0.090	432	6.530	0.060	0.056	0.00090	0.2155	0.0118	22.500
2016-11-30												
2017-04-04	55	0.56	24.9	0.75	436	4.440	0.002	0.058	0.00049	0.008	0.0083	9.070
2017-06-04												
2017-06-12	193	0.36	4.5	0.11	148	0.134	0.024	0.006	0.00019	0.001	0.0006	0.420
2017-07-10	205	0.43	8.6	0.07	150	0.108	0.023	0.010	0.00009	0.002	0.0003	0.300
2017-08-01	221	0.39	6.2	0.04	173	0.333	0.011	0.014	0.00001	0.001	0.0008	0.600
2017-08-07	275	0.37	5.9	0.03	186	0.143	0.026	0.015	0.00003	0.007	0.0003	0.190
2017-08-08												
2017-08-14	313	0.20	10.3	0.14	101	1.220	0.010	0.032	0.00001	0.001	0.0025	2.010
2017-08-21	19	0.41	6.2	0.03	163	0.123	0.027	0.019	0.00001	0.005	0.0009	0.240
2017-08-28	242	0.40	6.7	0.03	158	0.045	0.029	0.026	0.00001	0.008	0.0003	0.140
2017-09-03	275	0.45	9.4	0.10	168	0.157	0.027	0.018	0.00009	0.002	0.0010	0.330
2017-09-11	255	0.34	7.9	0.06	160	0.064	0.017	0.018	0.00001	0.0003	0.0005	0.080
2017-09-18	197	0.40	6.5	0.05	170	0.034	0.008	0.015	0.00013	0.0003	0.0003	0.240
2017-09-25	212	0.47	7.9	0.07	170	0.019	0.018	0.014	0.00001	0.001	0.0003	0.040
2017-10-02	270	0.56	13.1	0.13	224	0.627	0.040	0.016	0.00019	0.009	0.0013	1.690
2017-10-09	250	0.49	8.2	0.05	204	0.013	0.023	0.015	0.00006	0.0003	0.0016	0.080
2017-12-03	232	0.47	6.1	0.03	179	0.003	0.036	0.018	0.00010	0.0003	0.0005	0.040
2018-06-13	166	0.25	6.03	0.11	130	0.321	0.00025	0.0099	0.00003	0.0003	0.0019	0.77

Indicate values = 1/2 of detection limit
Indicate values greater than CCME guidelines

Date	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Zinc	Dissolved Aluminum	Dissolved Silver	Dissolved Arsenic	Dissolved Barium
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CCME Guidelines	***0.0010***	***--***	***0.000026***	***0.073***	***0.0250***	***0.001***	***0.00025***	***0.0008***	***0.03***	***0.1000***	***0.00025***	***0.0050***	***--***
2015-05-28	0.0002				0.019				0.006	0.003	0.00005	0.032	0.005
2015-06-01	0.0057				0.021				0.004				
2015-07-23	0.0002				0.033				0.001	0.003	0.00005	0.009	0.014
2015-08-04	0.0002				0.023				0.001				
2015-09-08	0.0002				0.031				0.001				
2015-10-05	0.0002	0.109	0.000005	0.195	0.043	0.001	0.00005	0.0025	0.001				
2015-11-02	0.0002	0.118	0.000190	0.162	0.045	0.002	0.00005	0.0025	0.002				
2016-06-07	0.0002	0.076	0.000005	0.038	0.011	0.0005	0.00005	0.0010	0.001				
2016-06-20	0.0002	0.117	0.000005	0.130	0.020	0.0005	0.00005	0.0010	0.001				
2016-07-18	0.0002	0.093	0.000005	0.112	0.018	0.0005	0.00005	0.0004	0.001				
2016-08-03	0.0002	0.131	0.000050	0.128	0.028	0.00005	0.00005	0.0004	0.001	0.003	0.00005	0.017	0.013
2016-09-06	0.0038	0.135	0.000005	0.137	0.027	0.001	0.00005	0.0004	0.001	0.003	0.00005	0.00025	0.018
2016-10-03	0.0002	0.148	0.000005	0.113	0.037	0.001	0.00005	0.0004	0.001	0.014	0.00005	0.008	0.016
2016-11-08	0.0082	0.837	0.000050	0.162	0.127	0.004	0.00005	0.0004	0.028	0.011	0.00005	0.031	0.037
2016-11-30													
2017-04-04	0.0002	0.283	0.00009	0.214	0.022	0.002	0.00005	0.0004	0.016	0.029	0.00005	0.0005	0.038
2017-06-04													
2017-06-12	0.0165	0.071	0.00001	0.059	0.029	0.001	0.00005	0.0004	0.001	0.003	0.00005	0.0146	0.004
2017-07-10	0.0002	0.142	0.00001	0.043	0.027	0.001	0.00005	0.0004	0.001	0.003	0.00005	0.0403	0.009
2017-08-01	0.0005	0.118	0.00001	0.037	0.027	0.001	0.00005	0.0004	0.001	0.016	0.00015	0.0115	0.013
2017-08-07	0.0002	0.125	0.00001	0.038	0.026	0.0003	0.00025	0.0004	0.001	0.023	0.0007	0.0267	0.015
2017-08-08													
2017-08-14	0.0002	0.312	0.00002	0.039	0.011	0.001	0.00005	0.0004	0.001	0.038	0.00005	0.0024	0.025
2017-08-21	0.0056	0.131	0.00026	0.042	0.033	0.001	0.00005	0.0004	0.004	0.011	0.00005	0.0268	0.017
2017-08-28	0.0021	0.128	0.00001	0.043	0.030	0.001	0.00005	0.0004	0.003	0.002	0.00005	0.0281	0.022
2017-09-03	0.0006	0.122	0.00001	0.049	0.039	0.001	0.00005	0.0004	0.008	0.003	0.00005	0.0238	0.015
2017-09-11	0.0002	0.121	0.00002	0.046	0.029	0.001	0.00005	0.0004	0.001	0.011	0.00005	0.0178	0.015
2017-09-18	0.0002	0.113	0.00001	0.046	0.026	0.001	0.00005	0.0004	0.001	0.003	0.00005	0.0077	0.014
2017-09-25	0.0002	0.121	0.00001	0.046	0.026	0.001	0.00005	0.0004	0.001	0.111	0.00005	0.0120	0.014
2017-10-02	0.0002	0.140	0.00001	0.081	0.588	0.002	0.00005	0.0004	0.001	0.003	0.00005	0.0343	0.013
2017-10-09	0.0002	0.124	0.00004	0.064	0.038	0.001	0.00005	0.0004	0.001	0.003	0.00005	0.0181	0.013
2017-12-03	0.0002	0.128	0.00002	0.037	0.044	0.001	0.00005	0.0004	0.001	0.024	0.00005	0.0394	0.013
2018-06-13	0.0016	0.1261	0.000005	0.0231	0.0242	0.0005	0.00005	0.0004	0.0005	0.023	0.00005	0.00025	0.0093

Indicate values = 1/2 of detection limit
Indicate values greater than CCME guidelines

Date	Dissolved Cadmium	Dissolved Copper	Dissolved Chromium	Dissolved Iron	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenum	Dissolved Nickel	Dissolved Lead	Dissolved Selenium	Dissolved Thallium	Dissolved Zinc	Acidity
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L CaCO3/L
CCME Guidelines	*0.00004*	*0.0020*	*0.0010*	*0.30*	*--*	*0.000026*	*0.073*	*0.025*	*0.0010*	*0.001*	*0.0008*	*0.030*	*--*
2015-05-28	0.00001	0.0003		0.0050	0.043	0.000005	0.036	0.014	0.0002	0.001	0.0025	0.0005	
2015-06-01													
2015-07-23	0.00001	0.001		0.010	0.098	0.000005	0.001	0.001	0.000	0.001	0.005	0.001	
2015-08-04													
2015-09-08													
2015-10-05													
2015-11-02													
2016-06-07													
2016-06-20													
2016-07-18													
2016-08-03	0.000	0.001		0.005	0.105	0.000005	0.121	0.024	0.00015	0.001	0.0004	0.001	
2016-09-06	0.000	0.001		0.005	0.128	0.000005	0.130	0.026	0.00015	0.001	0.0004	0.001	
2016-10-03	0.000	0.001		0.005	0.142	0.000005	0.113	0.033	0.00015	0.002	0.0004	0.001	
2016-11-08	0.001	0.003		0.010	0.174	0.000060	0.163	0.047	0.00015	0.004	0.0004	0.006	
2016-11-30													
2017-04-04	0.00044	0.00320	0.0009	0.140	0.093	0.00009	0.231	0.015	0.0002	0.0020	0.0004	0.0005	
2017-06-04													
2017-06-12	0.00001	0.00025	0.0013	0.010	0.071	0.00003	0.050	0.029	0.0060	0.0005	0.0004	0.0005	
2017-07-10	0.00007	0.00920	0.0015	0.005	0.136	0.00001	0.043	0.026	0.0002	0.0005	0.0004	0.0005	
2017-08-01	0.00001	0.00050	0.0009	0.005	0.118	0.00001	0.035	0.026	0.0002	0.0005	0.0004	0.0005	3.000
2017-08-07	0.00003	0.00025	0.00030	0.005	0.109	0.00001	0.034	0.024	0.0003	0.0003	0.0004	0.0003	3.000
2017-08-08													
2017-08-14	0.00001	0.00160	0.00030	0.010	0.285	0.00001	0.039	0.009	0.0002	0.0010	0.0004	0.0005	3.000
2017-08-21	0.00001	0.00080	0.0041	0.005	0.132	0.00011	0.042	0.033	0.0002	0.0010	0.0004	0.001	3.000
2017-08-28	0.00001	0.00050	0.00030	0.005	0.109	0.00001	0.047	0.024	0.0050	0.0010	0.0004	0.0005	4.000
2017-09-03	0.00009	0.00080	0.00030	0.020	0.117	0.00002	0.053	0.038	0.0002	0.0005	0.0004	0.001	3.000
2017-09-11	0.00001	0.00360	0.00030	0.005	0.119	0.00001	0.044	0.029	0.0002	0.0005	0.0004	0.0005	3.000
2017-09-18	0.00015	0.00025	0.00030	0.005	0.113	0.00001	0.049	0.026	0.0002	0.0010	0.0004	0.0005	3.000
2017-09-25	0.00001	0.00025	0.00030	0.005	0.121	0.00001	0.046	0.026	0.0002	0.0020	0.0004	0.0005	3.000
2017-10-02	0.00023	0.00025	0.0013	0.005	0.119	0.00001	0.081	0.053	0.0005	0.0010	0.0004	0.0005	4.000
2017-10-09	0.00001	0.00160	0.00025	0.070	0.120	0.00001	0.062	0.035	0.0002	0.0010	0.0004	0.0005	4.000
2017-12-03	0.00011	0.00025	0.00030	0.005	0.121	0.00002	0.034	0.041	0.0002	0.0010	0.0004	0.0005	
2018-06-13	0.00005	0.0014	0.0003	0.01	0.125	0.000005	0.023	0.0222	0.00015	0.001	0.0008	0.001	

Indicate values = 1/2 of detection limit

Indicate values greater than CCME guidelines

Date	Ferrous Iron Fe2+	Dissovled Ferrous Fe2+	Ferric Iron Fe3+	Dissolved Ferric Iron Fe3+	Total Phosphorus	Dissolved Phosphorus	Dissolved Oxygen
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg P/L**	**mg P/L**	**mg/L**
CCME Guidelines	--	--	--	--	***0.0040***	--	--
2015-05-28							
2015-06-01							
2015-07-23							
2015-08-04							
2015-09-08							
2015-10-05							
2015-11-02							
2016-06-07							
2016-06-20							
2016-07-18							
2016-08-03							
2016-09-06							
2016-10-03							
2016-11-08							
2016-11-30							
2017-04-04							
2017-06-04							
2017-06-12							
2017-07-10							
2017-08-01	0.010		0.090		0.050		
2017-08-07	0.010	0.010	0.920	0.090	0.030	0.005	
2017-08-08							
2017-08-14	0.350		0.080		0.040		
2017-08-21	0.030		0.210		0.005		
2017-08-28	0.080		0.060		0.020		
2017-09-03	0.030		0.300		0.025		
2017-09-11	0.010		0.080		0.020		
2017-09-18	0.010		0.240		0.020		
2017-09-25	0.010		0.040		0.005		
2017-10-02	0.350		1.340		0.060		10.800
2017-10-09	0.040		0.040		0.005		10.700
2017-12-03							
2018-06-13							

Indicate values = 1/2 of detection limit

Indicate values greater than CCME guidelines

Date	pH	Turbidity	Alkalinity	Ammonia-Nitrogen (NH3-NH4)	Ammonia	TDS	TSS	Total Cyanide	CN-WAD	CN Free
Units	**Units**	**NTU**	**mg $CaCO_3$/L**	**mg N/L**	**mg N/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***6.5 to 9.0***	***--***	***--***	***1.83***	***0.016***	***--***	***--***	***0.005***	***--***	***--***
2013-01-16	7.61	61.6	112	7.1	0.41	252				
2013-02-06	7.68	21.5	95	12.6	0.29	238				
2013-03-06	7.22	25.3	111	10.7	0.99	253				
2013-04-03	7.02	2.1	55	0.19	0.025	57				
2013-05-07	7.17	5.48	73	0.35	0.025	116				
2013-07-08	8.16	5.74	53	0.71	0.025	103				
2013-08-14	7.54	5.76	50	0.25	0.025	2				
2013-09-09	7	1.42	52	0.13	0.005	54				
2013-10-07	8	1.75	49	0.11	0.005	64				
2014-11-21			90	13.4	0.3	806				
2015-07-13	6.81	2.25	72	3.85	0.09	401				
2015-08-11	5.9	8.73	70	2.24	0.04	324				
2015-09-14	7.28	2.81	49	2.17	0.01	768				
2016-06-13	7.95	38.5	65	4.06	0.04	333	14	0.031		
2016-07-17			84	7.19	0.19	607	4	0.065		0.043
2016-08-03	7.45	14.86	42	4.67	0.02	747	14	0.022	0.007	
2017-07-17	8.32	0.77	74	3.35	0.08	363	3	0.012	0.01	0.0025
2017-08-17	8.01	2.85	82	4.05	0.1	388	1	0.007	0.006	0.0025
2017-09-03	8.08	1.7	74	5.2	0.005	413	0.5	0.013	0.012	0.0025
2018-07-02	7.67	3.11	55	2.08	0.04	318	4	0.011	0.011	0.0025

Indicate values = 1/2 of detection limit

Indicate values greater than CCME guidelines

Date	Chloride	Hardness	Fluoride	Nitrate	Nitrite	Sulphate	Aluminium	Arsenic	Barium	Cadmium
Units	**mg/L**	**mg CaCO3/L**	**mg/L**	**mg N/L**	**mgN/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***120***	***--***	***0.12***	***2.94***	***0.060***	***--***	***0.10***	***0.0050***	***--***	***0.000040***
2013-01-16								0.0179		
2013-02-06								0.0367		
2013-03-06								0.0107		
2013-04-03								0.0011		
2013-05-07								0.0191		
2013-07-08								0.0245		
2013-08-14								0.0493		
2013-09-09								0.0083		
2013-10-07								0.0139		
2014-11-21	34.4	432	0.29	42.3	0.36	339				
2015-07-13	16.7	198	0.24	11.8	0.3	154		0.0172		
2015-08-11	14.1	193	0.29	9.13	0.09	117		0.0138		
2015-09-14								0.00025		
2016-06-13	33.1	130	0.38	9.79	0.15	77.4	0.296	0.00025	0.008	0.00001
2016-07-17	29.3	267	0.69	1.28	0.02	229	0.084	0.0053	0.0078	0.00041
2016-08-03	29.1	422	0.45	1.96	0.28	429	0.136	0.00025	0.0173	0.0003
2017-07-17	28	185	0.41	0.69	0.19	110	0.019	0.00025	0.0141	0.00003
2017-08-17	28	217	0.38	10.3	0.31	137	0.016	0.00025	0.0136	0.00001
2017-09-03	30.1	173	0.37	11.7	0.56	140	0.02	0.00025	0.0143	0.00004
2018-07-02	16.7	193	0.29	6.88	0.12	133	0.035	0.0015	0.0097	0.00005

Indicate values = 1/2 of detection limit

Indicate values greater than CCME guidelines

Date	Chromium	Copper	Iron	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***0.0010***	***0.0020***	***0.30***	***0.0010***	***--***	***0.000026***	***0.073***	***0.0250***	***0.001***	***0.00025***
2013-01-16		0.0059		0.00015				0.0043		
2013-02-06		0.0143		0.00015				0.0032		
2013-03-06		0.0044		0.0097				0.0045		
2013-04-03		0.0073		0.00015				0.004		
2013-05-07		0.0026		0.00015				0.0024		
2013-07-08		0.0012		0.0006				0.0063		
2013-08-14		0.0015		0.0006				0.0094		
2013-09-09		0.00025		0.00015				0.0011		
2013-10-07		0.00025		0.00015				0.00025		
2014-11-21										
2015-07-13		0.00025		0.00015				0.025		
2015-08-11		0.00025		0.00015				0.0402		
2015-09-14		0.00025		0.00015				0.1968		
2016-06-13	0.0064	0.0022	0.82	0.00015	0.0474	0.00012	0.0121	0.0072	0.0005	0.00005
2016-07-17	0.0003	0.0015	0.24	0.00015	0.0744	0.00007	0.0906	0.0179	0.002	0.00005
2016-08-03	0.0013	0.0019	3.55	0.00015	0.6503	0.00005	0.0966	0.0945	0.003	0.00005
2017-07-17	0.0003	0.0015	0.03	0.00015	0.1198	0.00001	0.0267	0.0244	0.001	0.00005
2017-08-17	0.0003	0.00025	0.005	0.00015	0.0852	0.00005	0.0315	0.0199	0.003	0.00005
2017-09-03	0.0003	0.0005	0.05	0.0266	0.0593	0.00006	0.028	0.0115	0.001	0.00005
2018-07-02	0.0007	0.0008	0.07	0.00015	0.1209	0.000005	0.0202	0.0182	0.0005	0.00005

Indicate values = 1/2 of detection limit

Indicate values greater than CCME guidelines

Date	Thallium	Zinc	Dissolved Aluminum	Dissolved Silver	Dissolved Arsenic	Dissolved Barium	Dissolved Cadmium	Dissolved Copper	Dissolved Iron	Dissolved Manganese
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***0.0008***	***0.03***	***0.1000***	***0.00025***	***0.0050***	***--***	***0.00004***	***0.0020***	***0.30***	***--***
2013-01-16		0.0005								
2013-02-06		0.116								
2013-03-06		0.008								
2013-04-03		0.001								
2013-05-07		0.011								
2013-07-08		0.0005								
2013-08-14		0.0005								
2013-09-09		0.004								
2013-10-07		0.001								
2014-11-21			0.026	0.00005	0.0203	0.0291	0.00093	0.002	0.005	0.1502
2015-07-13		0.0005	0.003	0.00005	0.0182	0.0124	0.00001	0.00025	0.005	0.0788
2015-08-11		0.0005	0.003	0.00005	0.0138	0.0098	0.00001	0.00025	0.005	0.1054
2015-09-14		0.201								
2016-06-13	0.0010	0.004								
2016-07-17	0.0004	0.0005								
2016-08-03	0.0004	0.007	0.003	0.00005	0.00025	0.0173	0.00024	0.001	0.02	0.5854
2017-07-17	0.0004	0.001	0.003	0.00005	0.00025	0.0086	0.00001	0.00025	0.005	0.1051
2017-08-17	0.0004	0.0005	0.008	0.00005	0.00025	0.0093	0.00001	0.0006	0.005	0.0639
2017-09-03	0.0004	0.0005	0.003	0.00005	0.00025	0.0124	0.00007	0.00025	0.005	0.0515
2018-07-02	0.0004	0.001	0.016	0.00005	0.0015	0.0107	0.00006	0.0007	0.005	0.1187

Indicate values = 1/2 of detection limit
Indicate values greater than CCME guidelines

Date	Dissolved Mercury	Dissolved Molybdenum	Dissolved Nickel	Dissolved Lead	Dissolved Selenium	Dissolved Thallium	Dissolved Zinc
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***0.000026***	***0.073***	***0.025***	***0.0010***	***0.001***	***0.0008***	***0.030***
2013-01-16							
2013-02-06							
2013-03-06							
2013-04-03							
2013-05-07							
2013-07-08							
2013-08-14							
2013-09-09							
2013-10-07							
2014-11-21	0.000050	0.3088	0.0539	0.00015	0.005	0.0025	0.005
2015-07-13	0.000020	0.1074	0.0243	0.00015	0.002	0.0025	0.0005
2015-08-11	0.000005	0.0181	0.0402	0.00015	0.001	0.0025	0.0005
2015-09-14							
2016-06-13							
2016-07-17							
2016-08-03	0.000050	0.0867	0.0072	0.00015	0.002	0.0004	0.004
2017-07-17	0.000020	0.0268	0.0251	0.00015	0.001	0.0004	0.0005
2017-08-17	0.000050	0.0296	0.0166	0.00015	0.003	0.0004	0.0005
2017-09-03	0.000060	0.0274	0.0108	0.00015	0.001	0.0004	0.0005
2018-07-02	0.000005	0.0202	0.0187	0.00015	0.001	0.0004	0.0005

Indicate values = 1/2 of detection limit
Indicate values greater than CCME guidelines

Date	pH	Turbidity	Conductivity	Total Alkalinity	Ammonia-Nitrogen (NH3-NH4)	Ammonia	TDS	TSS	Chloride	Hardness
Units	Units	NTU		mg $CaCO_3$/L	mg N/L	mg N/L	mg/L	mg/L	mg/L	mg CaCO3/L
CCME Guidelines	*6.5 to 9.0*	*--*	*--*	*--*	*1.83*	*0.016*	*--*	*--*	*120*	*--*
16-janv-13	7.74	29.7		141	13.7	0.700	329			
06-févr-13	6.94	26.9		130	3.9	0.100	223			
06-mars-13	7.49	45.7		125	1.5	0.140	199			
07-mai-13	7.49	33.8		108	4	0.160	202			
11-juin-13	7.53	109.5		100	9.5	0.320	280			
08-juil-13	8.88	73.7		110	6.6	0.400	422			
13-août-13	7.47	84.1		140	11.5	0.600				
09-sept-13	7.57	42.1		176	13.9	0.230	496			
07-oct-13	8	28		138	6.5	0.010	366			
11-mars-14	8.38	2.82	310	93	0.017	0.010	175			
03-juin-14	6.82	30.86	463	90	2.4	0.050	288			
01-juil-14	8.21	79.2	517	94	5.6	0.220	1544		73.6	111
10-août-14	8.22	7.4	473	83	0.4	0.030	319			
08-sept-14	8.24	16.42	477	88	0.61	0.010	322		31.3	151
07-juil-15	7.23	106.5		71	0.41	0.005	144		13.8	72
04-août-15	6.88	4.84		50	0.99	0.010	25			
09-sept-15				52	1.72	0.020	270		34.8	171
05-oct-15	7.99	12.06		53	1.4	0.020	282	7	17.9	159
07-juin-16	7.75	70.8		23	0.28	0.005	83	36	3.8	50
18-juil-16	8.15	7.04		52	0.03	0.005	277	10	15.1	145
08-août-16	7.28	9.81		53	0.06	0.005	281	6	15.7	134
11-oct-16	7.74	7.42		60	0.03	0.005	312	21	18.8	179
17-juil-17	7.48	7.72		85	0.76	0.020	369	6	11.1	202
16-août-17	8.13	11.9		91	1.22	0.030	443	8	12.9	262
03-sept-17	8.16	7.44		81	1.5	0.005	458	1	14.1	214
27-août-18	7.32	9.77		55	0.11	0.005	284	6	9.1	161
24-sept-18	7.51	4.44		43	0.11	0.005	262	8	8.7	182

Indicate values = 1/2 of detection limit

Indicate values greater than CCME guidelines

Date	Fluoride	Nitrate	Nitrite	Sulphate	Total Cyanide	CN-Free	CN-WAD	Aluminium	Arsenic	Barium
Units	**mg/L**	**mgN/L**	**mgN/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***0.12***	***2.94***	***0.060***	***--***	***0.005***	***--***	***--***	***0.10***	***0.0050***	***--***
16-janv-13									0.0058	
06-févr-13									0.0184	
06-mars-13									0.0146	
07-mai-13									0.0183	
11-juin-13									0.0035	
08-juil-13									0.0054	
13-août-13									0.0078	
09-sept-13									0.0044	
07-oct-13									0.0105	
11-mars-14									0.017	
03-juin-14									0.0061	
01-juil-14	0.91	16.4	0.39	50.9					0.0045	
10-août-14									0.0075	
08-sept-14	0.96	5.3	0.13	70.6					0.0059	
07-juil-15	0.29	1.67	0.04	21.3					0.00025	
04-août-15									0.00025	
09-sept-15	0.48	3.33	0.28	98.6					0.00025	
05-oct-15	0.42	3.89	0.25	117	0.008			0.305	0.0039	0.0276
07-juin-16	0.12	0.9	0.02	25	0.0025	0.0025	0.0025	1.26	0.00025	0.0121
18-juil-16	0.41	4.43	0.03	97.8	0.0025	0.0025	0.0025	0.114	0.001	0.0241
08-août-16	0.4	5	0.02	100	0.0025	0.0025	0.0025	0.084	0.00025	0.021
11-oct-16	0.44	4.54	0.02	114	0.001	0.0025	0.0005	0.091	0.00025	0.0249
17-juil-17	0.22	2.35	0.14	112	0.0005	0.0025	0.001	0.096	0.00025	0.0308
16-août-17	0.17	17	0.12	156	0.001	0.0025	0.001	0.134	0.0076	0.0449
03-sept-17	0.16	20.3	0.13	174	0.004	0.0025	0.003	0.107	0.00025	0.0479
27-août-18	0.22	5.58	0.03	130	0.0005	0.0025	0.0005	0.043	0.00025	0.024
24-sept-18	0.24	8.05	0.02	153	0.001	0.0025	0.0005	0.052	0.001	0.0276

Indicate values = 1/2 of detection limit

Indicate values greater than CCME guidelines

Date	Cadmium	Chromium	Copper	Iron	Lead	Manganese	Mercury	Molybdenum	Nickel	Selenium
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CCME Guidelines	***0.000040***	***0.0010***	***0.0020***	***0.30***	***0.0010***	***--***	***0.000026***	***0.073***	***0.0250***	***0.001***
16-janv-13			0.0005		0.0003				0.0085	
06-févr-13			0.0092		0.00015				0.0048	
06-mars-13			0.00025		0.0057				0.0032	
07-mai-13			0.0048		0.0032				0.0135	
11-juin-13			0.015		0.00015				0.432	
08-juil-13			0.0077		0.00065				0.041	
13-août-13			0.00025		0.0033				0.0556	
09-sept-13			0.0041		0.00015				0.0898	
07-oct-13			0.00025		0.00015				0.0692	
11-mars-14			0.0005		0.0006				0.0018	
03-juin-14			0.0022		0.00015				0.0137	
01-juil-14			0.0005		0.00015				0.0109	
10-août-14			0.0022		0.0009				0.036	
08-sept-14			0.002		0.0003				0.0277	
07-juil-15			0.0037		0.00015				0.0263	
04-août-15			0.00025		0.001				0.0209	
09-sept-15			0.0023		0.00015				0.0423	
05-oct-15	0.00001	0.0003	0.0026	0.69	0.00015	0.2682	0.000005	0.0138	0.0629	0.001
07-juin-16	0.00001	0.0101	0.0025	2.17	0.00015	0.1095	0.000005	0.0026	0.0113	0.0005
18-juil-16	0.00008	0.0003	0.0047	0.16	0.00015	0.0894	0.000005	0.0081	0.0424	0.001
08-août-16	0.00001	0.0003	0.0027	0.18	0.00015	0.0502	0.000005	0.008	0.039	0.001
11-oct-16	0.00007	0.0018	0.0021	0.15	0.00015	0.0241	0.000005	0.0083	0.0673	0.0005
17-juil-17	0.00001	0.0003	0.0024	0.21	0.00015	0.1028	0.000005	0.0069	0.0538	0.0005
16-août-17	0.00001	0.0003	0.0016	0.2	0.00015	0.1231	0.000005	0.0069	0.0995	0.002
03-sept-17	0.00004	0.0003	0.0021	0.21	0.00015	0.0716	0.00004	0.006	0.0737	0.002
27-août-18	0.00001	0.0025	0.0013	0.07	0.00015	0.1359	0.000005	0.0054	0.0902	0.0009
24-sept-18	0.00001	0.0013	0.0016	0.11	0.00015	0.0971	0.000005	0.0047	0.1036	0.00025

Indicate values = 1/2 of detection limit

Indicate values greater than CCME guidelines

Date	Silver	Thallium	Zinc	Dissolved Aluminum	Dissolved Silver	Dissolved Arsenic	Dissolved Barium	Dissolved Cadmium	Dissolved Copper	Dissolved Iron
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CCME Guidelines	***0.00025***	***0.0008***	***0.03***	***0.1000***	***0.00025***	***0.0050***	***--***	***0.00004***	***0.0020***	***0.30***
16-janv-13			0.0005							
06-févr-13			0.058							
06-mars-13			0.004							
07-mai-13			0.0005							
11-juin-13			0.0005							
08-juil-13			0.0055							
13-août-13			0.008							
09-sept-13			0.01							
07-oct-13			0.003							
11-mars-14			0.001							
03-juin-14			0.001							
01-juil-14			0.0005	0.016	0.0001	0.0013	0.0163	0.00001	0.00025	0.005
10-août-14			0.003							
08-sept-14			0.009	0.046	0.0001	0.0059	0.0387	0.00001	0.0013	0.005
07-juil-15			0.0005	0.003	0.00005	0.00025	0.0104	0.00001	0.00025	0.005
04-août-15			0.0005							
09-sept-15			0.0005	0.003	0.00005	0.00025	0.0198	0.00002	0.001	0.005
05-oct-15	0.00005	0.0025	0.0005	0.003	0.00005	0.00025	0.0216	0.00001	0.0026	0.005
07-juin-16	0.00005	0.001	0.007	0.003	0.00005	0.00025	0.0012	0.00001	0.0005	0.005
18-juil-16	0.00005	0.0004	0.0005	0.003	0.00005	0.00025	0.0214	0.00002	0.0009	0.005
08-août-16	0.00005	0.0004	0.0005	0.003	0.00005	0.00025	0.0185	0.00001	0.0019	0.005
11-oct-16	0.00005	0.0004	0.003	0.003	0.00005	0.00025	0.0235	0.00001	0.00025	0.005
17-juil-17	0.00005	0.0004	0.005	0.013	0.00005	0.00025	0.0303	0.00001	0.0005	0.005
16-août-17	0.00005	0.0004	0.0005	0.003	0.00005	0.00025	0.0378	0.00001	0.0009	0.005
03-sept-17	0.00005	0.0004	0.001	0.003	0.00005	0.00025	0.0454	0.00001	0.0012	0.005
27-août-18	0.00005	0.0001	0.0005	0.0025	0.00005	0.00025	0.024	0.00011	0.0011	0.005
24-sept-18	0.00005	0.0001	0.0005	0.064	0.00005	0.0008	0.035	0.00001	0.0018	0.005

Indicate values = 1/2 of detection limit
Indicate values greater than CCME guidelines

Date	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenum	Dissolved Nickel	Dissolved Lead	Dissolved Selenium	Dissolved Thallium	Dissolved Zinc
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CCME Guidelines	*--*	*0.000026*	*0.073*	*0.025*	*0.0010*	*0.001*	*0.0008*	*0.030*
16-janv-13								
06-févr-13								
06-mars-13								
07-mai-13								
11-juin-13								
08-juil-13								
13-août-13								
09-sept-13								
07-oct-13								
11-mars-14								
03-juin-14								
01-juil-14	0.0115	0.0001	0.0191	0.0043	0.00015	0.001	0.0025	0.0005
10-août-14								
08-sept-14	0.1072	0.00005	0.0166	0.0253	0.00015	0.001	0.0025	0.0005
07-juil-15	0.1258	0.00002	0.0062	0.0145	0.00015	0.0005	0.0025	0.0005
04-août-15								
09-sept-15	0.2043	0.000005	0.0116	0.0319	0.00015	0.002	0.0025	0.0005
05-oct-15	0.2026	0.000005	0.012	0.0515	0.0003	0.002	0.0025	0.0005
07-juin-16	0.0839	0.00001	0.0022	0.0045	0.00015	0.0005	0.001	0.0005
18-juil-16	0.0635	0.000005	0.0085	0.0405	0.00015	0.001	0.0004	0.0005
08-août-16	0.0266	0.000005	0.0073	0.0332	0.00015	0.001	0.0004	0.0005
11-oct-16	0.0178	0.000005	0.0077	0.0626	0.00015	0.0005	0.0004	0.0005
17-juil-17	0.095	0.00001	0.0079	0.0569	0.00015	0.0005	0.0004	0.004
16-août-17	0.0859	0.000005	0.0066	0.0831	0.00015	0.002	0.0004	0.0005
03-sept-17	0.0716	0.00003	0.0064	0.0706	0.00015	0.002	0.0004	0.001
27-août-18	0.1245	0.000005	0.0059	0.0888	0.00015	0.0005	0.0001	0.0005
24-sept-18	0.1244	0.000005	0.0065	0.1311	0.0012	0.0045	0.0001	0.0005

Indicate values = 1/2 of detection limit
Indicate values greater than CCME guidelines

Date	pH	Turbidity	Conductivity	Total Alkalinity	Aluminium	Antimony	Arsenic	Ammonia-Nitrogen (NH3-NH4)	Barium	Beryllium	Bicarbonate Alkalinity	Boron	Cadmium	Calcium	Carbonate Alkalinity	DOC	TOC	Chloride	Chromium	Copper	Cyanate
Units	**Units**	**NTU**		**mg $CaCO_3$/L**	**mg/L**	**mg/L**	**mg/L**		**mg/L**	**mg/L**	**mg $CaCO_3$/L**	**mg/L**	**mg/L**	**mg/L**	**mg $CaCO_3$/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***6.5 to 9.0***	--	--	--	***0.10***	--	***0.0050***	***1.83***	--	--	--	***1.50***	***0.000040***	--	--	--	--	***120***	***0.0010***	***0.0020***	--
09-août-15			217	75	0.011	0.0018	0.0061	0.57	0.0166	0.00025	75	0.11	0.00001	23.6	1	0.3	2.1	13.7	0.0025	0.0007	
24-juil-16	7.81	77	551	80	1.11	0.0015	0.00025	4.4	0.054	0.00025	80	0.11	0.00005	48	1	0.1	1.6	25.9	0.0049	0.0034	6.16
09-août-16	8.1	17.05	624	80	0.24	0.0015	0.00025	3.98	0.0534	0.00025	80	0.005	0.00001	41.2	1	0.1	0.7	24.9	0.0072	0.0018	4.47
14-sept-16	7.23	8	776	82	0.085	0.0012	0.00025	3.17	0.0425	0.00025	82	0.005	0.00001	42.7	1	0.1	1.8	22.7	0.0003	0.0016	0.01
10-oct-16	7.9	10.8	607	83	0.164	0.0016	0.00025	3.04	0.0429	0.00025	83	0.1	0.00001	47.8	1	0.1	1.3	24.8	0.0013	0.0016	1.1
20-août-17	7.35	9.72	576	92	0.131	0.0005	0.00025	0.7	0.0553	0.00025	92	0.07	0.00001	43.9	2	3.1	3.1	21.9	0.0023	0.0011	0.005
28-août-17	7.37	6.23	545	78	0.228	0.0008	0.00025	0.68	0.0503	0.00025	78	0.1	0.00001	45.5	2	0.2	0.2	22.7	0.0014	0.0006	0.005
03-sept-17	8.19	13.3	607	86	0.283	0.0009	0.00025	0.7	0.0519	0.00025	86	0.08	0.00001	34	2	3	3.7	21.7	0.0021	0.0008	0.005
05-oct-17	7.21	30.4	746	82	0.802	0.0008	0.0017	1.7	0.0574	0.00025	82	0.07	0.00001	51	2	6.2	6.2	34.7	0.0086	0.002	0.005
27-août-18	7.32	9.77	449	55	0.085	0.0003	0.00025	0.12	0.0258	0.00025	9	0.06	0.00001	25.6	1	4.3		14.7	0.002	0.001	0.0005
18-sept-18				68	0.128	0.00002	0.0054	0.2	0.0361	0.00025	63	0.06	0.00006	32.1	1	3.4	3.2	14.1	0.0011	0.0015	0.0005
27-août-18	7.32	9.77	449	55	0.085	0.0003	0.0005	0.12	0.0258	0.0005	9	0.06	0.00002	25.6	2	4.3		14.7	0.002	0.001	0.001
18-sept-18				68	0.128	0.00002	0.0054	0.2	0.0361	0.0005	63	0.06	0.00006	32.1	2	3.4	3.2	14.1	0.0011	0.0015	0.001

Indicate values = 1/2 of detection limit

ate values greater than CCME guideline

Date	Total Cyanide	CN-Free	CN-WAD	Hardness	Tin	Iron	Lithium	TSS	Magnesium	Manganese	Mercury	Molybdenum	Ammonia	Nickel	Nitrate	Nitrite	Ortho-phosphate	Lead	Potassium	Selenium	Reactive Silica
Units	**mg/L**	**mg/L**	**mg/L**	**mg CaCO3/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg N/L**	**mg/L**	**mgN/L**	**mgN/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***0.005***	--	--	--	--	***0.30***	--	--	--	--	***0.000026***	***0.073***	***0.016***	***0.0250***	***2.94***	***0.060***	--	***0.0010***	--	***0.001***	--
09-août-15	0.0025			104	0.0005	0.07	0.0025	0.5	11.1	0.0175	0.00005	0.0145		0.0097	4.11	0.08	0.005	0.00015	5.81	0.0005	2.75
24-juil-16	0.01	0.006		190	0.0005	2.33	0.0025	29	17.2	0.1763	0.00051	0.0225	0.08	0.0121	2.57	0.58	0.11	0.0015	9.7	0.001	5
09-août-16	0.0025	0.0025		154	0.0005	0.63	0.0025	6	12.6	0.1666	0.00007	0.0276	0.08	0.0111	3.01	0.36	0.03	0.00015	8.51	0.001	5.3
14-sept-16	0.0005	0.0025		165	0.0005	0.16	0.0025	8	14.4	0.1177	0.00004	0.024	0.08	0.0139	2.61	0.05	0.01	0.00015	10.9	0.001	5.2
10-oct-16	0.003	0.0025		183	0.0005	0.27	0.0025	6	15.5	0.1208	0.000005	0.0217	0.09	0.0113	3.5	0.05	0.02	0.00015	10.8	0.0005	5.6
20-août-17	0.0005	0.0025		175	0.0005	0.16	0.0025	2	15.9	0.0617	0.000005	0.0201	0.02	0.0136	3.65	0.08	0.005	0.00015	9.33	0.001	4.8
28-août-17	0.0005	0.0025		182	0.0005	0.68	0.0025	7	16.7	0.0514	0.000005	0.0195	0.025	0.0143	4.02	0.08	0.01		7.9	0.001	4.6
03-sept-17	0.003	0.0025		135	0.0005	0.67	0.0009	14	12.2	0.0719	0.00006	0.017	0.005	0.0176	3.38	0.04	0.01	0.021	7.07	0.0005	5.8
05-oct-17	0.019	0.0025		197	0.0005	1.67	0.006	12	17.1	0.2089	0.00015	0.0262	0.05	0.0239	4.27	0.14	0.02	0.00015	12.1	0.003	6.5
27-août-18	0.001	0.0025		100	0.0005	0.12	0.0025	6	8.83	0.0086	0.000005	0.0124	0.01	0.0108	2.05	0.04	0.01	0.00015	6.1	0.00025	5.41
18-sept-18	0.001	0.0025		129	0.0005	0.18	0.0025	6	11.9	0.0155	0.000005	0.0171	0.005	0.0133	2.33	0.03	0.06	0.00015	7.37	0.0014	6.35
27-août-18	0.001	0.005		100	0.001	0.12	0.005	6	8.83	0.0086	0.00001	0.0124	0.01	0.0108	2.05	0.04	0.01	0.0003	6.1	0.0005	5.41
18-sept-18	0.001	0.005		129	0.001	0.18	0.005	6	11.9	0.0155	0.00001	0.0171	0.01	0.0133	2.33	0.03	0.06	0.0003	7.37	0.0014	6.35

Indicate values = 1/2 of detection limit

ate values greater than CCME gui

Date	Sodium	TDS	Strontium	Sulphate	Thallium	Thiocyanate	Titanium	Uranium	Vanadium	Zinc	TKN (Kjeldahl)	Fluoride	Total Phosphorus	C_{10}-C_{50}	Dissolved Aluminum	Dissolved Arsenic	Dissolved Antimony	Dissolved Barium	Dissolved Boron	Dissolved Beryllium	Dissolved Cadmium
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L as N**	**mg/L**	**mg/L**		**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	--	--	--	--	***0.0008***	--	--	***0.015***	--	***0.03***	--	***0.12***	***0.0040***	--	***0.1000***	***0.0050***	--	--	***1.50***	--	***0.00004***
09-août-15	18.5		0.177	45.8	0.0025		0.01	0.003	0.00025	0.002	0.49	0.55	0.01	0.05	0.003	0.00025	0.002	0.0163	0.12	0.00025	0.00001
24-juil-16	36.6	388	0.286	151	0.0004	0.43	0.1	0.008	0.00025	0.008	3.87		0.03		0.003	0.00025	0.0015	0.0453	0.09	0.00025	0.00006
09-août-16	34.6	394	0.28	142	0.0004	0.025	0.05	0.009	0.00025	0.001	3.75		0.03		0.003	0.00025	0.0016	0.0534	0.005	0.00025	0.00003
14-sept-16	38.4	378	0.28	144	0.0004	0.025	0.03	0.008	0.00025	0.001	3.18		0.02		0.003	0.00025	0.0013	0.0397	0.005	0.00025	0.00001
10-oct-16	38.6	399	0.251	147	0.0004	0.025	0.04	0.01	0.00025	0.002	2.97		0.01		0.003	0.00025	0.0016	0.0422	0.09	0.00025	0.00001
20-août-17	33.1	364	0.303	145	0.0004	0.025	0.05	0.011	0.00025	0.0005	0.89		0.01		0.003	0.0016	0.0004	0.0434	0.03	0.00025	0.00001
28-août-17	38.3	362	0.341	128	0.0004	0.025	0.06	0.011	0.00025	0.0005	1.1		0.05		0.003	0.00025	0.0008	0.0482	0.1	0.00025	0.00001
03-sept-17	25.3	323	0.26	111	0.0004	0.28	0.04	0.01	0.00025	0.001	0.31		0.02		0.003	0.00025	0.0009	0.053	0.09	0.00025	0.00001
05-oct-17	49.2	468	0.406	210	0.0004	3.13	0.07	0.013	0.0014	0.003	3.26		0.02		0.003	0.00025	0.0008	0.0461	0.04	0.00025	0.00001
27-août-18	17.8	225	0.183	79.4	0.0001	0.025	0.03	0.005	0.000025	0.0005	0.69		0.02		0.0025	0.00025	0.0004	0.024	0.06	0.0008	0.0001
18-sept-18	27.4	211	0.213	81	0.0001	0.025	0.005	0.008	0.000025	0.003	0.86		0.06		0.054	0.0053	0.00005	0.0312	0.07	0.00025	0.00001
27-août-18	17.8	225	0.183	79.4	0.0002	0.05	0.03	0.005	0.00005	0.001	0.69		0.02		0.005	0.0005	0.0004	0.024	0.06	0.0008	0.0001
18-sept-18	27.4	211	0.213	81	0.0002	0.05	0.01	0.008	0.00005	0.003	0.86		0.06		0.054	0.0053	0.0001	0.0312	0.07	0.0005	0.00002

Indicate values = 1/2 of detection limit

ate values greater than CCME gui

Date	Dissolved Chromium	Dissolved Copper	Dissolved Iron	Dissolved Lithium	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenum	Dissolved Nickel	Dissolved Lead	Dissolved Selenium	Dissolved Strontium	Dissolved Tin	Dissolved Titanium	Dissolved Thallium	Dissolved Uranium	Dissolved Vanadium	Dissolved Zinc	Silver	Dissolved Silver
Units	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***0.0010***	***0.0020***	***0.30***	***--***	***--***	***0.000026***	***0.073***	***0.025***	***0.0010***	***0.001***	***--***	***--***	***--***	***0.0008***	***0.0150***	***--***	***0.030***	***0.00025***	***0.00025***
09-août-15	0.0003	0.00025	0.01	0.0025	0.0058	0.00006	0.0148	0.0097	0.00015	0.001	0.193	0.0005	0.01	0.0025	0.003	0.00025	0.0005		
24-juil-16	0.0029	0.0007	0.005	0.0025	0.1336	0.00036	0.0219	0.0085	0.0011	0.0005	0.299	0.0005	0.03	0.0004	0.008	0.00025	0.001		
09-août-16	0.0023	0.0007	0.005	0.0025	0.15	0.00006	0.0237	0.0096	0.00015	0.0005	0.285	0.0005	0.04	0.0004	0.009	0.00025	0.0005		
14-sept-16	0.0003	0.0005	0.005	0.0025	0.1046	0.00001	0.0236	0.0129	0.00015	0.0005	0.249	0.0005	0.02	0.0004	0.008	0.00025	0.0005		
10-oct-16	0.0021	0.00025	0.005	0.0025	0.1105	0.000005	0.0214	0.0098	0.00015	0.0005	0.293	0.0005	0.03	0.0004	0.008	0.00025	0.0005		
20-août-17	0.0003	0.0011	0.01	0.0025	0.0308	0.000005	0.0197	0.0114	0.00015	0.001	0.271	0.0005	0.04	0.0004	0.012	0.00025	0.001		
28-août-17	0.0003	0.0005	0.005	0.0025	0.0197	0.00001	0.0195	0.0125	0.00015	0.0005	0.284	0.0005	0.05	0.0004	0.011	0.00025	0.002		
03-sept-17	0.0003	0.00025	0.005	0.0025	0.0561	0.00005	0.0181	0.0115	0.0207	0.0005	0.351	0.0005	0.03	0.0004	0.011	0.00025	0.0005		
05-oct-17	0.0003	0.0015	0.03	0.0025	0.1822	0.00008	0.0275	0.0149	0.00015	0.002	0.387	0.0005	0.07	0.0004	0.013	0.00025	0.0005		
27-août-18	0.003	0.0007	0.005	0.0025	0.0086	0.000005	0.0124	0.0097	0.00015	0.0006	0.202	0.001	0.02	0.0001	0.006	0.00025	0.0005		
18-sept-18	0.0003	0.001	0.005	0.0025	0.00025	0.000005	0.0123	0.0107	0.00015	0.0008	0.189	0.0005	0.005	0.0001	0.008	0.00025	0.0005		
27-août-18	0.003	0.0007	0.01	0.005	0.0086	0.00001	0.0124	0.0097	0.0003	0.0006	0.202	0.001	0.02	0.0002	0.006	0.0005	0.001		
18-sept-18	0.0006	0.001	0.01	0.005	0.0005	0.00001	0.0123	0.0107	0.0003	0.0008	0.189	0.001	0.01	0.0002	0.008	0.0005	0.001		

Indicate values = 1/2 of detection limit

ate values greater than CCME gui

Date	Parameters	pH	Conductivity	Turbidity	Alkalinity Total	Alkalinity bicarbonate	Alkalinity carbonate	Ammonia-nitrogen (NH3-NH4)	Calcium (Ca)	Ammonia (NH3)	Chloride (Cl)	Cyanide Total	CN Free	Dissolved organic carbon (DOC)	Hardness	Magnesium (Mg)	Nitrate	Nitrite	Ortho-phosphate	Phosphorous total	Potassium (K)	Reactive silica	Sodium (Na)	Sulphate (SO4)	TDS	TKN (Kjeldahl nitrogen)	TOC	Total petroleum hydrocarbons (C10-C50)*	TSS	TSS (Assay Lab)	aluminum (Al)	arsenic (As)	boron (B)	barium (Ba)	beryllium (Be)	cadmium (Cd)	copper (Cu)	chromium (Cr)	iron (Fe)	lithium (Li)	manganese (Mn)	mercury (Hg)	molybdenum (Mo)	nickel (Ni)
	Unit		µS/cm	NTU	mg CaCO3/L	mg/L	mg/L	mg N/L	mg/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg N/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	Max concentration Grab	6.0 -9.0	--	15	--	--	--	40	--	--	1000	--	--	--	--	--	100	--	--	3	--	--	--	--	1400	--	--	--	30		3	0.2	--	--	--	0.004	0.2	--	--	--	--	0.008	--	0.4
	Max concentration Average	6.0 -9.0	--	15	--	--	--	20	--	--	500	--	--	--	--	--	50	--	--	1.5	--	--	--	--	1400	--	--	--	15		1.5	0.1	--	--	--	0.002	0.1	--	--	--	--	0.004	--	0.2
2013-06-28		8.57										0.003																	4.00			0.0003					0.0003							0.0003
2013-07-02		7.84										0.003																	3.00			0.0003					0.0003							0.0003
2013-07-09		6.57										0.0060																	3.00			0.0003					0.0003							0.0003
2013-07-16		7.80										0.003																	2.00			0.0003					0.0005							0.0003
2013-07-23		7.81										0.0050																	0.50			0.0003					0.0003							0.0003
2013-07-30		7.16										0.003																	2.00			0.0003					0.0003							0.0003
2013-08-17		7.34										0.003																	0.50			0.0003					0.0007							0.0003
2013-08-20		7.16										0.003																	0.50			0.0003					0.0009							0.0003
2013-08-23		7.63										0.0070																	0.50			0.0003					0.0005							0.0003
2013-08-27		7.02										0.0050																	0.50			0.0003					0.0013							0.0003
2013-09-03		7.51										0.003																	1.00			0.0003					0.0006							0.0003
2013-09-10		6.95										0.003																	1.00			0.0003					0.0011							0.0003
2013-09-17		6.93										0.0050																	2.00			0.0003					0.0003							0.0039
2013-09-24		7.02										0.003																	5.00			0.0003					0.0003							0.0003
2013-10-02		7.38										0.003																	0.50			0.0012					0.0022							0.0006
2013-10-09		7.42										0.003																	6.00			0.0003					0.0003							0.0003
2013-10-15		6.94										0.0050																	6.00			0.0003					0.0009							0.0007
2013-10-22		7.68										0.003																	12.00			0.0029					0.0013							0.0008
2014-06-24		7.51										0.0025																	11.00			0.0021					0.0003							0.0014
2014-06-30	sample before discharge											0.0025																	3			0.0003					0.0012							0.00025
2014-07-28		7.42										0.0025																	5.00			0.0003					0.0020							0.0011
2014-07-31												0.0025																	3.6			0.0006					0.0022							0.0012
2014-08-02												0.0025																	3															
2014-08-06		7.17										0.0025																	57.00			0.0011					0.0087							0.0039
2014-08-12		7.86										0.0025																	4.00			0.0035					0.0037							0.0015
2014-08-28	sample before discharge											0.0025																	8			0.0025					0.003							0.0035
2015-06-29	sample before discharge				52			1.24	17.6		4.2	0.0025		8	62	4.52	1.68	0.02	0.02	0.005	1.86	1.72	1.92	31	114	1.13	7.6	0.005	1		0.003	0.00025	0.005	0.0206	0.00025	0.00001	0.0017		0.49	0.0025	0.0624	0.000005	0.0036	0.0042
2015-07-08		7.10	564	13.7	52	52	1	1.1	15.9		4.3	0.0025		3.4	56	4.03	1.92	0.02	0.01	0.02	1.95	1.08	1.81	23.7	108	1.07	3.5	0.2	6		0.089	0.00025	0.005	0.0198	0.00025	0.00001	0.003	0.0003	0.2	0.0025	0.054	0.000005	0.0039	0.0044
2015-07-10		6.98	172	1.35																									1.1															
2015-07-13		6.58	170.9	2.72	28	28	1	0.99	15.4		4.7	0.0025		2.7	53	3.76	1.64	0.02	0.005	0.02	1.71	1.07	1.67	27.2	99	0.99	2.4	0.005	2		0.62	0.00025	0.005	0.0186	0.00025	0.00001	0.0013	0.0003	0.14	0.0025	0.0444	0.000005	0.0042	0.0033
2015-07-21		6.98	151	1.01	36	36	1	0.99	15.2	0.005	9.9	0.0025		3.5	54	3.94	1.73	0.02	0.005	0.03	1.78	0.96	1.71	28.5	103	0.62	3.4	0.05	6		0.034	0.00025	0.005	0.0162	0.00025	0.00001	0.0023	0.0006	0.08	0.0025	0.0367	0.000005	0.0031	0.0033
2015-07-24																													1.2															
2015-07-25		7.39	149		27				16.7	0.005	4.3				59	4.3	1.76	0.02			1.74			37.9	99				3		0.015	0.00025	0.005	0.0158	0.00025	0.00001	0.0023	0.0018	0.1	0.0025	0.0332	0.000005	0.0038	0.0034
2015-07-29		7.66	176.2	1.2	28	28	1	0.84	14.4		3.9	0.0025		3.3	54	4.58	1.91	0.03	0.005	0.01	1.69	0.53	2.14	48.7	1	0.91	3.6	0.1	1		0.011	0.00025	0.005	0.0161	0.00025	0.00001	0.0016	0.0003	0.04	0.016	0.0253	0.000005	0.0045	0.0032
2015-07-31		7.23	178.3	1.3																									3.2															
2015-08-04		7.08	180	1.81	29	29	1	0.59	19		3.9	0.0025		3.4	68	5.19	2.2	0.04	0.005	0.005	1.85	0.69	2.23	27.4	103	1.3	3.9	0.1	3.5		0.038	0.00025	0.005	0.0177	0.00025	0.00001	0.00025	0.0014	0.1	0.0025	0.023	0.000005	0.0053	0.0038
2015-08-07		6.31	193.1	3.03																									0.8															
2015-08-10		7.96	210	2.46	31	31	1	0.96	17.5		4.5	0.0025		3.2	62	4.54	2.47	0.06	0.005	0.01	1.81	0.46	2.01	29.9	109	1.62	3.9	0.2	1		0.003	0.004	0.005	0.0165	0.00025	0.00001	0.0033	0.002	0.08	0.0025	0.0165	0.000005	0.0057	0.003
2015-08-11		6.98	173.4	8.2																									9.6															
2015-08-15				4.39																									2.7															
2015-08-17		6.92	192.7	2.73	32	32	1	1.2	18.9		5.5	0.0025		3	68	5.21	3.2	0.06	0.005	0.06	2.2	0.7	1.98	33.3	117	1.58	4.2	0.01	3		0.075	0.00025	0.005	0.0193	0.00025	0.00003	0.0015	0.0003	0.14	0.0025	0.0204	0.000005	0.0072	0.0034
2015-08-20		8.3	209	2.63																																								
2015-08-21																													0.8															
2015-08-24		7.73	178.2	2.23	34	34	1	1.17	22.6		5.9	0.0025		3.3	84	6.92	3.85	0.06	0.005	0.005	2.67	3.17	1.99	36	126	1.2	4	0.1	1		0.023	0.0088	0.005	0.0177	0.00025	0.00004	0.0028	0.0627	0.13	0.0025	0.0257	0.000005	0.0085	0.0032
2015-08-28		7.48	199.4	5.26																									8															
2015-09-01		7.37	207	6.54	35	35	1	1.66	18.2		6.7	0.0025		3.9	64	4.65	3.95	0.07	0.02	0.005	2.72	0.27	2.38	33.1	135	2.24	3.9	0.05	10		0.102	0.00025	0.005	0.0213	0.00025	0.00001	0.0028	0.0003	0.19	0.0025	0.022	0.000005	0.0101	0.0029
2015-09-04		7.52	210	6.81																									4.2															
2015-09-08		7.67	205	2.25	39	39	1	0.88	21.3		5.7	0.0025		4	78	5.62	3.74	0.04	0.005	0.005	2.29	0.27	2.66	36	132	1.15	4.4	0.05	1		0.06	0.00025	0.01	0.0234	0.00025	0.00001	0.0025	0.0003	0.13	0.0025	0.0217	0.000005	0.0075	0.0019
2016-06-20	sample before discharge	6.91	198.6	13.73	25	25	1	1.62	19.3		5.6	0.0025		4.1	68	4.98	4.24	0.05	0.005	0.09	2.43	2.4	2.27	37.7	128	1.75	4.6	0.05	11		0.356	0.0009	0.005	0.0319	0.00025	0.00001	0.0025	0.0003	0.03	0.0025	0.1025	0.000005	0.0083	0.0044
2016-07-14		7.06	163.9	2.3																									4.5															
2016-07-15		7.93	170	4.1																									2.9															
2016-07-16		7.64	172	2.05																									1.7															
2016-07-17		7.3	166.5	1.97																									0.4															
2016-07-18		7.63	170	1.59	23	23	1	0.63	18.8	0.005	5	0.0025		3.5	67	4.91	3.11	0.05	0.005	0.03	2.06	1.5	2	41.2	119	0.94	3.5	0.05	2		0.032	0.00025	0.005	0.0216	0.00025	0.00004	0.0025	0.0077	0.14	0.0025	0.0553	0.000005	0.0056	0.0046
2016-07-19				1.05																									4.4															
2016-07-20																																												
2016-07-23				0.6																									0.4															
2016-07-25		7.5	173.8	2.17	23	23	1	0.69	19.8	0.005	4.9	0.0025		2.4	68	4.7	3.54	0.04	0.005	0.005	1.91	1.4	2.06	42.5	120	0.9	2.6	0.05	6		0.003	0.00025	0.005	0.0086	0.00025	0.00001	0.002	0.0047	0.16	0.0025	0.0366	0.000005	0.0055	0.0035
2016-07-26				0.92																									0.4															
2016-07-29				2.5																									0.4															
2016-08-01		7.85	178.2	4.09	23	23	1	0.78	22.3	0.005	5.9	0.0025		2.7	77	5.2	3.4	0.04	0.005	0.005	2.4	1.5	2.01	45.4	133	0.86	3.5	0.05	3		0.112	0.00025	0.005	0.0201	0.00025	0.00001	0.0022	0.0003	0.19	0.0025	0.0338	0.00041	0.0056	0.0034
2016-08-05																													8															
2016-08-08		7.35	199.8	5.05	24	24	1	0.75	21.5	0.01	5.8	0.0025		2.8	73	4.89	3.92	0.05	0.01	0.03	2.56	1.6	4.25	49.8	148	1.1	2.8	0.05	6		0.077	0.001	0.005	0.0224	0.00025	0.00001	0.0057	0.0003	0.25	0.0025	0.0613	0.000005	0.0076	0.0055
2016-08-12				4.23									0.0025																1.4															
2016-08-15		7.46	194.2	5.83	23	23	1	0.76	23	0.005	6.5	0.0025	0.0025	2.4	80	5.53	4.15	0.05	0.005	0.01	2.25	1.4	2.47	53	155	0.98	2.8	0.05	1		0.095	0.00025	0.005	0.0278	0.00025	0.00001	0.0029	0.0003	0.29	0.0025	0.0775	0.000005	0.0093	0.0048
2016-08-19																													7.2															
2016-08-22		7.36	261	8.79	28	28	1	1.14	31.7	0.01	8.5	0.011	0.0025	2.8	114	8.51	6.26	0.06	0.01	0.005	3.17	1.4	3.26	71	182	1.39	3	0.05	5		0.152	0.0041	0.005	0.0323	0.00025	0.00008	0.003	0.0003	0.51	0.0025	0.0937	0.000005	0.0129	0.0039
2016-08-26																													4															
2016-08-28																													5.6															
2016-09-01		7.55	244	2.77																									4															
2016-09-02																													3.8															
2016-09-05		7.49	256	3.14	27	27	1	0.63	24.9	0.005	6.8	0.039	0.0025	2.3	87	6.25	3.61	0.05	0.01	0.01	2.75	0.9	2.59	49	150	0.82	2.9	0.05	4		0.028	0.00025	0.005	0.0251	0.00025	0.00001	0.0018	0.0003	0.2	0.0025	0.0525	0.000005	0.0093	0.00025
2016-09-09																													2.8															
2016-09-12		6.99	180	3.41	27	27	1	0.42	20.5	0.005	5	0.001	0.0025	2.5	72	5.17	2.5	0.03	0.005	0.02	2.28	0.9	2.35	40.6	122	0.57	3.2	0.05	3		0.082	0.00025	0.005	0.0159	0.00025	0.00001	0.0022	0.0003	0.19	0.0025	0.043	0.000005	0.0069	0.0226
2016-09-16													0.0025																1.6															
2016-09-20		6.71	201	12.2	28	18	1	0.41	21.2	0.005	6.6	0.001	0.0025	2.6	72	4.78	1.85	0.01	0.05	0.01	1.87	1	1.69	35.9	109	0.05	0.2	0.1	14		0.006	0.00025	0.005	0.0215	0.00025	0.00001	0.0023	0.0017	0.34	0.0025	0.0039	0.000005	0.0047	0.0037
2016-09-23		6.8	150	8.8																									5.2															
2016-09-26		6.68	179	8.3	30	30	1	0.31	21.7	0.005	5.3	0.001	0.0025	2.7	78	5.79	1.53	0.02	0.005	0.01	1.31	1	2.52	35.9	115	0.64	5.3	0.05	11		0.23	0.00025	0.005	0.016	0.00025	0.00001	0.002	0.0003	0.37	0.0025	0.0673	0.000005	0.0065	0.0039
2016-09-30				11.12																									7.1															
2016-10-03		7.71	385	9.95	33	33	33	0.8	24.8	0.005	5.9	0.008		2.8	89	6.63	2.09	0.04	0.005	0.02	2.3	1.1	2.82	43	127	1.07	3.6	0.4	10		0.234	0.00025	0.005	0.0139	0.00025	0.00001	0.0026	0.0003	0.47	0.0025	0.068	0.000005	0.007	0.0045
2016-10-07				4.81																									6.4															
2016-10-10		7.34	232	7.84	35	35	1	0.65	17.8	0.005	5.8	0.005	0.007	2.4	66	5.35	1.84	0.03	0.01	0.005	2.47	1.4	2.28	43.9	129	1.1	4.3	0.05	2		0.248	0.00025	0.005	0.0142	0.00025	0.00001	0.0029	0.0003	0.32	0.0025	0.0686	0.000005	0.0065	0.0041
2017-06-05		7.32	157.6	13.1	32	32	1	0.6	13.3	0.025	4.6	0.002	0.007	4.9	49	3.9	0.92	0.01	0.02	0.02	2.21	1.7	1.92	25.5	92	1.1	5.3	0.05	12		0.312	0.00025	0.005	0.0078	0.00025	0.00004	0.00025	0.0007	0.43	0.0025	0.065	0.0002	0.0052	0.0046
2017-06-19		7.45	148.5	9.21	30	30	1	0.64	11.1	0.025	4.3	0.001	0.006	3.7	40	3.07	0.94	0.03	0.01	0.02	1.5	1.3	1.34	26.1	91	0.86	4.6	0.05	10	6.6	0.218	0.00025	0.005	0.0062	0.00025	0.00002	0.0025	0.0003	0.36	0.0025	0.0605	0.000005	0.0036	0.0041
2017-06-20		7.03	158.1	11																										6.2														
2017-06-21		7.49	146.3	14.8																										4.1														
2017-06-22		7.91	164.7	16.1																										5.8														
2017-06-23		7.32	162	11.1																										4.8														
2017-06-24		7.61	159.3	8.26																										4.7														
2017-06-25		8.08	170.5	8.76																										4.2														
2017-06-26					52	52	1	0.87	14.5	0.005	4.4	0.003	0.0025	4	52	3.95	1.12	0.02	0.005	0.02	2.08	1.5	6.37	31.5	102	1.1	4.7	0.05	0.5	2.9	0.162	0.00025	0.005	0.0109	0.00025	0.00001	0.0033	0.0024	0.26	0.0025	0.0632	0.000005	0.0057	0.0043
2017-06-27				6.81																										6.3														
2017-06-28		7.45	165.5	6.17																										5.2														
2017-06-29		7.95	205	8.68																										2.8														
2017-06-30		7.91	175	3.7																										2.3														
2017-07-03		7.57	172.6	3.46	52	52	1	1.02	14.8	0.005	5.3	0.0005	0.0025	4.7	54	4.3	1.71	0.04	0.005	0.02	2.09	1.6	2.26	31	110	0.96	5.4	0.15	0.5	2	0.104	0.00025	0.005	0.0119	0.00025	0.00001	0.0026	0.0006	0.11	0.0025	0.0527	0.000005	0.0064	0.0045
2017-07-07		7.7	220	4.49																																								
2017-07-10		8.05	225	3.54	52	52	1	1.1	17.7	0.05	5.6	0.205	0.0025	5.1	63	4.65	2.23	0.05	0.02	0.05	2.73	2.6	2.52	32.7	118	1.1	5.6	0.05	4	4.2	0.101	0.0043	0.005	0.0117	0.00025	0.00003	0.0024	0.0008	0.19	0.0025	0.0541	0.0003	0.0084	0.0038
2017-07-13		7.66	192.5	3.03																										2.7														
2017-07-14		7.39	264	6.23																										4														
2017-07-17		8.32	206	2.96	53	53	1	0.83	20.8	0.01	5.6	0.002	0.0025	5.3	73	5.15	2.55	0.04	0.005	0.02	2.84	1.1	2.63	40.1	129	2.66	5.8	0.15	4	0.9	0.098	0.00025	0.005	0.0186	0.00025	0.00003	0.0031	0.0003	0.17	0.0025	0.0493	0.000005	0.0094	0.0048
2017-07-20		7.03	198.1	2.1																																								
2017-07-21		7.49	149.3	3.35																										0.6														
2017-07-24		7.73	212.1	4.2	53	53	1	0.95	23.6	0.01	6.2	0.001	0.0025	5	83	6	2.85	0.04	0.005	0.03	2.91	1.4	3.23	41.6	141	0.96	5.6	0.15	0.5		0.092	0.00025	0.005	0.0197	0.00025	0.00006	0.0028	0.0003	0.2	0.0025	0.0555	0.000005	0.0104	0.0051
2017-08-01		7.44	223	1.76	51	51	1	0.91	25.8	0.02	6.4	0.001		4.8	90	6.23	2.98	0.03	0.005	0.005	3.61	1	3.37	49	147	0.75	4.8	0.05	1	2.6	0.069	0.00025	0.005	0.0193	0.00025	0.00001	0.0027	0.0003	0.04	0.0025	0.0284	0.0002	0.0098	0.0047
2017-08-04		8.06	226	1.31																										1.4														
2017-08-07		7.95	274	7	53	53	1	0.63	22.6	0.005	6.4	0.0005	0.0025	4.4	85	7.02	2.97	0.03	0.005	0.03	2.22	0.95	3.99	40.6	147	1.54	4.4		10	5.1	0.202	0.00025	0.005	0.02	0.00025	0.00002	0.0023	0.0017	0.32	0.0025	0.0448	0.000005	0.0102	0.0041
2017-08-11		7.07	268	2.49																																								
2017-08-14		7.66	259	2.83	53	56	1	0.53	26.3	0.005	7.5	0.0005	0.0025	4.5	97	7.66	3.25	0.04	0.005	0.005	3.49	0.68	3.88	38	161	1.26	4.5	0.05	3		0.091	0.00025	0.005	0.0239	0.00025	0.00001	0.003	0.0003	0.18	0.0025	0.0419	0.000005	0.0107	0.0043
2017-08-18		7.55	272	3.01																										2.8														
2017-08-21		7.71	363	9.72	58	58	1	1.7	38.2	0.03	10.5	0.001	0.0025	5.1	138	10.5	5.8	0.07	0.005	0.03	5.4	1.4	6.31	62.9	226	2.2	5.1	0.1	22	38.7	0.507	0.00025	0.005	0.0294	0.00025	0.00001	0.0052	0.0034	0.75	0.023	0.0656	0.000005	0.0191	0.0056
2017-08-22		7.91	356	3.49																										2														
2017-08-24		8.31	338	2.59																										0														
2017-08-25		7.37	344	2.37																										2.2														
2017-08-26		7.69	336	3.3																										2.8														
2017-08-28		8.2	344	6.83																										14.7														
2017-08-29		7.73	381	6.72	54	54	1	1.82	42		11.4	0.014	0.0025	5.3	151	11.4	6.34	0.017	0.005	0.06	4.54	1.3	6.68	70.5	234	2.5	5.3	0.05	11	16	0.389	0.00025	0.005	0.0309	0.00025	0.00001	0.003	0.0003	0.47	0.0025	0.0551	0.000005	0.0198	0.0045
2017-09-07 Pond B		7.4	439	5.33																									0.5	5.7														
2017-09-07 Pond C		7.08	330	3.81																									0.5	4.6														
2017-09-08 pond B		7.91	316	23.6																										6.2														
2017-09-08 pond C		7.66	436	108																										28.6														
2017-09-09 pond B		7.77	324	8.2																										7.3														
2017-09-09 Pond C		7.66	416	22.6																										18.3														
2017-09-10 Pond B		7.78	142.3	9.21																										4.7														
2017-09-10 Pond C		7.76	421	8.21																										7														
2017-09-11		8.17	459	21.3	63	63	1	2.86	37.5	0.06	13.7	0.019	0.0025	5.8	136	10.3	7.46	0.11	0.01	0.005	5.36	1.5	5.88	88.8	276	3.28	5.8	0.05	9	3.6	0.273	0.00025	0.005	0.0319	0.00025	0.00005	0.0032	0.0003	0.79	0.0025	0.0546	0.00005	0.0213	0.0037
9/12/2017 Pond B		7.16	341	6.75																										5.3														
09/12/2017 Pond C		7.61	472	13.1																										46														
9/13/2017 Pond B		7.97	340	4.97																										2.7														
09/13/2017 Pond C		8.14	495	8.98																										6														
9/14/2017 Pond B		7.74	326	4.04																										2														
09/14/2017 Pond C		7.79	481	6.99																										4.7														
9/15/2017 Pond B		7.8	334	4.6																										2.3														
2017-09-17 Pond B	not discharging	7.38	303	3.67																										12.3														
2017-09-18 Pond B	not discharging	7.9	315	3.85																										0.7														
2017-09-19 Pond B	not discharging	7.86	326	3.02																										0														
2017-09-20 Pond B	not discharging	7.62	313	3.31																										0.3														
2017-09-24 Pond B	not discharging	7.52	332	4.04																										3.3														
2017-09-26 Pond B	not discharging	7.04	325	3.25																										4.7														
2017-09-28 Pond B	not discharging	7.43	346	4.27																										1.8														
2017-09-29 Pond B	not discharging	7.32	332	6.32																									10	2.2														
2017-09-30 Pond B	not discharging	7.85	348	7.03																										6														
2017-10-01 Pond B		7.78	336	6.21																										0.9														
2017-10-02 Pond B		6.8	337	6.94																									6	8.6														
2017-10-03 Pond B		7.83	364	17																										11.3														
2017-10-05 Pond B		7.34	378	8.33	40	40	1	0.41	31.7	0.005	8.4	0.0005	0.0025	4.2	112	7.98	3.36	0.03	0.005	0.03	3.48	1.4	3.35	83.7	215	1.58	4.2	0.05	6	7.1	0.2	0.00025	0.005	0.0282	0.00025	0.00001	0.0027	0.0003	0.45	0.0025	0.0978	0.00022	0.0081	0.0068
2017-10-06 Pond B		7.46	420	8.12																										6.2														
2017-10-07 Pond B		7.69	359	6.14																										6														
2017-10-08 Pond B		7.09	391	7.8																										3.6														
2017-10-09 Pond B		7.8	384	7.45	42	42	1	0.26	34.7	0.005	8.9	0.005	0.0025	4.6	122	8.66	3.53	0.01	0.005	0.04	3.71	1.4	3.69	72.7	219	1.13	4.7	0.05	10	8.1	0.169	0.0022	0.005	0.0281	0.00025	0.00001	0.0033	0.0007	0.48	0.0025	0.1094	0.000005	0.0071	0.0076

Date	Parameters	lead (Pb)	selenium (Se)	antimony (Sb)	tin (Sn)	strontium (Sr)	titanium (Ti)	thallium (Tl)	uranium (U)	vanadium (V)	zinc (Zn)	Dissolved aluminum (Al)	Dissolved arsenic (As)	Dissolved boron (B)	Dissolved barium (Ba)	Dissolved beryllium (Be)	Dissolved cadmium (Cd)	Dissolved copper (Cu)	Dissolved chromium (Cr)	Dissolved iron (Fe)	Dissolved lithium (Li)	Dissolved manganese (Mn)	Dissolved mercury (Hg)	Dissolved molybdenum (Mo)	Dissolved nickel (Ni)	Dissolved lead (Pb)	Dissolved selenium (Se)	Dissolved antimony (Sb)	Dissolved tin (Sn)	Dissolved strontium (Sr)	Dissolved titanium (Ti)	Dissolved thallium (Tl)	Dissolved uranium (U)	Dissolved vanadium (V)	Dissolved zinc (Zn)	Daphnia Magna	CL50 48 hours	Rainbow trout	CL50 48 hours	Fluoride (F)	silver (Ag)
	Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	toxic unit	v/v	toxic unit	v/v	mg/L	mg/L
	Max concentration Grab	0.2	--	--	--	--	--	--	--	--	0.4	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	Max concentration Average	0.1	--	--	--	--	--	--	--	--	0.2	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2013-06-28		0.0002									0.001																														
2013-07-02		0.0002									0.001																														
2013-07-09		0.0002									0.001																														
2013-07-16		0.0002									0.0020																														
2013-07-23		0.0002									0.001																														
2013-07-30		0.0002									0.001																														
2013-08-17		0.0324									0.0040																														
2013-08-20		0.0002									0.001																														
2013-08-23		0.0002									0.0050																														
2013-08-27		0.0002									0.001																														
2013-09-03		0.0002									0.001																														
2013-09-10		0.0002									0.001																														
2013-09-17		0.0002									0.0150																														
2013-09-24		0.0002									0.001																														
2013-10-02		0.0002									0.0050																														
2013-10-09		0.0002									0.0010																														
2013-10-15		0.0002									0.001																														
2013-10-22		0.0006									0.0010																														
2014-06-24		0.0002									0.0010																														
2014-06-30	sample before discharge	0.0002									0.0005		0.00025					0.001							0.00025	0.00015									0.0005						
2014-07-28		0.0187									0.0010																														
2014-07-31		0.0002									0.0005		0.00025					0.002							0.0013	0.00015									0.0005						
2014-08-02																																									
2014-08-06		0.0011									0.0060		0.0005					0.0016																							
2014-08-12		0.0002									0.0005		0.0014					0.0033							0.0012	0.00015									0.0005						
2014-08-28	sample before discharge	0.0002									0.005		0.0008					0.0024							0.0015	0.00015									0.0005						
2015-06-29	sample before discharge	0.00015	0.0005	0.00005	0.0005	0.079	0.01	0.0025	0.001	0.00025	0.0005	0.01	0.00025	0.005	0.0182	0.00025	0.00001	0.0017	0.0003	0.03	0.0025	0.0562	0.000005	0.0037	0.0037	0.00015	0.0005	0.00005	0.0005	0.08	0.01	0.0025	0.001	0.00025	0.0005	<1	>100	<1	>100	0.06	
2015-07-08		0.00015	0.0005	0.0003	0.0005	0.08	0.01	0.0025	0.001	0.00025	0.0005	0.003	0.00025	0.005	0.0199	0.00025	0.00001	0.0021	0.0003	0.02	0.0025	0.0484	0.000005	0.0041	0.0039	0.00015	0.0005	0.00005	0.0005	0.08	0.01	0.0025	0.001	0.00025	0.0005					0.06	
2015-07-10																																									
2015-07-13		0.00015	0.0005	0.0003	0.0005	0.084	0.01	0.0025	0.001	0.00025	0.0005	0.003	0.00025	0.005	0.0163	0.00025	0.00001	0.0005	0.0003	0.005	0.0025	0.0355	0.00003	0.0038	0.0029	0.00015	0.0005	0.0003	0.0005	0.081	0.01	0.0025	0.0005	0.00025	0.0005					0.06	
2015-07-21		0.00015	0.0005	0.0003	0.0005	0.083	0.01	0.0025	0.0005	0.00025	0.001	0.003	0.00025	0.005	0.0136	0.00025	0.00001	0.0015	0.0008	0.005	0.0025	0.025	0.000005	0.0031	0.0025	0.00015	0.0005	0.00005	0.0005	0.081	0.01	0.0025	0.0005	0.00025	0.0005	<1	>100	<1	>100	0.07	
2015-07-24																																									
2015-07-25		0.00015	0.0005	0.00005	0.0005	0.076	0.01	0.0025	0.001	0.00025	0.0005																													0.09	0.00005
2015-07-29		0.00015	0.0005	0.0004	0.0005	0.076	0.01	0.0025	0.001	0.00025	0.0005	0.003	0.00025	0.005	0.0118	0.00025	0.00001	0.0012	0.0003	0.005	0.0025	0.016	0.000005	0.0047	0.0028	0.00015	0.0005	0.0004	0.0005	0.072	0.005	0.0025	0.001	0.00025	0.0005					0.09	
2015-07-31																																									
2015-08-04		0.00015	0.0005	0.00005	0.0005	0.067	0.01	0.0025	0.001	0.00025	0.0005	0.003	0.00025	0.005	0.0179	0.00025	0.00002	0.0021	0.0023	0.01	0.0025	0.0157	0.000005	0.0048	0.0036	0.0005	0.0005	0.00005	0.0005	0.067	0.01	0.0025	0.001	0.00025	0.0005					0.07	
2015-08-07																																									
2015-08-10		0.00015	0.0005	0.0005	0.0005	0.067	0.01	0.0025	0.001	0.00025	0.004	0.003	0.00025	0.005	0.016	0.00025	0.00003	0.0024	0.0003	0.01	0.0025	0.0117	0.000005	0.0063	0.003	0.00015	0.0005	0.0006	0.0005	0.073	0.01	0.0025	0.001	0.00025	0.0005	<1	>100	<1	>100	0.07	
2015-08-11																																									
2015-08-15																																									
2015-08-17		0.0135	0.001	0.0008	0.0005	0.103	0.02	0.0025	0.001	0.00025	0.001	0.003	0.00025	0.005	0.0188	0.00025	0.00006	0.0012	0.0006	0.005	0.0025	0.0167	0.00001	0.0077	0.0031	0.0135	0.0005	0.0009	0.0005	0.096	0.01	0.0025	0.001	0.00025	0.0005					0.08	
2015-08-20																																									
2015-08-21																																									
2015-08-24		0.0031	0.0005	0.0009	0.0005	0.1	0.02	0.0025	0.002	0.0211	0.0005	0.003	0.00025	0.005	0.019	0.00025	0.00001	0.0019	0.0003	0.01	0.0025	0.0204	0.000005	0.0085	0.0027	0.00015	0.0005	0.001	0.0005	0.103	0.01	0.0025	0.001	0.00025	0.0005					0.1	
2015-08-28																																									
2015-09-01		0.0095	0.0005	0.0012	0.0005	0.123	0.02	0.0025	0.002	0.00025	0.0005	0.003	0.00025	0.005	0.0201	0.00025	0.00001	0.001	0.0003	0.005	0.0025	0.0168	0.00001	0.0104	0.0026	0.0034	0.0005	0.0009	0.0005	0.122	0.01	0.0025	0.001	0.00025	0.0005					0.07	
2015-09-04																																									
2015-09-08		0.00015	0.0005	0.0008	0.0005	0.12	0.01	0.0025	0.001	0.00025	0.0005	0.003	0.00025	0.005	0.023	0.00025	0.00001	0.002	0.0003	0.005	0.0025	0.0165	0.000005	0.0075	0.0018	0.00015	0.0005	0.0008	0.0005	0.121	0.01	0.0025	0.001	0.00025	0.0005	<1	>100	<1	>100	0.06	
2016-06-20	sample before discharge	0.00015	0.0005	0.00005	0.0005	0.101	0.02	0.001	0.001	0.00025	0.005	0.023	0.0009	0.005	0.0314	0.00025	0.00001	0.0025	0.0003	0.03	0.0025	0.0992	0.000005	0.0083	0.0035	0.00015	0.001	0.00005	0.0005	0.107	0.01	0.001	0.001	0.00025	0.0005	<1	>100	<1	>100		
2016-07-14																																									
2016-07-15																																									
2016-07-16																																									
2016-07-17																																									
2016-07-18		0.00015	0.0005	0.0006	0.0005	0.098	0.01	0.0004	0.001	0.00025	0.0005	0.003	0.00025	0.005	0.0212	0.00025	0.00003	0.0017	0.0023	0.02	0.0025	0.0332	0.000005	0.0062	0.0039	0.00015	0.0005	0.0005	0.0005	0.099	0.01	0.0004	0.001	0.00025	0.0005						
2016-07-19																																									
2016-07-20																																				<1	>100	<1	>100		
2016-07-23																																									
2016-07-25		0.00015	0.0005	0.0006	0.0005	0.144	0.01	0.0004	0.001	0.00025	0.0005	0.003	0.00025	0.005	0.0071	0.00025	0.00001	0.0011	0.0003	0.12	0.0025	0.0337	0.000005	0.0055	0.0033	0.00015	0.0005	0.0005	0.0005	0.11	0.02	0.0004	0.001	0.00025	0.0005						
2016-07-26																																									
2016-07-29																																									
2016-08-01		0.00015	0.0005	0.0005	0.0005	0.119	0.01	0.0004	0.001	0.00025	0.0005	0.016	0.00025	0.005	0.0189	0.00025	0.00001	0.0013	0.0003	0.02	0.0025	0.0275	0.00019	0.0055	0.0028	0.00015	0.0005	0.0005	0.0005	0.11	0.01	0.0004	0.001	0.00025	0.0005						
2016-08-05																																									
2016-08-08		0.00015	0.0005	0.0007	0.0005	0.132	0.02	0.0004	0.001	0.00025	0.0005	0.003	0.00025	0.005	0.0221	0.00025	0.00001	0.0014	0.0003	0.01	0.0025	0.0531	0.000005	0.0075	0.003	0.00015	0.0005	0.0007	0.0005	0.129	0.01	0.0004	0.001	0.00025	0.0005						
2016-08-12																																									
2016-08-15		0.00015	0.0005	0.0005	0.0005	0.133	0.01	0.0004	0.001	0.00025	0.002	0.009	0.00025	0.005	0.0301	0.00025	0.00001	0.0023	0.0003	0.01	0.0025	0.0775	0.00001	0.0082	0.0046	0.00015	0.0005	0.0003	0.0005	0.131	0.01	0.0004	0.001	0.00025	0.002						
2016-08-19																																									
2016-08-22		0.00015	0.0005	0.0014	0.0005	0.162	0.02	0.0004	0.002	0.00025	0.001	0.003	0.00025	0.005	0.0323	0.00025	0.00003	0.0019	0.0003	0.01	0.0025	0.0796	0.000005	0.0123	0.003	0.00015	0.001	0.0014	0.0005	0.156	0.01	0.0004	0.002	0.00025	0.0005	<1	>100	<1	>100		
2016-08-26																																									
2016-08-28																																									
2016-09-01																																									
2016-09-02																																									
2016-09-05		0.00015	0.0005	0.0008	0.0005	0.143	0.02	0.0004	0.002	0.00025	0.0005	0.003	0.00025	0.005	0.0234	0.00025	0.00001	0.0011	0.0003	0.005	0.0025	0.0525	0.000005	0.009	0.00025	0.00015	0.0005	0.0008	0.0005	0.141	0.01	0.0004	0.001	0.00025	0.0005						
2016-09-09																																									
2016-09-12		0.0058	0.0005	0.0006	0.0005	0.107	0.02	0.0004	0.001	0.00025	0.0005	0.003	0.00025	0.005	0.0155	0.00025	0.00001	0.0014	0.0003	0.005	0.0025	0.0292	0.00003	0.0068	0.00025	0.00015	0.0005	0.0006	0.0005	0.107	0.01	0.0004	0.001	0.00025	0.0005						
2016-09-16																																									
2016-09-20		0.00015	0.0005	0.0004	0.0005	0.11	0.01	0.0004	0.001	0.00025	0.004	0.003	0.00025	0.005	0.0141	0.00025	0.00001	0.0011	0.0014	0.005	0.0025	0.0341	0.000005	0.0047	0.003	0.00015	0.0005	0.0003	0.0005	0.096	0.005	0.0004	0.0005	0.00025	0.0005						
2016-09-23																																									
2016-09-26		0.00015	0.0005	0.0043	0.0005	0.142	0.02	0.0004	0.002	0.00025	0.002	0.003	0.00025	0.005	0.0121	0.00025	0.00001	0.0015	0.0003	0.005	0.0025	0.0418	0.000005	0.005	0.0028	0.00015	0.0005	0.0003	0.0005	0.104	0.01	0.0004	0.001	0.00025	0.0005	<1	>100	<1	>100		
2016-09-30																																									
2016-10-03		0.0008	0.0005	0.00005	0.0005	0.119	0.02	0.0004	0.002	0.00025	0.002	0.011	0.00025	0.005	0.014	0.00025	0.00001	0.0025	0.0003	0.005	0.0025	0.0571	0.000005	0.0076	0.0038	0.00015	0.0005	0.00005	0.0005	0.122	0.005	0.0004	0.002	0.00025	0.001						
2016-10-07																																									
2016-10-10		0.00015	0.0005	0.0019	0.0005	0.086	0.01	0.0004	0.002	0.0045	0.003	0.003	0.00025	0.005	0.015	0.00025	0.00001	0.0014	0.0003	0.01	0.0025	0.0635	0.000005	0.0067	0.0034	0.00015	0.002	0.0009	0.0005	0.061	0.01	0.0004	0.002	0.00025	0.002	<1	>100	<1	>100		
2017-06-05		0.0015	0.0005	0.00005	0.0005	0.079	0.02	0.0004	0.001	0.00025	0.0005	0.003	0.00025	0.005	0.0025	0.00025	0.00003	0.00025	0.0003	0.01	0.0025	0.0449	0.00003	0.004	0.0029	0.00015	0.0005	0.00005	0.0005	0.073	0.01	0.0004	0.001	0.00025	0.0005						
2017-06-19		0.0009	0.0005	0.0002	0.0005	0.067	0.01	0.0004	0.001	0.00008	0.002	0.003	0.00025	0.005	0.0041	0.00025	0.00003	0.0016	0.0003	0.01	0.0025	0.0543	0.000005	0.0039	0.0034	0.00015	0.0005	0.0001	0.0005	0.067	0.01	0.0004	0.001	0.00025	0.0005	<1	>100	<1	>100		
2017-06-20																																									
2017-06-21																																									
2017-06-22																																									
2017-06-23																																									
2017-06-24																																									
2017-06-25																																									
2017-06-26		0.0016	0.0005	0.0005	0.0005	0.094	0.01	0.0004	0.001	0.00025	0.005	0.022	0.00025	0.005	0.0109	0.00025	0.00001	0.0026	0.0031	0.01	0.0025	0.064	0.00001	0.0064	0.0043	0.0014	0.0005	0.00005	0.0005	0.08	0.01	0.0004	0.001	0.00025	0.001						
2017-06-27																																									
2017-06-28																																									
2017-06-29																																									
2017-06-30																																									
2017-07-03		0.0083	0.0005	0.0008	0.0005	0.099	0.01	0.0004	0.001	0.00025	0.003	0.006	0.0005	0.01	0.0005	0.0005	0.00002	0.0005	0.00006	0.01	0.0025	0.00025	0.000005	0.00025	0.00025	0.0025	0.0005	0.00005	0.0005	0.0025	0.005	0.0004	0.001	0.00025	0.001	<1	>100	<1	>100		
2017-07-07																																									
2017-07-10		0.1225	0.0005	0.0008	0.0005	0.104	0.02	0.0004	0.002	0.0013	0.0005	0.003	0.0193	0.005	0.0106	0.00025	0.00001	0.0163	0.0016	0.01	0.0025	0.0354	0.000005	0.0084	0.0034	0.019	0.002	0.0015	0.0005	0.105	0.01	0.0004	0.001	0.0013	0.0005						
2017-07-13																																									
2017-07-14																																									
2017-07-17		0.00015	0.0005	0.0011	0.0005	0.132	0.01	0.0004	0.002	0.003	0.0005	0.017	0.00025	0.005	0.118	0.00025	0.00001	0.001	0.0003	0.02	0.0025	0.0493	0.000005	0.008	0.0036	0.00015	0.0005	0.001	0.0005	0.107	0.01	0.0004	0.002	0.00025	0.006						
2017-07-20																																									
2017-07-21																																									
2017-07-24		0.00015	0.0005	0.0013	0.0005	0.131	0.03	0.0004	0.002	0.00025	0.002	0.014	0.00025	0.005	0.0166	0.00025	0.00001	0.002	0.0003	0.2	0.0025	0.0472	0.000005	0.0099	0.0045	0.00015	0.0005	0.0012	0.0005	0.139	0.02	0.0004	0.002	0.00025	0.0005						
2017-08-01		0.0004	0.0005	0.001	0.0005	0.149	0.02	0.0004	0.002	0.00025	0.002	0.03	0.00025	0.005	0.0155	0.00025	0.00001	0.0022	0.0008	0.01	0.0025	0.00025	0.000005	0.0087	0.0044	0.00015	0.0005	0.0012	0.0005	0.164	0.02	0.0004	0.002	0.00025	0.003	<1	>100	<1	>100		
2017-08-04																																									
2017-08-07		0.00015	0.0005	0.0009	0.0005	0.142	0.03	0.0004	0.002	0.00025	0.006	0.015	0.00025	0.005	0.0199	0.00025	0.00012	0.00025	0.0009	0.03	0.0025	0.0404	0.00008	0.011	0.0047	0.00015	0.0005	0.001	0.0005	0.146	0.02	0.0004	0.002	0.00025	0.009						
2017-08-11																																									
2017-08-14		0.00015	0.0005	0.011	0.0005	0.153	0.02	0.0004	0.002	0.00025	0.0005	0.024	0.00025	0.005	0.0228	0.00025	0.00001	0.0027	0.0003	0.21	0.0025	0.0211	0.000005	0.011	0.0045	0.00015	0.0005	0.001	0.0005	0.145	0.02	0.0004	0.002	0.00025	0.0005						
2017-08-18																																									
2017-08-21		0.00015	0.002	0.0021	0.0005	0.296	0.06	0.0004	0.005	0.00025	0.0005	0.003	0.0029	0.005	0.0294	0.00025	0.00002	0.0012	0.0003	0.03	0.023	0.0385	0.000005	0.0176	0.0027	0.00015	0.0005	0.002	0.0005	0.245	0.03	0.0004	0.005	0.00025	0.0005						
2017-08-22																																									
2017-08-24																																									
2017-08-25																																									
2017-08-26																																									
2017-08-28																																									
2017-08-29		0.00015	0.0005	0.0024	0.0005	0.338	0.05	0.0004	0.005	0.00025	0.001	0.389	0.00025	0.005	0.0309	0.00025	0.00001	0.0018	0.0003	0.005	0.0025	0.0397	0.000005	0.0208	0.0034	0.00015	0.0005	0.0027	0.0005	0.356	0.03	0.0004	0.005	0.00025	0.0005						
2017-09-07 Pond B																																									
2017-09-07 Pond C																																									
2017-09-08 pond B																																									
2017-09-08 pond C																																									
2017-09-09 pond B																																									
2017-09-09 Pond C																																									
2017-09-10 Pond B																																									
2017-09-10 Pond C																																									
2017-09-11		0.00015	0.0005	0.003	0.0005	0.325	0.04	0.0004	0.007	0.00025	0.003	0.003	0.00025	0.005	0.0338	0.00025	0.00008	0.0045	0.0003	0.01	0.0025	0.049	0.000005	0.0244	0.0033	0.00015	0.001	0.0033	0.0005	0.335	0.03	0.0004	0.007	0.00025	0.0005	<1	>100	<1	>100		
9/12/2017 Pond B																																									
09/12/2017 Pond C																																									
9/13/2017 Pond B																																									
09/13/2017 Pond C																																									
9/14/2017 Pond B																																									
09/14/2017 Pond C																																									
9/15/2017 Pond B																																									
2017-09-17 Pond B	not discharging																																								
2017-09-18 Pond B	not discharging																																								
2017-09-19 Pond B	not discharging																																								
2017-09-20 Pond B	not discharging																																								
2017-09-24 Pond B	not discharging																																								
2017-09-26 Pond B	not discharging																																								
2017-09-28 Pond B	not discharging																																								
2017-09-29 Pond B	not discharging																																								
2017-09-30 Pond B	not discharging																																								
2017-10-01 Pond B																																									
2017-10-02 Pond B																																									
2017-10-03 Pond B																																									
2017-10-05 Pond B		0.00015	0.0005	0.0011	0.0005	0.258	0.03	0.0004	0.003	0.00025	0.015	0.003	0.00025	0.005	0.0219	0.00025	0.00001	0.0007	0.0003	0.01	0.0025	0.0961	0.00011	0.0082	0.0047	0.00015	0.0005	0.0009	0.0005	0.247	0.03	0.0004	0.003	0.00025	0.0005	<1	>100	<1	>100		
2017-10-06 Pond B																																									
2017-10-07 Pond B																																									
2017-10-08 Pond B																																									
2017-10-09 Pond B		0.00015	0.001	0.0011	0.0005	0.244	0.04	0.0004	0.003	0.00025	0.001	0.154	0.00025	0.005	0.0281	0.00025	0.00001	0.0027	0.0003	0.47	0.0025	0.1052	0.00004	0.0073	0.007	0.00015	0.0005	0.0002	0.0005	0.215	0.04	0.0004	0.003	0.00025	0.0005						

Date	YEAR	pH	Turbidity	Conductivity	Alkalinity	Bicarbonate alkalinity	Carbonate alkalinity	Ammonia-nitrogen	Ammonia NH3	TKN	Ortho-Phosphate	Phosphorus	TOC	DOC	Reactive Silica	TDS (dissolved solids)	TSS	Chloride	Calcium	Potassium	Magnesium	Sodium
			NTU		mg CaCO3/L	mg/L	mg/L	mg N/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2013-10-27	2013	7.64	3.24																			
2014-05-19	2014	6.53	19.9		50			2	0.03							175						
2014-08-06	2014	7.73	18		127			26.7	0.33							736		30.9				
2015-06-02	2015	6.93	523		85			9.73	0.14							337						
2015-07-23	2015	7.28	44		167			35.5	0.5							799		33.2				
2016-06-20	2016	8.28	22.8	645	88			4.06	0.13							425	24	44.8				
2016-08-09	2016	7.3	9.83	805	84			6.6	0.13							522	6	8.6				
2016-09-05	2016	7.82	9.96	1022	91			6.94	0.14							723	6	19.5				
2016-11-15	2016	7.64	5.7	675	116			2.57	0.05							446	16	44.4				
2017-04-04	2017	8.21	5.12	682	122	122	1	2.31	0.06	2.46	0.01	0.03		5.6	13.5	404	6	69.5	61.3	2.09	15.6	16.6
2017-06-11	2017	6.64	23.6	591	96	96	1	3.49	0.07	3.7	0.01	0.02	8.8	5	4.93	358	22	31.5	69.2	5.79	18.4	20.2
2017-07-17	2017	8.11	42.7	669	115	115	1	3.61	0.09	4.6	0.005	0.17	7	7	6.11	432	55	26.1	72.3	10.7	20.6	12.9
2017-08-16	2017	7.31	19.1	714	114	114	1	3.64	0.11	3.74	0.01	0.02	7.6	8.3	6.11	453	8	24.5	81	9.65	23.4	13.6
2017-09-03	2017	8.21	63.7	794	109	109	1	6.2	0.07	5.82	0.11	0.06	7	7	7.36	467	85	25.8	67.8	7.04	19.6	10.5
2017-11-13	2017	7.82	6.29	1051	161	161	1	3.75	0.1	3.09	0.01	0.03	5.6	1	13.3	670	9	36.1	134	4.34	30.8	16.2
2018-06-12	2018	7.26	30	484	100	100	1	4.56	0.08	5.75	0.05	0.03	7.4	7.4	7.15	283	24	19.4	35.2	11.9	12.4	11.4
2018-07-04	2018	7.34	8.92	640	101	101	1	2.86	0.07	3.07	0.01	0.01	4.2	2.9	4.83	373	2	27.6	71.2	7.72	20.9	14.9
2018-08-08	2018	7.76	1.89	465	74	74	1	2.57	0.05	3.27	0.01	0.01	4.4	2.8	2.08	271	1	11.1	48.6	5.58	13.4	8.71
2018-09-25	2018	7.41	13.8	853	104	104	1	2.55	0.06	3.27	0.01	0.02	4.7	3.6	3.81	436	8	24.7	93.6	7.56	24	14.2
2018-11-04	2018	7.81	5.65	1129	156	156	1	3.13	0.09	4.11	0.01	0.005	8.2	8.2	8.59	488	4	43.6	152	5.91	35.6	19.8

Indicate values = 1/2 of detection limit

Date	YEAR	Fluoride	Hardness	Nitrate (NO3)	Nitrite (NO2)	Sulphate (SO2-4)	CN Total	CN Free	CN WAD	Total Al	Total Sn	Total As	Total Boron	Total Ba	Total Be	Total Cd	Total Cu	Total Cr	Total Fe	Total Li	Total Mn	Total Hg
		mg/L	mg CaCO3/L	mg N/L	mg N/L	mg SO4/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2013-10-27	2013																					
2014-05-19	2014											0.0023					0.002					
2014-08-06	2014	0.26	378	46.4	1.5	148						0.0395					0.0229					
2015-06-02	2015											0.00025					0.0102					
2015-07-23	2015	0.25	340	45.9	2.05	124						0.00025					0.0054					
2016-06-20	2016		250	12.8	0.24	97.9	0.044			0.547		0.0056		0.0201		0.00023	0.0012	0.0008	1.3		0.0489	0.000005
2016-08-09	2016	0.18	315	24.1	0.31	161	0.137			0.038		0.00025		0.042		0.00022	0.0124	0.003	0.38		0.1769	0.00005
2016-09-05	2016	0.19	504	41.6	0.48	159	0.083	0.019		0.088		0.00025		0.0472		0.0002	0.0012	0.0003	0.35		0.1145	0.000005
2016-11-15	2016	0.2	260	0.91	0.05	158	0.046	0.014		0.181		0.0042		0.018		0.00008	0.00025	0.0007	0.57		0.243	0.000005
2017-04-04	2017	0.24	217	1.48	0.01	69.4	0.008	0.006		0.091	0.00005	0.0068	0.005	0.036	0.00025	0.00001	0.00025	0.0003	0.31	0.006	0.2339	0.00003
2017-06-11	2017	0.18	248	4.31	0.11	94.3	0.062	0.036		0.605	0.0049	0.0066	0.01	0.0208	0.00025	0.0001	0.00025	0.0028	1.24	0.0025	0.2472	0.00003
2017-07-17	2017	0.2	265	0.82	0.29	125	0.061	0.012		1.15	0.0055	0.00025	0.005	0.0232	0.00025	0.00001	0.00025	0.0017	2.37	0.0025	0.2094	0.000005
2017-08-16	2017	0.16	298	8.86	0.23	60.5	0.067	0.028		0.16	0.0074	0.0116	0.005	0.0346	0.00025	0.00001	0.0017	0.0031	0.26	0.0025	0.2239	0.000005
2017-09-03	2017	0.13	250	8.67	0.2	190	0.113	0.022		0.936	0.0047	0.00025	0.01	0.0319	0.00025	0.00005	0.0022	0.002	2.33	0.006	0.2149	0.00001
2017-11-13	2017	0.21	461	1.21	0.03	339	0.021	0.0008		0.133	0.0027	0.0143	0.04	0.061	0.00025	0.00005	0.0007	0.0006	0.46	0.026	0.7399	0.000005
2018-06-12	2018	0.2	138	6.34	0.23	74.4	0.105	0.044		0.414	0.414	0.00025	0.005	0.0198	0.00025	0.00005	0.0023	0.0003	0.78	0.0025	0.0479	0.000005
2018-07-04	2018	0.19	263	4.29	0.09	144	0.057			0.091	0.0069	0.0045	0.005	0.0247	0.00025	0.00028	0.0007	0.0009	0.2	0.0025	0.159	0.000005
2018-08-08	2018		176	5.61	0.08	101	0.034			0.048	0.0064	0.00025	0.005	0.0224	0.00025	0.00012	0.0014	0.0003	0.08	0.0025	0.0762	0.000005
2018-09-25	2018	0.2	332	5.86	0.09	242	0.021	0.01		0.202	0.0131	0.0023	0.02	0.028	0.00025	0.00001	0.0009	0.0008	0.44	0.0025	0.0856	0.000005
2018-11-04	2018	0.22	525	2.64	0.06	356	0.028			0.083	0.0078	0.0064	0.06	0.0505	0.00025	0.00001	0.0007	0.0003	0.18	0.008	0.454	0.000005

Indicate values = 1/2 of detection limit

Date	YEAR	Total Mo	Total Ni	Total Pb	Total Se	Total Sn	Total Sr	Total Ti	Total Tl	Total U	Total V	Total Zn	Dissolved Al	Dissolved Sb	Dissolved As	Dissolved B	Dissolved Ba	Dissolved Be	Dissolved Cd	Dissolved Cu	Dissolved Cr	Dissolved Fe
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L	mg/L
2013-10-27	2013																					
2014-05-19	2014		0.0035	0.0003								0.002										
2014-08-06	2014		0.049	0.0378								0.026	0.003		0.0127		0.0588		0.0003	0.0116		0.22
2015-06-02	2015		0.021	0.046								0.028										
2015-07-23	2015		0.0244	0.00015								0.0005	0.003		0.00025		0.0703		0.00001	0.001		0.59
2016-06-20	2016	0.0838	0.0041	0.00015	0.003				0.001			0.0005	0.037		0.0058		0.0198		0.00015	0.001		0.01
2016-08-09	2016	0.0635	0.0093	0.00015	0.003				0.0004			0.0005	0.003		0.00025		0.0394		0.00022	0.0075		0.07
2016-09-05	2016	0.0964	0.00025	0.00015	0.009				0.0004			0.001	0.003		0.00025		0.0452		0.00007	0.0006		0.03
2016-11-15	2016	0.0222	0.0135	0.00015	0.001				0.0004			0.001	0.003		0.0027		0.0178		0.00008	0.00025		0.03
2017-04-04	2017	0.0106	0.0018	0.00015	0.001	0.0005	0.48	0.06	0.0004	0.0005	0.00025	0.0005	0.003	0.00005	0.0093	0.02	0.0299	0.00025	0.00001	0.00025	0.0003	0.005
2017-06-11	2017	0.0419	0.0098	0.00015	0.002	0.001	0.56	0.04	0.0004	0.007	0.00025	0.004	0.605	0.0045	0.0053	0.02	0.0208	0.00025	0.0001	0.00025	0.0028	1.24
2017-07-17	2017	0.0474	0.0115	0.002	0.001	0.0005	0.52	0.08	0.0004	0.014	0.00025	0.009	0.003	0.00005	0.00025	0.005	0.00025	0.00025	0.00001	0.00025	0.0003	2.37
2017-08-16	2017	0.0504	0.0079	0.00015	0.002	0.0005	0.646	0.08	0.0004	0.016	0.00025	0.0005	0.015	0.0072	0.00025	0.02	0.0291	0.00025	0.00001	0.0019	0.0003	0.005
2017-09-03	2017	0.0477	0.0107	0.00015	0.003	0.0005	0.642	0.08	0.0004	0.015	0.00025	0.004	0.008	0.0047	0.00025	0.01	0.0229	0.00025	0.00003	0.0017	0.0003	0.03
2017-11-13	2017	0.023	0.0184	0.00015	0.002	0.0005	1.06	0.14	0.0004	0.008	0.0006	0.002	0.654	0.0028	0.0121	0.14	0.0599	0.00025	0.00007	0.0033	0.0009	0.07
2018-06-12	2018	0.052	0.0053	0.00015	0.0005	0.008	0.463	0.04	0.0004	0.00025	0.00025	0.0005	0.003	0.0085	0.00025	0.01	0.0163	0.00025	0.00029	0.0015	0.0003	0.03
2018-07-04	2018	0.0536	0.0065	0.00015	0.002	0.0005	0.68	0.07	0.0004	0.01	0.00025	0.001	0.003	0.0077	0.0031	0.005	0.0247	0.00025	0.0003	0.0005	0.0008	0.01
2018-08-08	2018	0.0503	0.0043	0.00015	0.0016	0.0005	0.39	0.05	0.0001	0.01	0.00025	0.0005	0.031	0.0063	0.00025	0.005	0.0184	0.00025	0.00018	0.0034	0.0003	0.01
2018-09-25	2018	0.0981	0.0063	0.0015	0.00025	0.0005	0.797	0.005	0.0001	0.023	0.00025	0.0005	0.027	0.0167	0.0033	0.03	0.0373	0.00025	0.00001	0.0012	0.0003	0.005
2018-11-04	2018	0.0435	0.0083	0.0041	0.0009	0.0005	1.19	0.005	0.0001	0.014	0.00025	0.002	0.0025	0.0052	0.0043	0.06	0.0293	0.00025	0.00003	0.0005	0.0003	0.01

Indicate values = 1/2 of detection limit

Date	YEAR	Dissolved Li	Dissolved Mn	Dissolved Hg	Dissolved Mo	Dissolved Ni	Dissolved Pb	Dissolved Se	Dissolved Sn	Dissolved Sr	Dissolved Ti	Dissolved Tl	Dissolved U	Dissolved V	Dissolved Zn	Dissolved Ag
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2013-10-27	2013															
2014-05-19	2014															
2014-08-06	2014		0.1328	0.0001	0.1089	0.0254	0.00015	0.007				0.0025			0.002	0.00005
2015-06-02	2015															
2015-07-23	2015		0.0863	0.000005	0.1111	0.0218	0.00015	0.004				0.0025			0.0005	0.00005
2016-06-20	2016		0.0373	0.000005	0.0874	0.0031	0.00015	0.003				0.001			0.0005	
2016-08-09	2016		0.1704	0.00005	0.0641	0.0093	0.00015	0.003				0.0004			0.001	0.00005
2016-09-05	2016		0.1145	0.000005	0.0911	0.00025	0.00015	0.009				0.0004			0.0005	0.0003
2016-11-15	2016		0.237	0.00001	0.0208	0.0135	0.00015	0.0005				0.0004			0.001	0.00005
2017-04-04	2017	0.0025	0.239	0.00003	0.0115	0.0018	0.00015	0.002	0.0005	0.488	0.06	0.0004	0.0005	0.00025	0.0005	
2017-06-11	2017	0.0025	0.2472	0.00004	0.0419	0.0098	0.00015	0.002	0.0005	0.417	0.04	0.0004	0.006	0.00025	0.001	
2017-07-17	2017	0.0025	0.0015	0.000005	0.00025	0.00025	0.00015	0.0005	0.0005	0.51	0.005	0.0004	0.0005	0.00025	0.0005	
2017-08-16	2017	0.0025	0.2105	0.000005	0.0477	0.0079	0.0021	0.002	0.0005	0.708	0.08	0.0004	0.017	0.00025	0.0005	
2017-09-03	2017	0.005	0.1761	0.000005	0.0456	0.0076	0.00015	0.001	0.0005	0.793	0.06	0.0004	0.014	0.00025	0.0005	
2017-11-13	2017	0.007	0.7307	0.000005	0.0229	0.0186	0.00015	0.002	0.0005	1.02	0.14	0.0004	0.008	0.00025	0.002	
2018-06-12	2018	0.0025	0.0413	0.000005	0.0516	0.0044	0.00015	0.0005	0.0005	0.52	0.03	0.0004	0.008	0.00025	0.0005	
2018-07-04	2018	0.0025	0.1552	0.000005	0.05	0.0066	0.00015	0.0005	0.0005	0.597	0.05	0.0004	0.01	0.00025	0.001	
2018-08-08	2018	0.0025	0.0722	0.000005	0.048	0.0041	0.00015	0.0014	0.0005	0.419	0.05	0.0001	0.009	0.00025	0.0005	
2018-09-25	2018	0.005	0.0862	0.000005	0.1212	0.0069	0.0003	0.002	0.0005	0.981	0.05	0.0001	0.03	0.00025	0.001	
2018-11-04	2018	0.007	0.3099	0.000005	0.0301	0.0056	0.00015	0.00025	0.0005	0.828	0.005	0.0001	0.014	0.00025	0.001	

Indicate values = 1/2 of detection limit

Vault Attenuation Pond
(ST-25 (a))

Date	Parametre	pH	Conductivity	Turbidity	Alkalinity	Total Ammonia (NH3)	Ammonia nitrogen (NH3-NH4)	Total Cyanide (CNt)	Dissolved Solids (TDS)	TSS	Nitrite	Nitrate	Chloride	Fluoride	Sulphate	Hardness
	Units		us/cm	NTU	mg CaCo3/L	mg N/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2014-07-08		7.34	105.9	1.44	33	0.005			80							
2014-08-06		7.34	191.9	10.34	41	0.02			144							
2014-09-09					52	0.03			229							
2015-06-16		6.47	110.6	8.93	23	0.005	1.13	0.007	73							
2015-07-08		6.9	139.9	3.73	52	0.005	0.88	0.0025	90		0.02	1.34	4.3	0.06	13.6	48
2015-07-25		7.68	233		41	0.04			155		0.21	6.16	8.3	0.11		80
2015-08-04		6.93	278	10.01	47	0.06	4.11	0.014	168		0.19	6.51	7.8	0.09	0.6	82
2015-09-14		7.44	315	21.3	45	0.04	2.79	0.0025	198							
2016-06-07		7.48	111.8	46.9	25	0.005	1.28	0.0025	74	36	0.05	0.63	4.7	0.06	20.7	39
2016-07-18		7.36	102.3	28.9	41	0.01	0.01	0.0025	171	0.5	0.09	3.57	10.8	0.11	53.1	91
2016-08-08		7.45	182	4.17	39	0.03	2.51	0.027	252	4	0.18	6.72	12	0.13	96.5	134
2016-09-05		7.8	241	1.65	32	0.005	0.29	0.034	172	2	0.03	4.46	7.3	0.11	55.8	108
2016-10-10		7.19	443	2.71	48	0.005	1.14	0.0005	247	0.5	0.03	0.96	10.7	0.17	16.9	141
2016-10-30		7.7	596	3.27	102	0.03	1.97	0.003	377	3	0.04	0.18	12.9	0.24	149	227
2017-06-11		6.82	241	32.8	53	0.005	1.9	0.005	142	28	0.07	2.7	10	0.12	26.4	86
2017-07-17		8.16	251	7.51	54	0.02	1.55	0.004	156	6	0.06	0.3	7.2		44.1	85
2017-08-16		8	348	3.86	58	0.03	1.77	0.004	215	1	0.08	5.68	10.6	0.11	206	129
2017-09-03		8.32	398	21.4	52	0.03	2.2	0.006	237	86	0.06	5.38	11.5	0.07	77.2	170
2018-06-12		6.97	251	19.8	34	0.01	1.28	0.0005	109	28	0.04	1.9	5.9	0.1	12.8	88
2018-07-04		6.84	377	5.55	31	0.005	0.87	0.006	211	5	0.01	1.96	7.6	0.16	105	118
2018-08-08		7.59	341	3.64	46	0.005	0.32	0.001	210	9	0.01	2.81	8.5	0.2	91.5	94
2018-09-25		7.55	339	1.52	32	0.005	1.04	0.0005	193	1	0.04	4.08	6.2	0.13	89.1	109

Indicate values = 1/2 of detection limit

Date	Parametre	Arsenic (As)	Aluminium (Al)	Barium (Ba)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Thallium (Tl)
	Units				mg/L	mg/L		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2014-07-08																
2014-08-06																
2014-09-09																
2015-06-16		0.00025					0.0014		0.00015				0.0031			
2015-07-08		0.00025	0.023	0.0106	0.00001	0.0003	0.0017	0.11	0.00015	0.0283	0.000005	0.0045	0.0027	0.0005		0.0025
2015-07-25		0.00025	0.031	0.0175	0.00001	0.0016	0.0026	0.22	0.00015	0.03	0.000005	0.0179	0.0041	0.0005		0.0025
2015-08-04		0.00025					0.0034		0.0018				0.004			
2015-09-14		0.00025					0.0079		0.00015				0.0042			
2016-06-07		0.00025	0.94	0.0213	0.00003	0.0003	0.0026	1.71	0.00015	0.0935	0.000005	0.0044	0.0035	0.0005	0.00005	0.001
2016-07-18		0.00025	0.07	0.022	0.00003	0.0003	0.002	0.33	0.00015	0.037	0.01	0.011	0.003	0.0005	0.00005	0.0004
2016-08-08		0.00025	0.101	0.0297	0.00004	0.0003	0.0076	0.44	0.00015	0.1155	0.00005	0.0276	0.0093	0.0005	0.00005	0.0004
2016-09-05		0.00025	0.003	0.024	0.00001	0.0003	0.0017	0.12	0.00015	0.0283	0.000005	0.0106	0.00025	0.0005	0.0004	0.0004
2016-10-10		0.0023	0.051	0.0392	0.00001	0.0003	0.0008	0.86	0.00015	0.3089	0.000005	0.0036	0.0045	0.001	0.00005	0.0004
2016-10-30		0.00025	0.003	0.0286	0.00007	0.0019	0.00025	0.16	0.00015	0.5612	0.00005	0.0103	0.0128	0.0005	0.00005	0.0004
2017-06-11		0.0006	0.916	0.0145	0.00003	0.0021	0.0032	1.69	0.00015	0.0919	0.000005	0.019	0.008	0.0005	0.00005	0.0004
2017-07-17		0.00025	0.135	0.0162	0.00001	0.0003	0.0024	0.27	0.00015	0.0443	0.000005	0.0108	0.0039	0.0005	0.00005	0.0004
2017-08-16		0.0149	0.083	0.0251	0.00001	0.0036	0.0029	0.07	0.00015	0.0558	0.000005	0.0211	0.0036	0.002	0.00005	0.0004
2017-09-03		0.00025	1.4	0.0381	0.00001	0.0026	0.0062	1.91	0.00015	0.0845	0.00002	0.0178	0.0053	0.0005	0.00005	0.0004
2018-06-12		0.00025	0.712	0.0208	0.00001	0.003	0.0087	0.93	0.00015	0.1769	0.000005	0.0042	0.0153	0.0005	0.00005	0.0004
2018-07-04		0.00025	0.189	0.0226	0.00017	0.0003	0.0094	0.57	0.0003	0.2326	0.000005	0.0038	0.0186	0.0005	0.00005	0.0004
2018-08-08		0.00025	0.091	0.0196	0.00002	0.0003	0.0045	0.4	0.0003	0.0657	0.000005	0.0042	0.007	0.00025	0.00005	0.0001
2018-09-25		0.0007	0.025	0.0315	0.00005	0.0003	0.0038	0.1	0.0003	0.0395	0.000005	0.0124	0.008	0.0007	0.00005	0.0001

Indicate values = 1/2 of detection limit

Vault Attenuation Pond
(ST-25 (a))

Date	Parametre	Zinc (Zn)	diss. Aluminum (Al)	Diss. Silver (Ag)	diss. Arsenic (As)	diss. Barium (Ba)	diss. Cadmium (Cd)	diss. Copper (Cu)	diss. Iron (Fe)	diss. Manganese (Mn)	diss. Mercury (Hg)	diss. Molybdenum (Mo)	diss. Nickel (Ni)	diss. Lead (Pb)	diss. Selenium (Se)	diss. Thallium (Tl)
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2014-07-08																
2014-08-06																
2014-09-09																
2015-06-16		0.0005														
2015-07-08		0.0005	0.023	0.00005	0.00025	0.0104	0.00001	0.0017	0.01	0.0198	0.000005	0.0046	0.0026	0.00015	0.0005	0.0025
2015-07-25		0.0005														
2015-08-04		0.0005	0.006		0.00025	0.0215	0.00008	0.0028	0.01	0.0306	0.000005	0.0199	0.0041	0.0018	0.0005	0.0025
2015-09-14		0.007														
2016-06-07		0.003														
2016-07-18		0.011														
2016-08-08		0.005														
2016-09-05		0.0005														
2016-10-10		0.007														
2016-10-30		0.0005	0.003	0.00005	0.00025	0.0258	0.00009	0.00025	0.01	0.5129	0.00005	0.0098	0.0119	0.00015	0.0005	0.0004
2017-06-11		0.002														
2017-07-17		0.001														
2017-08-16		0.0005														
2017-09-03		0.003														
2018-06-12		0.011														
2018-07-04		0.017														
2018-08-08		0.0005														
2018-09-25		0.006														

Indicate values = 1/2 of detection limit

Date	Parametre	diss. Zinc (Zn)	Antimony (Sb)	Beryllium (Be)	Boron (B)	Tin (Sn)	Lithium (Li)	Strontium (Sr)	Titanium (Ti)	Uranium (U)	Vanadium (V)
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2014-07-08											
2014-08-06											
2014-09-09											
2015-06-16											
2015-07-08		0.0005	0.0004	0.00025	0.005	0.0005	0.0025	0.066	0.01	0.001	0.00025
2015-07-25			0.0018	0.00025	0.005	0.0005	0.0025	0.119	0.01	0.005	0.00025
2015-08-04		0.053									
2015-09-14											
2016-06-07											
2016-07-18											
2016-08-08											
2016-09-05											
2016-10-10											
2016-10-30		0.0005	0.0008	0.00025	0.02	0.0005	0.021	0.583	0.06	0.005	0.00025
2017-06-11											
2017-07-17											
2017-08-16											
2017-09-03											
2018-06-12											
2018-07-04											
2018-08-08											
2018-09-25											

Indicate values = 1/2 of detection limit

Date	Parameter	Conductivity	Dissolved oxygene	pH	Temperature	Alkalinity	Aluminum	Arsenic	Ammonia nitrogen (NH3-NH4)	Cadmium	Copper	Cyanide	Hardness	Iron	TSS
	Unit	µs/cm			°C	mg CaCO3/L	mg/L	mg/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2016-07-19		34		7.58	13.25	14	0.015	0.00025	0.01	0.00001	0.0007	0.0025	15	0.02	2
2016-08-22		48.7		7.62	16.1	14	0.009	0.002	0.02	0.00001	0.0013	0.0025	21	0.02	6
2016-09-27		102		7.42		14	0.024	0.00025	0.07	0.00002	0.0007	0.0005	21	0.02	3
2017-07-23		59.1	9.56	7.39	10.95	42	0.008	0.00025	0.04	0.00001	0.0011	0.0005	18	0.02	1
2017-08-28		56.7	10.27	6.55	11.2	16	0.003	0.00025	0.005	0.00001	0.0006	0.002	23	0.005	0.5
2018-02-05		34.5	14.76	7.16	0.19	10	0.003	0.00025	0.03	0.00001	0.00025	0.0005	12	0.005	1
2018-05-13						9	0.032	0.001	0.04	0.00002	0.00025	0.0005	8	0.01	1
2018-08-06		31.4	11.83	7.67	9.8	15	0.0025	0.00025	0.005	0.00001	0.00025	0.005	6	0.01	1
2018-09-11		38.9	11.7	7.2	8.5	9	0.0025	0.00025	0.005	0.00001	0.00025	0.0005	7	0.01	1
2018-11-18						11	0.0025	0.00025	0.05	0.00001	0.00025	0.0005	8	0.01	1

Date	Parameter	Mercury (max allowance of 10µg/L)	Molybdenum	Ammonia (NH3)	Nickel	Nitrate	Lead	Radium 226	Selenium	Zinc
	Unit	mg/L	mg/L	mg N/L	mg/L	mg N/L	mg/L	mg/L	mg/L	mg/L
2016-07-19		0.000005	0.00025	0.005	0.00025	0.12	0.00015	0.001	0.0005	0.0005
2016-08-22		0.000005	0.00025	0.005	0.0005	0.18	0.00015		0.0005	0.0005
2016-09-27		0.000005	0.0006	0.005	0.0007	0.17	0.00015		0.0005	0.001
2017-07-23		0.000005	0.00025	0.005	0.0005	0.12	0.0018		0.0005	0.0005
2017-08-28		0.000025	0.001	0.005	0.00025	0.29	0.00015		0.0005	0.0005
2018-02-05		0.000005	0.00025	0.005	0.00025	0.03	0.00015		0.0005	0.0005
2018-05-13		0.000005	0.0005	0.005	0.00025	0.01	0.00015		0.0005	0.002
2018-08-06		0.000005	0.0005	0.005	0.00025	0.02	0.00015		0.0006	0.0005
2018-09-11		0.000005	0.0005	0.005	0.00025	0.02	0.00015		0.00025	0.0005
2018-11-18		0.000005	0.0005	0.005	0.00025	0.01	0.00015		0.00025	0.0005

Date	Year	pH	Turb	CN WAD	Alkalinity	Total Aluminum	Silver (Ag)	Total Arsenic	Ammonia nitrogen	Total Barium (Ba)	Total Cadmium	Chloride	Total Chromium	Total Copper	Hardness	Total Iron (Fe)	Fluoride	Total Manganese
			NTU	ppm	mg CaCO3/L	mg/L	mg/L	mg/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L
2018-07-16	2018	7.71		0.185	174	0.195	0.00005	0.00025	28.5	0.1446	0.00018	15.9	0.0003	0.0227	198	0.69	0.19	0.143
2018-08-21	2018			0.043	91	0.188	0.00005	0.0006	6.42	0.0833	0.00006	9	0.0021	0.0047	275	0.49	0.22	0.0784
2018-09-17	2018	7.66	8.51	0.014	86	0.208	0.00005	0.0037	2.98	0.0582	0.00001	5.4	0.0009	0.0055	197	0.39	0.16	0.0384
2018-07-16	2018	8		0.003	64	0.064	0.00005	0.0034	1.7	0.0512	0.00001	3.3	0.0003	0.0093	165	0.09	0.14	0.2332
2018-08-21	2018			0.008	85	0.112	0.00005	0.00025	2.84	0.128	0.00004	6.5	0.0011	0.0071	384	0.14	0.19	0.5182
2018-09-17	2018	7.67	2.59	0.032	83	0.085	0.00005	0.0024	5.3	0.0777	0.00005	7.2	0.0003	0.0108	279	0.21	0.16	0.3217

Indicate values = 1/2 of detection limit

Date	Year	Total Mercury	Total Molybdenu	Ammonia (NH3)	Total Nickel	Nitrate (NO3)	Nitrite (NO2)	Total Lead	Total Selenium	Sulphate (SO2-4)	Total Thallium	TDS	TSS	Total Cyanide	CN Free	Total Zinc	Dissolved Aluminum	Dissolved Silver	Dissolved Arsenic
		mg/L	mg/L	mg N/L	mg/L	mg N/L	mg N/L	mg/L	mg/L	mg SO4/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2018-07-16	2018	0.000005	0.0432	0.53	0.0104	45	1.04	0.00015	0.002	64.8	0.0001	530	13	0.506	0.0025	0.007	0.003	0.00005	0.00025
2018-08-21	2018	0.000005	0.0304	0.17	0.005	24.5	0.14	0.00015	0.0018	109	0.0003	322	6	0.045		0.001	0.0025	0.00005	0.00025
2018-09-17	2018	0.000005	0.0145	0.03	0.0023	9.04	0.03	0.0012	0.0009	77.2	0.0001	260	2	0.019	0.014	0.002	0.087	0.00005	0.0025
2018-07-16	2018	0.000005	0.0078	0.04	0.0124	2.87	0.05	0.00015	0.0005	103	0.0001	233	0.5	0.003	0.164	0.007	0.003	0.00005	0.0028
2018-08-21	2018	0.000005	0.0108	0.05	0.0226	6.1	0.15	0.00015	0.0024	239	0.0001	347	4	0.009	0.009	0.011	0.0025	0.00005	0.00025
2018-09-17	2018	0.000005	0.0077	0.04	0.0147	7.46	0.14	0.0046	0.00025	193	0.0001	371	5	0.068	0.036	0.01	0.09	0.00005	0.0022

Indicate values = 1/2 of detection limit

Date	Year	Dissolved Barium	Dissolved Cadmium	Dissolved Chromium	Dissolved Copper	Dissolved Iron	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenu	Dissolved Nickel	Dissolved Lead	Dissolved Selenium	Dissolved Thallium	Dissolved Zinc
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2018-07-16	2018	0.1377	0.0002	0.0003	0.0208	0.21	0.1477	0.000005	0.0423	0.0105	0.00015	0.0005	0.0001	0.004
2018-08-21	2018	0.0733	0.00004	0.0024	0.0045	0.005	0.0618	0.000005	0.0266	0.0041	0.00015	0.0011	0.0001	0.0005
2018-09-17	2018	0.0471	0.00002	0.0003	0.0053	0.005	0.0277	0.000005	0.0112	0.0014	0.00015	0.00025	0.0001	0.0005
2018-07-16	2018	0.0549	0.00001	0.0003	0.007	0.005	0.2135	0.000005	0.0082	0.0119	0.00015	0.0005	0.0001	0.005
2018-08-21	2018	0.097	0.00004	0.0023	0.0062	0.005	0.4195	0.000005	0.0108	0.0171	0.00015	0.00025	0.0001	0.007
2018-09-17	2018	0.0763	0.00001	0.0003	0.0091	0.03	0.2887	0.000005	0.0077	0.0134	0.0009	0.0008	0.0001	0.005

Indicate values = 1/2 of detection limit

SAMPLING DATE		févr-08-18	juin-21-18	juil-18-18	oct-19-18	Moyenne 2018
LAB CERTIFICATE		CA-14099-FEB18	CA-14708 JUN18	CA-15198 JUL18	CA-14454 OCT18	
SAMPLE NAME		Tailings Liquid	Tailings Liquid	Tailings Liquid	Tailings Liquid	Tailings Liquid
Alkalinity	mg $CaCO_3$/L	60	63	52	94	58.333
Aluminium (Al)	mg/L	8.350	0.361	0.162	0.121	2.249
Dissolved Aluminium (Al)	mg/L	0.085	0.083	0.156	0.041	0.091
Antimony (Sb)	mg/L	0.031	0.018	0.012	0.026	0.022
Dissolved Antimony (Sb)	mg/L	0.023	0.021	0.010	0.026	0.020
Silver (Ag)	mg/L	0.000	0.008	0.146	0.001	0.039
Dissolved Silver (Ag)	mg/L	0.000	0.002	0.034	0.001	0.009
Arsenic (As)	mg/L	0.017	0.012	0.055	0.017	0.025
Dissolved Arsenic (As)	mg/L	0.009	0.018	0.052	0.018	0.024
Barium (Ba)	mg/L	0.143	0.065	0.094	0.062	0.091
Dissolved Barium (Ba)	mg/L	0.117	0.067	0.088	0.055	0.082
Beryllium (Be)	mg/L	0.000187	0.000011	0.000004	0.000004	0.000
Dissolved Beryllium (Be)	mg/L	0.000004	0.000004	0.000004	0.000004	0.000
Bismuth (Bi)	mg/L					#DIV/0!
Boron (B)	mg/L	0.116	0.135	0.306	0.115	0.168
Dissolved Boron (B)	mg/L	0.081	0.122	0.295	0.195	0.173
Cadmium (Cd)	mg/L	0.0006	0.0004	0.0003	0.0004	0.0004
Dissolved Cadmium (Cd)	mg/L	0.0003	0.0004	0.0003	0.0003	0.000
Calcium (Ca)	mg/L					#DIV/0!
Chloride (Cl)	mg/L	450	630	500	480	515.000
Chromium (Cr)	mg/L	0.016	0.001	0.000	0.001	0.005
Dissolved Chromium (Cr)	mg/L	0.0004	0.0001	0.0002	0.0000	0.000
Cobalt (Co)	mg/L					#DIV/0!
Copper (Cu)	mg/L	0.0844	0.0879	0.2550	0.2150	0.161
Dissolved Copper (Cu)	mg/L	0.0101	0.0564	0.2070	0.1800	0.113
Cynanide WAD	mg/L	0.140	0.070	0.010	0.030	0.063
Total Cyanide (CNt)	mg/L	8.620	16.300	0.080	0.050	6.263
Hardness	mg $CaCO_3$/L	1650	1080	879	1060	1167.250
Tin (Sn)	mg/L	0.0002	0.0038	0.0048	0.0002	0.002
Dissolved Tin (Sn)	mg/L	0.0001	0.0056	0.0033	0.0001	0.002
Iron (Fe)	mg/L	19.400	6.460	0.050	0.220	6.533
Dissolved Iron (Fe)	mg/L	2.860	5.670	0.036	0.011	2.144
Fluoride (F)	mg/L	0.550	0.640	0.920	0.610	0.680
Lithium (Li)	mg/L	0.008	0.004	0.004	0.009	0.006
Dissolved Lithium (Li)	mg/L	0.002	0.003	0.004	0.006	0.004
Magnesium	mg/L					#DIV/0!
Manganese (Mn)	mg/L	0.263	0.033	0.018	0.032	0.086
Dissolved Manganese (Mn)	mg/L	0.011	0.014	0.017	0.028	0.017
Mercury (Hg)	mg/L	0.000005	0.000005	0.000005	0.000005	0.000
Dissolved Mercury (Hg)	mg/L	0.000005	0.000005	0.000005	0.000005	0.000
Molybdenum (Mo)	mg/L	0.902	1.000	0.890	0.970	0.941
Dissolved Molybdenum (Mo)	mg/L	0.861	0.952	0.866	1.010	0.922
Ammonia (NH_3) (ionized)	mg N/L					#DIV/0!
Ammonia (NH3-NH4)	mg N/L	85	100	74	79	84.550
Nickel (Ni)	mg/L	0.066	0.008	0.003		0.026
Dissolved Nickel (Ni)	mg/L	0.036	0.003	0.003		0.014
Nitrate (NO_3)	mg N/L	9.2	11.5	9.9	5.3	8.978
Nitrite (NO2)	mg N/L	0.380	0.480	0.310	0.510	0.420
Lead (Pb)	mg/L	0.058	0.002	0.000	0.002	0.016
Dissolved Lead (Pb)	mg/L	0.0018	0.0001	0.0001	0.0002	0.001
Potassium (K)	mg/L					#DIV/0!
Selenium (Se)	mg/L	0.094	0.189	0.193	0.049	0.131
Dissolved Selenium (Se)	mg/L	0.094	0.243	0.189	0.054	0.145
Silica (Si)	mg/L					#DIV/0!
Sodium (Na)	mg/L					#DIV/0!
Strontium (Sr)	mg/L	3.240	2.580	1.410	2.170	2.350
Dissolved Strontium (Sr)	mg/L	3.060	2.400	1.340	2.180	2.245
Sulfate (SO_4)	mg SO_4/L	2500	2700	2300	2600	2525.000
Thallium (Tl)	mg/L	0.00003	0.00004	0.00004	0.00009	0.000
Dissolved thallium (Tl)	mg/L	0.00003	0.00003	0.00004	0.00008	0.000
Tellurium (Te)						#DIV/0!
Titanium (Ti)	mg/L	0.126	0.006	0.001	0.002	0.034
Dissolved titanium (Ti)	mg/L	0.005	0.001	0.001	0.001	0.002
Uranium (U)	mg/L	0.012	0.010	0.001	0.009	0.008
Dissolved Uranium (U)	mg/L	0.011	0.003	0.001	0.008	0.006
Vanadium (V)	mg/L	0.012	0.001	0.001	0.001	0.004
Dissolved Vanadium	mg/L	0.001	0.001	0.001	0.000	0.001
Zinc (Zn)	mg/L	0.054	0.004	0.001	0.018	0.019
Dissolved Zinc	mg/L	0.019	0.001	0.001	0.001	0.006
Total dissolved solids	mg/L	4750	4891	3490	4480	4402.750

Value below detection limit. Use 1/2 of detection limit

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455 René-Lévesque Blvd. West
Montreal, Quebec, H2Z 1Z3, Canada
(514) 393-1000
www.snclavalin.com

APPENDIX D – 2019 FRESHET ACTION PLAN

Meadowbank Gold Mine

Freshet Action And Incident Response Plan

March 2019

EXECUTIVE SUMMARY

The purpose of this Action and Response Plan is to identify areas of concern around the Meadowbank mine site and the AWAR that need to be managed in an organized and timely manner during the annual freshet period to prevent adverse environmental and operational impacts. The Incident Response section of the Plan outlines specified actions that will be taken by Agnico to manage and mitigate areas where environmental incidents have occurred, specifically seepage on the north-east side of the Portage Waste Rock Storage area, known as sampling location ST-16 (2013) and seepage from the mill (inside) containment structures through the Assay Road southwest of the mill (Mill Seepage - 2013). The Central Dike seepage is also included in this plan. Any future incidents that have the potential to affect off site water or land will be added and would include any specific mitigation and monitoring actions.

The freshet period typically occurs during the annual snow and ice melt sometime around mid-May and extends until the end of July. During this period excess water is created and must be managed through additional pumping and management practices at vulnerable areas around the site. Mitigation techniques, timeframes and specified roles and responsibilities are outlined in this document for each area of concern.

The main areas of concern are the mining pits and pit walls, the East and West diversion ditches, Vault Road culverts, the areas around the Portage Waste Rock Storage Facility (RSF) including the northern portions of the NPAG waste rock extension, which includes two new collection ponds known as WEP1 and WEP2, Vault Waste Rock Storage Facility, Northwest corner of the North Cell TSF, Saddle Dam 1 corner, Saddle Dam 2 sump, Saddle Dam 3 sump, Saddle Dam 4-5 downstream, AWAR culverts near the site and along the road to Baker Lake, RSF – ST-16 Seepage, Assay Road (Mill) Seepage, Central Dike seepage station STS-5, and the Vault Pit area.

It is important that all dewatering and associated infrastructure be in good working order and adequate to manage the expected water flows associated with the freshet period; this includes but is not limited to pumps, ditch, culvert and sump maintenance, critical piping system installation and inspection, adequate resource allocation for preparative work and establishing a viable monitoring program for the areas of concern and incident response locations. A concise summary of the 2019 preparation works and roles and responsibilities is presented in the attached Appendix 1 (2019 Freshet Action Plan Procedures). Appendix 1 will be updated yearly to reflect changes in conditions at the Meadowbank site. Appendix 2 contains diagrams depicting the areas of concern and incident response locations. Schedules 1 and 2 describe the monitoring programs for incident responses.

DOCUMENT CONTROL

Revision				Pages Revised	Remarks
#	Prep.	Rev.	Date		
01	Agnico	Internal	April 2014	All	
02	Agnico	Internal	May 2015	All	Comprehensive update from 2014 Plan
03	Agnico	Internal	October 2015	All	Comprehensive update from May 2015 Plan
04	Agnico	Internal	March 2016	All	2016 Comprehensive review
05	Agnico	Internal	March 2017	All	Comprehensive update from May 2016 Plan
06	Agnico	Internal	March 2018	All	Comprehensive update from 2017 Plan
07	Agnico	Internal	March 2019	All	Comprehensive update from 2018 Plan

Prepared By: Meadowbank Environment

Approved by:

Robin Allard, General Supervisor Environment

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INTRODUCTION

The purpose of this Freshet Action and Incident Response Plan is to ensure that Agnico can address and manage excess water associated with the freshet season at the Meadowbank site and to ensure Agnico has implemented specific management and mitigation measures in response to environmental incidents with potential for off site impacts to water or land.

The freshet season is loosely defined as being a period of time from approximately May 15 – July 30; in some cases this period of time can extend up to early fall when freezing re-occurs (October 15). There are many areas around the site that are vulnerable to this excess water; the goal is to identify these areas and develop a clear plan with defined roles and responsibilities (among Agnico Departments), and to manage the freshet flows.

In addition, several guiding principles are applicable to the formation of this plan. The highest priority principles are:

1) to ensure that mine contact water from runoff or seepage is managed to prevent adverse environmental impacts;
2) to ensure that the health and safety of Agnico employees is protected, especially with respect to mining operations when excess water is present; and
3) to make sure the site is in compliance with the Nunavut Water Board (NWB) License, Part D, Item 19 and Part E, Item 10.

The plan will identify the areas of concern and discuss the potential risks as well as mitigation measures necessary to address the identified issues. Appendix 1 contains the actual defined 2019 procedures, the roles and responsibilities and associated timelines. Agnico's intent is to update the Procedural Appendix on a yearly basis. For example, there may be additional mitigation measures for a defined problem area or in some cases a previously defined issue may be permanently rectified.

The main areas of concern are:+

- Mining pits and pit walls;
- Vault Pit area including pit sumps;
- Area around the Portage Waste Rock Storage Facility (RSF) including the northern portions of the NPAG waste rock extension, which include the collection ponds known as WEP 1 and WEP 2;
- Vault Waste Rock Storage Facility;
- East and West diversion ditches;
- Vault Road culverts;
- Northwest corner of the North Cell TSF;
- Saddle Dam 1 corner;
- Saddle Dam 2 sump;
- Saddle Dam 3 sump;
- Saddle Dam 4-5 downstream;
- AWAR culverts near the site and along the road to Baker Lake;
- RSF – ST-16 Seepage;
- Assay Road (Mill) Seepage;
- Central Dike Seepage.

Each area identified above will be discussed in detail below. All areas of concern are considered priorities based on the guiding principles.

2 AREAS OF CONCERN

[redacted] MINING PITS AND PIT WALLS

All permanent ramps, jump ramps, ditches and sumps must be cleaned of all ice and snow before May in order to contain any water resulting from the snow melt. All pumps must be checked and serviced before the month of May. In addition, a check must be completed confirming that all piping systems starting from the different pits leading to the Vault attenuation pond or the South Cell TSF are free of ice by validating pumping values (if pumping systems are active) and/or performing an air test in the pipe with a compressor.

2.1.1 Goose pit

Mining in Goose pit was completed in 2014. All pumping equipment has been removed from the pit. Runoff water that accumulates in the Goose pit will now form part of the Goose pit natural reflooding process. No further action in this area during the freshet period is required. Water and/or ice will remain as part of the pit reflooding activity.

2.1.2 Portage pit

Water management in the Portage pit has been simplified since the mining of pits B, C and D has been completed. However, infrastructure is in place to prevent runoff water from reaching Pit A and E.

- A pond and ditch system south of Pit E pushback is presented in Figure 2-1. Runoff water accumulated in ponds GP-4 and GP-5 will be pumped into Goose pit. Infrastructures might be modified or added within the actual trench and sumps footprint in such a way to prevent water from ponding against the pit crest;

- A pumping station is located in pit B (not shown) and will be used to manage runoff water affecting the active mining production area in pit A. The water will be pumped to the South Cell Tailings Storage Facility (TSF); and

- A pumping station located at the bottom of pit E (not shown) will be used to manage runoff water affecting the active mining production area in pit E. The water will be pumped to the South Cell TSF.

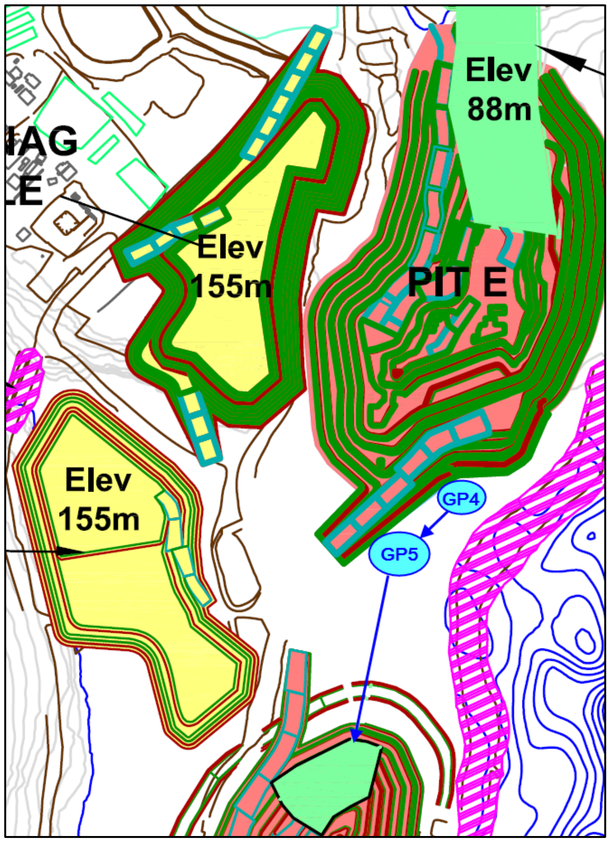


Figure 2-1: View of Portage Pit E area with the associated sumps and trenches

2.1.3 Vault & Phaser Pits

Since the summer of 2014 (dewatering completed) Vault Lake is now used as an Attenuation pond. The light blue surfaces in Figure 2-2 represent four isolated ponds that form the Attenuation pond (A, B, C & D) used to collect contact water from Vault Pit. Runoff from the pit area and the waste rock storage area that flows into the active mining areas will be pumped to the Attenuation pond.

As per the 2016 Water Management Plan, the Phaser Lake has been dewatered in 2016 to low levels to allow mining activities in spring 2017. The infrastructure used for 2017 dewatering will be used for taking such actions.

Discharge from the Vault attenuation pond to Wally Lake may have required treatment at the Vault WTP if the water quality did not meet discharge criteria for Vault Attenuation Pond discharge. The Actiflo treatment plant was designed to remove TSS. Since the beginning of the Attenuation pond discharge into Wally Lake, the WTP was never used as water quality was found to be within guidelines. Since all the discharge to date has been compliant with the NWB Water License and MMER criteria, it was decided to decommision the WTP and bring it to the Whale Tail project. A diffuser was installed in Wally Lake to meet the Type A Water License requirement. The Environmental department must be notified at a minimum ten days before discharging any water to Wally Lake to comply with notification and sampling requirements. All piping and the discharge diffuser must be inspected in April in order to have all installations in place to proceed with pumping and/or treatment activities during freshet

Furthermore, in 2016 Agnico built a permanent sump in Vault pond D to avoid overflows into the pit past 134.3masl elevation. It will act as a low point to redirect all the freshet water in Vault ponds B and C via pumping. Its storage capacity is considered to be null as the pond should be maintained dry throughout the summer season. Please refer to Appendix 1 for a complete review of the freshet action to be put in place each year.

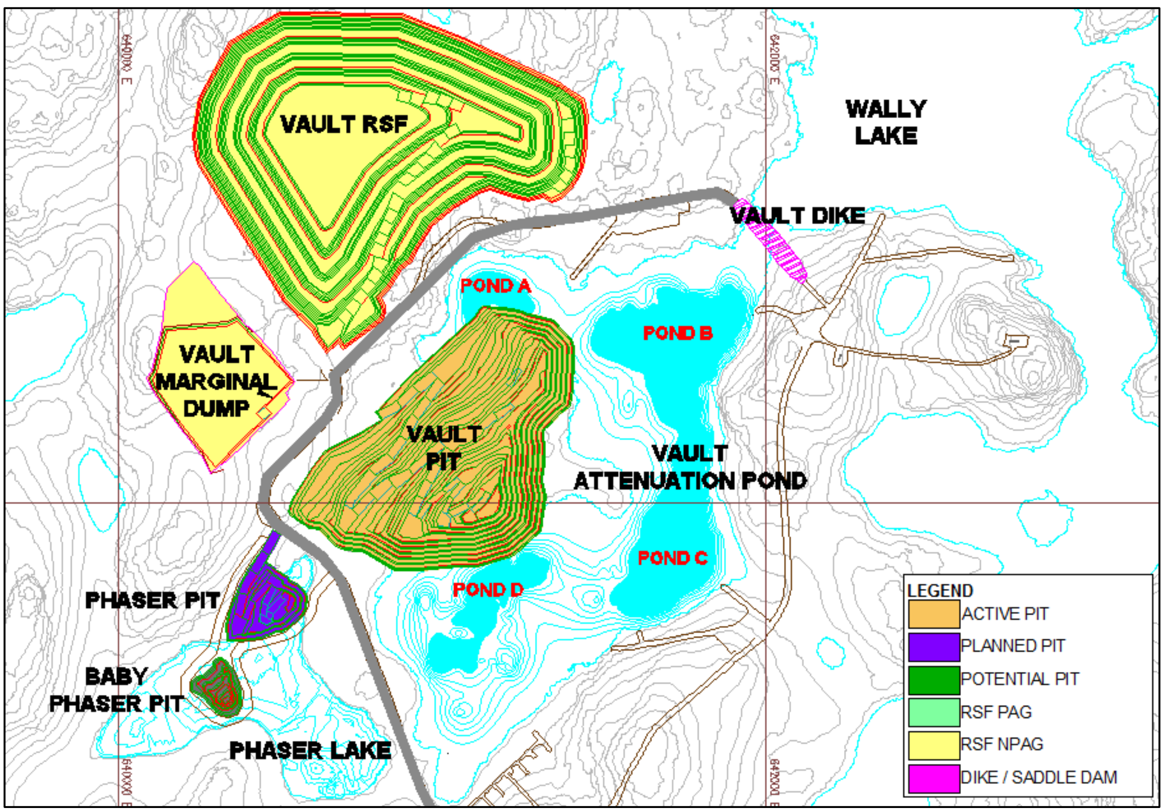


Figure 2-2: View of Vault area and the associated management ponds

[redacted] WASTE ROCK STORAGE AREAS

2.2.1 PORTAGE RSF

The Portage Rock Storage Facility (RSF) will require weekly inspections around the perimeter beginning as soon as the freshet starts (May) until freeze up to identify any seepage. As will be noted in the following section, seepage was identified in 2013 at location ST-16. In the event that additional seepage is observed from the RSF, it must be reported to the Engineering and Environment Departments and samples must be taken to determine the water quality and source. A mitigation plan will be prepared and implemented if necessary.

2.2.2 VAULT RSF

Much like the RSF located near Portage pit, the Vault RSF will require some monitoring during the freshet period to ensure adequate water management. Weekly inspections around the RSF perimeter will be conducted to identify any seepage as soon as the freshet starts (May) until freeze. In the event that seepage is observed, the Engineering and Environment Departments must be notified and samples taken to determine water quality. The sample monitoring will be in accordance with the Water License requirements. It is anticipated that there will be no water quality issues as primary drainage is towards the Vault Pit and Vault Attenuation Pond and the waste rock from the Vault Pit is primarily NPAG.

[redacted] NORTH CELL TAILINGS STORAGE FACILITY

Water management around the North Cell Tailings Storage Facility (TSF) is required to maintain integrity of the tailings pond and to prevent any adverse environmental impacts. This section describes the infrastructure in place to control runoff water and reduce possible impact on both the tailings storage facility and the receiving environment.

2.3.1 Diversion Ditches

The East and West Diversion ditches were constructed in 2012 around the North Cell TSF and the Portage RSF. The diversion ditches are designed to redirect the fresh water from the northern area watershed away from the tailings pond and RSF and direct it to Second and Third Portage Lakes. As seen in Figure 2-3, seven zones associated with the diversion ditches have been identified where actions will be taken during or before freshet:

- 2. 1. AWAR culvert – Discharge to Third Portage Lake;
- 2. 2. West Diversion Ditch elbow;
- 2. 3. Northwest corner of North Cell TSF;
- 2. 4. Waste Extension Pool sumps (WEP 1 and WEP 2);
- 2. 5. East Diversion Ditch Outlet to NP-2 Lake;
- 2. 6. North portion of NPAG waste rock expansion; and
- 2. 7. Vault road culvert – NP-2 Lake exit to NP-1 Lake.

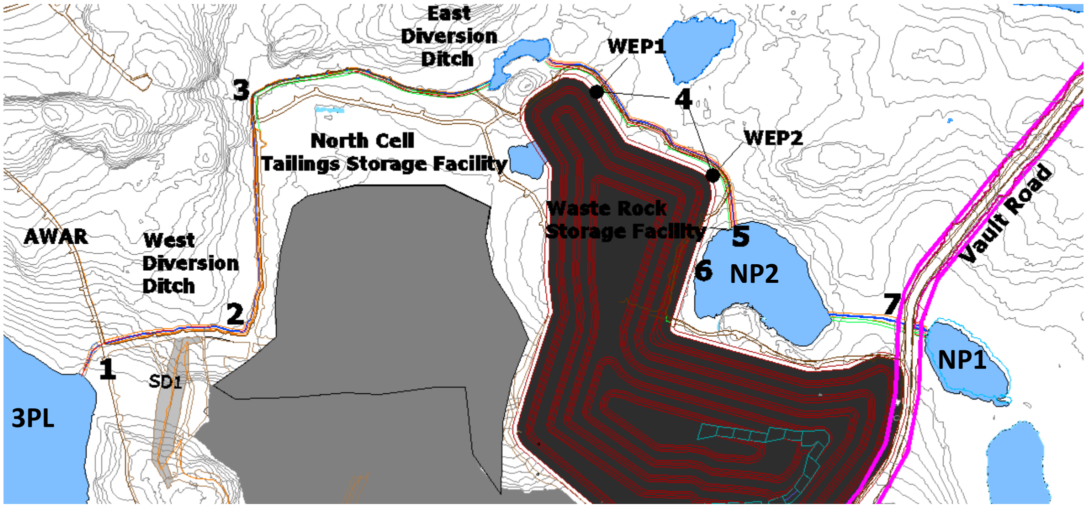


Figure 2-3: Location of the areas of interest for the 2017 Freshet Action Plan

2.3.1.1 AWAR culvert – discharge to Third Portage Lake

Ditch outflows are important to ensure proper flow of freshet drainage. The culvert under the AWAR (Figure 2-3 #1) is a critical section of the West Diversion Ditch. Snow removal must be performed to avoid ponding and damage to the ditch/trench structure as well as to maintain the integrity of the AWAR which, in turn, is critical to transportation at the Meadowbank mine site.

Figure 2-4 illustrates this culvert. Snow and/or ice must be removed using an excavator on each side of the culvert to allow water to flow through to prevent upstream ponding. The culvert may need to be steamed if blocked by ice. Before starting the cleaning operation, it is important to ensure that the electrical cable (5kV) location has been visually identified.

After flowing through the culvert the water discharges across the tundra into Third Portage Lake – see Figure 2-4 below. Snow and ice needs to be removed before May 20 to prevent any back up in the West Diversion ditch. If not completed, this could increase water levels upstream in the ditch causing problems discussed in Section 2.3.1.2.

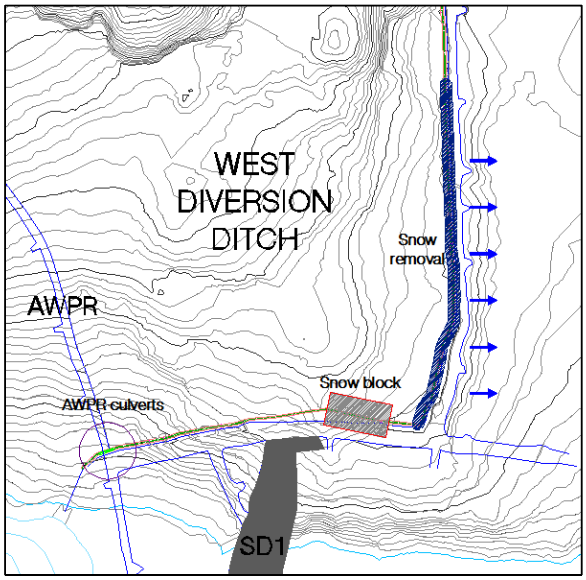


Figure 2-4: West diversion ditches area of interest

A turbidity barrier has been installed in Third Portage Lake as a precautionary measure. This barrier will remain in place over winter and will be replaced if damaged in the future. Additional barriers can be installed after ice melt as a contingency. Daily inspections will be conducted starting in May until Freshet is complete and after rain events. Sample monitoring will commence when open water is present in accordance with the Water License (ST-6). Sampling frequency of ST-6 may be increased if TSS results are near 30 mg/L (grab) and 15 mg/L (monthly average), which is the license limit, or visually elevated. If a discharge of TSS occurs, the Environment Department will notify ECCC and NWB (CIRNAC Water Inspector).

2.3.1.2 West Diversion Ditch Elbow

One of the deepest sections of the West Diversion ditch is located in the corner next to the Saddle Dam 1 – see Figure 2-4 and Figure 2-3 #2 above. In early May of each year, Agnico will remove the snow accumulation to allow the water to flow freely preventing the water upstream from increasing in level and hydraulic head pressure. In addition, large flows can scour the ditch system causing sediment migration through the ditches which could impact Third Portage Lake. To prevent this, snow must be removed from the corner area with a long reach excavator in early May.

As a further precaution, Agnico constructed an interception sump located at the west diversion ditch elbow location in 2014. The sump has a capacity of 3,000 m³. The sump is designed to intercept water coming from the most critical parts of the West Ditch. Water is pumped back, if needed, on a regular basis to the North Cell TSF. These measures will prevent any contaminated water from reaching Third Portage Lake. Eventually, this sump will also act as a settling pond to prevent water with elevated TSS from reaching Third Portage Lake. Daily inspections will be conducted from May until freshet is complete and after rain events. Sample monitoring will also be conducted. Figure 2-5 shows the North Cell interception/settling sump after the completion of the construction. In 2019, elevated TSS should not be an issue as a result of rock armour work conducted in 2015 on the banks of the West diversion ditch preventing sediment migration, in 2019, it is planned to let natural overflow to Thrid Portage Lake, if results are compliant, thus requiring non pumping. If needed, the water would still be pumped back to the North Cell TSF to avoid any non-compliance.

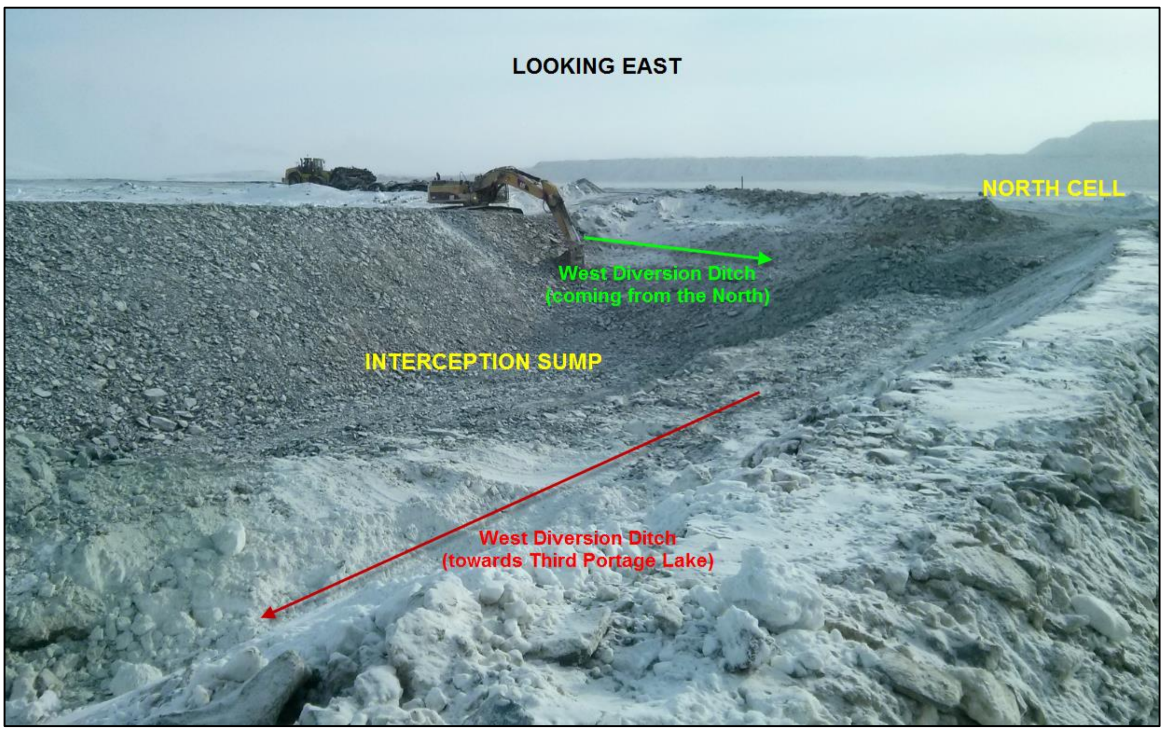


Figure 2-5: North Cell West Diversion ditch interception sump

2.3.1.3 Northwest Corner of North Cell TSF

The construction access road at the Northwest corner of the North Cell TSF (see Figure 2-6 and Figure 2-3 #3) was vulnerable to damage from the freshet water flow from the northern watershed (see watercourse flow in Figure 2-6 denoted by blue line The start of the West Diversion ditch is also located in this area and is designed to collect the freshet flow – note arrows in Figure 2-6. Water was observed ponding during the 2013 and 2014 freshet. Ponding is limited in this area once the freshet is done.

Tailings deposition was completed in the North Cell in October 2015. Water was removed in the North Cell TSF and capping was completed in the northern and eastern section along RF1 and RF2 outlined in (Figure 2-6) by the light grey areas. In 2018, Agnico will continue to conduct daily visual inspections of this area in May until freshet is complete and after rain events.

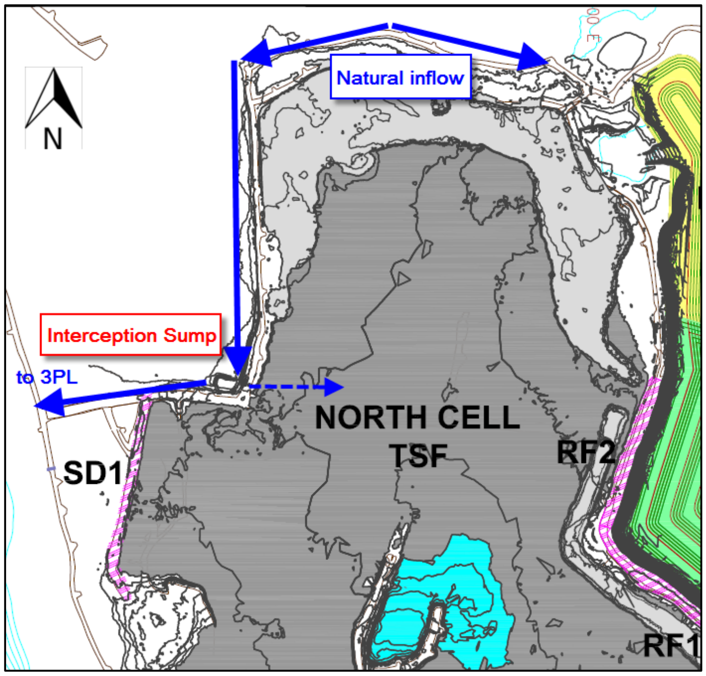


Figure 2-6. View of the northwest corner of the ditches

2.3.1.4 Waste Extension Pool (WEP) sumps

In 2014, as per inspections conducted within the framework of the Freshet Action Plan, run off was noted at the northeast side of the NPAG waste rock extension pile in a natural depression forming a collection system (WEP). WEP1 and WEP2 sumps were constructed in September 2015 to manage water around the northeast side of the RSF and to ensure that all water ponding behind the RSF is transferred back to the North Cell TSF – see Figure 2-7 below. The WEP1 and WEP 2 sumps replaced in 2016 the WEP collection system formed by the natural depression. Water collected at WEP1 will continue to be pumped to WEP2 which will in turn be pumped to ST-16 (RSF seepage pumping system). Water collected at the latter will be pumped back into the North Cell TSF. Daily inspections will be undertaken in May until freshet is complete and after rain events to ensure water remains contained within WEP1 and WEP2 and does not enter the East Diversion Ditch. Both sumps WEP1 (ST-30) and WEP2 (ST-31) will be sampled monthly as per the Water License during the open water period.

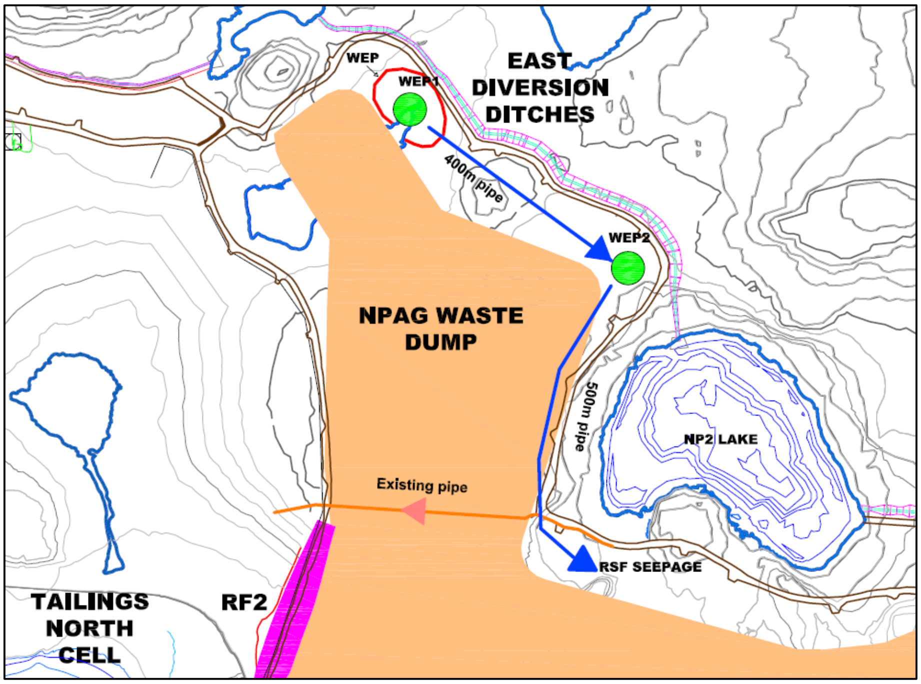


Figure 2-7. WEP1 and WEP2 sumps locations

2.3.1.5 East Diversion ditch outlet to NP-2 Lake

This area of the East Diversion ditch, seen in Figure 2-8 and Figure 2-3 #5, is critical as it acts as the outflow of the North part of the East Diversion ditch into NP-2 Lake. This outlet must be cleared of obstructions – snow and ice in early May to promote drainage through the ditch and into NP-2 Lake. The presence of ice blocks could be mitigated using the steam machine to melt away the obstruction. Daily inspections will be conducted starting in May until freshet is complete and after rain events. Sample monitoring will be conducted monthly during open water in accordance with the Water License (location ST-5). Sampling frequency of ST-5 may be increased if TSS results are near 30 mg/L (grab) and 15 mg/L (monthly average), or visually elevated. Turbidity barriers have been installed at the ditch outlet into NP-2 in 2013 to mitigate elevated TSS. This barrier will remain in place over winter and will be replaced if damaged in the future. Additional barriers can be installed after ice melt as a contingency.If a discharge of TSS occurs, the Environmental Department will notify ECCC and NWB (CIRNAC water Inspector).

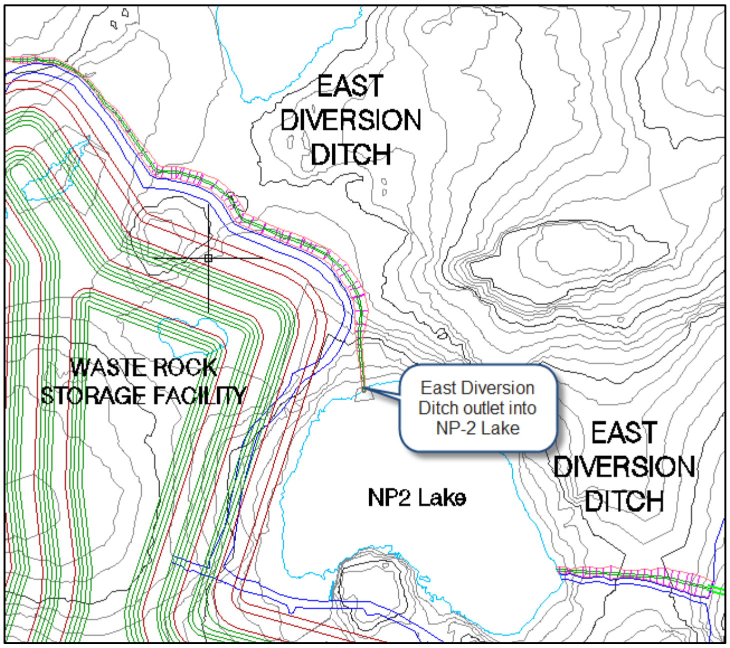


Figure 2-8: View of the East Diversion ditch outlet into NP-2 Lake

2.3.1.6 North Portion of NPAG Waste Rock Expansion

The northwestern area of the RSF, which consists entirely of NPAG material, extends towards the East Diversion ditch as shown in Figure 2-3 #6. Runoff from this area, while not anticipated to be contaminated, could, if significant, discharge to NP-2 lake after crossing the tundra. No issue occurred in this area in 2018 and it is no longer considered as a primary area of concern during freshet. However, the Environmental Department will continue to conduct daily visual inspections in 2019 . Sample monitoring will be undertaken when water is observed in order to determine water quality. Contaminated water must be kept from reaching NP-2 Lake; and if required, water will be pumped or diverted.

2.3.1.7 NP-2 Outlet,Vault Road Culvert and NP1

This area of the East Diversion ditch is critical as it acts as the outflow of NP-2 Lake through the Vault Road culvert (see Figure 2-3 #7). The culvert seen in Figure 2-9 connects the East Diversion ditch from Lake NP-2 to NP-1. Snow and ice must be removed from the culvert area, including upstream at the exit of NP-2 Lake in early May to ensure that the outlet of NP-2 flows freely to NP-1 and ultimately to Dogleg Lake. Back up could cause an upstream water raise in Lake NP-2 which could cause overflow into the RSF ST-16 sump. First, snow from the ditch between NP1 and the road (1) will be removed in early May. Next, the culvert will be steamed, if necessary, to remove any ice/snow. If needed snow/ice around the outlet of NP2 Lake (4) would be removed to allow free flow of melt water. Daily inspections will commence in May until freshet is complete and after rain events. TSS sample monitoring will be conducted monthly and as needed for turbidity. Sampling frequency may be increased if TSS results are near 30 mg/L (grab) and 15 mg/L (monthly average), or visually elevated. If a discharge of TSS occurs, the Environmental Department will notify ECCC and NWB (CIRNAC Water Inspector).

A turbidity barrier (orange barrier #1) was installed in 2014 at the ditch outlet into NP-1 to mitigate the risk of elevated TSS (Figure 2-10). As a result of an incident of elevated TSS observed in water running under the Vault Road Culvert in June 2015 (reported to authorities and KIA), Agnico installed, in addition to a permanent turbidity and silt barrier, additional turbidity barriers (2) in and at the exit of NP-1 (non fish bearing) (Figure 2-10) and one at the inlet of Dodgleg (Figure 2-11). The incident was of short duration and the turbidity barriers prevented migration of TSS to Dogleg Lake which is fish bearing. Agnico also proceeded to raise the Vault road near NP-1 culverts. A different source of aggregate – NPAG from Vault was used (harder material) for the road raise which will prevent an accumulation of fine material and allow for water to runoff instead of accumulating or percolating through the road. Also, a snow management plan has been implemented that will ensure there are no large accumulations of stored snow, which could contribute to runoff problems. The additional turbidity barriers (4) were removed from NP-1 in the fall of 2015. A another barrier was put in place in May 2016 on the ice to ensure protection during melting conditions and also in 2017. These barriers are stored on site for rapid deployment in case they are needed in the future. This barrier was left on location over winter and will already be in place at the start of freshet. It will be inspected during regularly inspection. An improvement of the snow management in this area should decrease the flow of water during the freshet. More inspections will be performed in this area during that time. This pro-active mesure will give us a better management for this area.

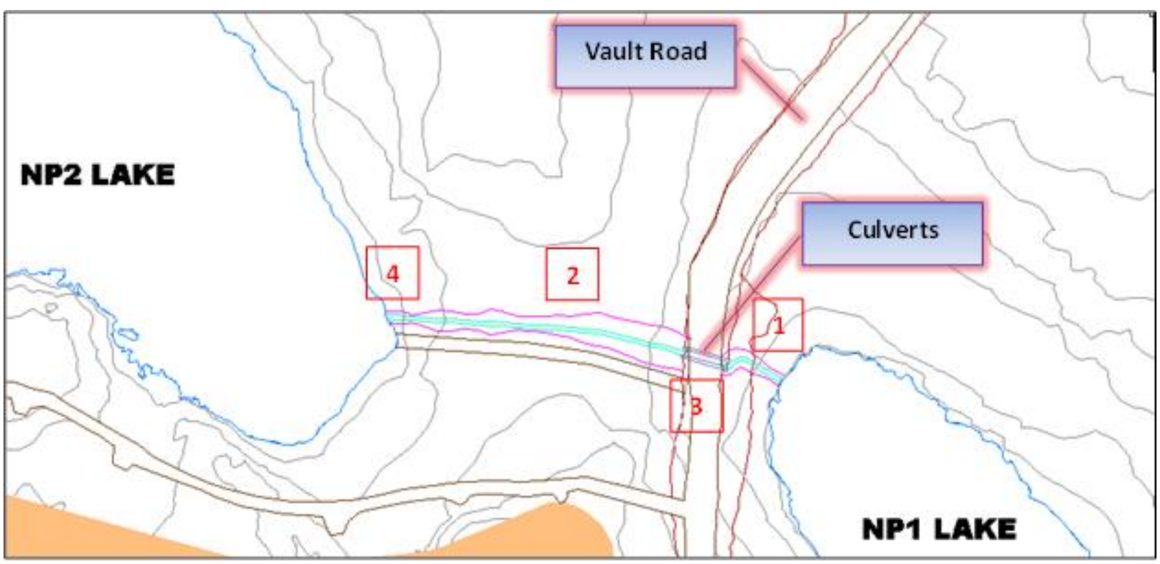


Figure 2-9: View of the diversion ditches at the Vault road area

Figure 2-10: Turbidity barriers at inlet of NP1 installed in July 2016

Figure 2-11: Turbidity barriers at the inlet of Dogleg Lake

2.3.2 Saddle Dams

2.3.2.1 Saddle Dam 1

This dam, peripheral to the North Cell TSF, is critical to the normal operation of the North Cell TSF. Daily inspections starting May until water freezes will be required for Saddle Dam 1 (SD1) to ensure that runoff water does not pool against the toe of the dike due to low topography. A pumping station located along the toe of the dike was installed previously to prevent the pooling of water at the toe. This pumping station must be operational once water is observed at the toe to pump the water to the TSF. The pumping system will be checked in early May to ensure proper operation. Monthly sampling will be conducted at this station (ST-S-2) during open water conditions in accordance with the Water License.

2.3.2.2 Saddle Dam 2

This dam, just South of SD1, is also critical to the normal operation of the North Cell TSF. Historically, this structure has not had any issues with water pooling at the toe, therefore monthly inspections starting May until water freezes will be required for Saddle Dam 2 (SD2) to ensure that water does not pool against the toe of the dike. If water is observed at the toe, a mitigation plan will be determined and implemented by the Engineering and Environmental department, and a water sample could be taken.

2.3.2.3 Saddle Dam 3

Saddle Dam 3 was built in 2015. A permanent sump was established in 2017 at a low spot that facilitates water management at freshet. In 2019, the downstream area of the SD3 embankment will continue to be pumped to the South Cell TSF to avoid water ponding against the structure. This pumping station must be operational once water is observed at the toe to pump the water to the TSF. The pumping system will be checked in early May to ensure proper operation. Monthly sampling will be conducted at this station (ST-32) during open water conditions in accordance with the Water License.

2.3.2.4 Saddle Dam 4-5

Since their initial construction in 2015, ponding in the downstream area is minimal due to the geometry where the downstream slopes downward and away from the embankment. Localized small ponds are sometimes present at the peak of the freshet period and should they manifest again in 2018, they will be redirected in the South Cell TSF footprint on their upstream side.

[redacted] VAULT ROAD CULVERT

The Vault road crosses over a connection between two water bodies, Turn Lake and Drill Tail Lake, at approximately km 113. A system of culverts was installed to allow flow to occur between the two waterbodies. Beginning in May until freshet is complete and after rain events it will be important to complete daily inspections. In the case that excessive TSS is observed, samples will be taken and analyzed. In the case, where the TSS levels go beyond 30 mg/L (grab) and 15 mg/L (monthly average), a report will be made to the ECCC and NWB (CIRNAC Water Inspector). Turbidity barriers will be installed as a mitigation measure if needed.

[redacted] STORMWATER MANAGEMENT POND

The Stormwater Management Pond (SWMP) is a small shallow and fishless water body that can be seen in Figure 2-13 adjacent to Portage Pit. Treated sewage is discharged into this pond before being transferred to the active TSF. The quantity of water transferred each year is recorded. Weekly inspections in the spring and fall are undertaken to determine the commencement of pumping. From 2016 onward, the western part of the pond is used for snow storage (refer to the Snow Management Plan for more details) leading to bigger volumes being pumped.

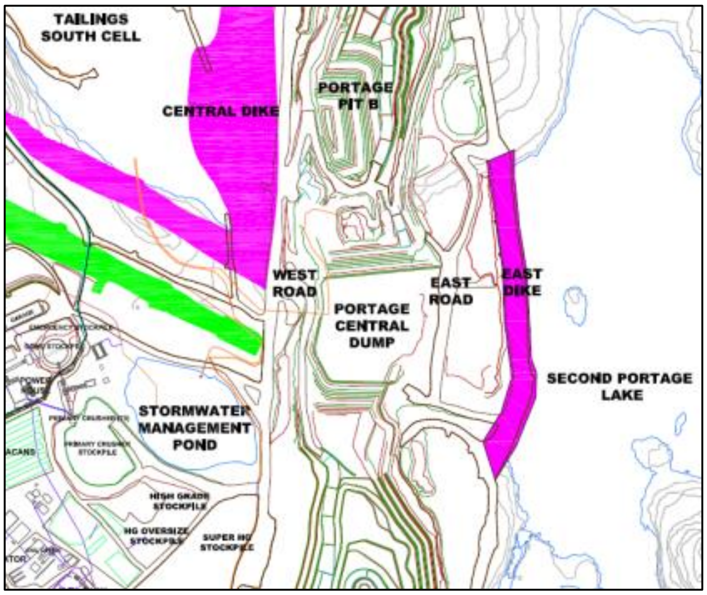


Figure 2-12: Portage Pit area with the Stormwater Management Pond

[redacted] FUEL TANK FARMS

2.6.1 Meadowbank Tank Farm

Snow and ice accumulation within the fuel tank farm must be adequately managed to prevent overflow to the environment and/or damage to the fuel handling systems. The Energy and Infrastructure Department will advise the Environmental Department of their intent to pump the containment area once ice/snow begins to melt. Water samples will be taken in accordance with the Water License to ensure compliance prior to its release. A notice must be provided to the Inspector 10 days prior to this pumping activity. Once sample results have been obtained, the Environmental Department will advise the Energy and Infrastructure Department if pumping can begin. If sample results permit, the pumping may begin; to direct water to the tundra/ground in a way to prevent erosion. In the event that the water sample results do not meet discharge criteria the water shall be pumped to the Stormwater Management Pond.

2.6.2 Baker Lake Tank Farms

Snow and ice accumulation within the fuel tank farms at Baker Lake must be adequately managed to prevent overflow to the environment and/or damage to the fuel handling systems. The Energy and Infrastructure Department will advise the Environmental Department of their intent to pump the containment area once ice/snow begins to melt. Water samples will be taken in accordance with the Water License to ensure compliance prior to its release. A notice must be provided to the Inspector 10 days prior to this pumping activity. Once sample results have been obtained, the Environmental Department will advise the Energy and Infrastructure Department if pumping can begin. If sample results permit, water can be directed to the tundra but the flow rate shall be such to avoid erosion or damage to the tundra. In the event that the water sample results do not meet discharge criteria the water cannot be pumped to the tundra. If this occurs the water will be pumped to a tanker and transported to the Meadowbank site to be disposed of in the TSF or placed in containers for shipment south as hazmat.

2.6.3 Vault Tank Farm

All fuel tanks at the Vault facility are approved double walled tanks. In accordance with CCME Environmental Code of Practice for Aboveground and Underground Storage Tank Systems Containing Petroleum and Allied Petroleum Products (2013), secondary containment is not required. As a result, there is no pumping required at freshet.

[redacted] AWAR CULVERTS ON THE BAKER LAKE PORTION

Weekly inspections will be undertaken starting in May at all culverts along the AWAR to ensure that water during freshet is flowing freely and no erosion is occurring. If elevated TSS/Turbidity levels are observed sampling will occur and the results assessed. Turbidity barrier will be installed if required. The Energy and Infrastructure department will also be advised if severe erosion/scouring is observed. In addition snow and ice removal may be required to allow the water to flow as per design specifications. Inspections will be performed during the freshet period by the Environment department.

[redacted] INCIDENT RESPONSE

[redacted] ST-16 SEEPAGE

In July 2013, it was noted that seepage from the Rock Storage Facility (RSF) had migrated through a rockfill road at a seepage sump located on the north-east side of the RSF (see ST-16 on Figure 3-1). The seepage, which contained elevated copper, nickel, ammonia and cyanide entered NP-2 Lake. It was determined through investigation that the likely source of the contaminants was reclaim water from the North Cell TSF. This water migrated underneath the RSF through a former watercourse into the seepage sump area (ST-16). Agnico took immediate measures to stop the seepage and implemented corrective measures to prevent a recurrence. This included, keeping the sump area pumped to a low level, installation of an impermeable barrier (till plug) in the rockfill road, implementation of a comprehensive monitoring program and ensuring tailings deposition was enhanced in the North Cell to create beaches that would stop any water egress (this activity was continuous as part of Agnico's Tailings Deposition Plan in 2014). A permanent pumping system was installed in 2014 in order to direct seepage back to the North Cell TSF. A filter was also installed at RF-1 and RF-2 to assist the beaches in preventing tailings water migration. In addition, as mentioned previously (Section 2.3.1.7), snow will be removed from the ditches and culvert at the outlet of NP- 2 to NP-1 Lake to ensure freshet flows do not back up and overflow into the ST-16 seep location and that the north watershed non-contact runoff flows freely through to NP-1 Lake and further downstream (Dogleg Lake). Pumped volumes will be documented and daily inspections of the area will be undertaken. Take note that 2018 pumped volumes are reported in the Agnico 2018 Annual Report within the Water Management Report and Plan. All evidence further indicates that mitigation efforts (completion of tailings beaches and filter material against RF-1 and RF-2) were successful in minimizing any North Cell reclaim water from migrating to the ST-16 sump area.

During the renewal process for the Meadowbank Type A Water License (2014 – 2015) the KIA requested additional monitoring related to this incident. Details and the sampling schedule of the revised Monitoring program, which includes a full suite of total and dissolved metals plus Ammonia, Cyanide Total, WAD and Free analysis, are included in the attached Schedule 1. The KIA requested that Agnico continue monitoring until there is a 5 year period of non-detect cyanide results. To date (previous 3 years) the monitoring has indicated no CN levels in NP-2, NP-1 and further downstream lakes, Dogleg and Second Portage. Thus the current program will continue in 2019.

A discussion and analysis of the 2018 monitoring results can be found in the Agnico 2018 Annual Report (Section 8.5.3.1.7). The water quality in NP-2 Lake has improved significantly to the point that water quality for all parameters, including the main parameters of concern (Cn Total, Free and WAD as well as copper, nickel and ammonia) in NP-2 Lake is near or below CCME criteria for the Protection of Aquatic Life. A valid case can be made that the action plan implemented by Agnico has been very successful in preventing any further seepage into NP-2 Lake and into the ST-16 sump itself. The MDRB has commented on the success of this action plan. The till plug, pumping system, installation of filters and effective tailings beaches at RF-1 and RF-2, progressive tailings capping at RF- 1 and RF- 2. In addition, thermistors installed in the RSF indicate freezing in the former seep path is occurring. If these sample events detect any concerns or elevated levels Agnico will increase the monitoring immediately and include all sampling stations (including downstream lakes).

As soon as the Lake and seep area are ice free the sample monitoring program will commence. Agnico also conducts winter sampling in NP-2 Lake as part of the monitoring program.

In the event that seepage water flows through the rockfill road reaching NP-2 Lake, the Environmental Department will notify authorities.

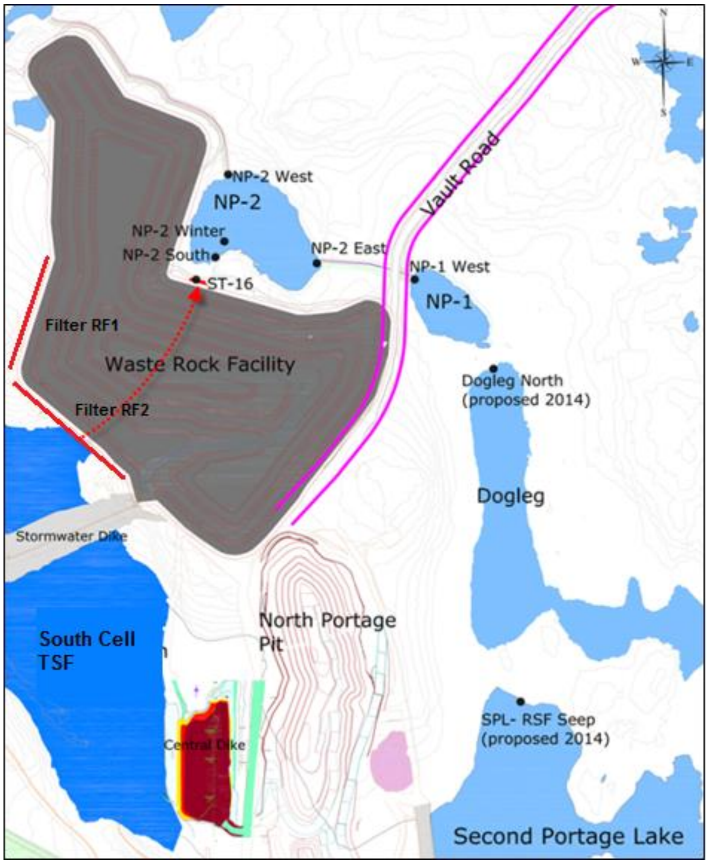


Figure 3-1. View of the RSF seepage observed at the ST-16 station.

Footnote: The dotted red arrow represents the assumed seepage flow. Red Lines represent installed filters and areas where tailings beaches were built up to minimize flow through.

[redacted] MILL SEEPAGE

In November 2013, Agnico observed seepage discharging at a location West of the site access road in front of the Assay Lab (see Figure 3-2). Initial sample results revealed elevated cyanide and copper which is indicative of mill processes. After an investigation, which included sampling, the source was determined to be seepage from several containment areas within the mill; the worst being the CIP tank overflow collection sump. Repairs to seal all the mill sumps and containment areas was completed in 2014 thus stopping the source of the seep. Agnico engaged Tetra Tech in December 2013 to propose a drilling delineation program and further steps necessary to control the seepage and prevent offsite migration to Third Portage Lake – see Figure 3-2 for the seep location. Agnico completed the drilling program and based on the results constructed an interception/collection trench prior to the 2014 freshet (completed early May 2014).

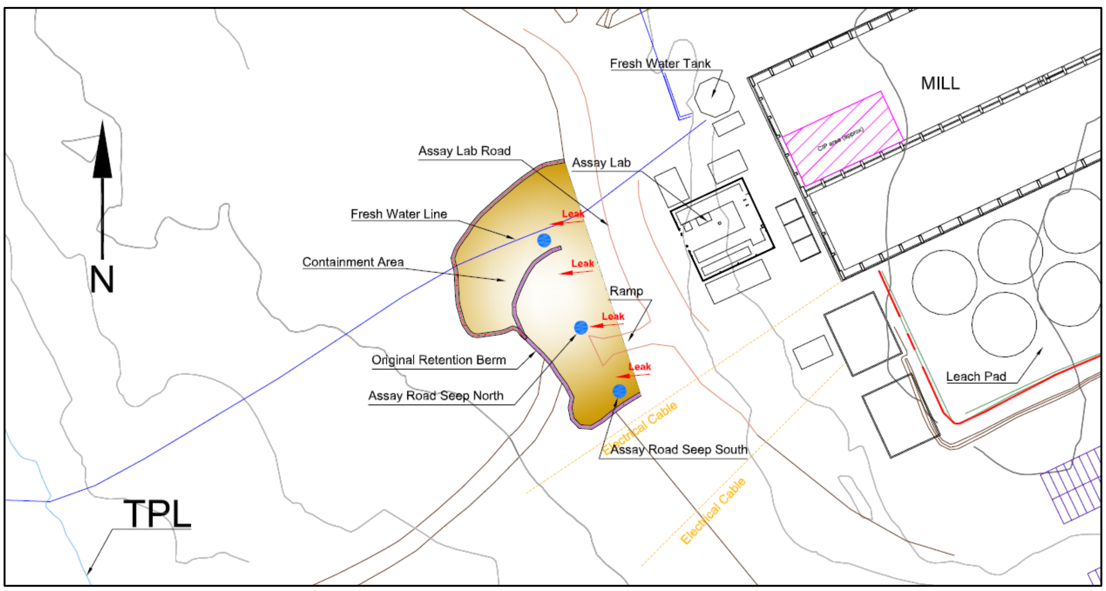


Figure 3-2. View of the mill seepage area and initial retention berm construction

The design of the trench can be seen in Figure 3-3. A pumping system was installed and all water collected is pumped back to the mill. Pumping begins as soon as water is evident and volumes are recorded monthly. Take note that 2018 pumped volumes are reported in the Agnico 2018 Annual

In addition, a recovery/monitoring well, MW-203, located beside the Assay Lab upstream of the trench is pumped back to the mill to intercept the seepage when water is present. 2018 pumped volumes from interception/collection trenches are reported in the Agnico 2018 Annual Report. More details are provided in Section 8.5.8.1.6 of the 2018 Annual Report.

CN WAD (on site uncertified lab) levels in MW-203 have diminished significantly. This well will remain in operation. MW-203 can be considered as an interception well.

As soon as the trench, monitoring wells and Third Portage Lake are unfrozen a comprehensive monitoring program is implemented. This program is attached in Schedule 2. In accordance with a KIA request during a review of the Plan during the Water License renewal process Agnico will sample the Mill Trench on a weekly basis for CN Total, Free and Copper during the month of July in 2017. The monitoring program will be re evaluated (as is the case every year) at the end of 2018 to determine if any changes are warranted in 2019. A discussion of the monitoring results for 2018 is included in Agnico's 2018 Annual Report . In summary, the results of monitoring indicate that the interception trench and initial containment berm were substantially successful in preventing any contaminants from reaching Third Portage Lake. The seepage appears to have been effectively contained and the source area has been repaired.

Regular inspections will be conducted of the pumping, collection systems and perimeter area and the pumped volumes will be recorded in 2019.

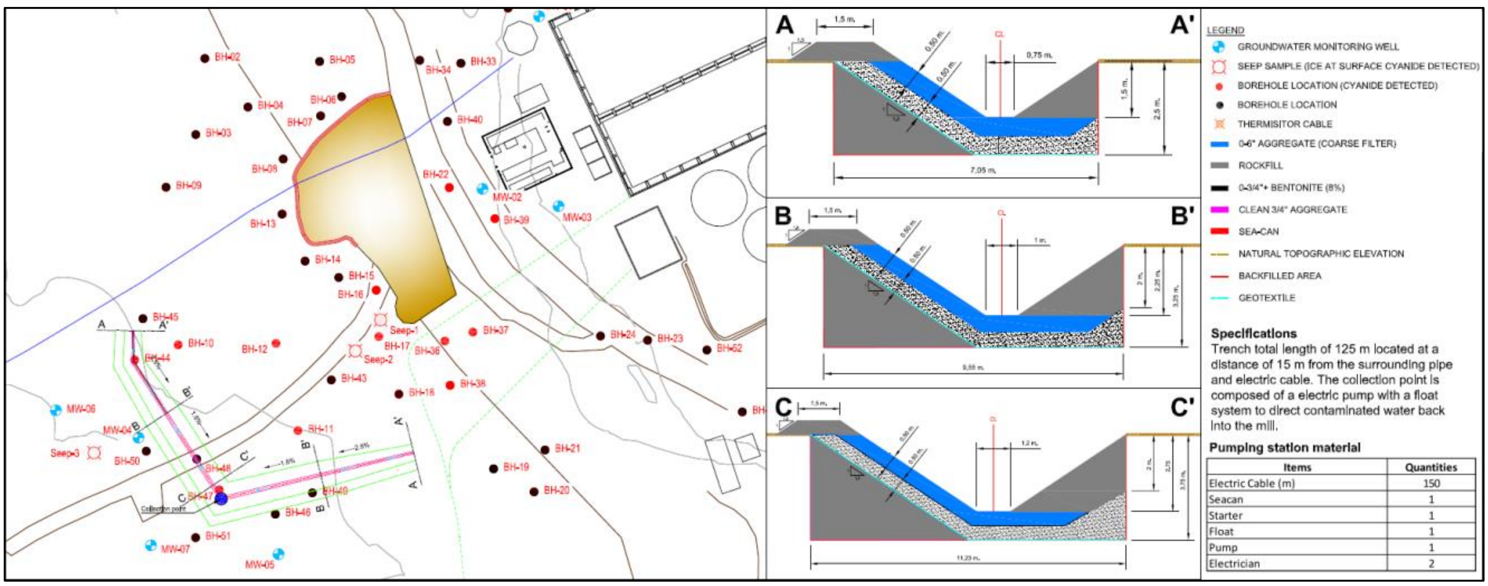


Figure 3-3. **View of the mill seepage area and interception trench design**

[redacted] CENTRAL DIKE ST-S-5

Central Dike seepage is located at the downstream area of the Central Dike embankment. A permanent pumping system is in place to manage the seeping water beneath the dike by keeping the downstream pond at a constant elevation of 115masl as recommended by Golder in 2015. More details to be found in the Water Management Plan 2018. The pumping system in place has contingency to handle a significant snowmelt or rain event at freshet that would drain and eventually mix in the downstream pumping area. The downstream pond acts as a drain for the water percolating to the pond but only accounts for roughly 17 ha of drainage area. Daily inspection of the area will be held by enginnering as well as weekly by environment. Environment department will also conduct monthly sample as per the Water License (See Schedule 3)

[redacted] SNOW MANAGEMENT

The snow management procedure developed internally in 2015 and updated annually is illustrated in Appendix 3. Temporary snow storage dumps and snow accumulation areas of concern are identified on the map.

APPENDIX 1

2019 Freshet Action Plan Procedure

Section	Area of Concern	Role/Action	Responsbilities	Dates
2.1	**Mining Pits and Pit Walls**			
2.1	Mining Pit and Pit walls - General	1) Clean all ice, mud and snow on all permanent ramps, jump ramps, etc.	Mine Operations	Before May
		2) Check and service all pumps.	E&I (Energy and Infrastructure) and Maintenance	Before May
		3) Check that all piping systems starting from the different pits leading to the South Cell TSF are free of ice by validating pumping values (if pumping systems is active) and/or performing an air test in the pipe with a compressor.	E&I	Before May
2.1.1	**Goose Pit**			
2.1.1	Goose Pit	1) No further action in this area during the freshet period as mining is complete in Goose Pit. Water and/or ice will remain as part of the pit reflooding activity.	Engineering	N/A
2.1.2	**Portage Pit**			
2.1.2	Portage Pit	1) Runoff water accumulated in ponds GP-4 and GP-5 will be pumped into Goose pit; 2) Runoff water accumulated in pit B will be pumped to the South Cell Tailings Storage Facility (TSF); 3) Runoff water accumulated in pit E will be pumped to the South Cell Tailings Storage Facility (TSF).	Engineering and Mine Operations	Before June

2.1.3 Vault Pit			
2.1.3 Vault & Phaser Pits	1) The dewatering of Vault Lake was completed in 2014. During the freshet period water management consists of making sure all sumps are pumped to the Vault Attenuation Pond.	Mine Operations	May to Sept
	2) Set-up pumping from pond A & D to Vault Attenuation Pond to prevent water from flowing into the Vault pit area.	Mine Operations	May
	3) Perform required Phaser transfers into Vault attenuation pond.	E&I	May to Sept
	4) Notify Environmental Department before discharging any water to Wally Lake. **NOTE: Any discharge of contact water must be through the Diffuser.**	Engineering	Freshet/Summer 2019
	5) Inspect all piping and discharge diffuser	E&I	May
2.2 WASTE ROCK STORAGE FACILITY			
2.2.1 Portage RSF Inspection	1) Weekly inspection around the RSF perimeter to identify any seepage.	Env. Department	May - as soon as freshet starts until freeze up
	2) If seepage observed notify Eng and Env Department AND sample for CN and Water License Parameters – ST-16.	Env. Department	May - as soon as freshet starts until freeze up

2.2.2 Vault RSF Inspection	1) Weekly inspection around the RSF perimeter to identify any seepage.	Env. Department	May - as soon as freshet starts until freeze up
	2) If seepage observed notify Eng and Env Department AND sample for Water License Parameters – ST-24.	Env. Department	May - as soon as freshet starts until freeze up
2.3	**NORTH CELL TAILINGS STORAGE FACILITY**		
2.3.1	**North Cell Tailings Storage Facility (Diversion Ditch areas)**		
2.3.1.1 AWAR Culvert - West Diversion ditch exit to TPL	1) Snow and/or ice must be removed with an excavator on each side of the culvert to allow water flow.	Engineering to coordinate with E&I, Mine	Before May 20
	2) If needed, steam to free any ice blockage.	Engineering to coordinate with E&I, Mine and Dikes/Dewatering	Before May 20
	3) Before starting snow clearing operation, make sure the electrical cable location has been visually identified in the field.	Engineering to coordinate with E&I, Mine	Before May 20
	4) Daily inspection - keep record under freshet file.	Env. Department	May - until Freshet complete and after rain events

	5) ST-6 sampling as per Water License and TSF weekly inspection (keep record).	Env. Department	Monthly as soon as freshet starts (open water) and continue until freeze up.
	6) Increase frequency of ST-6 sampling if TSS near 30 mg/L (grab) and 15 mg/L (monthly average), or visually elevated,. Any extra samples to external lab..	Env. Department	Depends on TSS result
	7) Have turbidity and silt barriers in place at TPL (2) and maintain.	Env. Department	May - before freshet starts and until water freezes up
	8) Report any discharge of TSS to ECCC/NWB (grab > 30 mg/L).	Env. Department	May - as soon as freshet starts and until water freezes up
2.3.1.2 West Diversion Ditch elbow near SD1	1) Snow and/or ice must be removed with an excavator to allow water flow and prevent ponding upstream.	Engineering to coordinate with E&I, Mine	Early May
	2) Daily inspection - keep record.	Env. Department	May - until Freshet complete and after rain events

	3) Sample for TSS monthly (external Lab) and as needed for Turbidity	Env. Department	May - until Freshet complete and after rain events
2.3.1.3 Northwest corner of North Cell TSF (West Diversion ditch)	1) Daily inspection - keep record.	Env. Department	May - until Freshet complete and after rain events
2.3.1.4 Waste Extension Pool sumps	1) Snow removal to allow free water flow.	Engineering to coordinate with E&I, Mine Operations	Early May
	2) Daily inspection - keep record.	Env. Department	May - until Freshet complete and after rain events
	3) Sample monthly during open water as per Water License ST-30 (WEP1) and ST-31(WEP2)	Env. Department	May - until Freshet complete and after rain events
2.3.1.5 East Diversion ditch outlet to NP-2 Lake	1) Snow and/or ice must be removed with an excavator on each side of the culvert to allow water flow.	Engineering to coordinate with E&I, Mine Operations	Early May
	2) If needed, steam to free any ice blockage.	Engineering to coordinate with E&I, Mine Operations	Before May 20

		3) Daily inspection - keep record.	Env. Department	May - until Freshet complete and after rain events
		4) ST-5 sampling as per Water License and TSF Weekly inspection (keep record).	Env. Department	Monthly as soon as freshet starts and until water freezes up
		5) Increase frequency of ST-5 sampling if TSS near 30 mg/L (grab) and 15 mg/L (monthly average). Extra samples to external lab if necessary.	Env. Department	Depends on TSS result
		6) Install turbidity barriers in NP-2, if needed, and maintain.	Env. Department	May - before freshet starts and until freeze up or water clears
		7) Report any discharge of TSS to ECCC/NWB (if grab > 30 mg/L).	Env. Department	May - as soon as freshet starts and until water freezes up
2.3.1.6	North portion of NPAG Waste Rock Expansion	1) Daily inspection - keep record	Env. Department	May until runoff complete

		2) Sample for ST-S-XXwhen water observed; sample upstream (background) in diversion ditch for same parameters and compare results (rush analysis). If results indicate potential for impact, ie results are > background, meet with engineering and determine necessity of ditching	Env. Dept + Engineering assistance if ditches needed	May until runoff complete
		3) Prevent **contaminated** contact water from reaching NP-2.	Env. Department	May until runoff complete
2.3.1.7	East Diversion Ditch - NP2 Oulet and Vault Road culvert.	1) Snow and/or ice must be removed with an excavator on each side of the culvert and upstream at the exit of NP-2 Lake to allow water flow.	Engineering to coordinate with E&I, Mine Operations	Early May
		2) If needed, steam culvert to free any ice/snow blockage.	Engineering to coordinate with E&I, Mine Operations	Before May 20
		3) Daily inspection - keep record.	Env. Department	May - until Freshet complete and after rain events
		4) Install turbidity barriers in NP-1, if needed, and maintain.	Env. Department	May - before freshet starts and until freeze - up
		5) Sample for TSS monthly (external lab) and as needed for Turbidity. Increase frequency of sampling if TSS near 30 mg/L (grab) and 15 mg/L (monthly average). Multi Lab for any increased sampling frequency.	Env. Department	May - until Freshet complete and after rain events

	6) Report any discharge of TSS to ECCCO/NWB (if grab > 30 mg/L).	Env. Department	May - as soon as freshet starts and until water freezes up
2.3.2 Saddle Dams			
2.3.2.1 Saddle Dam 1	1) Inspect pumping system	E&I	Early May
	2) Daily inspection - keep record	Engineering and E&I	May and until water freezes
	3) Start pumping to TSF when water observed. Keep volume pumped out.	Engineering and E&I	After May and until water freezes
	4) ST-S-2 sampling as per Water License.	Env. Department	Monthly as soon as freshet starts and until water freezes
2.3.2.2 Saddle Dam 2	1) Weekly Inspection - keep record.	Engineering	May until water freezes
	2) If water observed at the toe, notify Eng and Env departmetn	Engineering and Environment	May until water freezes
2.3.2.3 Saddle Dam 3	1) Inspect pumping system	E&I	Early May
	2) Daily inspection - keep record	Engineeringand E&I	May and until water freezes

		3) Start pumping to TSF when water observed. Keep volume pumped out.	Engineering and E&I	After May and until water freezes
		4) ST-32 sampling as per Water License.	Env. Department	Monthly as soon as freshet starts and until water freezes
2.3.2.4	Saddle Dam 4-5	5) Monthly Inspection - keep record.	Engineering	May until water freezes
2.4	**VAULT ROAD CULVERT**			
2.4	Vault road culvert from Turn Lake to Drill Trail Lake (~km 2 on Vault road)	1) Daily inspection - keep record	Env. Department	May - until Freshet complete and after rain events
		2) Install turbidity barriers, if needed (elevated TSS observed), and maintain	Env. Department	May - until freshet complete and after rain events
		3) Sample monitoring for TSS, if excess turbidity observed - use external lab.	Env. Department	May - until freshet complete and after rain events
		4) Report any discharge of TSS to Drill Tail to ECCC/NWB (if grab > 30 mg/L).	Env. Department	May - until freshet complete and after rain events

2.5	**STORMWATER MANAGEMENT POND**			
2.5	Stormwater Management Pond	1) Pump Stormwater to applicable TSF in Spring/Fall - pumped volume must be kept.	E&I	When required in Spring and/or Fall
2.6	**FUEL TANK FARMS**			
2.6.1 Meadowbank Tank Farm		1) E&I Dept to advise Env Dept in advance of intent to pump once ice melts in containment area.	E&I and Env. Department	Probably mid-June and September
		2) Sample water in accordance with Water License to ensure compliance with limits prior to release.	Env. Department	Probably mid-June and September
		3) Provide notice to Inspector 10 days prior to pumping.	Env. Department	Probably mid-June and September
		4) Advise Energy and Infrastructure Dept if pumping can begin based on sample results.	Env. Department	Probably mid-June and September
		5) Pump to tundra/ground or Stormwater Mgt Pond (note pumping to Stormwater Mgt Pond does not require compliance with limits - at Meadowbank only). **NOTE: The water cannot be pumped out to the tundra if it does not meet the Water License criteria.**	E&I	Probably mid-June and September

2.6.2 Baker Lake Tank Farms	1) E&I Dept to advise Env Dept in advance of intent to pump once ice melts in containment area.	E&I and Env. Department	Probably mid-June and September
	2) Sample water in accordance with Water License to ensure compliance with limits prior to release.	Env. Department	Probably mid-June and September
	3) Provide notice to Inspector 10 days prior to pumping.	Env. Department	Probably mid-June and September
	4) Advise Energy and Infrastructure Dept if pumping can begin based on sample results.	Env. Department	Probably mid-June and September
	5) Once approval given by Env Dept, E&I Dept can pump to tundra but must avoid erosion during pumping, ie., low flow, the volume must also be determined by E&I Dept personnel. **NOTE: The water cannot be pumped out to the tundra if it does not meet the Water License criteria. Any wastewater unsuitable for discharge will be transported back to Meadowbank for disposal in the TSF or shipped south for disposal.**	E&I Dept Env Department	Probably mid-June and September

2.7	**AWAR CULVERTS ON THE BAKER LAKE PORTION**			
2.7	AWAR Culverts on the Baker Lake Portion	1) Weekly inspection of culverts along AWAR to Baker Lake.	Env. Department	May
		1) Sample for TSS and Turbidity if elevated TSS observed.	Env. Department	May - until freeze up
		2) Notify E&I Dept if severe erosion/scouring observed - for repair action.	Env. Department	May - until freeze up
		3) Install turbidity barriers if required.	Env. Department	May - until freeze up
3.0	**INCIDENT RESPONSE**			
3.1	**ST-16 Seepage**			
3.1	ST-16 Seepage	1) Check Piping from pump to discharge area at North Cell TSF.	Engineering and E&I	Early May
		2) If the snow accumulation is judged to be too great, then snow must be removed.	Engineering to coordinate with E&I, Mine operations	Early May
		3) Daily inspection - keep record.	Env. Dept, Engineering and E&I	May - as soon as freshet starts until freeze up
		4) Notify Eng. Dept and E&I when water present and pumping can start. **Water level to be maintained, as**	Env. Department	May/early June - as soon as free

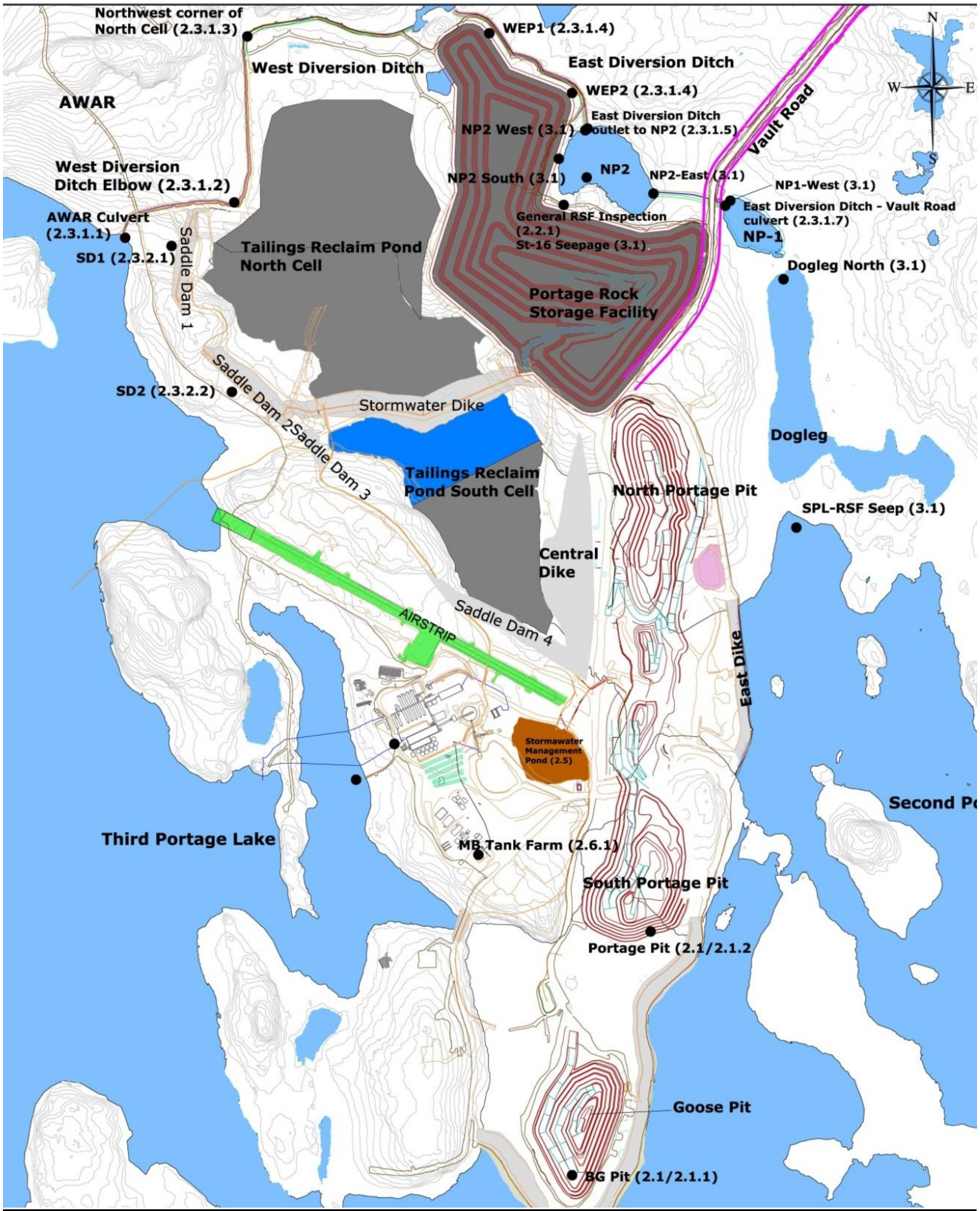
		a minimum, below the till plug elevation. Water should not pond against the Till plug for extended time periods - ie < 2 - 3 hours. For emergencies the mine water trucks can be requested. Start pumping.		water present and ice has melted until freeze up
		5) Water sampling program starts when water present in accordance with attached Schedule 1.	Env. Department	May/early June - as soon as water present until freeze up
		6) Any seepage through rockfill road to NP-2 must immediately be reported to Env Dept and authorities.	Env. Dept, Engineering and E&I	May/early June - as soon as water is present until freeze up
		7) Thermistor Monitoring.	Env. Department	Ongoing throughout the year
		8) Submit progress/update report to regulators.	Env. Department	Annual Report
3.2	**Mill Seepage**			
3.2	Mill Seepage	1) Pump water from the trench to the mill - volumes documented.	Env. Dept with assistance from E&I	Start May/early June when water present until freeze-up
		2) Daily inspection of pumping, collection systems, bermed areas and perimeter area – keep record. **For**	Env. Department	Start May/early June when water

		emergencies the mine water trucks can be requested.		present until freeze-up
		3) Monitoring Program – in accordance with attached Schedule 2, commences when water present and ice has melted.	Env. Department	May/early June as soon as water present until water freeze
3.3	Central Dike Seepage	1) Pump water to the South Cell TSF - volumes documented.	Engineering	All year round
		2) Daily inspection of pumping, collection systems, bermed areas and perimeter area – keep record.	Engineering	All year round
		3) Monitoring Program – in accordance with attached Schedule 3, commences when water present and ice has melted.	Env. Department	All year round

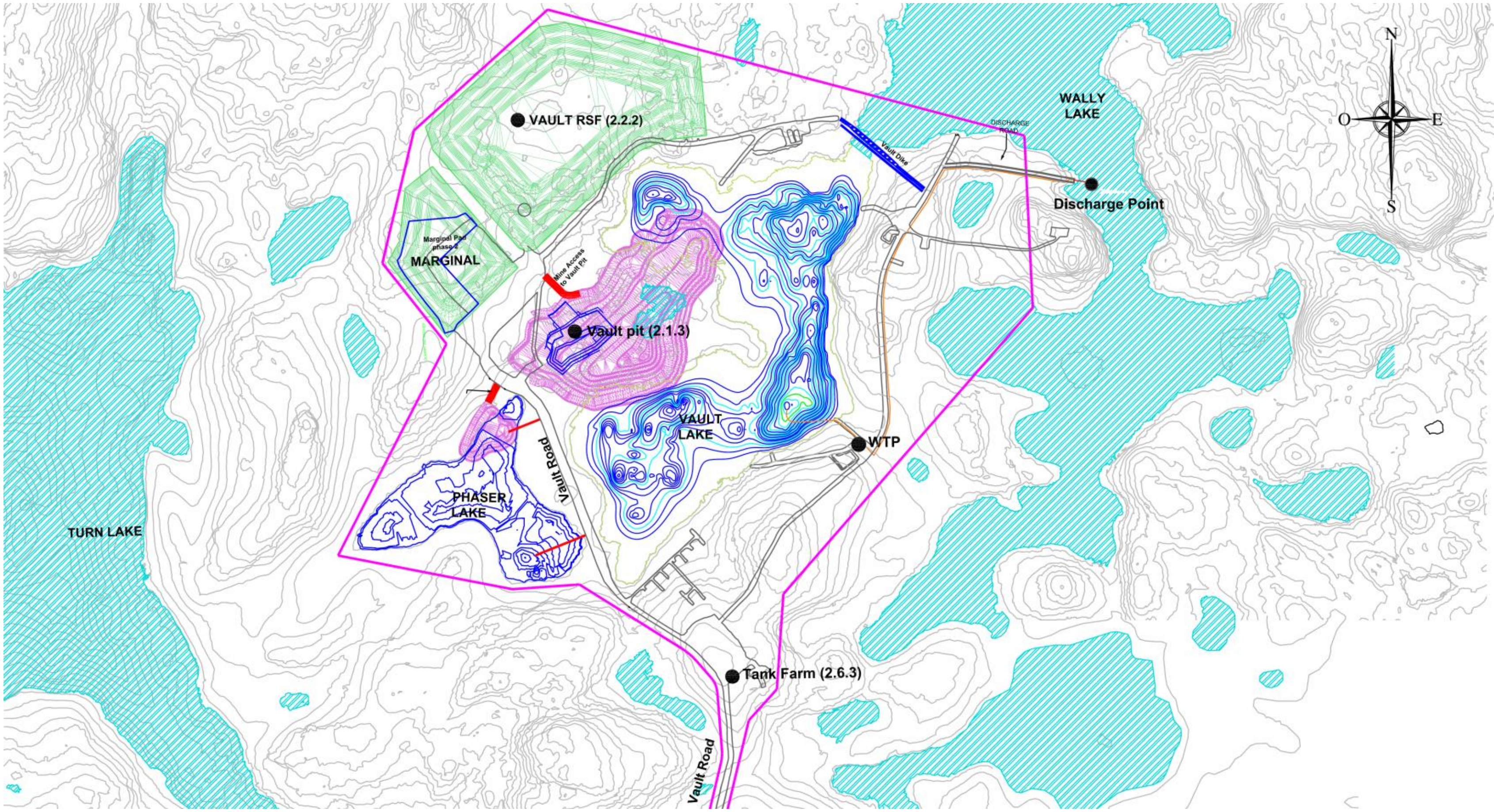
APPENDIX 2

2018 Monitoring Locations and Areas of Concern for the Freshet Action and Incident Response Plan

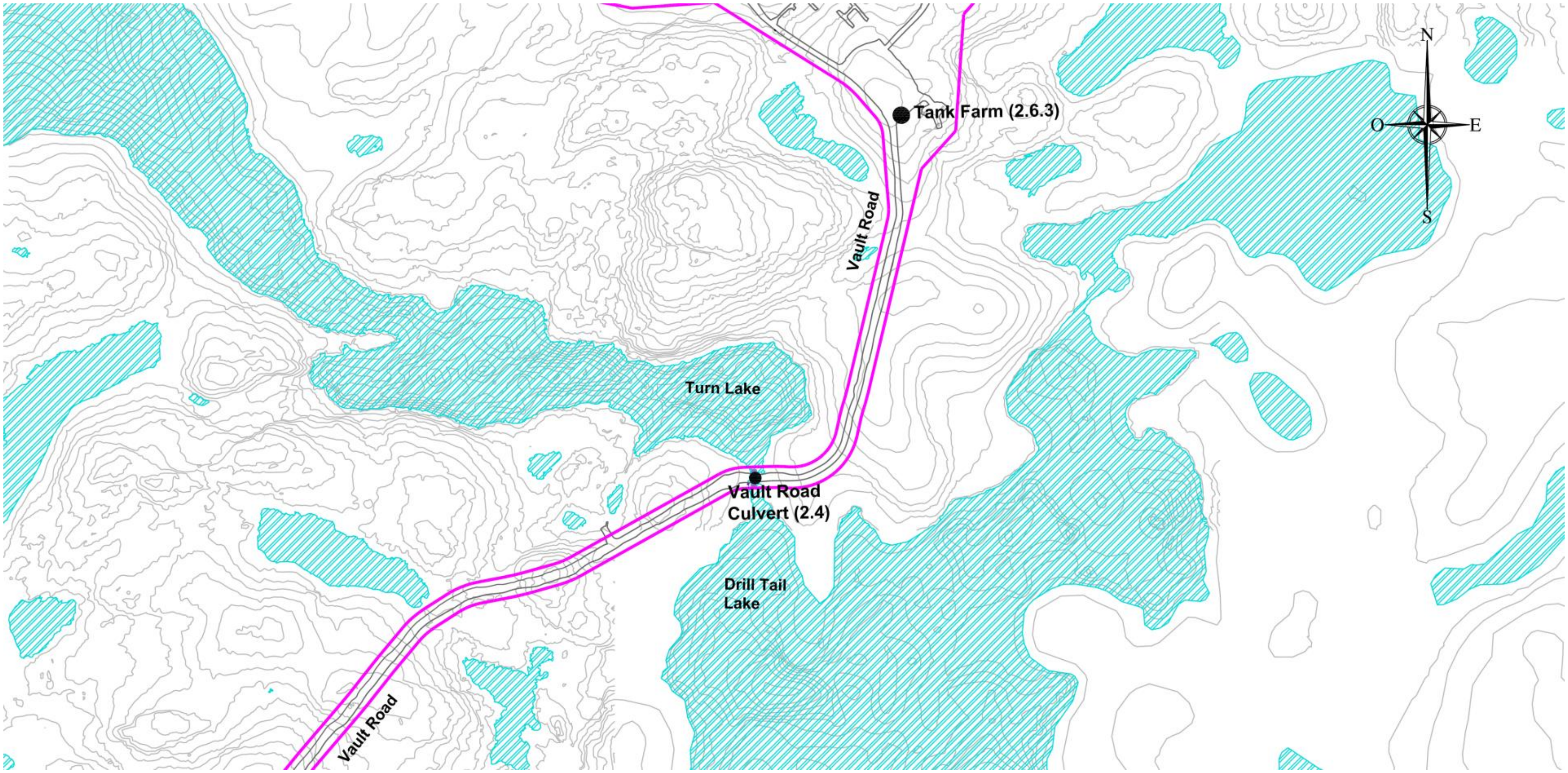
Meadowbank Areas of Concern and Monitoring Locations



Vault areas of concern



Vault Road areas of concern



SCHEDULE 1

ST-16 Seepage Monitoring Program

ST-16 Seepage Monitoring Program (May/early June - as soon as water present until freeze up)			
Parameters	**Laboratory**	**Station**	**Frequency**
pH, Conductivity, Temperature, Turbidity, Colour, Hardness, Bromide,, Fluoride, Thiosulphate, Thiocyanate, Alkalinity, Bicarbonate Alkalinity, Carbonate Alkalinity, Ammonia-nitrogen, Total Ammonia, Nitrite, Nitrate, Reactive silica, TDS, Chloride, Sulfate, Ortho-Phosphate, DOC, TOC, TSS, Dissolved Oxygen (DO), Total Kjeldahl Nitrogen (TKN), Ca, Na, K, Dissolved and total metal: Al, Sb, As, B, Ba, Be, Cd, Cu, Cr, Co, Fe, Li, Mn, Mg, Hg, Mo, Ni, Pb, Se, Ag, Sn, Sr, Te, Ti, Tl, U, V, Zn, and Chlorophyll A (Lake site), CN tot / CN Wad, Total Phosphorus	External Lab	ST-16 NP-2 South NP-2 West NP-2 East NP-1 Dogleg SPL	Monthly during open water
		NP2 Winter	Monthly during winter
CN Free	External Lab	ST-16 NP-2 South NP-2 West NP-2 East NP-1 Dogleg SPL	Monthly during open water
		NP2 Winter	Monthly during water
CN Wad	Assay Lab	ST-16 NP-2 South	2x/week initially and 1x/week after 1 month
CN Total, CN Free, CN Wad, Copper, Ni	External Lab	ST-16 NP-2 South NP-2 West	Only in July - once a week

SCHEDULE 2

Mill Seepage Monitoring Program

Mill Seepage Monitoring Program (May/early June - as soon as water present until freeze up)			
Parameters	**Laboratory**	**Station**	**Frequency**
CN Total CN Free Cu Fe	External Lab	Original Sump MW 4-5-6-	Monthly
pH, Conductivity, Temperature, Turbidity, Colour, Hardness, Bromide,, Fluoride, Thiosulphate, Thiocyanate, Alkalinity, Bicarbonate Alkalinity, Carbonate Alkalinity, Ammonia-nitrogen, Total Ammonia, Nitrite, Nitrate, Reactive silica, TDS, Chloride, Sulfate, Ortho-Phosphate, DOC, TOC, TSS, Dissolved Oxygen (DO), Total Kjeldahl Nitrogen (TKN), Ca, Na, K, Dissolved and total metal: Al, Sb, As, B, Ba, Be, Cd, Cu, Cr, Co, Fe, Li, Mn, Mg, Hg, Mo, Ni, Pb, Se, Ag, Sn, Sr, Te, Ti, Tl, U, V, Zn, and Chlorophyll A (Lake site), CN tot / CN Wad, Total Phosphorus, CN Free	External Lab	TPL-Assay	Monthly
Total and Dissolved metals: Al, Sb, As, B, Ba, Be, Cd, Cu, Cr, Fe, Li, Mn, Hg, Mo, Ni, Pb, Se, Sn, Sr, Ti, Tl, U, V, Z Nutrients: Ammonia-nitrogen, total kjeldahl nitrogen, nitrate nitrogen, nitrite-nitrogen, ortho-phosphate, total phosphorous, total organic carbon, total dissolved organic carbon and reactive silica; Conventional Parameters: bicarbonate alkalinity, chloride, carbonate alkalinity, conductivity, hardness, calcium, potassium, magnesium, sodium, sulphate, pH (by env dept), conductivity (by env dept), total alkalinity, TDS, total cyanide, CN Free, TSS, and turbidity (by env dept)	External Lab	Trench MW-7 MW-8	Monthly
CN Wad	Assay Lab	Trench Original sump MW 2-3-7-8-201-202-203	1x/week

CN Total, CN Free, CN Wad, Copper, Ni	External Lab	Trench	Only in July - once a week

SCHEDULE 3

Central Dike Seepage Monitoring Program

Central Dike Monitoring Program (May/early June - as soon as water present until freeze up)			
Parameters	**Laboratory**	**Station**	**Frequency**
Turbidity	On field	ST-S-5	Every second day
pH, Turbidity, Alkalinity, Hardness, TDS, TSS, Chloride, Fluoride, Sulphate, Ammonia (NH3), Ammonia nitrogen (NH3-NH4), Nitrate, Nitrite, Cyanide, Total cyanide, Cyanide WAD, Cyanide Free, Total Metals: Aluminium, Arsenic, Barium, Cadmium, Chromium, Copper, Iron, Lead, Manganese,Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Zinc, Dissolved Metals: Aluminum, Silver, Arsenic, Cadmium, Chromium, Copper, Iron, Manganese, Mercury, Molybdenum, Nickel, Lead, Selenium, Thallium, Zinc	External Lab	ST-S-5	Monthly

APPENDIX 3

2019 Snow management

Snow Removal and Storage Meeting
Agnico-Eagle Mines Limited
Meadowbank Project

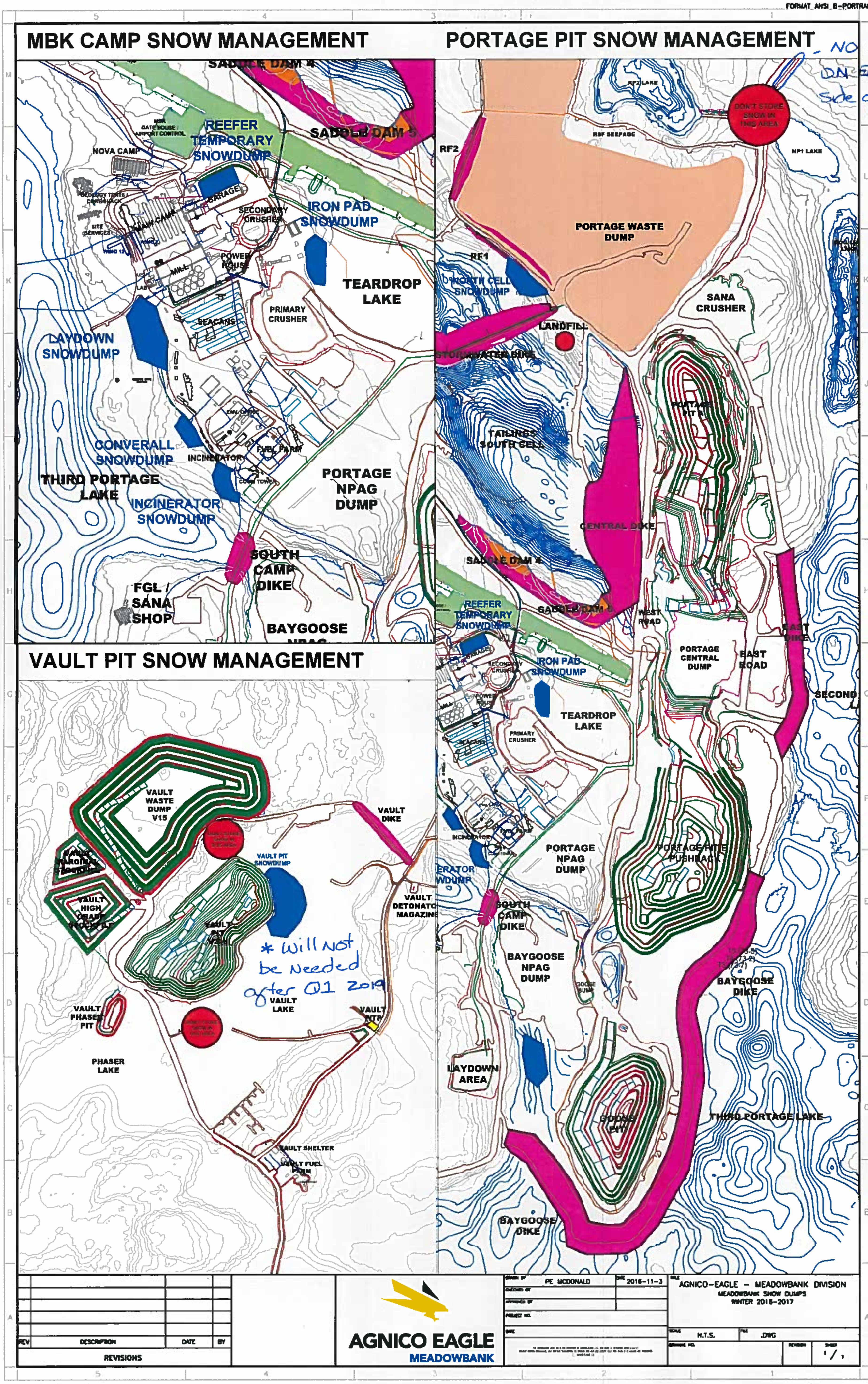
Date:	Dec 26 , 2018
Prepared By:	Tom Thomson
Meeting Lead	Tom Thomson
Attendees:	Laurier Godin, Pascal Poirier, Kevin Champagne
Distribution:	Mine, E&I, Engineering, Environment

ITEM NO.	ITEM DESCRIPTION	Task Owner
1	**Snow Accumulation Along Vault Road at NP-1**	
	Snow accumulation in this area leads to increased runoff and distribution of sediments into NP-1 lake. Very High Priority Area for inspectors in freshet. RED DOT on MAP	
	• Snow must be removed from this area to avoid this issue reoccurring	Mine
	• Snow can be hauled to TSF snow dump	
	• Snow should be removed regularly after high winds and blizzards – this does not have to be a top priority prior to commencement of mining, but needs to be done soon after mining commences.	
	• In spring snow removed from ditch to open culverts cannot be stockpiled there it will need to be moved to snow dump.	
	• Snow will be removed farther north on the east side of the vault road, after the 1 lane to prevent further issues and impacts in receiving watercourse.	
	• Equipment used for this will be whatever equipment is available by the mine at the time the snow needs to be removed	
	• Limit of storage is 31 meters from high water mark of any major water body	
2	**Removing Snow from Roads**	
	In past years when snow was being removed from road surfaces and pushed off the road there has been lots of excess road material removed with the snow. In spring when snow melts all this material is left deposited on the tundra.	
	• When removing snow from roads extra care needs to be taken not to remove road materials with the snow. • Procedure can be improved in the winter, but will be more difficult in spring and fall (when there is less snow or during melt). • Plan in place to remove materials prior to all snow being melted, remove material from top crust of snow in the spring. • As per last year, coaching and supervision by supervisors need to be undertaken to ensure their operators are not removing waste.	Mine E&I

	• This will need to be monitored closely by supervisors to ensure operators are not removing surface material with snow	Mine E&I
	• Limit of storage of Snow is 31 meters from high water mark of any major water body	Mine E&I
3	**Snow Storage Across from MBK Gate House**	
	Snow dump located Southwest of the Meadowbank gatehouse is not an area permitted for the storage of snow. The snow had lots of surface materials mixed in which lead to sedimentation running into the 3rd Portage Lake. As well garbage and other materials are accumulated in this point.	
	• Temporary Snow storage will now be on the reefer pad	E&I
	• Mine department and E&I will work together if more equipment is needed after a blizzard.	Mine E&I
4	**Snow Dumps Over Fuel line**	
	One dump by the mill, one by the white coverall, one by the incinerator. The snow had lots of surface materials mixed in which lead to sedimentation running into the 3rd Portage Lake. As well garbage and other materials are accumulated in this point.	
	• Storage over fuel line; areas depicted on attached map. This material does not need to be removed as long as it does not impinge the 31 meter mark.	
	• Spring clean-up of waste to be completed annually by summer students	E&I
	• Limit of storage is 31 meters from high water mark of any major water body	E&I
5	**Stormwater management pond (Tear Drop)**	
	Used last year as an alternative snow dump	
	• Tear Drop lake can be utilized as a snow dump for short haul of snow from around site and mine road	E&I/Mine
	• Water levels in spring will have to be closely monitored to ensure lake does not over flow with melt water	
	• Prior to freeze up Tear Drop Lake was pumped out to its lowest limit.	
	• Access to Tear Drop snow dump is through the Iron Pad from the Warehouse access. A ramp has to be made with snow there. • Important: do not dump snow on the airstrip side of the iron pad, to avoid accumulation around the pump and also pipe from the STP.	ENV
6	**Vault Dump**	
	Same locations as 2016, to ease water management and impacts on Vault operations. .	
	• No snow to be dumped in Pond D area around vault. • Location for snow dump will be in ponds B&C. See attached map for location.	Mine
7	**Vault Road Culvert at Turn Lake**	
	Last year there was no problems with this location snow clearing went great.	
	• Ensure no sediments off the road go near the lake • Limit of storage is 31 meters from high water mark of any major water body	Mine

8	**AWAR Road**	
	In past years when snow is being removed from road surfaces and pushed off the road there has been lots of excess road material removed with the snow. In spring when snow melts all this material is left deposited on the tundra. The road width, in many places, is now >2 x the width it is supposed to be from the distribution of this material.	
	• When removing snow from roads extra care needs to be taken not to remove road materials with the snow. Procedure can be improved in the winter, but will be more difficult in spring and fall (when there is less snow or during melt). • Plan in place to remove materials prior to all snow being melted, remove material from top crust of snow in the spring. • As per last year, coaching and supervision by supervisors need to be undertaken to ensure their operators are not removing these materials from the road	E&I
9	**AWAR Stream Crossings**	
	In past years when snow is being removed from road surfaces and pushed off the road or when snow is being removed from stream crossings there has been lots of excess road material pushed into the stream crossings.	
	• When removing snow from roads extra care needs to be taken not to remove road materials with the snow.	E&I
	• When removing snow from within stream bed take extra care not to input road materials into the water course, and absolutely no movement of surface material within the water course. This includes movement of tracks turning material; all work has to be completed above snow.	E&I
10	**Goose Pond**	
	• Goose pond south of the Goose dump, beside Goose Dike available for snow dump. Make sure the snow dump doesn't get in contact with the PAG stock pile. See location on Map.	ENG Mine
	• Goose Pit could also be used as a snow dump if necessary, if so, extra care should be taken.	ENG Mine
11	**Stormwater Dike**	
	• No snow removal will occur on the section where tension cracks were identified. • E&I snow blower could be used to clear snow from the other SWD sections.	
12	**Dike snow removal**	
	• Responsibility of the snow removal is split between the mine department and E&I. Please refer to the map in attachment. • As always, please operators should be careful around all instruments and liner on the dikes.	

13	**Map of Dump Locations**	
	• A map of final dump locations will be completed after the second meeting. (TSF snow dump, Tear Drop Lake, Goose). Once final locations are in place, maps can be distributed to all supervisors. The map of dump locations will be merged with the map usually produced by engineering showing the areas to be cleared of snow.	ENG
14	**Next Meetings**	
	• TBD	ENV/ENG/ MINE/E&I



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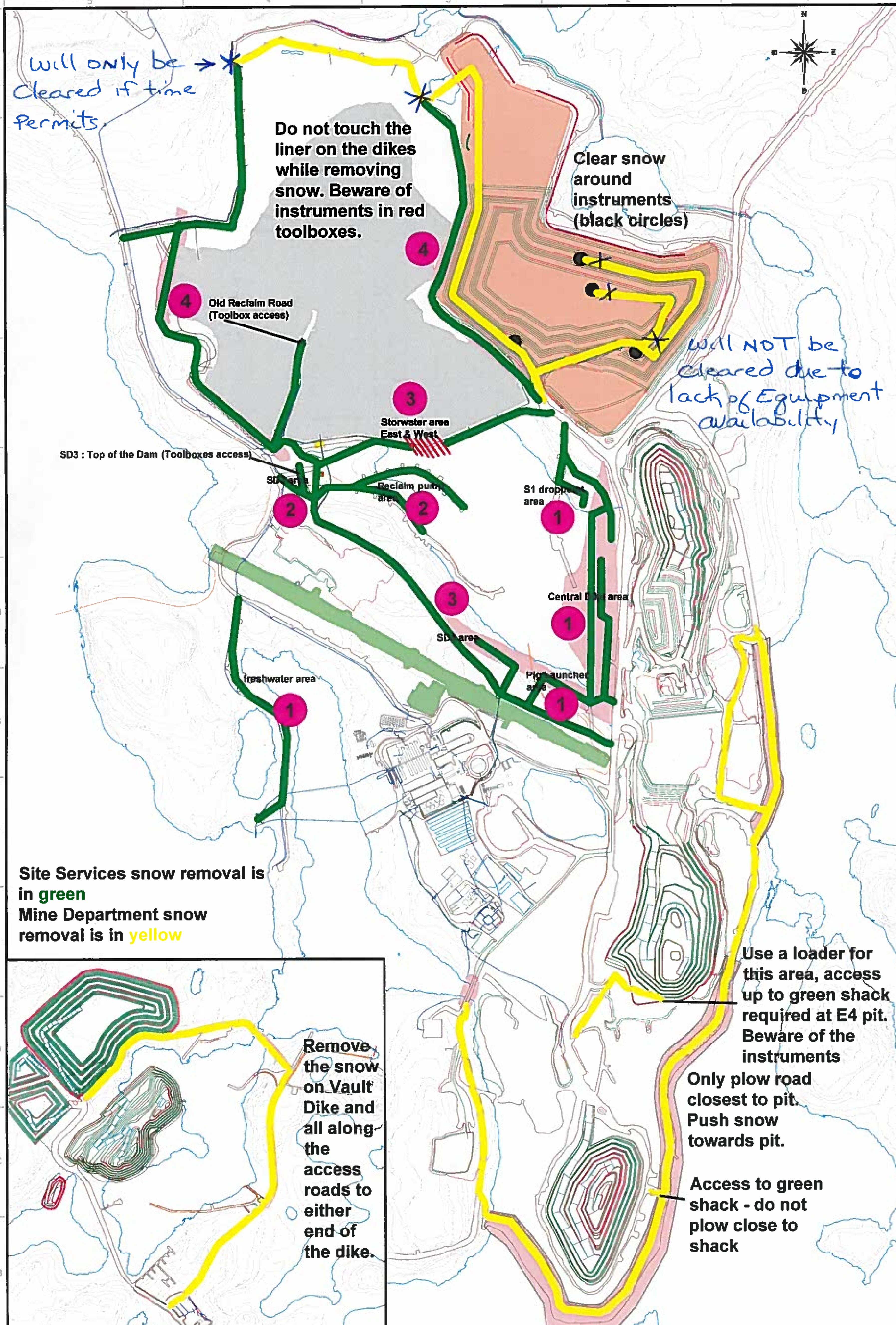

REV	DESCRIPTION	DATE	BY
REVISIONS			

AGNICO EAGLE MEADOWBANK

PE McDonald 11-2-2016

AGNICO-EAGLE – MEADOWBANK DIVISION

2016 Snow Removal Map

N.T.S. .DWG

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APPENDIX E – 2015 AMMONIA MANAGEMENT PLAN

AGNICO EAGLE

MEADOWBANK GOLD MINE

AMMONIA MANAGEMENT PLAN

MARCH 2015

EXECUTIVE SUMMARY

AEM is committed to continue the sample monitoring program, which includes monitoring for Ammonia in all mine pit sumps, seeps, etc., in accordance with the site Water License, implement a comprehensive, regular inspection program related to explosives management within the mine pits, conduct regular inspections at the explosives manufacturing facility (Dyno Nobel) to ensure all explosive products are stored in locked, sealed containers prior to use and continue to perform continuous review of analysis results such that mitigation measures can be implemented when increasing trends of ammonia are determined. It is important to note that AEM has not exceeded any ammonia discharge criteria (Water License or MMER) to date.

This technical note provides guidance for monitoring ammonia levels at the mine site, as part of the conditions applying to waste disposal and management listed in the water license (NWB 2008) for this water quality parameter.

DOCUMENT CONTROL

Revision				Pages Revised	Remarks
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00	SNC		February 2013	All	
01	AEM	1	March 2015	13	Table 1 update
				16	Add section 6

Prepared By: ____________________________

Environmental Department

Approved by:

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Environmental Department

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1 INTRODUCTION

The previous version of the Water Management Plan (WMP) for the Mine was presented in 2009 (Doc. 833), updating the first edition of the WMP, support document (Doc. 500) to the Type-A Water License Application for the Mine. The WMP was then updated in 2011 (Doc. 1270). This technical note was produced as an appendix to the 2012 WMP update and covers the ammonia management plan for the mine site. The Ammonia Management Plan is being updated at this time in response to concerns raised during the Water License renewal process (January, 2015 - NWB Technical Meetings – Baker Lake). These concerns were in regard to ammonia loading to mining infrastructure, i.e., the Tailings Storage Facility (TSF) from cyanidation, the use and management of exposives and sewage management. In addition, there was a request for loading calculations of ammonia to the receiving environment. It should be noted that there is no further discharge of mine contact water to Third Portage Lake from the Portage Attenuation Pond. The onsite CREMP program takes into account the overall ammonia levels in Third Portage Lake and to date AEM has not reached any level of concern (no trigger levels have been reached for ammonia).

As a result of these concerns AEM is committed to continue the sample monitoring program, which includes monitoring for Ammonia in all mine pit sumps, seeps, etc., in accordance with the site Water License, implement a comprehensive, regular inspection program related to explosives management within the mine pits, conduct regular inspections at the explosives manufacturing facility (Dyno Nobel) to ensure all explosive products are stored in locked, sealed containers prior to use and continue to perform continuous review of analysis results such that mitigation measures can be implemented when increasing trends of ammonia are determined. It is important to note that AEM has not exceeded any ammonia discharge criteria (Water License or MMER) to date.

This technical note provides guidance for monitoring ammonia levels at the mine site, as part of the conditions applying to waste disposal and management listed in the water license (NWB 2008) for this water quality parameter.

Ammonia is a naturally occurring nitrogen compound found in the environment. However, there are two sources at the mine site that can contribute to the mobilization of ammonia in the groundwater or surface runoff:

1. Blasting of ammonium-nitrate (AN) explosives is typically the primary source of ammonia in areas of mining operations. AN readily absorbs water and dissolves easily, thereby mobilizing ammonia in either groundwater or surface runoff.

2. In gold mine operations using a cyanidation process to extract the gold from the ore, the cyanide in solution is oxidized to cyanate (CNO^-) using a sulfur dioxide (SO_2) air process before discharge to the Tailings Storage Facility. The cyanate can then hydrolyze to ammonia in the Tailings Storage Facility reclaim pond.

Ammonia dissolved in water exists in equilibrium of interchanging un-ionized (NH_3) and ionized (NH_4^+) forms. The equilibrium is influenced by pH, temperature, and ionic strength (salinity) where the amount of un-ionized ammonia is favoured as the pH becomes more basic or as the water temperature or salinity increases. Un-ionized ammonia can readily pass across the gill surface and enter into the bloodstream of fish, while ionized ammonia passes with greater difficulty. Once inside the fish, both forms of ammonia can cause toxic effects (CCME, 2010). Furthermore, it should be noted that ammonia oxidizes to nitrite (NO_2) and nitrate (NO_3), the former being particularly toxic to fish and humans. Both nitrite and nitrate are regulated by the CMME for the Protection of Aquatic Life.

This ammonia management plan (AMP) proposes monitoring of blasting practices for the assessment of explosive quantity used and blast performance, and monitoring of water quality to determine ammonia levels in waters within the mine site. The monitoring results can be used to review and adjust blasting practices or water management if ammonia levels need to be reduced.

In addition to ammonia, monitoring of nitrate and nitrite is also considered in the AMP, as both water quality parameters are signature compounds of AN explosives. NO_3 is listed with a discharge level threshold in the conditions applying to waste disposal and management in the water license (NWB 2008).

2 EXPLOSIVE MANAGEMENT AND BLASTING PRACTICES

2.1 SITE DESCRIPTION

2.1.1 Explosive Storage

Storage of explosive products will be located at the mine site emulsion plant area. The explosive products arrive by barge at the Baker Lake marshalling area. They are then transported by ground to the emulsion plant located at the Meadowbank mine site.

The emulsion plant area is located approximately four kilometers north of the mine plant and camp site, and is accessible from the All Weather Access Road (AWAR). This area consists of an emulsion plant for the preparation of bulk emulsion explosives, two buildings for the storage of AN, and four explosive magazines along the access road to the plant.

Explosive products at the storage facilities are packed in sea containers, which limit the possibility of spillage. The products are only removed from these containers prior to use at the mine site emulsion plant area. Surface areas are graded to collect water runoff within the storage facilities.

2.1.2 Roads

The AWAR is a restricted access road constructed and operated by AEM for ground transportation between the Meadowbank mine site and Baker Lake. This road is used to transport explosive products from the Baker Lake site facilities to the emulsion plant area at the mine site. In preparation for blasting operations, explosive products are transported from the emulsion plant area to the appropriate blasting locations via local site roads and the Vault Haul Road.

Spillage control protocols, procedures and handling of spilled material, and explosive management for both storage and transport have been established by Dyno Nobel Inc. (Dyno) and are provided in Appendix 2. Explosive products and spills on the AWAR are also referenced in the Meadowbank Spill Contingency Plan.

2.1.3 Pits

The development sequence of the mine site is provided in Section 3 of the 2014 Mine Waste Rock and Tailings Management Plan. Explosives are used for the excavation of waste rock and mining of the ore at the Portage, Goose and Vault pits.

2.2 AMMONIA PATHWAYS

Ammonia not fully detonated within the in-pit blasting operations mobilizes through several pathways on the mine site. Water from drainage runoff is the primary mechanism of mobilization for ammonia residuals remaining within the pits. This water is collected at pit sumps and then has been pumped to the Portage Attenuation Pond, which became the South Cell TSF Reclaim Pond on November 2014. Blasting residuals are also expected to be attached to waste rock and ore materials, which are transported from the open pits to their respective storage and processing facilities. Residuals from waste rock may be washed off by precipitation and be ultimately conveyed to the South Cell TSF (former Attenuation Pond), or the Vault Attenuation Pond. Residuals from the ore may be carried in the tailings to the Tailings Storage Facility. All of these pathways (mine sumps, Vault Attenuation, South Cell TSF are monitored in accordance with the Water License).

2.3 EXPLOSIVES AND BLASTING

Based on experience at other open pit mines in the Canadian Arctic, the largest potential source of ammonia in mine water will be from explosive residue from blasting. Depending on the wetness of the site, water may leach explosives from blastholes prior to the blast. Other forms of ammonia released from AN are explosives flowing into cracks and fissures in the rock and not detonating, or leading to an incomplete detonation of the explosive column and misfired blastholes. An AN based emulsion is used as a blasting agent at the Meadowbank site. This material is designed to repel water thus minimizing the potential for ammonia to impact mine water.

Blasting operations on site include monitoring of explosive quantities and blast design, procedures and practices. Combined with water monitoring, the compilation of these data is used to assess blasting performance. The results of this assessment are used to adjust blasting practices as needed to:

a) Optimize the use of explosives; and

b) Increase the completion and efficiency of explosive detonations.

Any modifications to blast design are intended to decrease the amount of ammonia that may become available for mobilization in mine water.

This section summarizes the explosive products and blasting design parameters, procedures and practices employed at Meadowbank. Associated monitoring is also discussed.

2.3.1 Explosive Products

Explosive products used at the mine site include bulk explosives (bulk emulsion), packaged explosives, cast boosters, detonating cords, non-electric delay detonators and non-electric lead lines. The material safety data sheets (MSDS) for these products are provided in Appendix 4. Of these products, the greatest potential for water contamination comes from the bulk explosives. Presently, Meadowbank uses emulsion as the primary bulk explosive for its blasting operations.

Bulk emulsions typically contain some or all of the following components:

- Ammonium, sodium and/or calcium nitrate;
- Fuel and/or mineral oil;
- Methylamine nitrate;
- Emulsifiers; and
- Ethylene glycol.

Although bulk emulsions are water resistant, contaminants can be leached from the product if it is left in contact with standing or flowing water for extended periods of time. The performance of the explosive, and hence the potential for post-blast contaminations, deteriorates with the length of time that the emulsion remains in the blasthole after it has been loaded (i.e., sleep time). Blast procedures currently in use are designed to minimize sleep time so that standing or flowing water is not in contact with the bulk emulsion for extended periods of time.

2.3.2 Procedures and Practices

Quality control procedures are in place to verify AN content in bulk explosives. Quality control procedures for the emulsion occur at the plant and density tests are done at the blast site (on the trucks). Loading procedures specify that blastholes be loaded with emulsion from the bottom of the blastholes to provide a continuous explosive column. Details on the explosive quality control and loading procedures have been established by Dyno and are provided in Appendix 2.

The primary factors that may reduce the amount of ammonia available for mobilization in mine water are:

- Explosives handling
- Completeness of detonation

Bulk emulsion spillage during blasthole loading could (as bulk emulsion is resistant to water) be a source of ammonia that could be carried by water collected in the pits. Spillage control protocols, procedures and handling of spilled material, and explosive management for storage and transport, as well as the emergency response plan, have been established by Dyno and are provided in Appendix 2 and 3.

Incomplete detonation results in higher ammonia residue on the blasted rock. Evidence of incomplete detonation is often observed as an orange fume after a blast and sometimes an orange pigment on the blasted rock. Explosives that have failed to detonate may be observed in the muckpile. Muckpiles are routinely inspected by Meadowbank staff for signs of incomplete detonation.

2.4 MONITORING

Monitoring of explosive handling and blasting is as follows:

a) Explosive quantities: Records of explosive quantities used for in-pit blasting are kept for each blasting event and will be conserved throughout the mine life. Furthermore, a record of blast location (i.e., pit and elevation), blast date, and bulk explosive type and name used (emulsion, with the corresponding ratio of AN over emulsion) is kept for all events.

b) Design parameters: Blast design parameters, as well as changes in the blast design parameters from the standard are recorded and dated.

c) Loading instructions: Loading instruction forms are completed for each blast event and provide a record of the as-loaded parameters for all blastholes in the blast pattern including:
    - Hole depth
    - Collar height
    - Priming (single or double)

- Other observations made by the blast crew (e.g., wetness of holes, use of liners, collapsing holes or difficulty loading)

d) Video footage: Videos are taken of each blast. This practice provides a visual, qualitative record of the results of each blast and provides insight into potential problems such as incomplete detonation (e.g. orange fumes) and misfires, as well as areas of poor muckpile heave and forward movement.

e) Blast audits: Blast audits are conducted on a monthly basis to ensure that best practices are being followed in the field (audits may be adjusted to a lesser frequency if low ammonia levels are consistently observed, or conversely may be adjusted to a higher frequency if high ammonia levels are consistently observed).

An additional monitoring technique commonly used is the measurement of the Velocity of Detonation (VOD), which has been shown to be directly related to the volumetric fraction of the explosive that has been consumed. This technique will be implemented if poor or incomplete detonation is consistently suspected.

3 MILL EFFLUENT

3.1 SITE DESCRIPTION

The mill effluent consists of tailings produced at the mill that is pumped as slurry and deposited in the Tailings Storage Facility (TSF) where the tailings particles are allowed to settle and consolidate. The reclaim water is pumped back to the mill for re-use. Prior to discharge of the mill effluent to the TSF, the effluent is sent to the cyanide destruction process. The cyanide destruction process at Meadowbank uses the sulfur dioxide (SO_2) and air process to oxidize weak acid dissociable cyanide (CN-WAD) to a less toxic form: cyanate (CNO^-) based on the following reactions:

$$SO_2 + O_2 + H_2O + \text{CN-WAD} \rightarrow CNO^- + H_2SO_4$$

The process can also use sodium metabisulfite ($Na_2S_2O_5$) instead of sulfur dioxide in case there are operating issues with the dosing of sulfur dioxide gas in the process. This ensures that chemicals required for the cyanide destruction process (either SO_2 or $Na_2S_2O_5$) are always available.

3.2 AMMONIA PATHWAY

Cyanate produced from the oxidation of CN-WAD can readily hydrolyze to ammonia (NH_3) and carbon dioxide (CO_2) based on the following reaction:

$$CNO^- + H^+ + H_2O \rightarrow NH_3 + CO_2$$

Thus, the mill effluent provides an ammonia loading to the TSF reclaim water.

During the operation of the TSF, the reclaim water will be pumped to the mill for re-use in a closed loop system. Consequently, there will be no discharge of reclaim water to the environment during this period. Furthermore, it is expected that the ammonia concentration will gradually increase in the TSF reclaim pond over time, even though (1) there may be some slight attenuation of ammonia due to microbial/algae activity in the summer and (2) ammonia may oxidize to nitrite and nitrate, particularly near the top of the pond where oxygen is most present.

The Water Quality Forecasting – Update based on the 2014 Water Management Plan Report (SNC, 625618-0000-40ER-0001) provides a forecast of the concentration for ammonia in the TSF reclaim pond during the life of the mine. Furthermore, the report provides a forecast of the ammonia concentration in the Portage and Goose Island Pit once flooding activities has started.

3.3 MONITORING

Concentrations of ammonia, nitrate and nitrite are parameters that are monitored on a monthly basis as part of this sampling campaign of the TSF reclaim water at station ST-21.

In the Water Quality Forecasting – Update based on the 2014 Water Management Plan Report (SNC, 625618-0000-40ER-0001), a maximum ammonia concentration in the TSF reclaim water is evaluated in order to meet the CCME guidelines for the Protection of Aquatic Life in the Portage and Goose Island Pits once flooding activities are completed. If this concentration is exceeded before the end of the flooding operation, measures could be undertaken to lower the ammonia concentration, as well as nitrate and nitrite if required, in the TSF reclaim pond prior to the transfer of TSF reclaim water to the pits.

Ammonia treatment technologies that could be further investigated, if the need arises, include:

i) Biological nitrification / denitrification during the summer months.

ii) In-situ volatilization of ammonia during the summer months.

iii) Ammonia removal by snow making.

4 WATER MANAGEMENT

Water quantity and quality monitoring assist in the monitoring of ammonia loadings from explosive residuals, as well as ammonia concentration found in the Tailings Storage Facility reclaim pond. The Meadowbank water quality and flow monitoring plan (AEM 2015) and water license (NWB 2008) includes monitoring stations that are used for the monitoring of ammonia loadings. The stations that specifically monitor for ammonia are listed in Table 1 and are shown in the Figures in Appendix 1.

Table 1 Water Monitoring Station Included under the Meadowbank Water License

Station	Description	Phase	Parameters	Frequency
ST-9	Portage Attenuation Pond prior to discharge through Third Portage Lake Outfall Diffuser	Early operation	Ammonia, nitrite, nitrate	Prior to discharge and Weekly during discharge
			Water Volume	Daily during periods of discharge
ST-10	Vault Attenuation Pond prior to discharge through Wally Lake Outfall Diffuser	Late operation	Ammonia, nitrite, nitrate	Prior to discharge and Weekly during discharge
			Water Volume	Daily during periods of discharge
ST-16	Portage Rock Storage Facility	Late operation	Ammonia	Monthly during open water
		Closure	Ammonia, nitrite, nitrate	Bi-annually during open water
ST-17	North Portage Pit Sump	Operation	Ammonia	Monthly during open water
			Nitrite, nitrate	Bi-annually during open water
			Water Volume	Daily during periods of discharge
	Portage Pit Lake	Late operation	Ammonia, nitrite, nitrate	Monthly during open water
		Closure	Ammonia, nitrite, nitrate	Bi-annually during open water
ST-19	South Portage Pit Sump	Early operations	Ammonia	Monthly during open water
			Nitrite, nitrate	Bi-annually during open water
			Water Volume	Daily during periods of discharge
	Third Portage Pit Lake	Late operations	Ammonia, nitrite, nitrate	Monthly during open water
ST-20	Goose Island Pit Sump	Early operations	Ammonia	Monthly during open water
			Nitrite, nitrate	Bi-annually during open water
			Water Volume	Daily during periods of discharge

	Goose Island Pit Lake	Late operations	Ammonia, nitrite, nitrate	Monthly during open water
		Closure	Ammonia, nitrite, nitrate	Bi-annually during open water
ST-21	Tailings Reclaim Pond	Early (North Cell) and late (South Cell) operation	Ammonia, nitrite, nitrate	Monthly during open water
ST-23	Vault Pit Sump	Late operations	Ammonia	Monthly during open water
			Nitrite, nitrate	Bi-annually during open water
			Water Volume	Daily during periods of discharge
ST-24	Vault Rock Storage Facility	Late operation	Ammonia	Monthly during open water
			Nitrite, nitrate	Bi-annually during open water
		Closure	Ammonia, nitrite, nitrate	Monthly during open water
ST-25	Vault Attenuation Pond	Late operation	Ammonia	Monthly during open water
			Nitrite, nitrate	Bi-annually during open water

In addition to the monitoring listed in Table 1, the following actions are undertaken as part of the AMP:

- If runoff or seepage is detected at the rock storage facility, water samples collected at the Portage or Vault Rock Storage Facility during late operation will also be analyzed for nitrate and nitrite to complete the suite of signature compounds found in explosive residuals.
- Tailings slurry volumes and density from the mill pumping facility to the TSF are recorded on a monthly basis.
- The records of water volumes pumped from the Portage Pit sumps include the destination: South Cell TSF (former Attenuation Pond).
- The records of water volumes pumped from the Portage or Vault Attenuation Pond will include the destination: Third Portage Lake, Wally Lake or other future destination.

Sampling frequency at the pit sump will also be increased if high variability is identified in observed constituent concentrations as a result of the blasting schedule.

5 REPORTING

Reporting of ammonia concentrations at the sampling stations listed in Table 1 is included as part of the requirement of the water license (NWB 2008). The reporting frequency is provided in AEM (2009b), and includes:

- Brief monthly reports of the compiled water quality monitoring results, sent to the Nunavut Water Board (NWB), the AANDC Water License Inspector and to the Kivalliq Inuit Association (KIA); and

- An annual report submitted to the NWB, KIA, Aboriginal Affairs and Northern Development Canada, Nunavut Impact Review Board, Government of Nunavut, and other interested parties. This report summarizes monitoring results for each sampling station, annual seep water chemistry results, annual groundwater monitoring results, receiving water monitoring results, spills and any accidental releases, measured flow volumes, effluent volumes and loadings, and results of QA/QC analytical data.

Mine operation personnel reviews on a monthly basis the data gathered from the sampling stations in Table 1 and from the monitoring action proposed under the AMP. If the data indicates that further studies and/or significant changes to the water management infrastructure are required to assess or control ammonia concentrations, AEM will notify the Nunavut Water Board as early as practical. Results of these further studies and/or changes to the AMP monitoring actions will be transmitted to the Nunavut Water Board for review.

6 INSPECTION

On a weekly basis, the environment department will conduct inspection in the blasting area to ensure that the Dyno Nobel loading procedures are being implemented (this will minimize blasting residues). In addition inspections will be undertaken at explosive product storage facilities (Dyno Nobel) to ensure that explosives products are stored in sealed containers and there is no spillage. If any non-conformities are observed follow up action will be undertaken andcorrective measure will be put in place. See Appendix 5 for copy of the AMP inspection form.

7 REVIEW OF AMMONIA MANAGEMENT PLAN

Review of the results of the site water quality and AMP monitoring during the year may provide new information, and/or indications that changes to the AMP are necessary. When revisions are warranted, an updated AMP will be submitted to the Nunavut Water Board for review.

8 REFERENCES

AEM (2015), Meadowbank water quality and flow monitoring plan. January 2015.

CCME (2010), Canadian Water Quality Guidelines for the Protection of Aquatic Life, Ammonia.

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