Appendix 11

Meadowbank 2019 Water Management Report and Plan Version 8

MEADOWBANK GOLD MINE

2019 WATER MANAGEMENT REPORT AND PLAN

MARCH 2020

VERSION 8

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 2018 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 considers 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;
- Updated tailings deposition strategy, including In-Pit Deposition;
- Updated the pit flooding strategy.

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

Recommendations obtained during the 2018 Meadowbank Annual Report Review have been included in the 2019 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
8	March 2020	ALL	-	Revision of the 2018 Water Management Plan (by Agnico) according to the updated Life of Mine and water management strategies

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TABLE OF CONTENTS

1 INTRODUCTION 8

2 BACKGROUND INFORMATION 9

2.1 Site Conditions 9

2.1.1 Climate 9

2.1.2 Faults 11

2.1.3 Permafrost 12

2.1.4 Hydrology 13

2.2 Mining Operation Description 14

2.2.1 Portage Pit Area 15

2.2.2 Goose Pit Area 19

2.2.3 Vault Pit Area 20

2.3 Life Of Mine Description 22

2.4 Changes from the Water Management Plan 2018 23

3 WATER MANAGEMENT PLAN AND WATER BALANCE 25

3.1 General Water Management Strategy 25

3.1.1 Updated Tailings Deposition Strategy 26

3.1.2 Fresh Water from Third Portage Lake 27

3.1.3 Reclaim Tailings Water 29

3.1.4 Mill 29

3.1.5 North Cell 30

3.1.6 South Cell 31

3.1.7 Portage Pit 31

3.1.8 Goose Pit 32

3.1.9 Vault Pits Area 33

3.1.10 Water Transfers 33

3.1.11 Seepage Collection Systems ... 36

3.2 Pit Flooding ... 43

3.2.1 Portage Area Flooding ... 44

3.2.3 Vault Pit Area Flooding ... 48

3.3 Water Management Structures ... 48

4 MEADOWBANK WATER QUALITY FORECASTING UPDATE ... 49

5 2019 INTEGRATED DEPOSITION PLAN ... 51

6 CONCLUSION ... 52

7 RECOMMENDATIONS ... 54

8 REFERENCES ... 55

LIST OF TABLES

Table 2-1: Estimated average monthly climate data – Baker Lake 10
Table 2-2: Total annual precipitation for varying return periods 13
Table 2-3: Current official LOM – Processed ore tonnages 23
Table 3-1: 2020 Targeted water hourly consumption per month – for Mill and Camp Usage 28
Table 3-2: Yearly water consumption summary – Mill and Camp Usage 29
Table 3-3: Monthly average moisture content at the mill 30
Table 3-4: TSF Water Transfers 34
Table 3-5: Wally Lake annual discharge 35
Table 3-6: SMP annual transfer 35
Table 3.7: Mill Seepage pumped volumes 37
Table 3-8: ST-16 RSF Seepage 2019 pumped volumes 39
Table 3-9: East Dike Seepage 2019 pumped volumes 40
Table 3-10: Central Dike Seepage 2018-2019 pumped volumes 42
Table 3-11: Pit flooding profile 44

LIST OF FIGURES

Figure 2.1: Meadowbank mine location 9
Figure 2.2: Portage Pit area – fault location 12
Figure 2.3: Baker Lake A meteorological IDF curves 14
Figure 2.4: Portage Pit terminology 17
Figure 2.5: Portage Pit area map 18
Figure 2.6: Goose Pit area map 20
Figure 2.7: Vault Pit area map 22
Figure 3.1: South Cell 2017 and 2019 Internal Structures 26
Figure 3.2: North Cell 2019 Internal Structure 27

Figure 3.6: Mill Seepage Area ... 37
Figure 3.7: RSF seepage area ... 38
Figure 3.8: East dike pumping system ... 40
Figure 3.9: Central Dike seepage pumping system ... 41
Figure 3.10: Central Dike seepage flow ... 43
Figure 3.11: Distribution of 3PL elevation surveyed data ... 45
Figure 3.12: Distribution of 2PL elevation surveyed data ... 45

APPENDICES

Appendix A: Water Balance

Appendix B: General Water Movement

Appendix C: 2019 Meadowbank Water Quality Forecasting Update

Appendix D: 2019 Freshet Action Plan

Appendix E: Ammonia Management Plan

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.

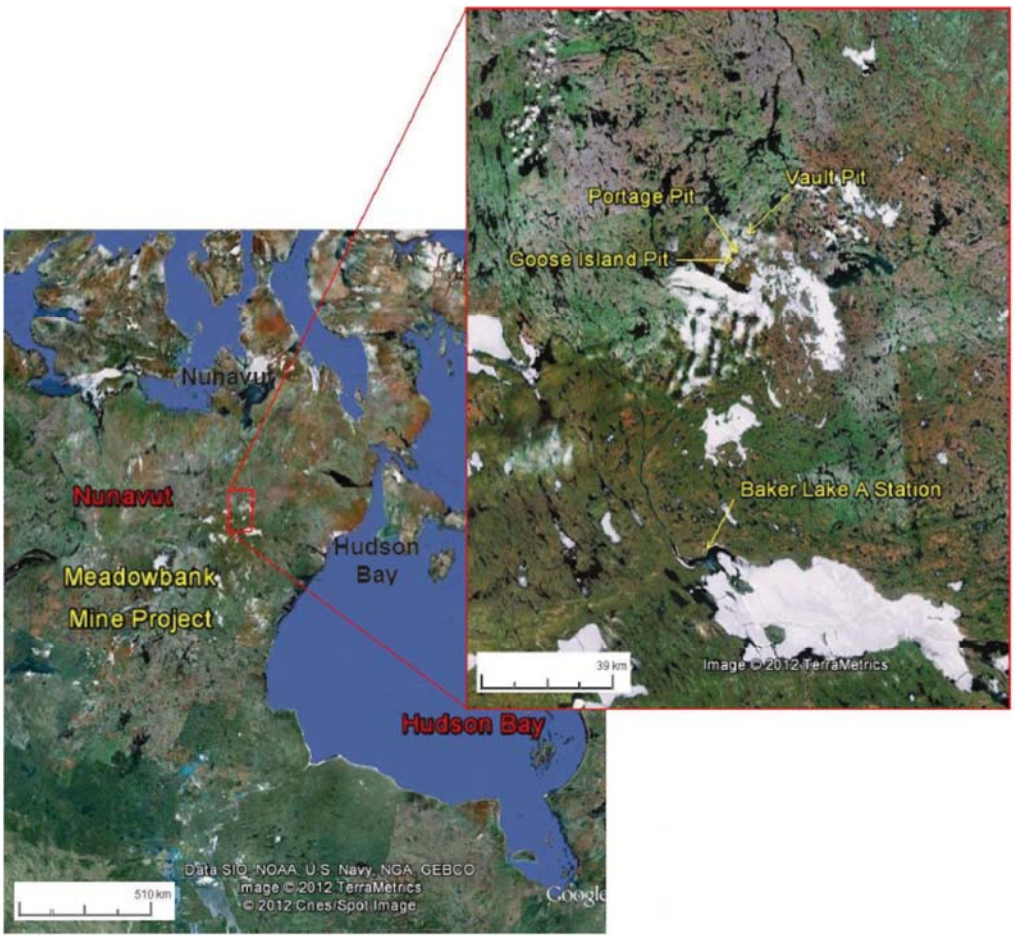
This report presents an updated version of the Water Management Plan 2018 and provides a revised site-wide water balance that determines the demand and storage requirements of water over the life of the mine (LOM). The storage strategies and required transfers are detailed in this document. Certain concepts 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 water management update follows changes in the observed natural pit water inflows, updated tailings deposition parameters, changes in the tailings management strategy including the start of in-pit tailings disposal, and pit backfilling strategy.

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: Meadowbank mine location

2.1.1 Climate

The Meadowbank mine 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 the Central Dike Seepage.

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

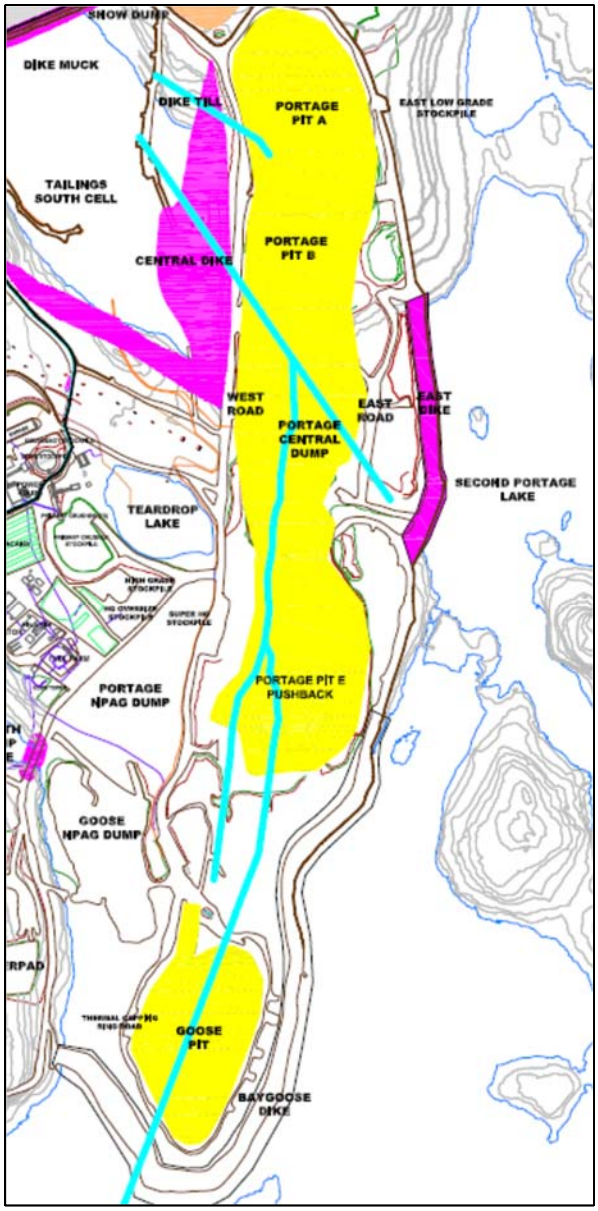


Figure 2.2: Portage Pit area – fault location

2.1.3 Permafrost

The Meadowbank Gold Mine is in an 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 from about 1 to 1.5 m based on depth of overburden, vegetation and organics, and proximity to lakes.

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

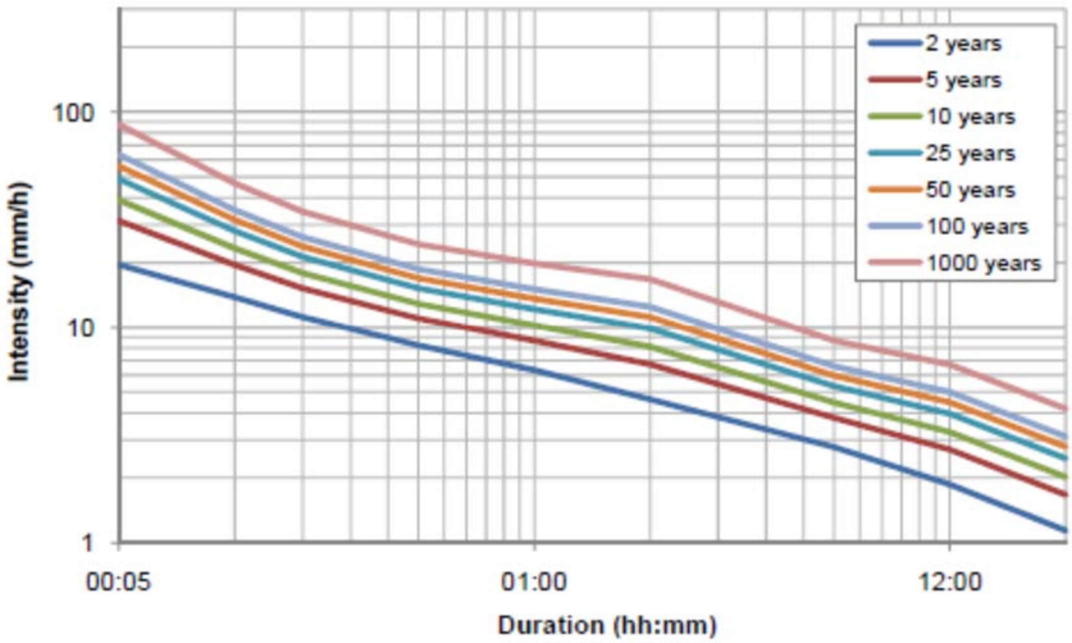
As shown above in Table 2.1, the Baker Lake A meteorological station was used to tabulate the monthly precipitation data. Using this data, SNC-Lavalin completed a Log-Pearson 3 probability distribution to determine the annual precipitation for different return periods. The results of this statistical 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) varies from year to year however it has been observed that the winter snow accumulation (October to May) usually begins to melt at the beginning June and continues throughout the month.

2.2 MINING OPERATION DESCRIPTION

The Meadowbank Gold Mine consists of several gold-bearing deposits within close 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), the 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. 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 2019 were only ongoing in Pit E until mining was complete in October 2019. 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 MDMER 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 into inactive portions of the Portage Pit. As of October 2019, no water transfers between pits occurred since mining was complete.

Inflow of water into the bottom benches of Pit C and D has been observed before these pits were backfilled. Several areas of these pits are 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 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 2019, all water pumped from Portage Pit E was directed to the inactive pit A area.

On May 17th, 2019 Agnico received approval of amendment No.3 to the Meadowbank Type A water license 2AM-MEA1526 which permitted in-pit tailings disposal to take place within the Portage Pit. No tailings disposal occurred in the Portage Pit in 2019. Water was transferred from the active in-pit tailings disposal site in Goose Pit to Pit A from August 27th 2019 to October 24th

2019. For more information regarding in-pit tailings disposal please refer to the Waste Rock & Tailings Management Plan.

2.2.1.1 Tailings Storage Facility

The Tailings Storage Facility (TSF) is located with the Portage Pit Area and consists of the South Cell and the North Cell. These cells are delimited by tailings retaining dikes that were progressively built as capacity was required. More detailed information on the TSF can be found in the Waste Management Plan.

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.

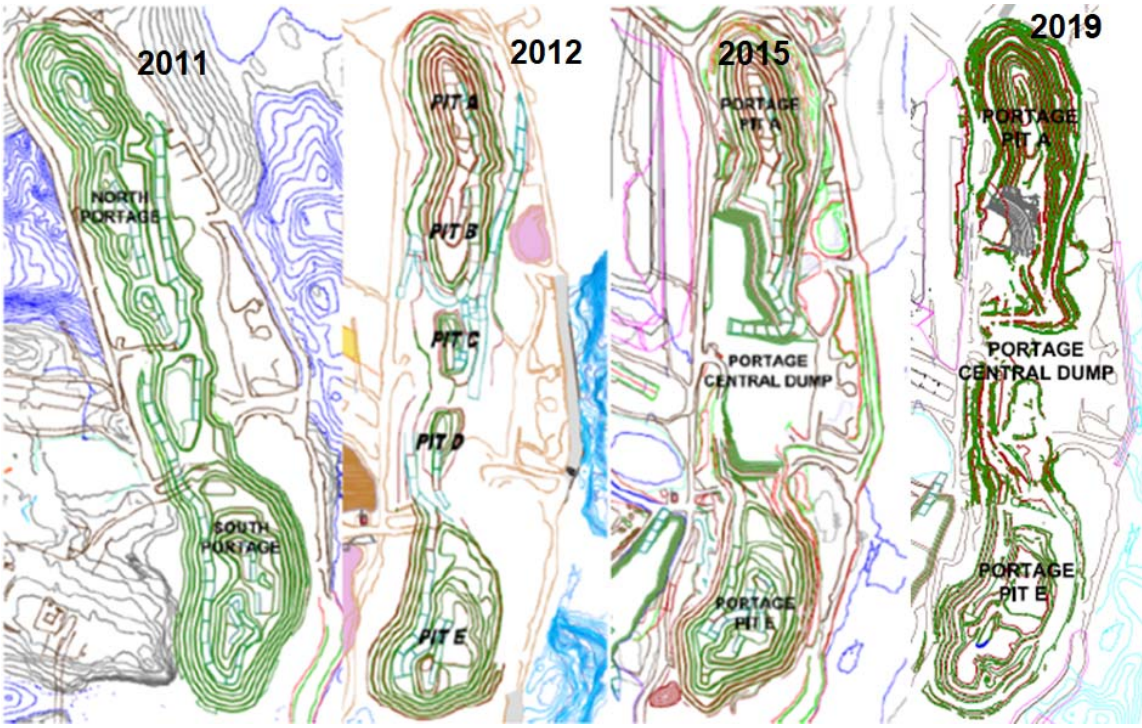


Figure 2.4: Portage Pit terminology

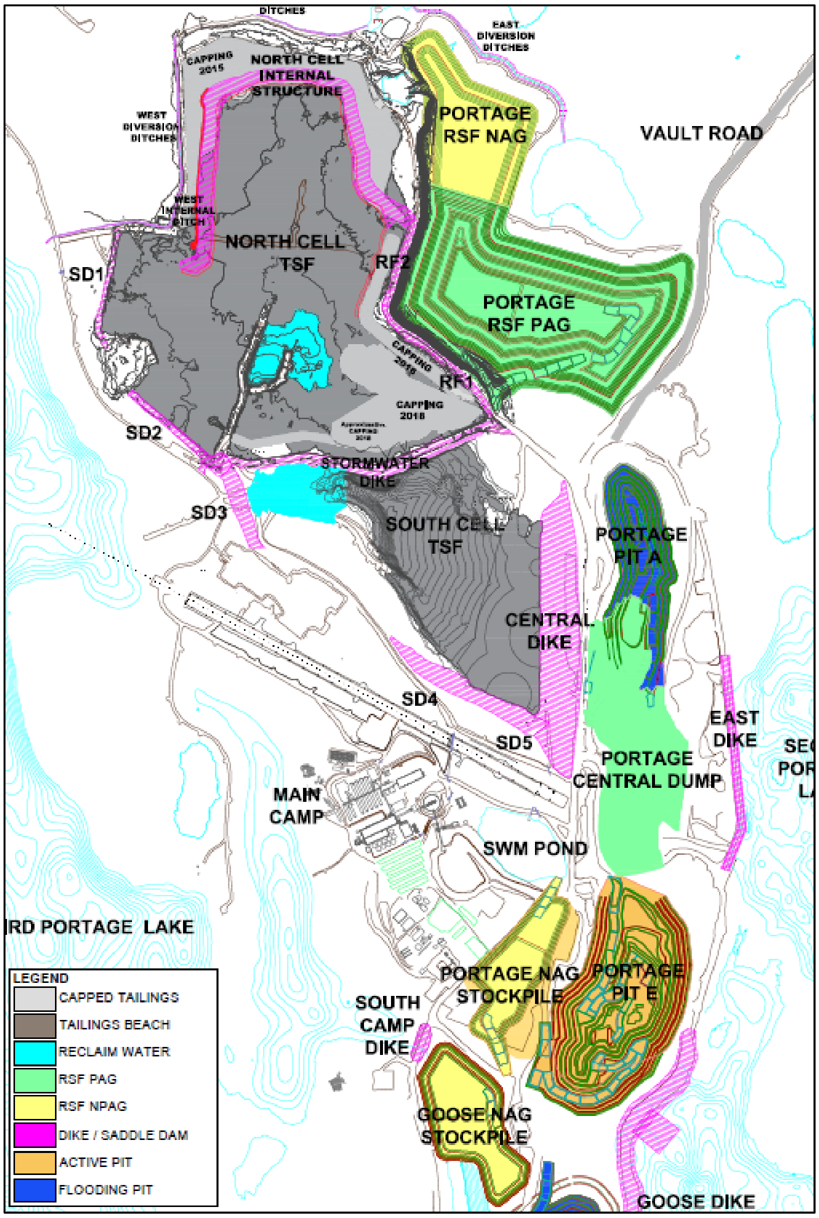


Figure 2.5: Portage Pit area map

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. As part of the Central Dike situation mitigation strategy, water transfers from Central Dike downstream toe to Goose Pit occurred in 2015, 2017, and 2019. On May 17th, 2019 Agnico received approval of amendment No.3 to the Meadowbank Type A water license 2AM-MEA1526 which permitted in-pit tailings disposal to take place within the Goose Pit. Tailings disposal began in the Goose Pit on July 5th, 2019 and has been ongoing since. The Goose Pit area and surrounding infrastructures are illustrated in Figure 2.6. For more information regarding in-pit tailings disposal please refer to the Waste Rock & tailings Management Plan.

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. Since July 5th, 2019 tailings have also been deposited in the pit. As previously mentioned, water was transferred from the active in-pit tailings disposal site in Goose Pit to Pit A from August 27th 2019 to October 24th 2019. This water transfer was executed to ensure sufficient capacity in Goose pit for tailing deposition until September 2021 (refer to section 3.1.10 for further details). Pit water quality is being monitored during in-pit tailings disposal with tailings testing. Currently there is no safe access to sample pit water, but sampling will be investigated as a possibility during in-pit deposition water transfers. When deposition is completed in Goose Pit pore water sampling will occur. The beginning of the active flooding (water transferred from Third Portage Lake) of the Goose Pit is planned once in-pit tailings disposal is complete. Section 3.2.1 discusses the Goose Pit reflooding.

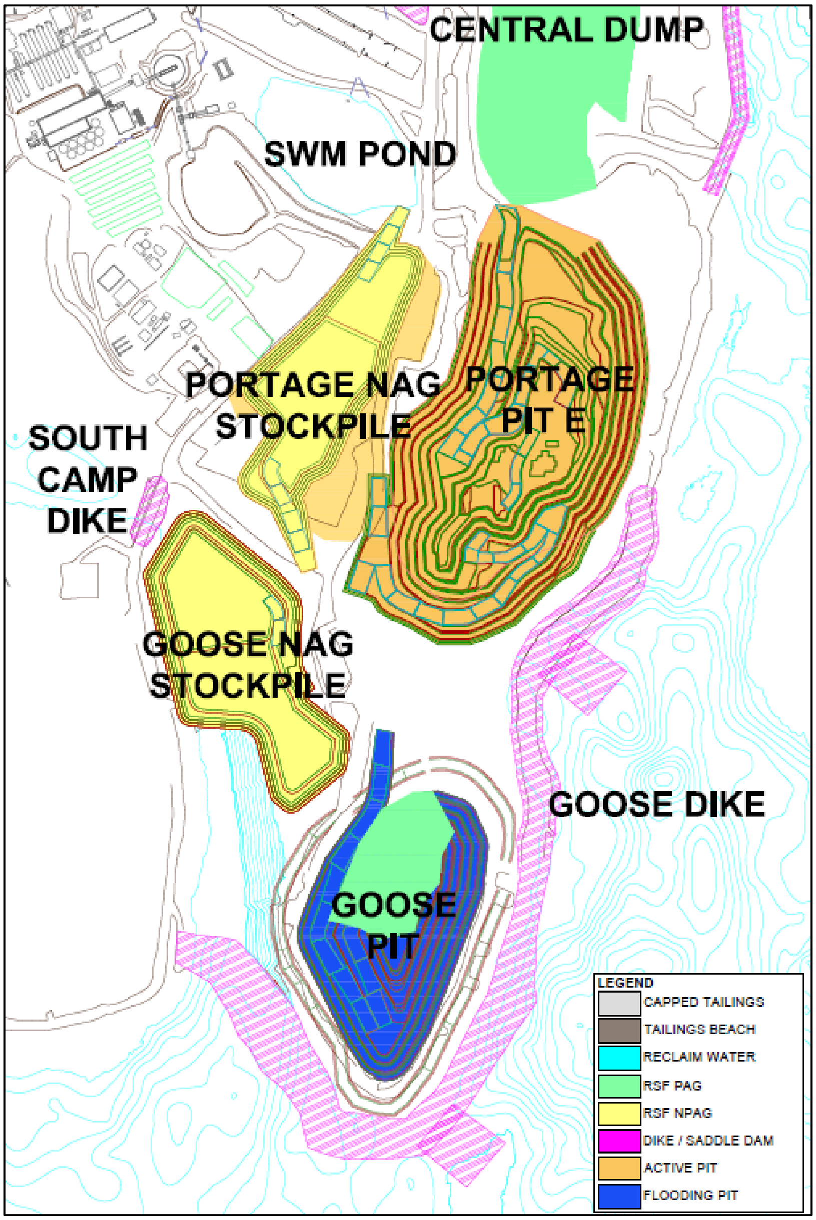


Figure 2.6: Goose Pit area map

2.2.3 Vault Pit Area

The infrastructure of the Vault Pit area includes 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 completed in March 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 was completed in June 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 levels 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. During mining operations this inflow was 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 during mining operations was directed to the Vault Attenuation Pond (ATP). When required, the water was discharged into Wally Lake in accordance with the Water License and the MDMER. Agnico monitors the 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 MDMER and Water license criteria prior to discharging in Wally Lake. In 2018 and 2019, all Vault Pit water was stored in the Vault Attenuation Pond, no discharge into Wally Lake occurred. As mining operations in Vault area are now completed, passive reflooding will be ongoing until active reflooding commence in 2021. As a result, no further discharges to Wally Lake are planned.

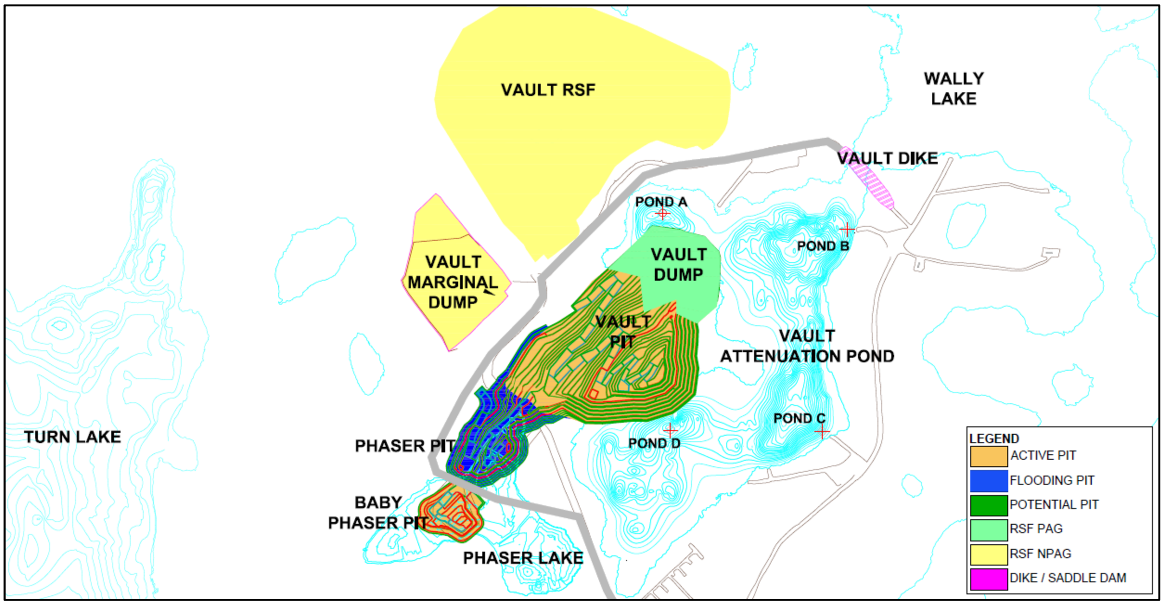


Figure 2.7: Vault Pit area map

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 2018 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 2018 Water Management Plan presented the end of mining activities in July 2019. In this updated LOM, the Meadowbank mill processes Amaruq Ore until July 2022.

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

	2020	2021	2022
January	286,552	279,050	309,928
February	268,396	251,827	279,935
March	256,555	279,050	309,928
Q1	**811,503**	**809,927**	**899,792**
April	240,249	269,975	299,965
May	210,386	279,050	309,964
June	258,134	269,975	299,965
Q2	**708,769**	**819,000**	**909,895**
July	287,342	279,050	310,000
August	281,816	279,050	
September	224,373	269,975	
Q3	**793,530**	**828,075**	**310,000**
October	283,342	310,034	
November	277,869	299,931	
December	287,342	310,034	
Q4	**848,552**	**919,999**	
Total	**3,162,354**	**3,377,00**	**2,119,687**

2.4 CHANGES FROM THE WATER MANAGEMENT PLAN 2018

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 showing the deposition calendar for In-Pit Tailings Disposal;
- Flooding sequence and volumes updated to consider the updated run off inflows as well as the addition of in-pit deposition at Portage and Goose Pit;
- Update to the seepage section.

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 the 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 and in the in-pit tailings disposal sites
- East Dike seepage discharge into Second Portage Lake
- Water trapped within the rock storage facilities area voids

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

- Fresh Water from Third Portage
- Reclaim Tailings Water
- Mill Water
- North and South Cell TSF
- Portage Pit (divided into Pit A and Pit E)
- 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 is be updated on an annual basis. The Water Management Plan include a yearly updated Water Balance according to the water management strategy and the applicable LOM.

3.1.1 Updated Tailings Deposition Strategy

In 2019, the tailings deposition strategy was modified so that tailings deposition occurred in the North Cell of the TSF, the South Cell of the TSF, and Goose Pit. From October 2018 to April 2019, tailings deposition was ongoing in the South Cell. From April 2019 until July 2019 tailings deposition was ongoing in the North Cell. From July 2019 onwards tailings deposition was ongoing in Goose Pit. More information on tailings deposition can be found in the waste management plan.

The objective of the tailings deposition strategy, while depositing tailings in the TSFs, 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 2019, 358,156 m^3 of water were transferred from the South Cell into Goose Pit and 1,368,676 m^3 of water was transferred from the South Cell into Pit A. 615,600 m^3 of water was also transferred from Goose Pit to Pit A to facilitate in-pit tailings deposition.

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. In February 2019 an additional structure was built within the South Cell TSF to prevent tailings from entering the reclaim pond (Figure 3.1). In April 2019, a permeable berm was built in the North Cell to secure the pond from tailings entering (Figure 3.2).

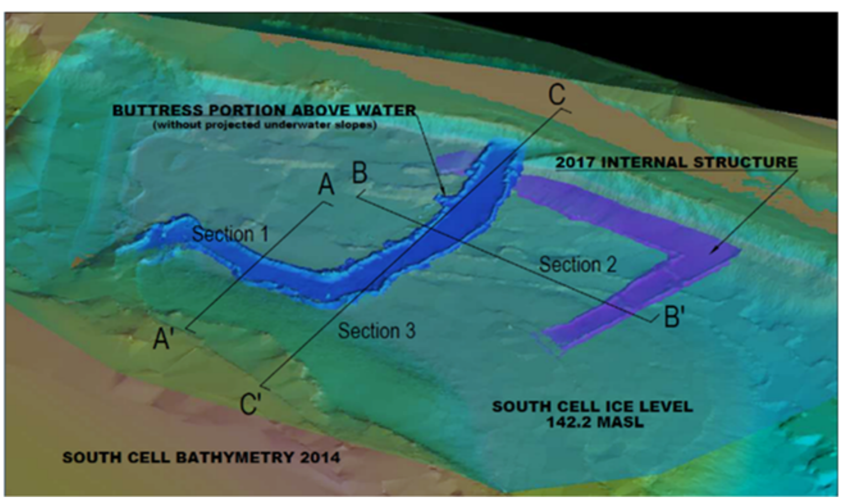


Figure 3.1: South Cell 2017 and 2019 Internal Structures

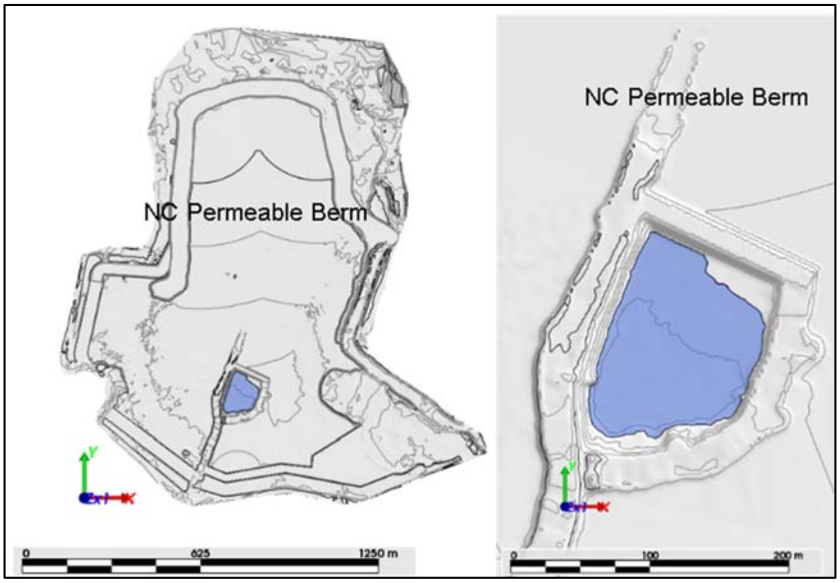


Figure 3.2: North Cell 2019 Internal Structure

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 182,225 m^3/month and the camp with an average of 3,352 m^3/month in 2019. 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 2019 is higher compared to previous years due to higher ice entrapment in the South Cell, turbid reclaim water exceeding mill criteria, and no water being reclaimed during in-pit tailings disposal since the reclaim system is still under construction. 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. Despite these increases in water consumption, the limit prescribed in the Water License was 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 on 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. Most of the camp fresh water is returned as sewage treatment effluent to the Stormwater Management Pond, which ultimately is transferred to a TSF (the South Cell in 2019). During the in-pit disposal stage, and mine closure period, the Stormwater Management Pond water will be transferred to the Portage Pit (from 2020 to 2030).

The total expected fresh water consumption planned for the operating period of 2019-2021 varies between 90-359 m^3/hr during mill operation and drops 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 ensure minimal water cover over tailings and ensures sufficient reclaim volumes.

In 2019, Agnico used a total of 2,226,927 m^3 of freshwater. As explained previously, freshwater consumption in 2019 is higher compared to previous years due to higher ice entrapment in the South Cell and no water being reclaimed during in-pit tailings disposal since the reclaim system is still under construction.

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 2020 monthly water consumption forecast.

Table 3-2 presents the annual water consumption forecast for 2019 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.

Table 3-1: 2020 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	359	-	359
February	359	-	359
March	321	-	321
April	311	-	311
May	264	-	264
June	334	-	334
July	160	200	360
August	153	200	353
September	90	200	290
October	155	200	355
November	160	200	360
December	160	200	360
Average	235	100	335

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)
2019	255	2,226,927	69	606,807
2020	235	2,063,655	100	883,200
2021	159	1,394,873	200	1,752,000
2022	111	972,175	117	1,017,600
2023-2030	4	34,675	0	0

3.1.3 Reclaim Tailings Water

Reclaim tailings water represents the water reclaimed from the TSF during mill operation (North Cell, South Cell) and the Goose Pit, Pit E, and Pit A reclaim ponds. In 2019, 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. In 2020 and beyond, water will be reclaimed from the in-pit tailings disposal pits using submersible pumps and booster pumps to transfer the reclaim water from inside the pits to the mill. The submersible pumps are moved up and down the pit ramps as the water level changes. Water is reclaimed from inactive tailings disposal pits to reduce the amount of total suspended solids sent to the mill. 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 in-pit tailings disposal pumping system until the end of mill operations.

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 2020 a mill feed of 3,162,354 tonnes is expected, with an average 1.04% of moisture (see Table 3-3), representing 33,001m^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 based on historical averages. The moisture content calculation is another factor used to calculate the volume of water that enters the system.

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

Month	Average Moisture Content (%)
January	0.98%
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	**1.04%**

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, from August 2018 to October 2018, and from April 2019 until July 2019.

Water inflows in the North Cell include run-off and water from tailings deposition. The water management strategy followed during North Cell deposition was 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 water retaining structures, which are at 150.0masl elevation. In 2019, transfers from the North Cell to the South Cell were required from May to October. Water transfers from the North Cell to the South Cell are planned yearly (even after the North Cell is capped during closure operations) until 2030 (planned dike reconnection if CCME criteria/site specific criteria for pit water quality are met).

Runoff 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. In June and July 2019, due to the water level of the TSF rising to the freeboard limit, combined with acceptable water quality samples taken in the interception sump, some water was discharged through gravity flow towards 3PL.

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. From October 2018 to April 2019, tailings deposition was ongoing in the South Cell. 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 2019, water was transferred from the South Cell to Goose Pit and Pit A (see Section 3.1.1). 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 2019 Mine Waste and Tailings management plan (Agnico, 2020).

Until the closure of the cell is completed, the strategy is to transfer the water accumulating in the South Cell to Pit A. 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).

3.1.7 Portage Pit

As of 2019, the Portage Pit is part of the in-pit tailings disposal facility. No tailings disposal occurred in the Portage Pit in 2019. Water was transferred from the active in-pit tailings disposal site in Goose Pit to Pit A from August 27th 2019 to October 24th 2019.

The water management strategy is to keep the water level in the Portage Pits at a high enough level to promote settling to reduce the amount of total suspended solids that are sent to the mill during Portage Pit water reclaim operations. This is balanced with the volume required to place the tailings expected during mining operations.

In 2019, water was transferred from the South Cell to Pit A (see Section 3.1.1). As previously mentioned, in 2019 water was also transferred from the active in-pit tailings disposal site in Goose Pit to Pit A. Water management strategies within the Water Balance reflect the tailings deposition plan presented in the 2019 Mine Waste and Tailings management plan (Agnico, 2020).

Water will continue to be transferred to the Portage Pit from the South Cell to minimize water accumulation until closure capping is completed. The reclaim water transfers are included in the pit flooding process. The impact on final pit water quality of the water transfers and in-pit tailings disposal is considered in the yearly water quality forecast model prepared by SNC-Lavalin (Appendix C). In addition, the Portage Pit will be flooded with Third Portage Lake water during closure once the pit water quality meets CCME guidelines. The pit flooding strategy will continue to be refined based on the Water Quality Forecast completed each year (Appendix C).

The Portage Pit natural inflow is modelled based on measured onsite data from 2013 to 2015. This inflow includes runoff water, groundwater and a part of the East Dike seepage water, which is pumped back to Second Portage Lake when discharge criteria are met. In 2019, Agnico continued to discharge East Dike seepage water into the Central dump, in order to accelerate pit flooding (refer to section 3.1.11).

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.

In 2019, water was transferred from the active Pit E to the mined-out Pit A.

3.1.8 Goose Pit

As of 2019 the Goose Pit is part of the in-pit tailings disposal facility. Tailings disposal began in the Goose Pit on July 5th, 2019 and has been ongoing since.

The water management strategy is to keep the water level in Goose Pit at a high enough level to promote settling to reduce the amount of total suspended solids that are sent to the Portage Pits during Goose Pit water transfer operations. This is balanced with the volume required to place the tailings expected during mining operations.

In 2019, water was transferred from the South Cell to Goose Pit (see Section 3.1.1). Water was also transferred from Goose Pit to Pit A from August 27th 2019 to October 24th 2019. Water management strategies within the Water Balance reflect the tailings deposition plan presented in the 2019 Mine Waste and Tailings management plan (Agnico, 2020).

The impact of the water transfers and in-pit tailings disposal on final pit water quality is considered in the yearly water quality forecast model prepared by SNC-Lavalin (Appendix C). In addition, Goose Pit will be flooded with Third Portage Lake water during closure once the pit water quality meets CCME guidelines.

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 progressed. It was historically observed that the pit inflow diminishes during the winter due to the freezing of the pit walls.

According to the inflow model, a total inflow of 327,114m^3 was accumulated in Goose pit in 2019, coming from runoff and groundwater inflows, excluding water transfers, compared to 89,963m^3 in 2018, 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 2019, similar to the previous years, an ice wall was created on the pit wall due to water exfiltration in the winter. Since mining was completed in March 2019 the ice wall had minimal impact on mining production.

No water was discharged from the Vault area to Wally Lake in 2019, as there was sufficient capacity in the Phaser attenuation pond, and the various Vault ponds for BBPhaser pit dewatering activities. 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 maintain an adequate reclaim pond (operating volume and water quality), minimize freshwater consumption, and perform closure, 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.

In 2019, water was transferred from South Cell to Goose pit, and South Cell to Pit A. These transfers were necessary to maintain the water freeboard within the South Cell. The total volume transferred to Goose Pit was 358,156m^3, while 1,368,676m^3 was transferred from the Central Dike Downstream pond to Pit A. Until complete Cell closure, water reporting to the North Cell with be transferred to the South Cell, and then either sent to the mill for reclaim, or sent to Pit A, to maintain the cells dry. This represents an annual water transfer between 434,980m^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 Goose Pit to Pit A were required to secure sufficient capacity in the pit until summer 2021, at which point additional transfers will occur. Furthermore, this transfer also secured sufficient water volume in Pit A for reclaim operations. The projected water elevation in

June 2021, when transfers between Goose Pit and Pit A will resume, is 113.77masl. A total of 615,400m^3 will be transferred between August 27th, 2020 and October 24th, 2020. In 2021, it is planned to send 1,324,800m^3 to Pit A and 655,200m^3 to Pit E from Goose Pit. The transfer to Pit A is to secure reclaim volume, while the volume sent to Pit E is to ensure minimum 3m water cover over tailings, when Pit E deposition will start in September 2021 (refer to section 6 for further details on deposition plan).

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 73,769m^3 in 2019.

Water transfers from the Stormwater Management Pond (SMP) are required each summer. In 2019, 61,489m^3 was transferred from SMP to the South Cell, and 20,492m^3 was transferred to Pit A. Starting 2020, the transfers from SMP will be directed to the Pit A until planned camp closure.

In 2019, 128,037m^3 of water from the Western diversion ditches reporting to the Interception Sump was pumped to the North Cell. For 2020, Agnico is considering promoting 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 2019, 68,893m^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. This assumption will be revised in 2020, based on Cell closure seepage observation.

Table 3-4: TSF Water Transfers

Year	TSF Water Transfers - During Operations (m^3)														
	North Cell to South Cell	SMP to South Cell	SMP to Pit A	South Cell to Pit A	South Cell to Goose	Goose to Pit A	Goose to Pit E	Pit A to Pit E	SD 3, 4 & 5 to South Cell	SD 1, 2, NCA-D, NCIS to North Cell	Interception sump to North Cell	ST-16 & WEP to North Cell	CD D/S pond to Pit A	CD D/S pond to SC	SC to CD D/S pond
2019	848,851	61,489	20,492	0	358,156	615,600	0	0	73,769	103,916	128,037	68,893	1,368,676	754,347	2,294,063
2020	370,916	0	70,152	451,426	0	1,324,800	655,200	0	34,927	15,569	171,214	19,236	0	1:1 ratio assumed	
2021	354,470	0	70,152	434,980	0	0	1,020,000	505,132	34,927	15,569	171,214	19,236	0	1:1 ratio assumed	
2022	354,470	0	70,152	489,292	0	0	277,817	0	34,927	15,569	171,214	19,236	0	1:1 ratio assumed	
Total	**1,928,705**	**61,489**	**230,948**	**1,375,698**	**358,156**	**1,940,400**	**1,953,017**	**505,132**	**178,550**	**150,623**	**641,679**	**126,601**	**1,368,676**		

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 or 2019, as there was sufficient capacity within the Vault Attenuation Pond. Since mining at Vault completed in March 2019 the water stored in the Vault attenuation pond is allowed to drain into Vault Pit.

Table 3-5: Wally Lake annual discharge

Year	Wally Lake Annual Discharge (m^3)
2016	1,008,457
2017	640,027
2018	0
2019	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 or in-pit tailings disposal area. 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 70,152 m^3. Table 3-6 presents the annual water volume transferred from the SMP. 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
2019	81,981

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 3.3. 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 starts. The recovery well is pumped year-round when water is available. In 2019, pumping of the mill seepage occurred from June to October. 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 2019. The high volume measured in 2019 is not expected to be reflective of reality, and rather, a flowmeter reading error. Nevertheless, with the outlying data observed in 2019, a calibrated flowmeter will be installed, and close monitoring will follow. Any further deviation from previously established annual volume norm will be investigated.

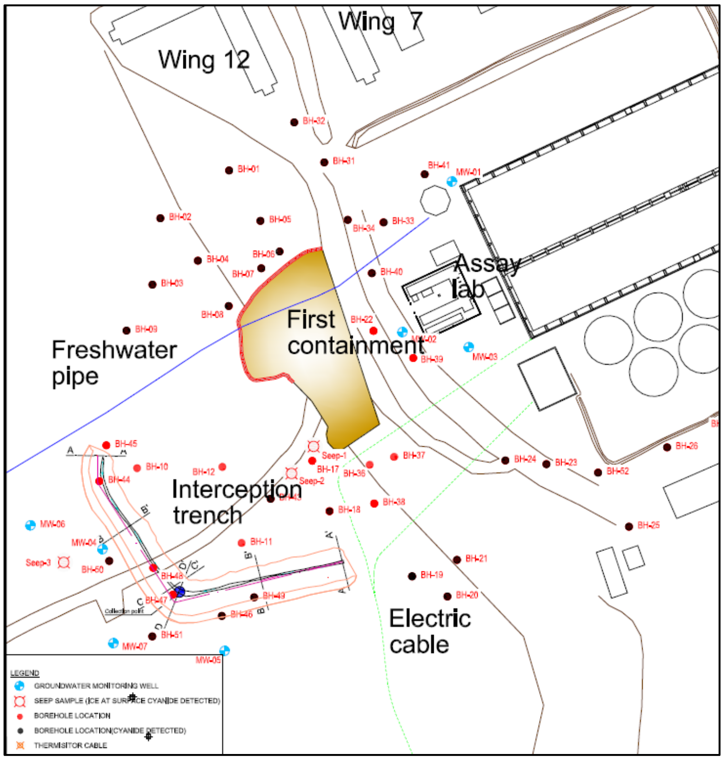


Figure 3.3: Mill Seepage Area

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
2019	71,616

3.1.11.2 ST-16 RSF Seepage management

Figure 3.4 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.Figure **3.4: RSF seepage area**

Table 3-8 presents the volume of water pumped back to the North Cell TSF from the ST-16 location. 68,893m³ was pumped back to the North Cell TSF in 2019. This volume is higher than in 2018 (34,550m³) due to higher 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.

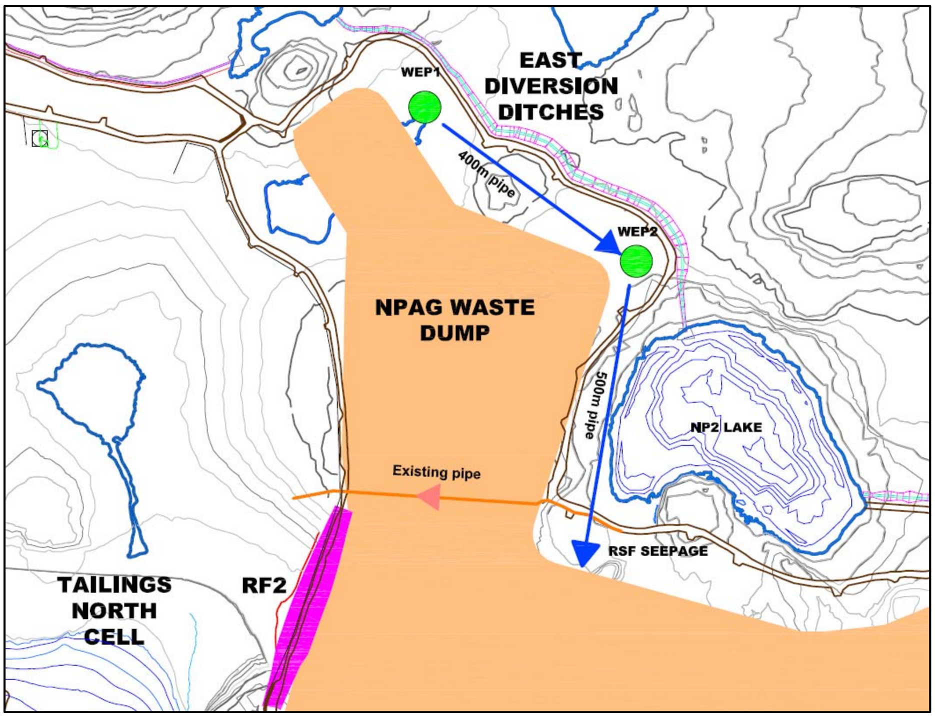


Figure 3.4: RSF seepage area

Table 3-8: ST-16 RSF Seepage 2019 pumped volumes

Month	2019 RSF seepage pumped volumes back to NC TSF (m^3)
January	0
February	0
March	0
April	0
May	0
June	23,614
July	18,223
August	23,005
September	4,051
October	0
November	0
December	0
Total	**68,893**

3.1.11.3 East Dike Seepage Collection

The East Dike Seepage system collects seepage from Second Portage Lake (2PL) as illustrated in Figure 3.5. Seepage from 2PL flows 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 2019 monthly volume discharged to 2PL. In 2019, the strategy surrounding the East Dike seepage water changed. In order to accelerate pit flooding, starting in March 2019, water was pumped to the Central pit dump. In November, ice was building up on an access in use. As a result, discharge was relocated to 2PL, as water quality met MDMER criteria. The total volume returned to Second Portage Lake in 2019 was 33,027m^3 and 115,060m^3 to the pit. The historical monthly average of 14,964m^3 has been applied in the water balance until 2030.

At closure, this seepage water will be an inflow for the natural reflooding process.

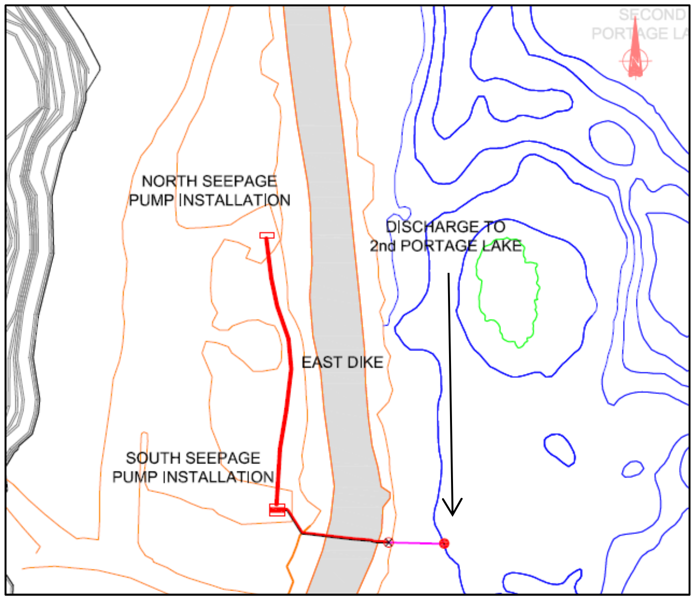


Figure 3.5: East dike pumping system

Table 3-9: East Dike Seepage 2019 pumped volumes

Month	2019 East Dike seepage pumped volumes back to 2PL (m^3)
January	6,657
February	0
March	6,294
April	0
May	0
June	0
July	0
August	0
September	0
October	0
November	7,239
December	12,837
Total	**33,027**

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 3.6.

In 2019, the seepage rate continued its downward trend from 2018 and varied between 35-388m3/h, with a stabilization towards 50m3/h once the South Cell was emptied. The seepage trend is closely following the seepage flowrate modelled by Golder (2017). Table 3-10 presents the water pumped from the Central Dike D/S pond to the South Cell TSF in 2018 and 2019. Figure 3.7 shows the Central Dike seepage pumping flow rate compared to the Golder seepage analysis revised in 2017. It is important to note, during the summer, water was pumped from the South Cell to Central Dike Downstream Pond to Pit A. This table and figure includes those volumes.

During the summer of 2019, 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.

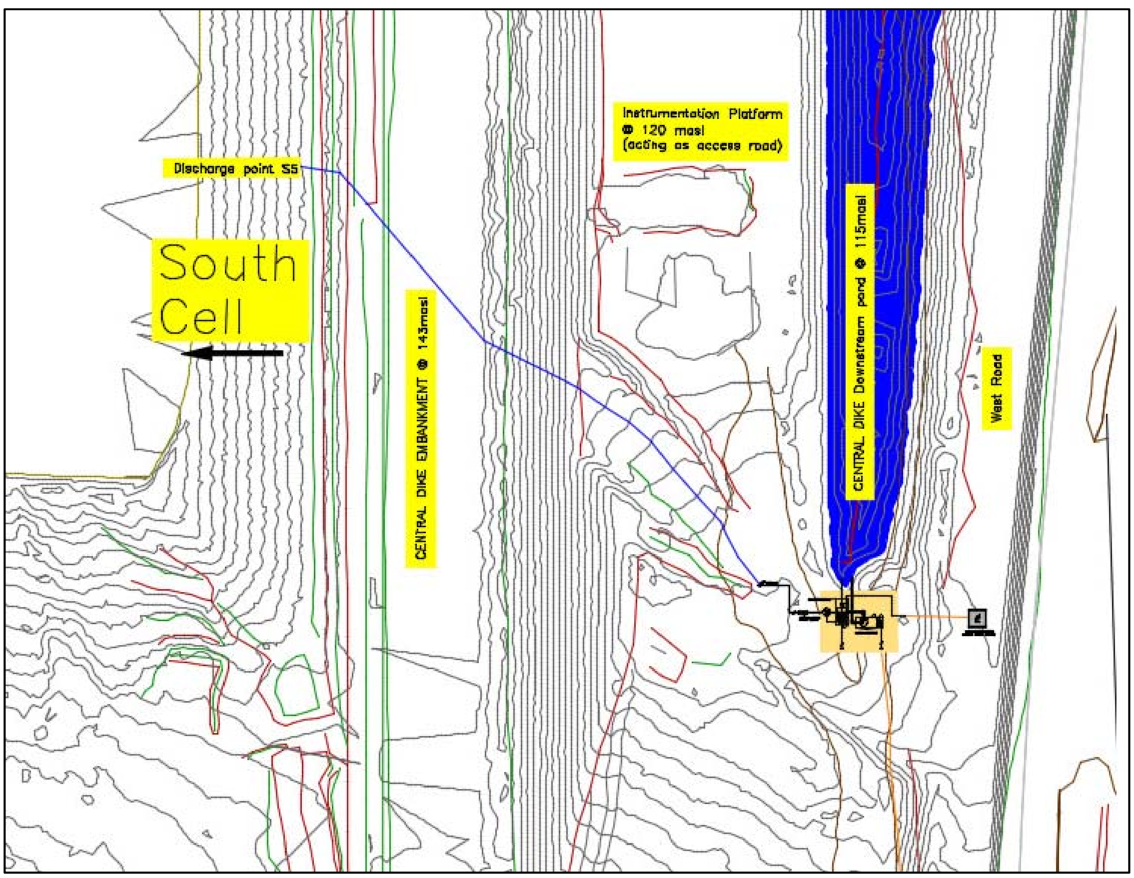


Figure 3.6: Central Dike seepage pumping system

Table 3-10: Central Dike Seepage 2018-2019 pumped volumes

Year	Month	Central Dike Downstream Pond volumes pumped to SC TSF (m^3)	Central Dike Downstream Pond volumes pumped to Pit A (m^3)	Average Seepage Rate (m^3/h)[1]
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**
2019	January	171,003	0	230
	February	154,560	0	230
	March	183,072	0	246
	April	180,898	0	251
	May	0	168,080	226
	June	0	157,162	209
	July	0	405,888	345
	August	0	233,389	314
	September	0	214,232	298
	October	0	138,549	186
	November	10,708	51,376	86
	December	54,105	0	73
	Total	**754,347**	**1,368,676**	**283**

[1]Seepage rate excludes volume pumped from the South Cell to the Downstream Pond during the months of June and July 2019 (6,427m^3 and 148,961m^3, respectively)

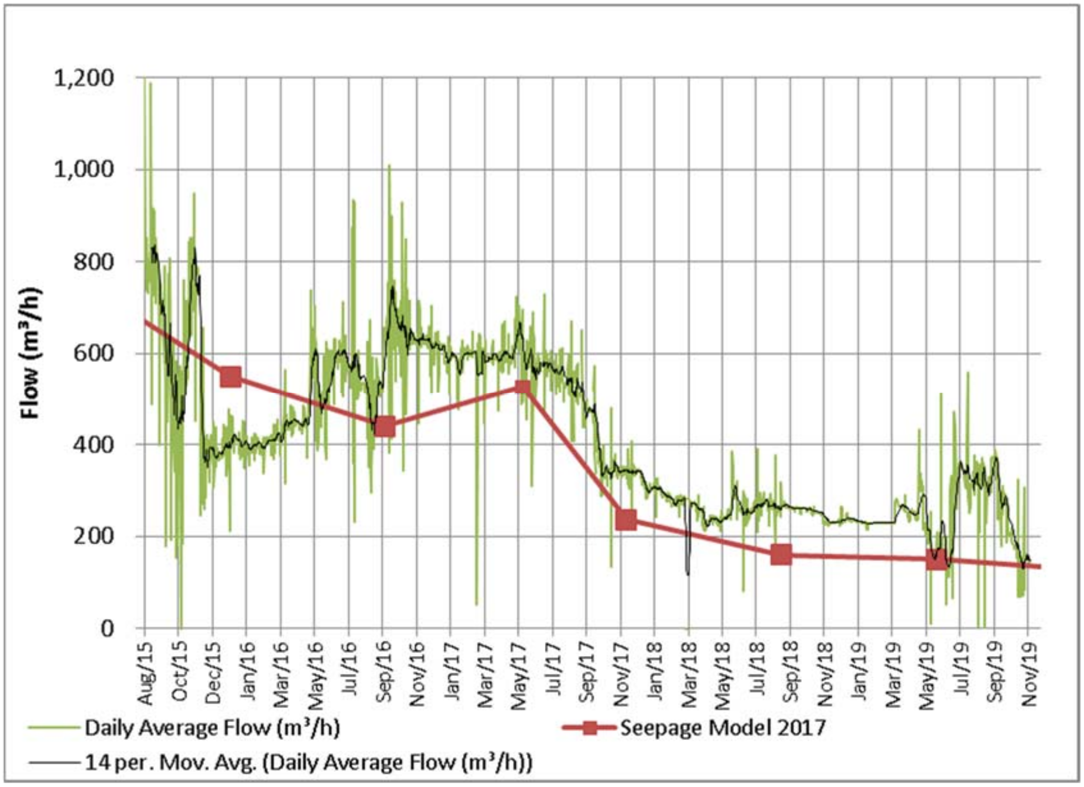


Figure 3.7: Central Dike seepage flow

3.2 PIT FLOODING

This section presents 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.

More details on the treatment requirements of the pit water will be determined if required as per the Meadowbank Water Quality Forecasting Update Technical Note rev. 00 completed by SNC (March 2020 – See Appendix C).

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)	
2019	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0
2021	0	3,500,000	3,500,000	4,148,928	0	0	4,148,928	7,648,928
2022	0	0	0	4,148,928	0	0	4,148,928	4,148,928
2023	4,450,000	0	4,450,000	4,148,928	0	0	4,148,928	8,598,928
2024	4,450,000	0	4,450,000	4,148,928	0	0	4,148,928	8,598,928
2025	4,450,000	0	4,450,000	4,148,928	0	0	4,148,928	8,598,928
2026	4,450,000	0	4,450,000	4,148,928	0	0	4,148,928	8,598,928
2027	3,900,000	0	3,900,000	2,328,480	0	0	2,328,480	6,228,480
Total	**21,700,000**	**3,500,000**	**25,200,000**	**27,222,048**	**0**	**0**	**27,222,048**	**52,422,048**

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 reconnected 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. The pit water quality will need to have stabilized and been consistently acceptable for discharge to the receiving environment. According to 3PL elevation data from 2013-2019, this elevation would be 133.6masl. Figure 3.8 presents water level recorded for 3PL and 2PL between 2009 and 2019, while Figure 3.8: Distribution of 3PL elevation surveyed data

presents 2PL recorded elevations.

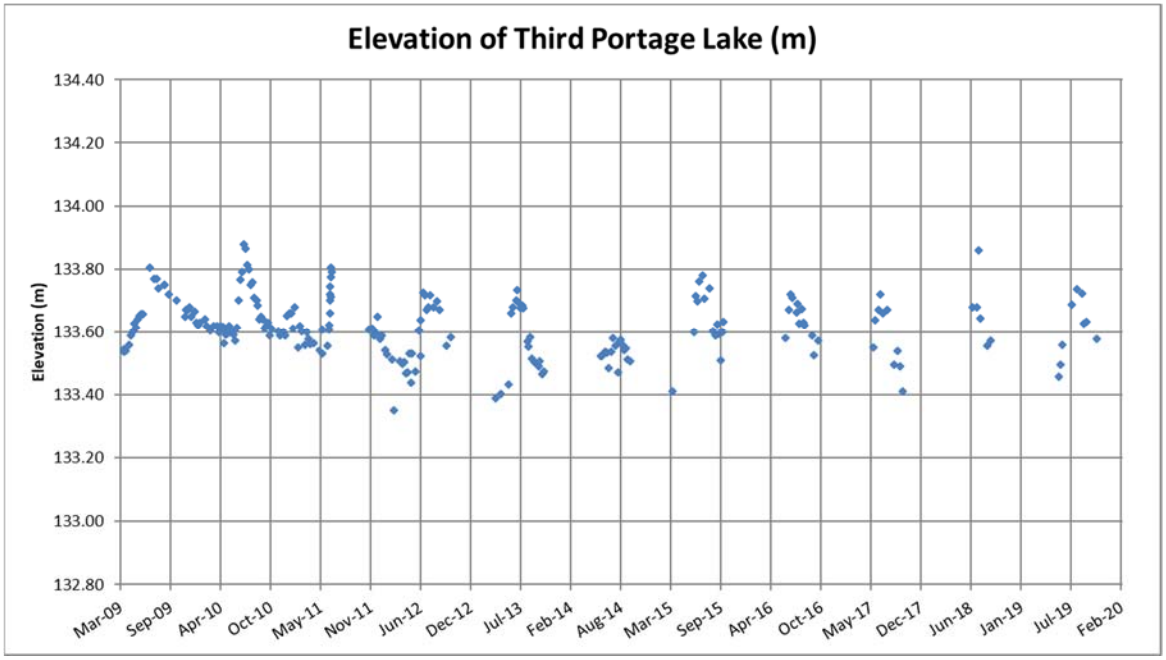


Figure 3.8: Distribution of 3PL elevation surveyed data

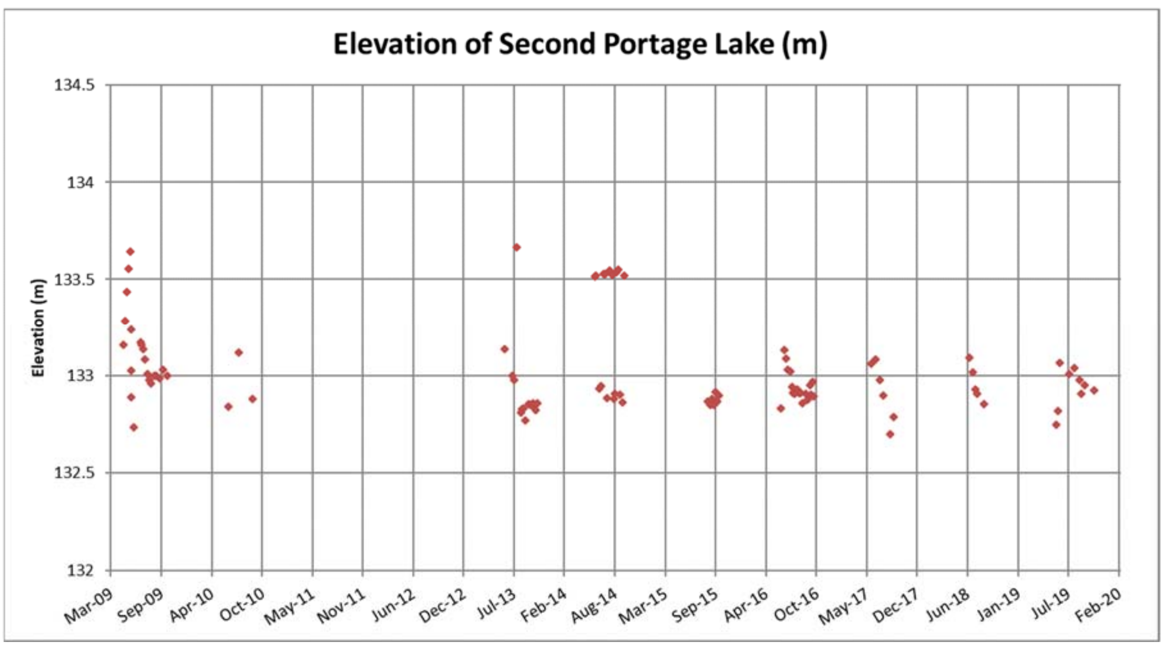


Figure 3.9: Distribution of 2PL elevation surveyed data

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. 25.20Mm^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 2021, starting in Goose Pit. 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 reconnected; 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 reconnected. The pit water quality will need to have stabilized and been consistently acceptable for discharge to the receiving environment. The first phase of the flooding sequence is planned to be completed by the end of summer 2027. Three 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. Reconnection of the dike is planned for 2031.

Residual TSF water volume, combined to natural run offs, will be transferred in 2021, and subsequent years, to the pit, in order to complete the capping of the TSF. 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, 2020 – See Appendix C) (a summary of the findings is also the subject of Section 4 of this report). This document predicts that treatment may be required for aluminium, arsenic, cadmium, chromium, copper, iron, lead, nickel, selenium, thallium, chloride, fluoride, sulphate, and total ammonia/total nitrogen equivalent, as the pit water quality may exceed CCME limits if the water is not treated, based on the completely mixed assumption. 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. At closure, before dike reconnection in December 2030 the forecasted concentration for total dissolved solids are as follows:

- Portage Pit – 1919 mg/L
- Goose Pit – 909 mg/L
- Complete mix of Portage and Goose Pits – 1598 mg/L

At closure, before dike reconnection in December 2030 the forecasted concentration for sulphate is as follows:

- Portage Pit – 383 mg/L
- Goose Pit – 221 mg/L
- Complete mix of Portage and Goose Pits – 331 mg/L

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 water balance changes.

To reach water elevation 133.6m, 27.30Mm^3 of water will be required. This number is 15.54Mm^3 less than previously reported, mainly due to the addition of the in-pit disposal of tailings. As previously stated, 22.20Mm^3 originates from Third Portage Lake, and the 5.10Mm^3 balance will be made up from the natural pit water inflows including runoff and precipitation. The reflooding strategy is similar to the strategy presented in the 2018 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 (2025), 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). Up to 2018, 1.31Mm^3 of natural flooding has been achieved. In 2019, tailing disposal started in the month of July. Total volume inflow was estimated at 2,106,392m^3, based on surveyed water elevation, combined with pit geometry. Of this, total tailing deposition is estimated to represent 938,278m^3, based on projected tailing density of 1.45m^3/t. As the pit becomes filled, natural groundwater reporting to the pit is expected to reduce, due to reduced hydraulic gradient. 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 the summer of 2021. At 131masl, the Goose water will join the Portage Pit water to form one water body. Goose Pit volumes between 131masl and 133.6masl are included as part of Portage flooding volumes.

Mechanical flooding of Goose Pit – from 3PL – will end in September 2021, after which natural pit inflow will allow the level to reach the 3PL lake elevation in 2031. If water quality meets all closure criteria including CCME guidelines and site-specific criteria, the Goose dike will then be reconnected. The pit water quality will need to have stabilized and been consistently acceptable for discharge to the receiving environment. Refer to Section 4 for the pit water quality forecast model.

3.2.1.2 Portage Pit Flooding

Portage Pit reflooding will commence in June 2023, and continue during summer months until September 2027, with an annual volume ranging between 3.9Mm^3 and 4.45Mm^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 2031. Refer to Section 4 for the pit water quality forecast model.

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 2021 and will continue until the end of summer 2027 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 4,148,928m^3 and finally 2,328,480m^3 in 2027. Like Portage and Goose, from 2027 to 2030, the natural inflow will then allow Vault pit to reach 139.9masl (natural Wally Lake water level).

The final elevation of the reflooding will be 139.9masl for Phaser and Vault Lake. At this point, the Vault dike will be reconnected provided the water quality in the Vaul area meets CCME criteria and/or site specific criteria for parameters not included in the CCME Guidelines. The pit water quality will need to have stabilized and been consistently acceptable for discharge to the receiving environment. 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 2028. 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 0.54Mm^3 yearly from freshet, precipitation, groundwater inflow.

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 reports, 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 that treatment may be required for aluminum, arsenic, cadmium, chromium, copper, iron, lead, nickel, selenium, thallium, chloride, fluoride, sulphate, and total ammonia/total nitrogen equivalent, as the pit water quality may exceed CCME limits if the water is not treated, based on the completely mixed assumption. 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.

As the aforementioned parameters may be of concern prior to dike reconnection, 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.

At closure, before dike reconnection in December 2030 the forecasted concentration for total dissolved solids are as follows:

- Portage Pit – 1919 mg/L
- Goose Pit – 909 mg/L
- Complete mix of Portage and Goose Pits – 1598 mg/L

At closure, before dike reconnection in December 2030 the forecasted concentration for sulphate is as follows:

- Portage Pit – 383 mg/L
- Goose Pit – 221 mg/L
- Complete mix of Portage and Goose Pits – 331 mg/L

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 Pond for cyanide, a complete total and dissolved metal scan,

ammonia, nitrate, fluoride, chloride, sulfates, total dissolved solids (TDS) and total suspended solids. This will provide an indication of the runoff quality that accumulated in these ponds following the end of tailings deposition in these areas.

2. Considering that deposition of the tailings are now occurring in the pits, regularly monitor pit water quality (Portage and Goose), 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 the mill effluent, surface runoff and possible underground water seepage.
3. 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.
4. 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.
5. 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.
6. 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 2019 INTEGRATED DEPOSITION PLAN

An updated Tailings Deposition Plan has been prepared by Agnico for the 2019 revision of the Water Management Plan. The updated deposition plan is presented in the 2019 version of the Mine Waste Rock and Tailings Management Plan where an update of the tailings deposition parameter is presented, based on SNC's design report and September 2019 bathymetric results of Goose Pit.

A significant change to the deposition strategy is the planned discharge of tailings in the previously mined out pits, following the permit approval in May 2019. The latest life of mine exercise presented milling operations until to July 2022, compared to December 2021 in the previous update. The pit deposition sequence was chosen in function of minimizing head gradient between Pit E and Pit A. In 2019, deposition started with Goose pit as mine operations were ongoing in Pit E. During Goose Pit deposition, and subsequent summers, water transfers from Goose Pit to Pit A or Pit E are planned. The objective of these water transfers are to ensure sufficient water volume in the pit being reclaimed to the mill, as well as ensuring the 3m minimal tailing water cover, as recommended by SNC. Mill reclaim is planned to occur in a pit where no tailings are being disposed, in order to minimize potential turbidity. Increased freshwater consumption in early 2020 is planned, until IPD mill reclaim becomes operational.

Closure water management for the TSF was updated to optimize the pit flooding process. 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 2018 Water Management Plan submitted to the NWB as part of the Agnico 2018 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 updated tailings deposition strategy including In-Pit Deposition. From October 2018 to April 2019, tailings deposition was ongoing in the South Cell. From April 2019 until July 2019 tailings deposition was ongoing in the North Cell. From July 2019 onwards tailings deposition was ongoing in Goose Pit. In 2020, it is planned to continue tailings deposition in the Goose Pit, followed by Pit E.

The site wide Water Balance has been optimized to ensure minimal freshwater consumption while operating a new tailing disposal system. In early 2020, higher freshwater consumption is expected, until the IPD mill reclaim system is operational.

Phaser pit mining activities were concluded in October 2018. Vault mining activities completed in March 2019, then BB Phaser mining activities completed in June 2019. No pumping is ongoing at the Vault area; runoff is allowed to accumulate in the pits and Vault ATP.

Central Dike seepage flow has varied between 35 and 388 m^3/h in 2019 and appears to be stabilizing around 50 m^3/h, when the South Cell was emptied. The orange precipitate was observed again in 2019, 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 stopped in 2019, with the beginning of the in-pit deposition. Active pit reflooding is planned to start in 2021 in Goose Pit and Vault Pit, and 2023 in Portage pit. Active reflooding should be completed 2027. 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 reconnection of the surrounding structures will occur to reconnect the Portage and Goose areas to Second Portage Lake and Vault area to Wally Lake (2031). Agnico plans three years of monitoring to assess the pit water quality prior to reconnection. It should be understood that the dikes will not be reconnected unless the water quality meets the CCME or other site-specific criteria. The pit water quality will need to have stabilized and been consistently acceptable for discharge to the receiving environment.

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, lead, nickel, selenium, thallium, chloride, fluoride, sulphate, and total ammonia/total nitrogen equivalent, which may require removal treatment in order for the pit water quality to meet CCME or site specific discharge criteria prior to dike reconnection. Agnico is committed to updating this forecast on a yearly basis.

The Freshet Action Plan (2019) is included in the 2019 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 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 2020.
- Continue to update the deposition plans of the In-Pit Deposition areas and TSF 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 2020 In-Pit Deposition area and TSF 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 2019 Meadowbank Water Quality Forecasting (SNC, 2020) recommendations.

8 REFERENCES

1. Agnico (2020) – 2019 Mine Waste and Tailings management plan
2. 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.
3. Golder Associates Ltd. (Golder), 2003. Report on Permafrost Thermal Regime Baseline Studies, Meadowbank Project. December 18, 2003.
4. Golder (2009) – Meadowbank Gold Project Updated Water Management Plan. Golder Associates Limited. July 2009.
5. Golder (2017) – Central Dike Seepage and Performance Assessment Update
6. SNC (2013) – Water Management Plan 2012. SNC Lavalin. March 2013.
7. SNC (2018) In-Pit Tailings Deposition Detailed Engineering Study Final Report. October 2018.
8. SNC (2020) – Meadowbank Water Quality Forecasting Update Base on the 2015 Water Management Plan. February 2020.

APPENDIX A – WATER BALANCE

2019

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2019												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	235,249	206,454	186,253	209,033	236,997	273,436	316,809	246,301	130,632	144,522	260,576	303,883	2,750,145
Cummulative Tailings (tonnes):	29,187,299	29,393,753	29,580,006	29,789,039	30,026,036	30,299,472	30,616,281	30,862,582	30,993,214	31,137,736	31,398,312	31,702,195	31,702,195
Cummulative Tailings (m3) - North Cell	14,480,230	14,480,230	14,480,230	14,527,432	14,706,976	14,882,255	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	10,647,733	10,844,356	11,021,740	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	0	0	0	0	0	0	189,372	359,234	449,326	548,996	728,703	938,278	938,278
Cummulative Tailings (m3) - Pit E	0	0	0	0	0	0	0	0	0	0	0	0	0
Cummulative Tailings (m3) - Pit A	0	0	0	0	0	0	0	0	0	0	0	0	0
North Cell (TSF)													
Water from tailings slurry (m3)	0	0	0	46	139,469	180,103	30,215	0	0	0	0	0	**349,833**
Pumped from SD1, SD2, SD6, Japan Sump, ST16, WEP & Interception sump	0	0	0	0	1,329	82,350	79,020	65,035	58,160	14,952	0	0	**300,846**
Runoff (m3)	0	0	0	0	456	76,665	7,700	55,068	21,238	-13	0	0	**161,113**
Total Inflow (m3)	0	0	0	46	141,254	339,117	116,935	120,103	79,398	14,939	0	0	**811,792**
Transfer to South Cell (m3)	0	0	0	0	165,257	308,874	161,233	97,986	29,769	85,732	0	0	**848,851**
Total Outflow (m3)	0	0	0	0	165,257	308,874	161,233	97,986	29,769	85,732	0	0	**848,851**
Net Inflow (m3)	0	0	0	46	-24,003	30,243	-44,298	22,117	49,629	-70,793	0	0	**-37,059**
End-of-Month Volume (m3)	**53,505**	**53,505**	**53,505**	**53,551**	**29,549**	**59,792**	**15,494**	**37,611**	**87,240**	**16,446**	**16,446**	**16,446**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	0	27,692	11,767	17,883	14,687	1,740	0	0	**73,769**
Runoff (m3)	0	0	-95,459	-40,616	167,140	189,350	225,107	226,533	130,372	104,210	42,973	0	**949,610**
Transfer from North Cell (m3)	0	0	0	0	165,257	308,874	161,233	97,986	29,769	85,732	0	0	**848,851**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	49,131	0	12,358	0	0	0	**61,489**
Transfer from Downstream Pond (m3)	171,003	154,560	183,072	180,898	0	0	0	0	0	0	10,708	54,105	**754,347**
Water from tailings slurry (m3)	77,518	73,825	70,953	56,362	0	0	0	0	0	0	0	0	**278,658**
Total Inflow (m3)	248,521	228,385	158,566	196,644	332,397	525,916	447,238	342,402	187,186	191,682	53,681	54,105	**2,966,723**
Reclaim water to the mill (m3)	7,410	29,017	91,207	69,216	82,018	17,693	41,309	159,714	2,808	105,373	1,042	0	**606,807**
Seepage to Downstream Pond (m3)	276,081	220,522	183,072	180,898	168,080	157,162	405,888	233,389	214,232	138,549	62,085	54,105	**2,294,063**
Transfer to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Goose Pit (m3)	0	0	0	0	54,096	253,904	50,156	0	0	0	0	0	**358,156**
Total Outflow (m3)	283,491	249,539	274,279	250,114	304,194	428,759	497,353	393,103	217,040	243,921	63,127	54,105	**3,259,026**
Net Inflow (m3)	-34,970	-21,154	-115,713	-53,470	28,202	97,157	-50,114	-50,701	-29,854	-52,239	-9,446	0	**-292,302**
End-of-Month Volume (m3)	**257,332**	**236,178**	**120,466**	**66,995**	**95,198**	**192,355**	**142,240**	**91,539**	**61,685**	**9,445**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	4,610	3,045	2,727	4,539	6,203	6,927	7,251	5,992	2,454	4,430	3,901	5,487	**57,567**
Reclaim water (m3)	7,410	29,018	91,207	69,216	82,018	17,693	41,309	159,714	2,808	105,373	1,042	0	**606,807**
Freshwater from Third Portage Lake (m3)	213,037	182,105	112,329	142,405	147,851	218,935	256,935	79,288	209,340	148,011	238,530	278,159	**2,226,927**
Total Inflow (m3)	225,057	214,167	206,263	216,161	236,072	243,555	305,495	244,995	214,602	257,814	243,473	283,647	**2,891,301**
Freshwater for camp purposes (m3)	3,577	3,238	3,539	3,188	3,624	3,418	3,194	3,197	3,193	3,236	3,363	3,455	**40,222**
Slurry water (m3)	221,480	210,929	202,724	212,973	232,448	240,137	302,301	241,798	211,409	254,578	240,110	280,192	**2,851,079**
Total Outflow (m3)	225,057	214,167	206,263	216,161	236,072	243,555	305,495	244,995	214,602	257,814	243,473	283,647	**2,891,301**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	10	43	123	96	110	25	56	215	4	142	1	0	-
Freshwater pumping rate (m3/hr)	286	271	151	198	199	304	345	107	291	199	331	374	-
TSF Water Balance													
Slurry water (m3)	221,480	210,929	202,724	212,973	232,448	240,137	302,301	241,798	211,409	254,578	240,110	280,192	**2,851,079**
North Cell Tailings Deposition (%)	0%	0%	0%	24%	100%	100%	13%	0%	0%	0%	0%	0%	**20%**
South Cell Tailings Deposition (%)	100%	100%	100%	76%	0%	0%	0%	0%	0%	0%	0%	0%	**31%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	87%	100%	100%	100%	100%	100%	**49%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
North Cell Water/Ice Entrapment (%)	65%	65%	65%	100%	40%	25%	25%	25%	25%	40%	65%	65%	**0%**
South Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
IPD Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	25%	25%	25%	**40%**
Water Entrapment (m3)	143,962	137,104	131,770	156,565	92,979	60,034	75,575	60,449	52,852	63,645	60,028	70,048	**1,105,012**
South Cell Reclaim Water (%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	**0%**
Pit A Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**

	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													
Runoff (m3)	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 (m3)	0	0	0	0	54,096	253,904	50,156	0	0	0	0	0	**358,156**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	196,511	181,348	158,557	190,934	180,083	210,144	**1,117,576**
Total Inflow (m3)	19,131	19,313	19,131	19,131	73,409	314,620	276,909	230,645	191,822	210,065	199,396	229,275	**1,802,846**
Pumped to Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	32,400	324,000	259,200	0	0	**615,600**
Total Outflow (m3)	0	0	0	0	0	0	0	32,400	324,000	259,200	0	0	**615,600**
Net Inflow (m3)	19,131	19,313	19,131	19,131	73,409	314,620	276,909	198,245	-132,178	-49,135	199,396	229,275	**1,187,246**
End-of-Month Volume (m3)	**1,690,900**	**1,710,213**	**1,729,344**	**1,748,475**	**1,821,884**	**2,136,504**	**2,413,412**	**2,611,658**	**2,479,479**	**2,430,344**	**2,629,740**	**2,859,014**	**2,859,014**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	0	41,590	21,000	14,000	0	0	0	**76,590**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	14,964	**14,964**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	0	41,590	21,000	14,000	0	0	14,964	**91,554**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	41,590	21,000	14,000	0	0	0	**76,590**
Total Outflow (m3)	0	0	0	0	0	0	41,590	21,000	14,000	0	0	0	**76,590**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	14,964	**14,964**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14,964**	**14,964**
Pit A													
Runoff (m3)	0	0	0	0	-2,250	0	9,653	26,049	12,279	136,948	249,317	0	**431,997**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	20,492	0	0	0	**20,492**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	168,080	157,162	405,888	233,389	214,232	138,549	51,376	0	**1,368,676**
Pumped from Pit E (m3)	0	0	0	0	0	0	41,590	21,000	14,000	0	0	0	**76,590**
East Dike Seepage (m3)	1,908	5,761	3,363	10,288	11,148	12,631	19,937	17,083	12,962	14,317	5,363	0	**114,762**
Pumped from Goose (m3)	0	0	0	0	0	0	0	32,400	324,000	259,200	0	0	**615,600**
Total Inflow (m3)	1,908	5,761	3,363	10,288	176,978	169,793	477,068	329,921	597,965	549,014	306,056	0	**2,628,116**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	1,908	5,761	3,363	10,288	176,978	169,793	477,068	329,921	597,965	549,014	306,056	0	**2,628,116**
End-of-Month Volume (m3)	**301,840**	**307,601**	**310,964**	**321,252**	**498,230**	**668,024**	**1,145,091**	**1,475,012**	**2,072,977**	**2,621,991**	**2,928,048**	**2,928,048**	**2,928,048**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**629,538**	**629,538**	**629,538**	**629,538**	**629,538**	**629,538**	**629,538**	**629,538**	**629,538**	**629,538**	**629,538**	**629,538**	**629,538**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**66,526**	**84,302**	**132,268**	**154,880**	**154,880**	**154,880**	**154,880**	**154,880**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**73,652**	**93,332**	**146,436**	**171,470**	**171,470**	**171,470**	**171,470**	**171,470**

2020

	Year 2020												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**366**
Tailings (tonnes):	286,552	268,396	256,555	240,249	210,386	258,134	287,342	281,816	224,373	283,342	277,869	287,342	3,162,354
Cummulative Tailings (tonnes):	31,988,747	32,257,143	32,513,698	32,753,947	32,964,333	33,222,467	33,509,808	33,791,624	34,015,997	34,299,339	34,577,207	34,864,549	34,864,549
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,035,086	1,125,760	1,212,434	1,293,600	1,364,676	1,451,883	1,548,958	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	0	0	0	0	0	0	0	0	75,802	171,525	265,400	362,475	362,475
Cummulative Tailings (m3) - Pit A	0	0	0	0	0	0	0	0	0	0	0	0	0
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m3)	0	0	0	0	1,625	219,200	42,281	52,677	38,701	-13	0	0	**354,470**
Transfer to South Cell (m3)	0	0	0	0	0	220,825	42,281	52,677	55,147	-13	0	0	**370,916**
Total Outflow (m3)	0	0	0	0	0	220,825	42,281	52,677	55,147	-13	0	0	**370,916**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	-16,446	0	0	0	**-16,446**
End-of-Month Volume (m3)	**16,446**	**16,446**	**16,446**	**16,446**	**18,071**	**16,446**	**16,446**	**16,446**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	40,982	-10,260	8,951	5,933	-22	0	0	**45,584**
Transfer from North Cell (m3)	0	0	0	0	0	220,825	42,281	52,677	55,147	-13	0	0	**370,916**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	280,380	32,489	64,801	63,175	-35	0	0	**451,426**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	280,380	32,489	64,801	63,140	0	0	0	**451,426**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	280,380	32,489	64,801	63,140	0	0	0	**451,426**
Net Inflow (m3)	0	0	0	0	0	0	0	0	35	-35	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	2,808	4,106	2,668	2,619	2,272	2,556	3,735	2,762	1,997	2,805	2,001	2,672	**33,001**
Reclaim water (m3)	0	0	0	0	0	0	148,800	148,800	144,000	148,800	144,000	148,800	**883,200**
Freshwater from Third Portage Lake (m3)	267,025	250,106	239,072	223,877	196,049	240,543	118,961	113,811	65,083	115,233	114,933	118,961	**2,063,655**
Total Inflow (m3)	269,833	254,213	241,740	226,496	198,321	243,099	271,496	265,373	211,080	266,838	260,934	270,433	**2,979,856**
Freshwater for camp purposes (m3)	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	**42,000**
Slurry water (m3)	266,333	250,713	238,240	222,996	194,821	239,599	267,996	261,873	207,580	263,338	257,434	266,933	**2,937,856**
Total Outflow (m3)	269,833	254,213	241,740	226,496	198,321	243,099	271,496	265,373	211,080	266,838	260,934	270,433	**2,979,856**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	0	0	0	0	0	0	200	200	200	200	200	200	-
Freshwater pumping rate (m3/hr)	359	359	321	311	264	334	160	153	90	155	160	160	-
TSF Water Balance													
Slurry water (m3)	266,333	250,713	238,240	222,996	194,821	239,599	267,996	261,873	207,580	263,338	257,434	266,933	**2,937,856**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	**67%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	**33%**
North Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**0%**
South Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
IPD Water/Ice Entrapment (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	**25%**
Water Entrapment (m3)	66,583	62,678	59,560	55,749	48,705	59,900	66,999	65,468	51,895	65,835	64,358	66,733	**734,464**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	**0%**
Pit E Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**

	Year 2020												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**366**
Goose Pit													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	199,750	188,034	178,680	167,247	146,116	179,699	200,997	196,405	0	0	0	0	**1,456,928**
Total Inflow (m3)	218,881	207,347	197,811	186,378	165,429	240,415	231,239	245,702	33,265	19,131	19,313	19,131	**1,784,042**
Pumped to Pit E (m3)	0	0	0	0	0	0	0	0	432,000	223,200	0	0	**655,200**
Pumped to Pit A (m3)	0	0	0	0	0	432,000	446,400	446,400	0	0	0	0	**1,324,800**
Total Outflow (m3)	0	0	0	0	0	432,000	446,400	446,400	432,000	223,200	0	0	**1,980,000**
Net Inflow (m3)	218,881	207,347	197,811	186,378	165,429	-191,585	-215,161	-200,698	-398,735	-204,069	19,313	19,131	**-195,958**
End-of-Month Volume (m3)	**3,077,895**	**3,285,243**	**3,483,054**	**3,669,432**	**3,834,861**	**3,643,276**	**3,428,115**	**3,227,417**	**2,828,682**	**2,624,613**	**2,643,926**	**2,663,057**	**2,663,057**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	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 Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	155,685	197,504	193,075	200,200	**746,464**
Inflow from Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	432,000	223,200	0	0	**655,200**
Total Inflow (m3)	14,964	14,964	14,964	14,964	14,964	57,375	26,296	45,543	617,064	435,668	208,039	215,164	**1,679,968**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	14,964	14,964	14,964	14,964	14,964	57,375	26,296	45,543	617,064	435,668	208,039	215,164	**1,679,968**
End-of-Month Volume (m3)	**29,928**	**44,892**	**59,856**	**74,820**	**89,784**	**147,158**	**173,454**	**218,997**	**836,061**	**1,271,728**	**1,479,768**	**1,694,931**	**1,694,931**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	0	0	0	0	10,616	280,380	32,489	64,801	63,140	0	0	0	**451,426**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Goose (m3)	0	0	0	0	0	432,000	446,400	446,400	0	0	0	0	**1,324,800**
Total Inflow (m3)	0	0	0	0	43,896	764,888	488,542	557,742	75,419	0	0	0	**1,930,487**
Reclaim water to the mill (m3)	0	0	0	0	0	0	148,800	148,800	144,000	148,800	144,000	148,800	**883,200**
Outflow to Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	148,800	148,800	144,000	148,800	144,000	148,800	**883,200**
Net Inflow (m3)	0	0	0	0	43,896	764,888	339,742	408,942	-68,581	-148,800	-144,000	-148,800	**1,047,287**
End-of-Month Volume (m3)	**2,928,048**	**2,928,048**	**2,928,048**	**2,928,048**	**2,971,944**	**3,736,832**	**4,076,574**	**4,485,516**	**4,416,935**	**4,268,135**	**4,124,135**	**3,975,335**	**3,975,335**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m3)	**629,538**	**629,538**	**629,538**	**629,538**	**629,538**	**748,246**	**754,299**	**814,966**	**845,638**	**845,639**	**845,639**	**845,639**	**845,639**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
End-of-Month Volume (m3)	**154,880**	**154,880**	**154,880**	**154,880**	**154,880**	**221,406**	**239,181**	**287,148**	**309,759**	**309,759**	**309,759**	**309,759**	**309,759**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m3)	**171,470**	**171,470**	**171,470**	**171,470**	**171,470**	**245,122**	**264,801**	**317,906**	**342,939**	**342,939**	**342,939**	**342,939**	**342,939**

2021

	Year 2021												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):	279,050	251,827	279,050	269,975	279,050	269,975	279,050	279,050	269,975	310,034	299,931	310,034	3,377,000
Cummulative Tailings (tonnes):	35,143,599	35,395,426	35,674,476	35,944,451	36,223,501	36,493,476	36,772,525	37,051,575	37,321,550	37,631,584	37,931,515	38,241,549	38,241,549
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	456,748	541,825	636,099	727,306	821,580	912,788	1,007,061	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	0	0	0	0	0	0	0	0	91,208	195,949	297,277	402,018	402,018
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m3)	0	0	0	0	1,625	219,200	42,281	52,677	38,701	-13	0	0	**354,470**
Transfer to South Cell (m3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Total Outflow (m3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	40,982	-10,260	8,951	5,933	-22	0	0	**45,584**
Transfer from North Cell (m3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	280,380	32,489	64,801	46,729	-35	0	0	**434,980**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	280,380	32,489	64,801	46,694	0	0	0	**434,980**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	280,380	32,489	64,801	46,694	0	0	0	**434,980**
Net Inflow (m3)	0	0	0	0	0	0	0	0	35	-35	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	2,735	3,853	2,902	2,943	3,014	2,673	3,628	2,735	2,403	3,069	2,160	2,883	**34,996**
Reclaim water (m3)	148,800	134,400	148,800	144,000	148,800	144,000	148,800	148,800	144,000	148,800	144,000	148,800	**1,752,000**
Freshwater from Third Portage Lake (m3)	111,234	100,266	111,234	107,577	111,234	107,577	111,234	111,234	107,577	140,107	135,492	140,107	**1,394,873**
Total Inflow (m3)	262,769	238,519	262,936	254,520	263,048	254,250	263,661	262,769	253,980	291,976	281,651	291,790	**3,181,869**
Freshwater for camp purposes (m3)	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	3,500	**42,000**
Slurry water (m3)	259,269	235,019	259,436	251,020	259,548	250,750	260,161	259,269	250,480	288,476	278,151	288,290	**3,139,869**
Total Outflow (m3)	262,769	238,519	262,936	254,520	263,048	254,250	263,661	262,769	253,980	291,976	281,651	291,790	**3,181,869**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	200	200	200	200	200	200	200	200	200	200	200	200	-
Freshwater pumping rate (m3/hr)	150	149	150	149	150	149	150	150	149	188	188	188	-
TSF Water Balance													
Slurry water (m3)	259,269	235,019	259,436	251,020	259,548	250,750	260,161	259,269	250,480	288,476	278,151	288,290	**3,139,869**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	**33%**
Pit E Tailings Deposition (%)	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	**67%**
North Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**0%**
South Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
IPD Water/Ice Entrapment (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	**25%**
Water Entrapment (m3)	64,817	58,755	64,859	62,755	64,887	62,688	65,040	64,817	62,620	72,119	69,538	72,072	**784,967**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	**0%**
Pit E Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	**0%**

	Year 2021												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													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	500,000	1,000,000	1,000,000	1,000,000	0	0	0	**3,500,000**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	19,131	19,313	19,131	19,131	19,313	560,716	1,030,242	1,049,297	1,033,265	19,131	19,313	19,131	**3,827,114**
Pumped to Pit E (m3)	0	0	0	0	0	432,000	372,000	216,000	0	0	0	0	**1,020,000**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	432,000	372,000	216,000	0	0	0	0	**1,020,000**
Net Inflow (m3)	19,131	19,313	19,131	19,131	19,313	128,716	658,242	833,297	1,033,265	19,131	19,313	19,131	**2,807,114**
End-of-Month Volume (m3)	**2,682,188**	**2,701,501**	**2,720,632**	**2,739,763**	**2,759,076**	**2,887,792**	**3,546,034**	**4,379,331**	**5,412,596**	**5,431,727**	**5,451,040**	**5,470,171**	**5,470,171**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	194,451	176,264	194,577	188,265	194,661	188,063	195,121	194,451	0	0	0	0	**1,525,854**
Inflow from Pit A (m3)	0	0	0	0	43,896	296,760	32,489	85,293	46,694	0	0	0	**505,132**
Inflow from Goose Pit (m3)	0	0	0	0	0	432,000	372,000	216,000	0	0	0	0	**1,020,000**
Total Inflow (m3)	194,451	176,264	194,577	188,265	238,557	959,234	610,942	526,324	61,109	0	0	0	**3,149,722**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	144,000	148,800	144,000	148,800	**585,600**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	144,000	148,800	144,000	148,800	**585,600**
Net Inflow (m3)	194,451	176,264	194,577	188,265	238,557	959,234	610,942	526,324	-82,891	-148,800	-144,000	-148,800	**2,564,122**
End-of-Month Volume (m3)	**1,889,383**	**2,065,647**	**2,260,224**	**2,448,489**	**2,687,046**	**3,646,280**	**4,257,222**	**4,783,545**	**4,700,654**	**4,551,854**	**4,407,854**	**4,259,054**	**4,259,054**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	187,860	216,357	208,614	216,217	**829,048**
Transfer from South Cell (m3)	0	0	0	0	10,616	280,380	32,489	64,801	46,694	0	0	0	**434,980**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	347,852	57,106	126,306	261,797	231,321	223,577	231,181	**1,597,856**
Reclaim water to the mill (m3)	148,800	134,400	148,800	144,000	148,800	144,000	148,800	148,800	0	0	0	0	**1,166,400**
Outflow to Pit E (m3)	0	0	0	0	43,896	296,760	32,489	85,293	46,694	0	0	0	**505,132**
Total Outflow (m3)	148,800	134,400	148,800	144,000	192,696	440,760	181,289	234,093	46,694	0	0	0	**1,671,532**
Net Inflow (m3)	-133,836	-119,436	-133,836	-129,036	-133,836	-92,908	-124,183	-107,787	215,103	231,321	223,577	231,181	**-73,676**
End-of-Month Volume (m3)	**3,841,499**	**3,722,063**	**3,588,226**	**3,459,190**	**3,325,354**	**3,232,446**	**3,108,263**	**3,000,476**	**3,215,579**	**3,446,900**	**3,670,478**	**3,901,659**	**3,901,659**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m3)	**845,639**	**845,639**	**845,639**	**845,639**	**845,639**	**964,347**	**970,400**	**1,031,067**	**1,061,739**	**1,061,739**	**1,061,739**	**1,061,739**	**1,061,739**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m3)	0	0	0	0	0	1,016,064	1,312,416	1,312,416	508,032	0	0	0	**4,148,928**
Total Inflow (m3)	0	0	0	0	0	1,082,590	1,330,191	1,360,383	530,643	0	0	0	**4,303,808**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	1,082,590	1,330,191	1,360,383	530,643	0	0	0	**4,303,808**
End-of-Month Volume (m3)	**309,759**	**309,759**	**309,759**	**309,759**	**309,759**	**1,392,349**	**2,722,541**	**4,082,923**	**4,613,567**	**4,613,567**	**4,613,567**	**4,613,567**	**4,613,567**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m3)	**342,939**	**342,939**	**342,939**	**342,939**	**342,939**	**416,591**	**436,271**	**489,375**	**514,409**	**514,409**	**514,409**	**514,409**	**514,409**

2022

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	ANNUAL TOTAL
	Year 2022												
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	309,928	279,935	309,928	299,965	309,964	299,965	310,000	0	0	0	0	0	2,119,687
Cummulative Tailings (tonnes):	38,551,478	38,831,413	39,141,341	39,441,307	39,751,271	40,051,237	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	506,724	601,297	706,002	807,342	912,059	1,013,399	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	76,665	7,700	42,862	21,238	-13	0	0	**148,451**
Total Inflow (m3)	0	0	0	0	1,625	219,200	42,281	52,677	38,701	-13	0	0	**354,470**
Transfer to South Cell (m3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Total Outflow (m3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m3)	0	0	0	0	0	220,825	42,281	52,677	38,701	-13	0	0	**354,470**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	282,307	54,214	86,789	55,380	-13	0	0	**489,292**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	282,307	54,214	86,789	55,366	0	0	0	**489,292**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	282,307	54,214	86,789	55,366	0	0	0	**489,292**
Net Inflow (m3)	0	0	0	0	0	0	0	0	13	-13	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	3,037	4,283	3,223	3,270	3,348	2,970	4,030	0	0	0	0	0	**24,160**
Reclaim water (m3)	148,800	134,400	148,800	144,000	148,800	144,000	148,800	0	0	0	0	0	**1,017,600**
Freshwater from Third Portage Lake (m3)	140,008	126,459	140,008	135,524	140,042	135,524	140,075	2,945	2,850	2,945	2,850	2,945	**972,175**
Total Inflow (m3)	291,846	265,142	292,032	282,794	292,189	282,494	292,905	2,945	2,850	2,945	2,850	2,945	**2,013,936**
Freshwater for camp purposes (m3)	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 (m3)	288,901	262,482	289,087	279,944	289,244	279,644	289,960	0	0	0	0	0	**1,979,261**
Total Outflow (m3)	291,846	265,142	292,032	282,794	292,189	282,494	292,905	2,945	2,850	2,945	2,850	2,945	**2,013,936**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	200	200	200	200	200	200	200	0	0	0	0	0	-
Freshwater pumping rate (m3/hr)	188	188	188	188	188	188	188	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m3)	288,901	262,482	289,087	279,944	289,244	279,644	289,960	0	0	0	0	0	**1,979,261**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	**67%**
Pit E Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	**33%**
North Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**0%**
South Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
IPD Water/Ice Entrapment (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	**25%**
Water Entrapment (m3)	72,225	65,621	72,272	69,986	72,311	69,911	72,490	0	0	0	0	0	**494,815**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	**0%**
Pit E Reclaim Water (%)	100%	100%	100%	100%	100%	100%	100%	100%	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													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	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 Pit E (m3)	0	0	0	0	0	0	277,817	0	0	0	0	0	**277,817**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	277,817	0	0	0	0	0	**277,817**
Net Inflow (m3)	19,131	19,313	19,131	19,131	19,313	60,716	-247,575	49,297	33,265	19,131	19,313	19,131	**49,297**
End-of-Month Volume (m3)	**5,489,302**	**5,508,615**	**5,527,746**	**5,546,877**	**5,566,190**	**5,626,906**	**5,379,331**	**5,428,628**	**5,461,893**	**5,481,024**	**5,500,337**	**5,519,468**	**5,519,468**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	89,357	306,398	336,484	326,262	380,511	660,852	401,030	148,293	82,610	14,964	14,964	14,964	**2,776,689**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	277,817	0	0	0	0	0	**277,817**
Total Inflow (m3)	89,357	306,398	336,484	326,262	380,511	703,262	690,179	178,873	97,024	14,964	14,964	14,964	**3,153,242**
Reclaim water to the mill (m3)	148,800	134,400	148,800	144,000	148,800	144,000	148,800	0	0	0	0	0	**1,017,600**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	148,800	134,400	148,800	144,000	148,800	144,000	148,800	0	0	0	0	0	**1,017,600**
Net Inflow (m3)	-59,443	171,998	187,684	182,262	231,711	559,262	541,379	178,873	97,024	14,964	14,964	14,964	**2,135,642**
End-of-Month Volume (m3)	**4,199,611**	**4,371,609**	**4,559,294**	**4,741,555**	**4,973,266**	**5,532,529**	**6,073,907**	**6,252,780**	**6,349,804**	**6,364,768**	**6,379,732**	**6,394,696**	**6,394,696**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	216,675	196,862	216,815	209,958	216,933	209,733	217,470	0	0	0	0	0	**1,484,446**
Transfer from South Cell (m3)	0	0	0	0	10,616	282,307	54,214	86,789	55,366	0	0	0	**489,292**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	231,639	211,825	231,779	224,922	275,793	559,512	296,300	148,293	82,610	14,964	14,964	14,964	**2,307,566**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	89,357	306,398	336,484	326,262	380,511	660,852	401,030	148,293	82,610	14,964	14,964	14,964	**2,776,689**
Total Outflow (m3)	89,357	306,398	336,484	326,262	380,511	660,852	401,030	148,293	82,610	14,964	14,964	14,964	**2,776,689**
Net Inflow (m3)	142,282	-94,573	-104,706	-101,340	-104,718	-101,340	-104,730	0	0	0	0	0	**-469,123**
End-of-Month Volume (m3)	**4,043,941**	**3,949,368**	**3,844,663**	**3,743,323**	**3,638,605**	**3,537,266**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m3)	**1,061,739**	**1,061,739**	**1,061,739**	**1,061,739**	**1,061,739**	**1,180,447**	**1,186,500**	**1,247,167**	**1,277,839**	**1,277,839**	**1,277,839**	**1,277,839**	**1,277,839**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m3)	0	0	0	0	0	1,016,064	1,312,416	1,312,416	508,032	0	0	0	**4,148,928**
Total Inflow (m3)	0	0	0	0	0	1,082,590	1,330,191	1,360,383	530,643	0	0	0	**4,303,808**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	1,082,590	1,330,191	1,360,383	530,643	0	0	0	**4,303,808**
End-of-Month Volume (m3)	**4,613,567**	**4,613,567**	**4,613,567**	**4,613,567**	**4,613,567**	**5,696,157**	**7,026,348**	**8,386,731**	**8,917,374**	**8,917,374**	**8,917,374**	**8,917,374**	**8,917,374**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m3)	**514,409**	**514,409**	**514,409**	**514,409**	**514,409**	**588,061**	**607,740**	**660,845**	**685,878**	**685,878**	**685,878**	**685,878**	**685,878**

2023

	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):	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m3)	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 (m3)	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 (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Tailings Deposition (%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	**100%**
North Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**0%**
South Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
IPD Water/Ice Entrapment (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	**25%**
Water Entrapment (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	**0%**
Pit E Reclaim Water (%)	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													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	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 Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	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 (m3)	**5,538,599**	**5,557,912**	**5,577,043**	**5,596,174**	**5,615,487**	**5,676,203**	**5,706,445**	**5,755,742**	**5,789,007**	**5,808,138**	**5,827,451**	**5,846,582**	**5,846,582**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	1,450,000	1,000,000	1,000,000	1,000,000	0	0	0	**4,450,000**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	1,843,351	1,103,257	1,192,125	1,102,251	14,964	14,964	14,964	**5,404,593**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	14,964	14,964	14,964	14,964	58,860	1,843,351	1,103,257	1,192,125	1,102,251	14,964	14,964	14,964	**5,404,593**
End-of-Month Volume (m3)	**6,409,660**	**6,424,624**	**6,439,588**	**6,454,552**	**6,513,412**	**8,356,763**	**9,460,020**	**10,652,146**	**11,754,397**	**11,769,361**	**11,784,325**	**11,799,289**	**11,799,289**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	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 (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Total Outflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m3)	**1,277,839**	**1,277,839**	**1,277,839**	**1,277,839**	**1,277,839**	**1,396,547**	**1,402,600**	**1,463,267**	**1,493,939**	**1,493,940**	**1,493,940**	**1,493,940**	**1,493,940**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m3)	0	0	0	0	0	1,016,064	1,312,416	1,312,416	508,032	0	0	0	**4,148,928**
Total Inflow (m3)	0	0	0	0	0	1,082,590	1,330,191	1,360,383	530,643	0	0	0	**4,303,808**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	1,082,590	1,330,191	1,360,383	530,643	0	0	0	**4,303,808**
End-of-Month Volume (m3)	**8,917,374**	**8,917,374**	**8,917,374**	**8,917,374**	**8,917,374**	**9,999,964**	**11,330,156**	**12,690,538**	**13,221,182**	**13,221,182**	**13,221,182**	**13,221,182**	**13,221,182**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
End-of-Month Volume (m3)	**685,878**	**685,878**	**685,878**	**685,878**	**685,878**	**759,530**	**779,210**	**832,314**	**857,348**	**857,348**	**857,348**	**857,348**	**857,348**

2024

	Year 2024												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**366**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	0
Cummulative Tailings (tonnes):	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m3)	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 (m3)	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 (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	**33%**
Pit E Tailings Deposition (%)	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	**67%**
North Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**0%**
South Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
IPD Water/Ice Entrapment (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	**25%**
Water Entrapment (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	**0%**
Pit E Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	**0%**

	Year 2024												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**366**
Goose Pit													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	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 Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	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 (m3)	**5,865,713**	**5,885,026**	**5,904,157**	**5,923,288**	**5,942,601**	**6,003,317**	**6,033,559**	**6,082,856**	**6,116,121**	**6,135,252**	**6,154,565**	**6,173,696**	**6,173,696**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	1,450,000	1,000,000	1,000,000	1,000,000	0	0	0	**4,450,000**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	1,843,351	1,103,257	1,192,125	1,102,251	14,964	14,964	14,964	**5,404,593**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	14,964	14,964	14,964	14,964	58,860	1,843,351	1,103,257	1,192,125	1,102,251	14,964	14,964	14,964	**5,404,593**
End-of-Month Volume (m3)	**11,814,253**	**11,829,217**	**11,844,181**	**11,859,145**	**11,918,004**	**13,761,356**	**14,864,613**	**16,056,738**	**17,158,990**	**17,173,954**	**17,188,918**	**17,203,881**	**17,203,881**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	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 (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Total Outflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m3)	**1,493,940**	**1,493,940**	**1,493,940**	**1,493,940**	**1,493,940**	**1,612,648**	**1,618,701**	**1,679,368**	**1,710,040**	**1,710,040**	**1,710,040**	**1,710,040**	**1,710,040**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	25,778	19,679	53,105	25,033	0	0	0	**123,596**
Pumped from Wally Lake (m3)	0	0	0	0	0	1,016,064	1,312,416	1,312,416	508,032	0	0	0	**4,148,928**
Total Inflow (m3)	0	0	0	0	0	1,108,369	1,349,870	1,413,488	555,676	0	0	0	**4,427,403**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	1,108,369	1,349,870	1,413,488	555,676	0	0	0	**4,427,403**
End-of-Month Volume (m3)	**13,221,182**	**13,221,182**	**13,221,182**	**13,221,182**	**13,221,182**	**14,329,550**	**15,679,421**	**17,092,908**	**17,648,585**	**17,648,585**	**17,648,585**	**17,648,585**	**17,648,585**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	25,778	19,679	53,105	25,033	0	0	0	**123,596**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	25778.305	19679.2	53104.9	25033.1	0	0	0	**123,596**
Net Inflow (m3)	0	0	0	0	0	47,874	0	0	0	0	0	0	**47,874**
End-of-Month Volume (m3)	**857,348**	**857,348**	**857,348**	**857,348**	**857,348**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**

2025

	Year 2025												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):	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m3)	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 (m3)	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 (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	**67%**
Pit E Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	**33%**
North Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**0%**
South Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
IPD Water/Ice Entrapment (%)	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%	**25%**
Water Entrapment (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	100%	100%	100%	100%	**0%**
Pit E Reclaim Water (%)	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	0%	0%	**0%**

	Year 2025												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													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	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 Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	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 (m3)	**6,192,827**	**6,212,140**	**6,231,271**	**6,250,402**	**6,269,715**	**6,330,431**	**6,360,673**	**6,409,970**	**6,443,235**	**6,462,366**	**6,481,679**	**6,500,810**	**6,500,810**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	1,450,000	1,000,000	1,000,000	1,000,000	0	0	0	**4,450,000**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	1,843,351	1,103,257	1,192,125	1,102,251	14,964	14,964	14,964	**5,404,593**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	14,964	14,964	14,964	14,964	58,860	1,843,351	1,103,257	1,192,125	1,102,251	14,964	14,964	14,964	**5,404,593**
End-of-Month Volume (m3)	**17,218,845**	**17,233,809**	**17,248,773**	**17,263,737**	**17,322,597**	**19,165,949**	**20,269,205**	**21,461,331**	**22,563,582**	**22,578,546**	**22,593,510**	**22,608,474**	**22,608,474**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	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 (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Total Outflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m3)	**1,710,040**	**1,710,040**	**1,710,040**	**1,710,040**	**1,710,040**	**1,828,748**	**1,834,801**	**1,895,468**	**1,926,140**	**1,926,140**	**1,926,140**	**1,926,140**	**1,926,140**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Pumped from Wally Lake (m3)	0	0	0	0	0	1,016,064	1,312,416	1,312,416	508,032	0	0	0	**4,148,928**
Total Inflow (m3)	0	0	0	0	0	1,156,243	1,349,870	1,413,488	555,676	0	0	0	**4,475,277**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	1,156,243	1,349,870	1,413,488	555,676	0	0	0	**4,475,277**
End-of-Month Volume (m3)	**17,648,585**	**17,648,585**	**17,648,585**	**17,648,585**	**17,648,585**	**18,804,827**	**20,154,698**	**21,568,185**	**22,123,862**	**22,123,862**	**22,123,862**	**22,123,862**	**22,123,862**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	73652.3	19679.2	53104.9	25033.1	0	0	0	**171,470**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**

2026

	Year 2026												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):	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m3)	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 (m3)	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 (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Tailings Deposition (%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	**100%**
North Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**0%**
South Cell Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
IPD Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
Water Entrapment (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	**0%**
Pit E Reclaim Water (%)	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													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	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 Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	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 (m3)	**6,519,941**	**6,539,254**	**6,558,385**	**6,577,516**	**6,596,829**	**6,657,545**	**6,687,787**	**6,737,084**	**6,770,349**	**6,789,480**	**6,808,793**	**6,827,924**	**6,827,924**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	1,450,000	1,000,000	1,000,000	1,000,000	0	0	0	**4,450,000**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	1,843,351	1,103,257	1,192,125	1,102,251	14,964	14,964	14,964	**5,404,593**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	14,964	14,964	14,964	14,964	58,860	1,843,351	1,103,257	1,192,125	1,102,251	14,964	14,964	14,964	**5,404,593**
End-of-Month Volume (m3)	**22,623,438**	**22,638,402**	**22,653,366**	**22,668,330**	**22,727,190**	**24,570,541**	**25,673,798**	**26,865,924**	**27,968,175**	**27,983,139**	**27,998,103**	**28,013,067**	**28,013,067**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	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 (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Total Outflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m3)	**1,926,140**	**1,926,140**	**1,926,140**	**1,926,140**	**1,926,140**	**2,044,848**	**2,050,901**	**2,111,568**	**2,142,240**	**2,142,240**	**2,142,240**	**2,142,240**	**2,142,240**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Pumped from Wally Lake (m3)	0	0	0	0	0	1,016,064	1,312,416	1,312,416	508,032	0	0	0	**4,148,928**
Total Inflow (m3)	0	0	0	0	0	1,156,243	1,349,870	1,413,488	555,676	0	0	0	**4,475,277**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	1,156,243	1,349,870	1,413,488	555,676	0	0	0	**4,475,277**
End-of-Month Volume (m3)	**22,123,862**	**22,123,862**	**22,123,862**	**22,123,862**	**22,123,862**	**23,280,104**	**24,629,975**	**26,043,462**	**26,599,139**	**26,599,139**	**26,599,139**	**26,599,139**	**26,599,139**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	73652.3	19679.2	53104.9	25033.1	0	0	0	**171,470**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**

2027

	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):	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m3)	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 (m3)	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 (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
North Cell Water/Ice Entrapment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	**0%**
South Cell Water/Ice Entrapment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	**0%**
IPD Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
Water Entrapment (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Reclaim Water (%)	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													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	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 Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	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 (m3)	**6,847,055**	**6,866,368**	**6,885,499**	**6,904,630**	**6,923,943**	**6,984,659**	**7,014,901**	**7,064,198**	**7,097,463**	**7,116,594**	**7,135,907**	**7,155,038**	**7,155,038**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	1,450,000	1,000,000	1,000,000	450,000	0	0	0	**3,900,000**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	1,843,351	1,103,257	1,192,125	552,251	14,964	14,964	14,964	**4,854,593**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	14,964	14,964	14,964	14,964	58,860	1,843,351	1,103,257	1,192,125	552,251	14,964	14,964	14,964	**4,854,593**
End-of-Month Volume (m3)	**28,028,031**	**28,042,995**	**28,057,959**	**28,072,923**	**28,131,782**	**29,975,134**	**31,078,391**	**32,270,516**	**32,822,768**	**32,837,732**	**32,852,696**	**32,867,660**	**32,867,660**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	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 (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Total Outflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
End-of-Month Volume (m3)	**2,142,240**	**2,142,240**	**2,142,240**	**2,142,240**	**2,142,240**	**2,260,948**	**2,267,001**	**2,327,668**	**2,358,340**	**2,358,341**	**2,358,341**	**2,358,341**	**2,358,341**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Pumped from Wally Lake (m3)	0	0	0	0	0	1,016,064	1,312,416	0	0	0	0	0	**2,328,480**
Total Inflow (m3)	0	0	0	0	0	1,156,243	1,349,870	101,072	47,644	0	0	0	**2,654,829**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	1,156,243	1,349,870	101,072	47,644	0	0	0	**2,654,829**
End-of-Month Volume (m3)	**26,599,139**	**26,599,139**	**26,599,139**	**26,599,139**	**26,599,139**	**27,755,381**	**29,105,252**	**29,206,323**	**29,253,968**	**29,253,968**	**29,253,968**	**29,253,968**	**29,253,968**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	73652.3	19679.2	53104.9	25033.1	0	0	0	**171,470**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**

2028

	Year 2028												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**366**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	0
Cummulative Tailings (tonnes):	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m3)	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 (m3)	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 (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
North Cell Water/Ice Entrapment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	**0%**
South Cell Water/Ice Entrapment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	**0%**
IPD Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
Water Entrapment (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Reclaim Water (%)	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**	**29**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**366**
Goose Pit													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	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 Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	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 (m3)	**7,174,169**	**7,193,482**	**7,212,613**	**7,231,744**	**7,251,057**	**7,311,773**	**7,342,015**	**7,391,312**	**7,424,577**	**7,443,708**	**7,463,021**	**7,482,152**	**7,482,152**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	393,351	103,257	192,125	102,251	14,964	14,964	14,964	**954,593**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	14,964	14,964	14,964	14,964	58,860	393,351	103,257	192,125	102,251	14,964	14,964	14,964	**954,593**
End-of-Month Volume (m3)	**32,882,623**	**32,897,587**	**32,912,551**	**32,927,515**	**32,986,375**	**33,379,727**	**33,482,984**	**33,675,109**	**33,777,360**	**33,792,324**	**33,807,288**	**33,822,252**	**33,822,252**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	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 (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Total Outflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Phaser Pit (m3)	0	0	0	0	0	0	0	0	25,033	0	0	0	**25,033**
Total Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	55,705	0	0	0	**241,133**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	118,708	6,053	60,667	55,705	0	0	0	**241,133**
End-of-Month Volume (m3)	**2,358,341**	**2,358,341**	**2,358,341**	**2,358,341**	**2,358,341**	**2,477,049**	**2,483,102**	**2,543,769**	**2,599,474**	**2,599,474**	**2,599,474**	**2,599,474**	**2,599,474**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	0	0	0	0	**146,436**
Pumped from Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	140,179	37,454	101,072	22,611	0	0	0	**301,316**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	140,179	37,454	101,072	22,611	0	0	0	**301,316**
End-of-Month Volume (m3)	**29,253,968**	**29,253,968**	**29,253,968**	**29,253,968**	**29,253,968**	**29,394,146**	**29,431,601**	**29,532,672**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	0	0	0	0	**146,436**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	0	0	0	25,033	0	0	0	**25,033**
Total Outflow (m3)	0	0	0	0	0	73652.3	19679.2	53104.9	25033.1	0	0	0	**171,470**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**

2029

	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):	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m3)	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 (m3)	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 (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
North Cell Water/Ice Entrapment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	**0%**
South Cell Water/Ice Entrapment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	**0%**
IPD Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
Water Entrapment (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Reclaim Water (%)	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													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	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 Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	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 (m3)	**7,501,283**	**7,520,596**	**7,539,727**	**7,558,858**	**7,578,171**	**7,638,887**	**7,669,129**	**7,718,426**	**7,751,691**	**7,770,822**	**7,790,135**	**7,809,266**	**7,809,266**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	393,351	103,257	192,125	102,251	14,964	14,964	14,964	**954,593**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	14,964	14,964	14,964	14,964	58,860	393,351	103,257	192,125	102,251	14,964	14,964	14,964	**954,593**
End-of-Month Volume (m3)	**33,837,216**	**33,852,180**	**33,867,144**	**33,882,108**	**33,940,968**	**34,334,319**	**34,437,576**	**34,629,702**	**34,731,953**	**34,746,917**	**34,761,881**	**34,776,845**	**34,776,845**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	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 (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Total Outflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped From Phaser Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	258,887	43,507	161,739	78,316	0	0	0	**542,449**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	258,887	43,507	161,739	78,316	0	0	0	**542,449**
End-of-Month Volume (m3)	**2,599,474**	**2,599,474**	**2,599,474**	**2,599,474**	**2,599,474**	**2,858,361**	**2,901,868**	**3,063,607**	**3,141,923**	**3,141,923**	**3,141,923**	**3,141,923**	**3,141,923**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Total Outflow (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Outflow (m3)	0	0	0	0	0	73652.3	19679.2	53104.9	25033.1	0	0	0	**171,470**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**

2030

	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):	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m3)	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 (m3)	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 (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
North Cell Water/Ice Entrapment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	**0%**
South Cell Water/Ice Entrapment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	**0%**
IPD Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
Water Entrapment (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Reclaim Water (%)	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													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	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 Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	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 (m3)	**7,828,397**	**7,847,710**	**7,866,841**	**7,885,972**	**7,905,285**	**7,966,001**	**7,996,243**	**8,045,540**	**8,078,805**	**8,097,936**	**8,117,249**	**8,136,380**	**8,136,380**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	393,351	103,257	192,125	102,251	14,964	14,964	14,964	**954,593**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	14,964	14,964	14,964	14,964	58,860	393,351	103,257	192,125	102,251	14,964	14,964	14,964	**954,593**
End-of-Month Volume (m3)	**34,791,809**	**34,806,773**	**34,821,737**	**34,836,701**	**34,895,561**	**35,288,912**	**35,392,169**	**35,584,294**	**35,686,546**	**35,701,510**	**35,716,474**	**35,731,438**	**35,731,438**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	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 (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Total Outflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	118,708	6,053	60,667	30,672	0	0	0	**216,100**
Pumped From Vault Pit (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped From Phaser Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	258,887	43,507	161,739	78,316	0	0	0	**542,449**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	0	0	0	0	0	258,887	43,507	161,739	78,316	0	0	0	**542,449**
End-of-Month Volume (m3)	**3,141,923**	**3,141,923**	**3,141,923**	**3,141,923**	**3,141,923**	**3,400,810**	**3,444,317**	**3,606,056**	**3,684,372**	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Total Outflow (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Outflow (m3)	0	0	0	0	0	73652.3	19679.2	53104.9	25033.1	0	0	0	**171,470**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**

2031

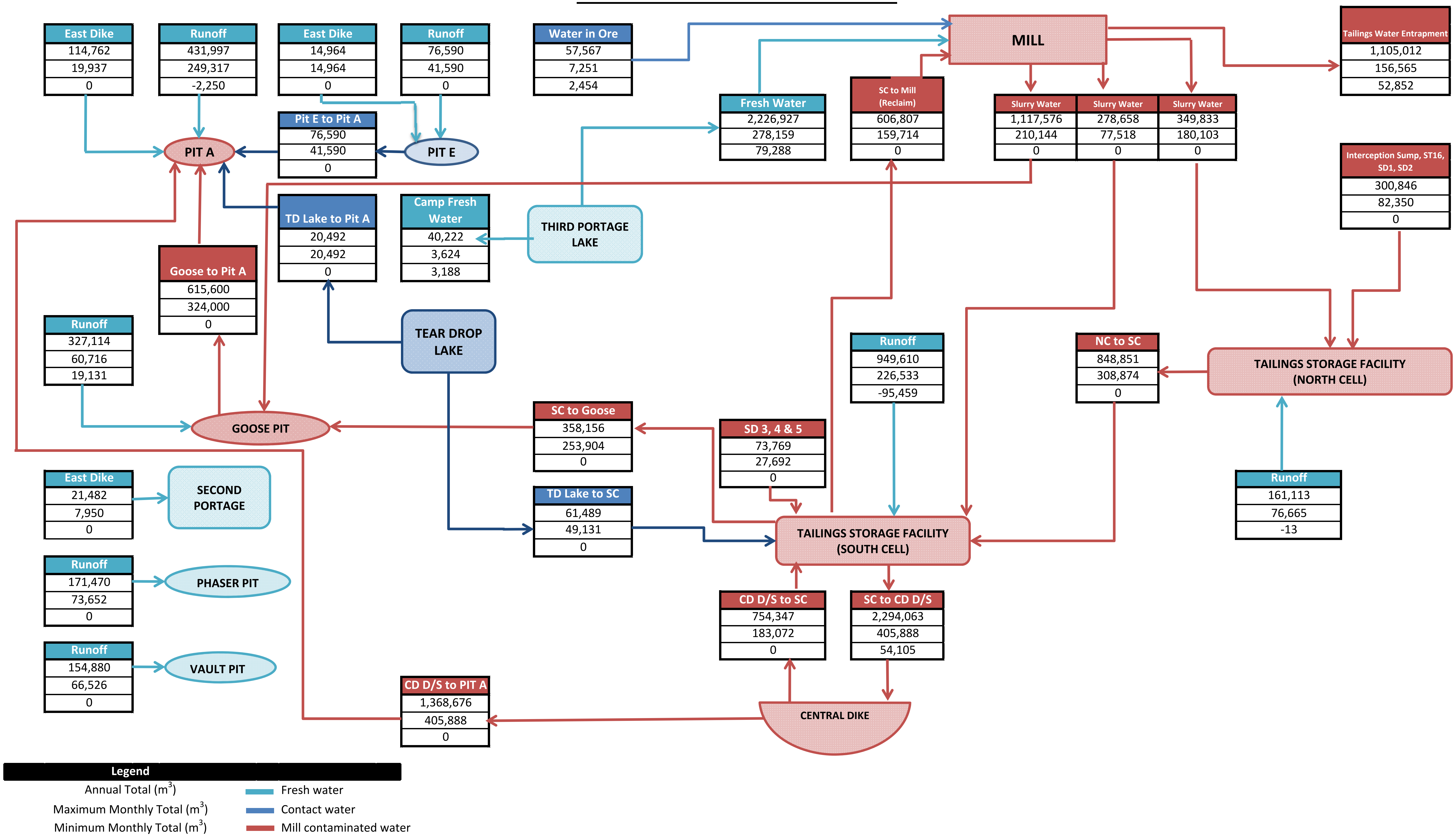
	Year 2031												ANNUAL TOTAL
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
No. of days	**31**	**28**	**31**	**30**	**31**	**30**	**31**	**31**	**30**	**31**	**30**	**31**	**365**
Tailings (tonnes):	0	0	0	0	0	0	0	0	0	0	0	0	0
Cummulative Tailings (tonnes):	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236	40,361,236
Cummulative Tailings (m3) - North Cell	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319	14,909,319
Cummulative Tailings (m3) - South Cell	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268	11,172,268
Cummulative Tailings (m3) - Goose Pit	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166	1,644,166
Cummulative Tailings (m3) - Pit E	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335	1,101,335
Cummulative Tailings (m3) - Pit A	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129	1,118,129
North Cell (TSF)													
Water from tailings slurry (m3)	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 (m3)	0	0	0	0	0	77,826	20,794	56,114	26,452	0	0	0	**181,187**
Total Inflow (m3)	0	0	0	0	1,625	220,361	55,375	65,929	43,915	0	0	0	**387,206**
Transfer to South Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Total Outflow (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Net Inflow (m3)	0	0	0	0	1,625	-1,625	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**1,625**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
South Cell (TSF)													
Pumped from SD3, SD4 & SD5 (m3)	0	0	0	0	10,616	18,574	468	3,174	2,095	0	0	0	**34,927**
Runoff (m3)	0	0	0	0	0	42,909	11,465	30,938	14,584	0	0	0	**99,896**
Transfer from North Cell (m3)	0	0	0	0	0	221,986	55,375	65,929	43,915	0	0	0	**387,206**
Sewage water from Tear Drop Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Water from tailings slurry (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Seepage to Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer to Pit A (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Transfer to Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	10,616	283,469	67,308	100,041	60,594	0	0	0	**522,028**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Mill/Camp													
Ore water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Freshwater from Third Portage Lake (m3)	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 (m3)	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 (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Reclaim water pumping rate (m3/hr)	0	0	0	0	0	0	0	0	0	0	0	0	-
Freshwater pumping rate (m3/hr)	4	4	4	4	4	4	4	4	4	4	4	4	-
TSF Water Balance													
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
North Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
South Cell Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Goose Pit Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Tailings Deposition (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
North Cell Water/Ice Entrapment (%)	90%	90%	90%	90%	90%	30%	30%	30%	30%	75%	80%	90%	**0%**
South Cell Water/Ice Entrapment (%)	46%	46%	46%	46%	40%	32%	32%	32%	32%	40%	46%	46%	**0%**
IPD Water/Ice Entrapment (%)	65%	65%	65%	65%	40%	25%	25%	25%	25%	40%	65%	65%	**48%**
Water Entrapment (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
South Cell Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit A Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Pit E Reclaim Water (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**

Dike Breaching, if water quality respect criteria

	Year 2031												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													
Runoff (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	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 Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	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 (m3)	**8,155,511**	**8,174,824**	**8,193,955**	**8,213,086**	**8,232,399**	**8,293,115**	**8,323,357**	**8,372,654**	**8,405,919**	**8,425,050**	**8,444,363**	**8,463,494**	**8,463,494**
Pit E (Portage Pit)													
Runoff (m3)	0	0	0	0	0	42,411	11,332	30,579	14,415	0	0	0	**98,737**
Pumped from East Dike Seepage (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Third Portage Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Inflow from Pit A (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Inflow from Goose Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	393,351	103,257	192,125	102,251	14,964	14,964	14,964	**954,593**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Pit A (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Outflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Net Inflow (m3)	14,964	14,964	14,964	14,964	58,860	393,351	103,257	192,125	102,251	14,964	14,964	14,964	**954,593**
End-of-Month Volume (m3)	**35,746,401**	**35,761,365**	**35,776,329**	**35,791,293**	**35,850,153**	**36,243,505**	**36,346,762**	**36,538,887**	**36,641,138**	**36,656,102**	**36,671,066**	**36,686,030**	**36,686,030**
Pit A													
Runoff (m3)	0	0	0	0	0	36,128	9,653	26,049	12,279	0	0	0	**84,109**
Slurry water (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Transfer from South Cell (m3)	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 (m3)	0	0	0	0	33,280	16,380	0	20,492	0	0	0	0	**70,152**
Pumped from Central Dike Downstream Pond (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Pit E (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
East Dike Seepage (m3)	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 (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Reclaim water to the mill (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Outflow to Pit E (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Total Outflow (m3)	14,964	14,964	14,964	14,964	58,860	350,941	91,925	161,546	87,837	14,964	14,964	14,964	**855,856**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**	**3,432,536**
Vault Attenuation Pond													
Runoff (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped From Vault Pit (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Pumped From Phaser Pit (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	140,179	37,454	101,072	47,644	0	0	0	**326,349**
Decant - TSS to Wally Lake (m3)	0	0	0	0	0	140,179	37,454	101,072	47,644	0	0	0	**326,349**
Total Outflow (m3)	0	0	0	0	0	140,179	37,454	101,072	47,644	0	0	0	**326,349**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**	**3,684,373**
Vault Open Pit													
Runoff (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer from Phaser Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped from Wally Lake (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total Inflow (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Transfer to Vault Attenuation Pond (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Total Outflow (m3)	0	0	0	0	0	66,526	17,775	47,967	22,611	0	0	0	**154,880**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**	**29,555,283**
Phaser Open Pit (including Phaser Lake)													
Runoff (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Inflow (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Transfer to Vault Pit (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pumped to Vault Attenuation Pond (m3)	0	0	0	0	0	73,652	19,679	53,105	25,033	0	0	0	**171,470**
Total Outflow (m3)	0	0	0	0	0	73652.3	19679.2	53104.9	25033.1	0	0	0	**171,470**
Net Inflow (m3)	0	0	0	0	0	0	0	0	0	0	0	0	**0**
End-of-Month Volume (m3)	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**	**905,435**

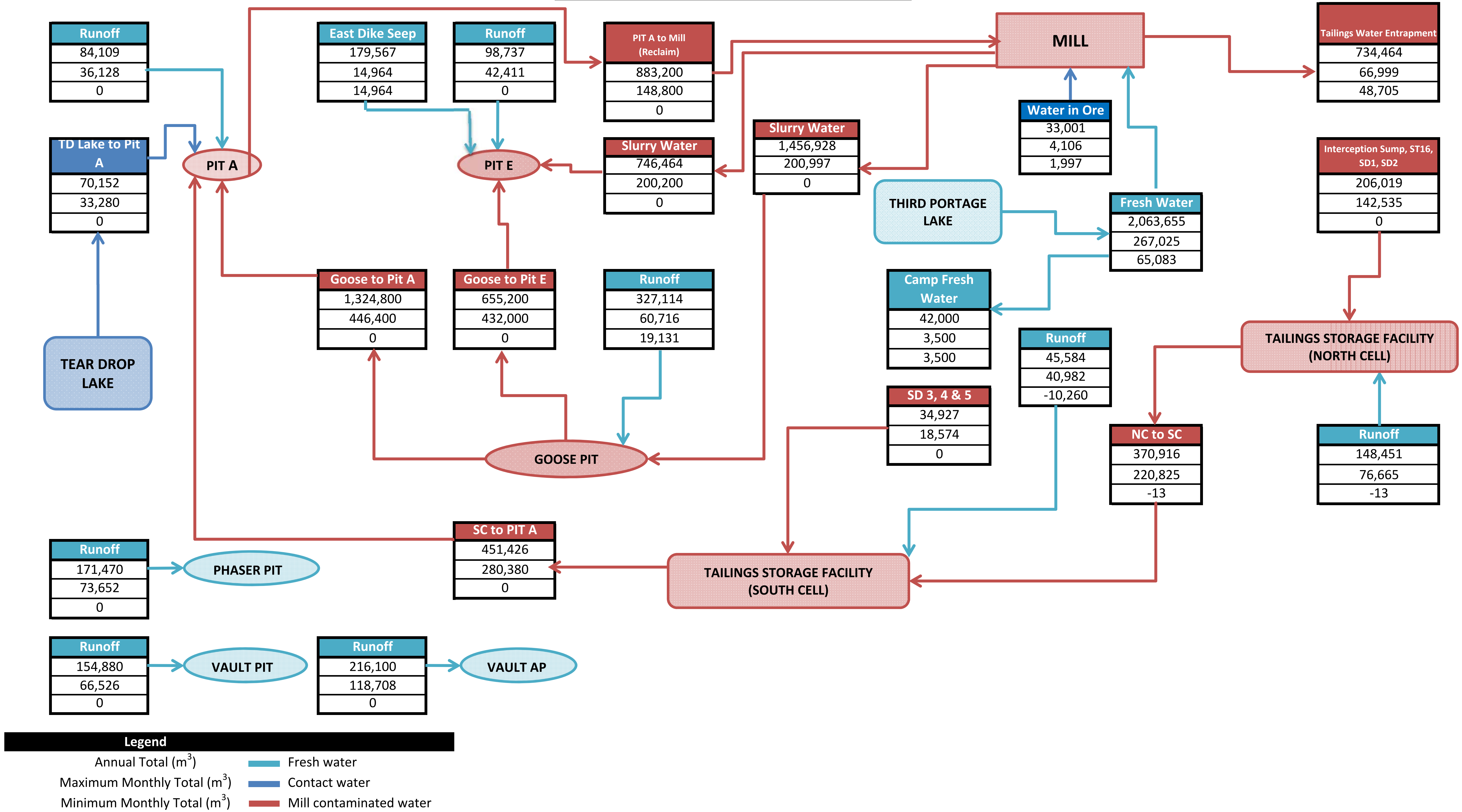
APPENDIX B – GENERAL WATER MOVEMENT

General Water Movement - 2019



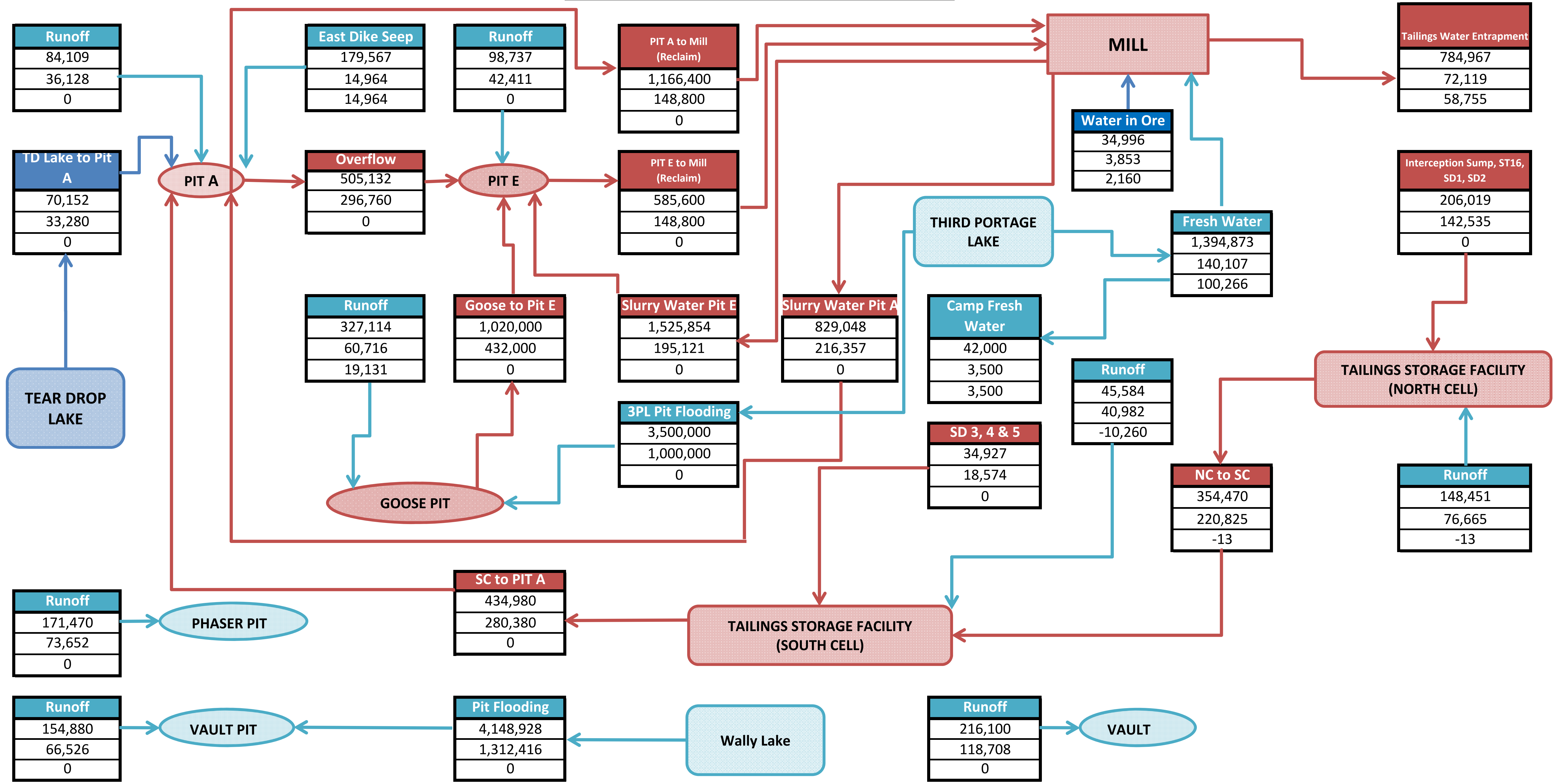
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

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

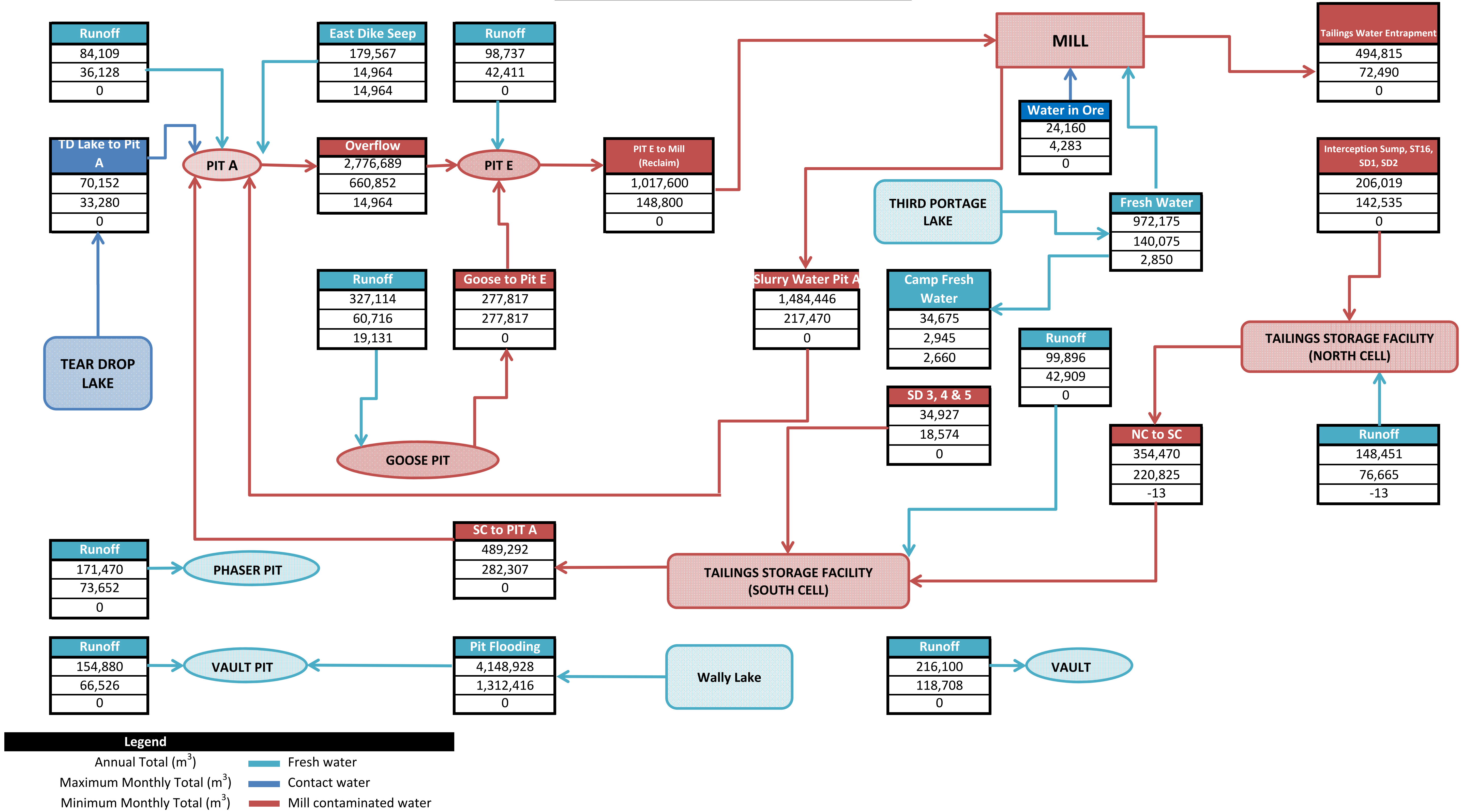


Legend

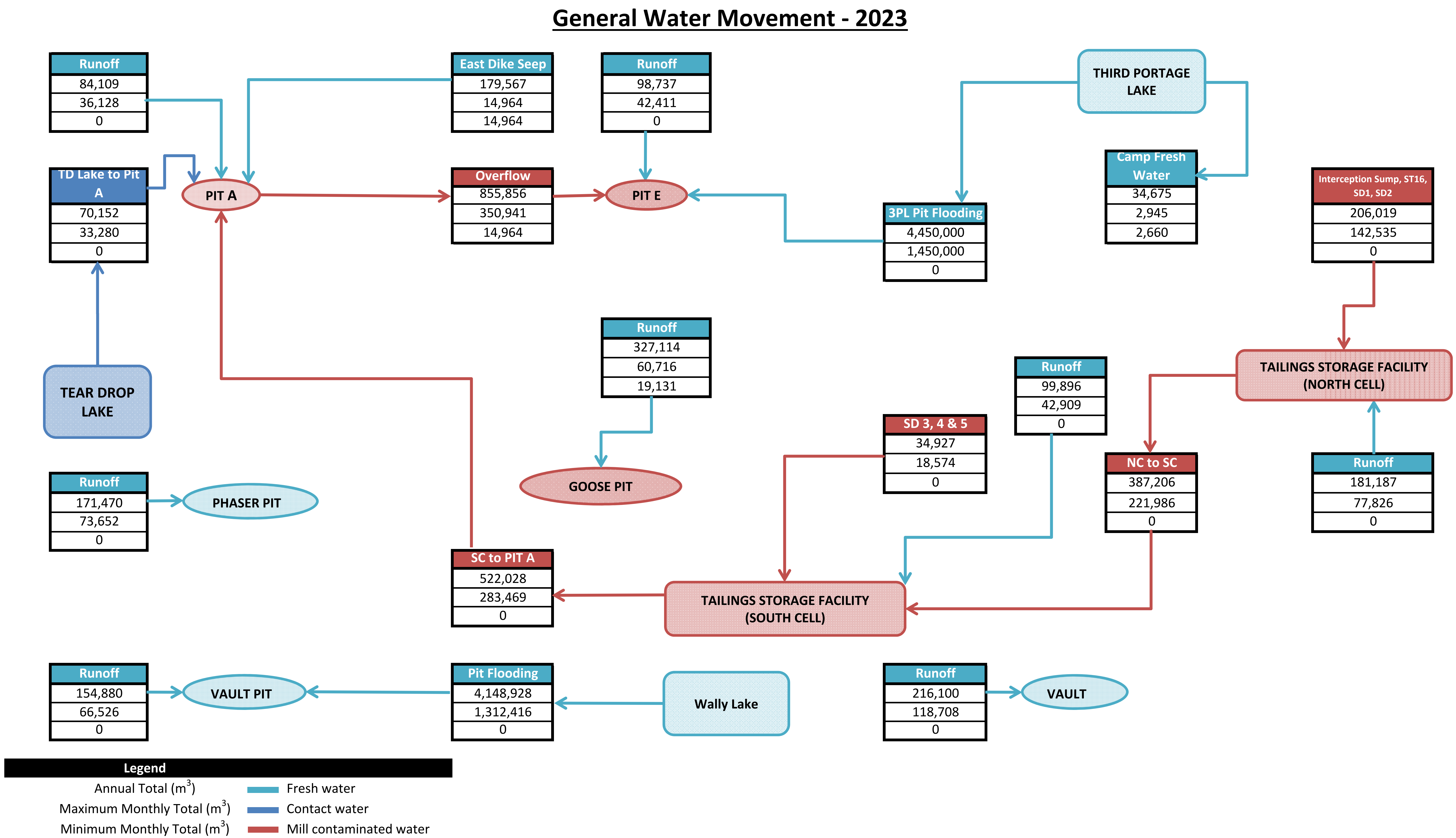
Annual Total (m^3)	Fresh water
Maximum Monthly Total (m^3)	Contact water
Minimum Monthly Total (m^3)	Mill contaminated water

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

General Water Movement - 2022

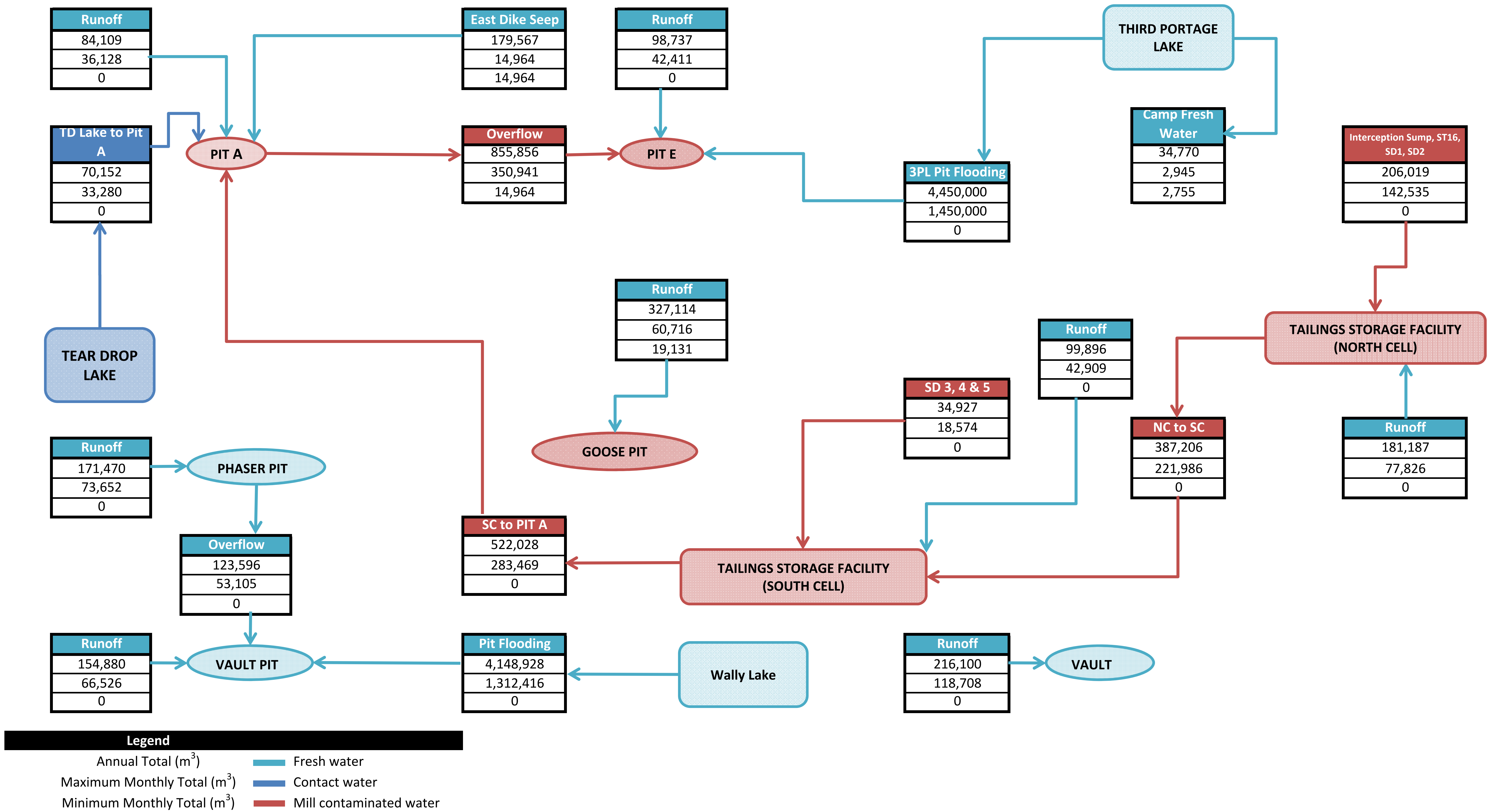


*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.



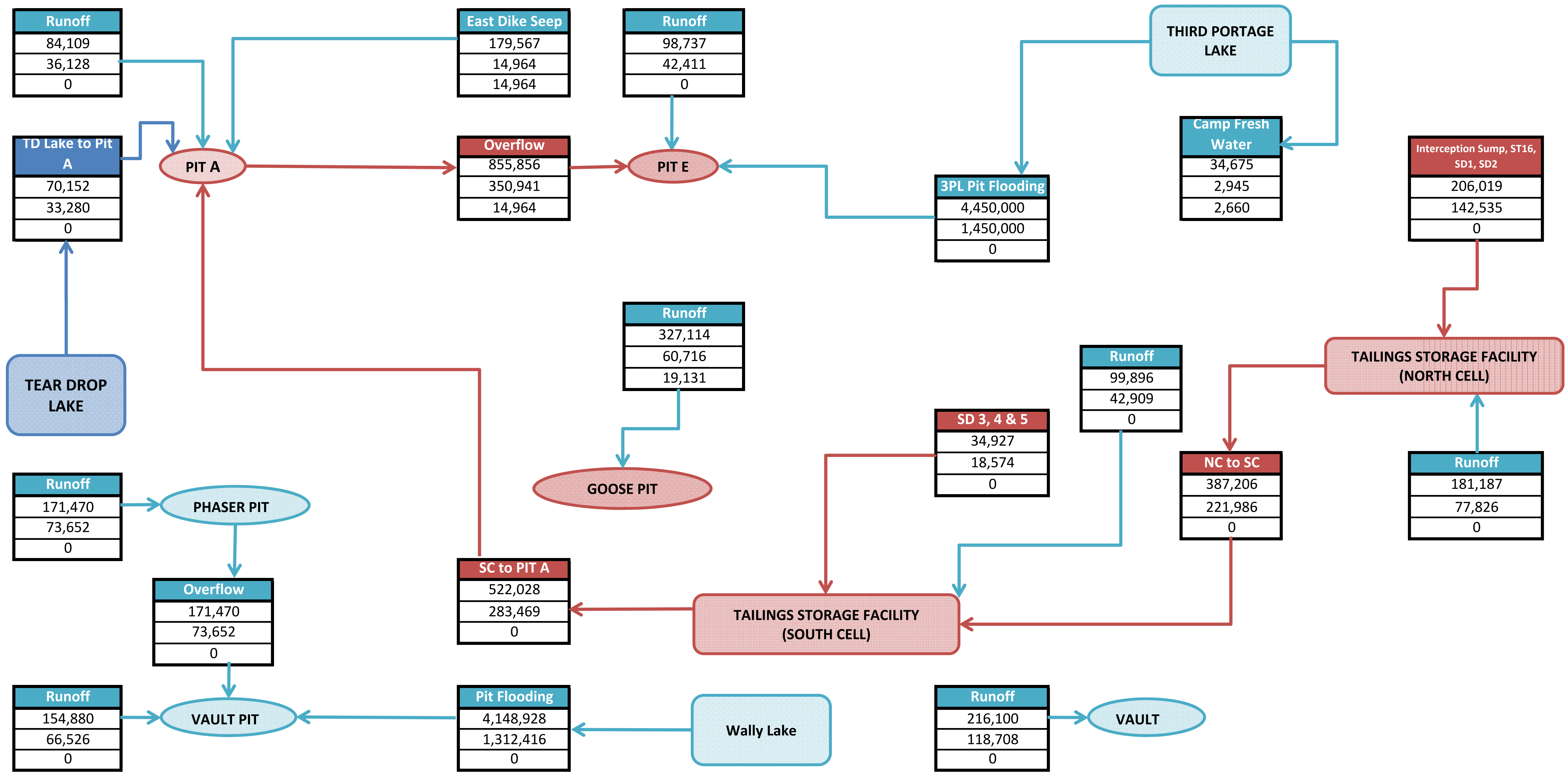
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2024



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

General Water Movement - 2025-2026

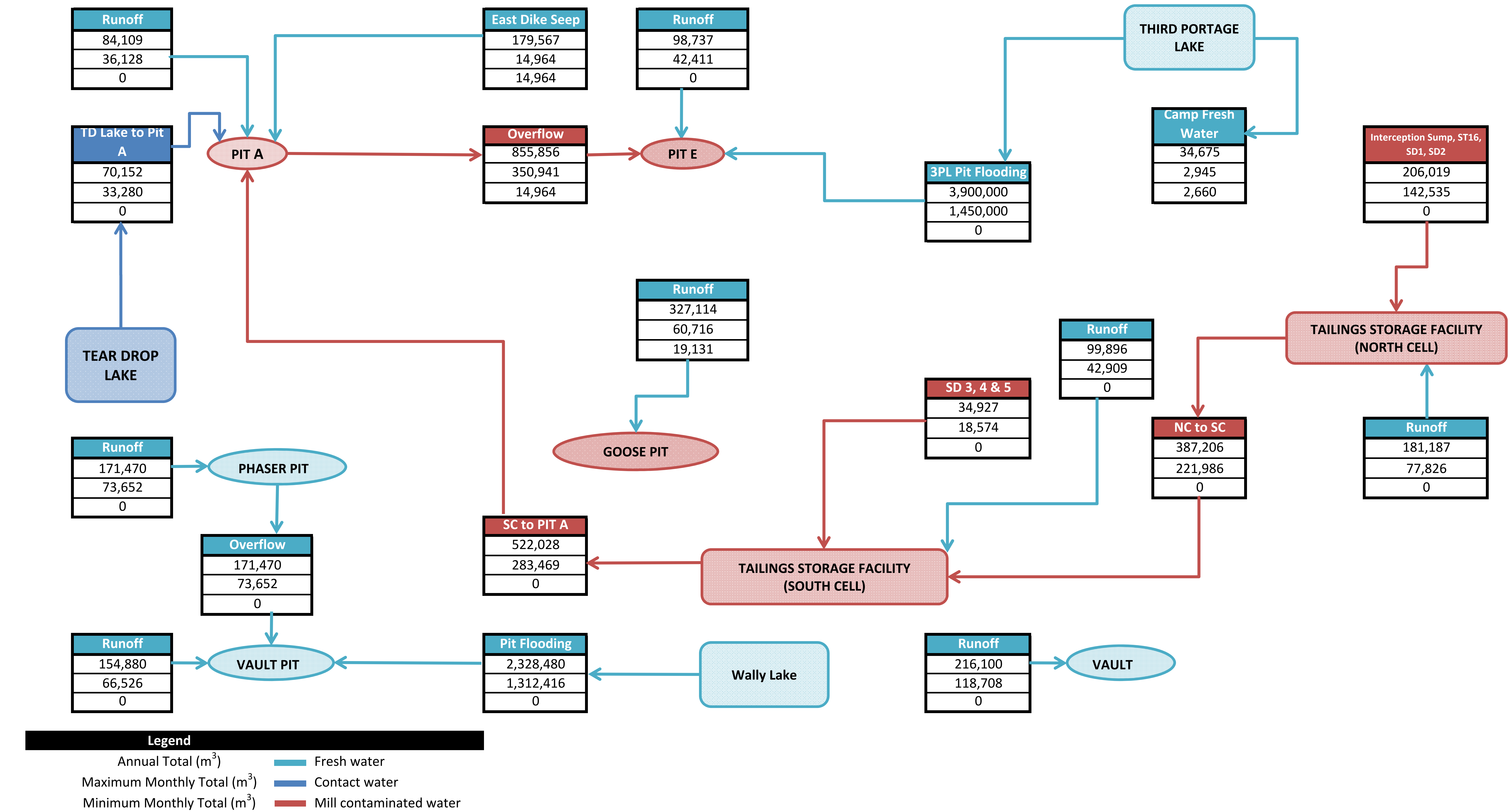


Legend

Annual Total (m^3)	Fresh water
Maximum Monthly Total (m^3)	Contact water
Minimum Monthly Total (m^3)	Mill contaminated water

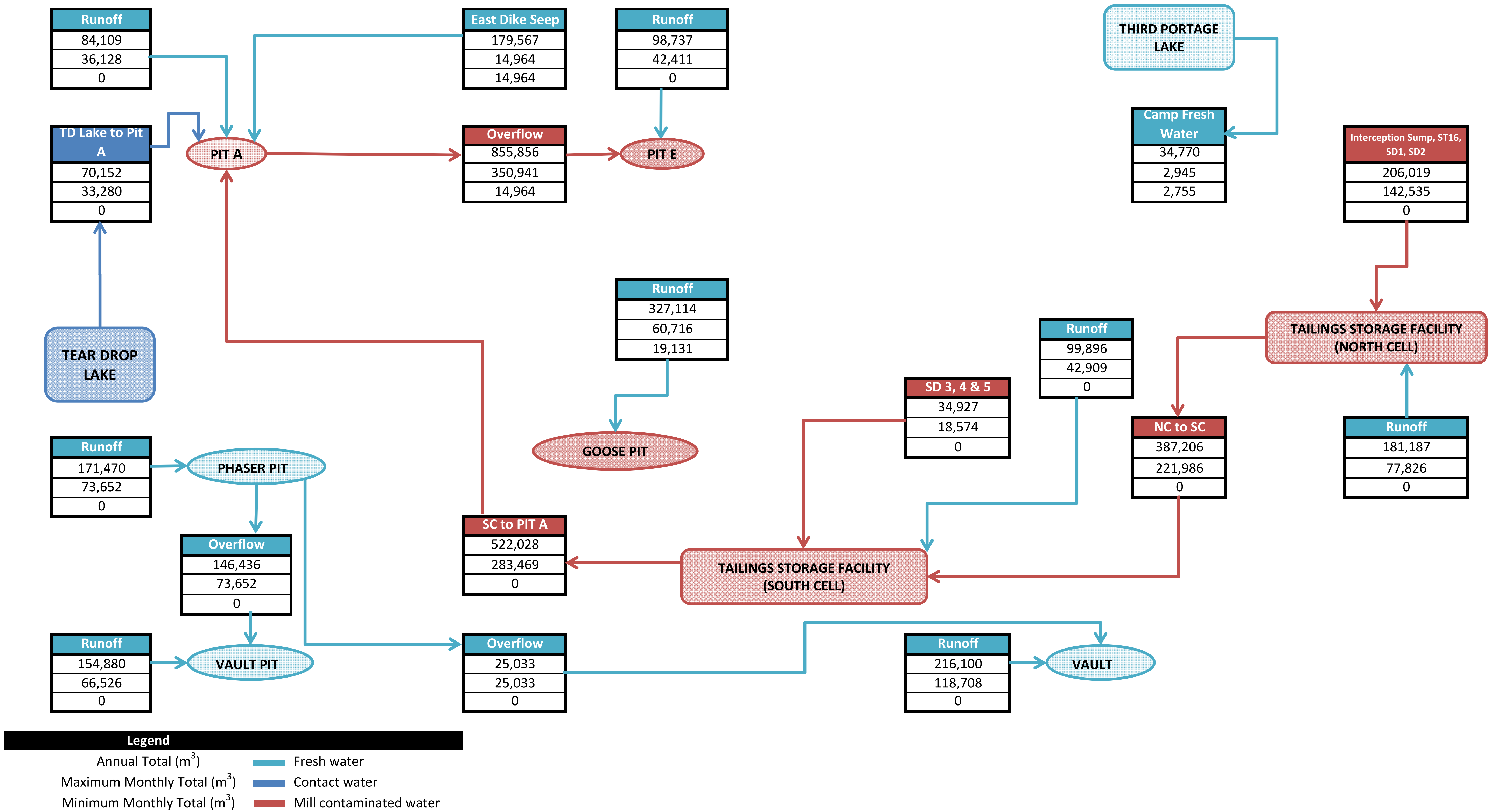
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2027



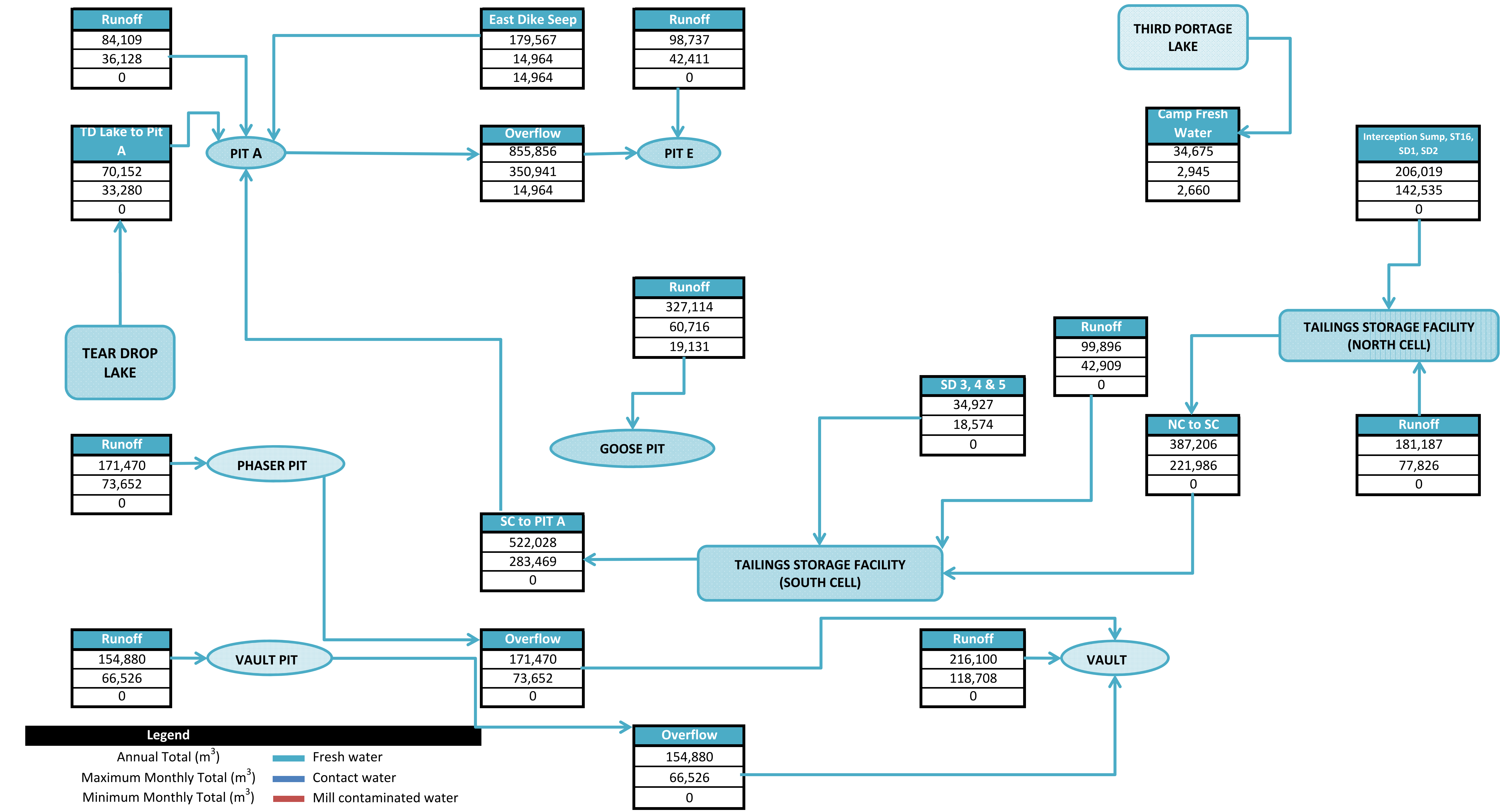
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2028



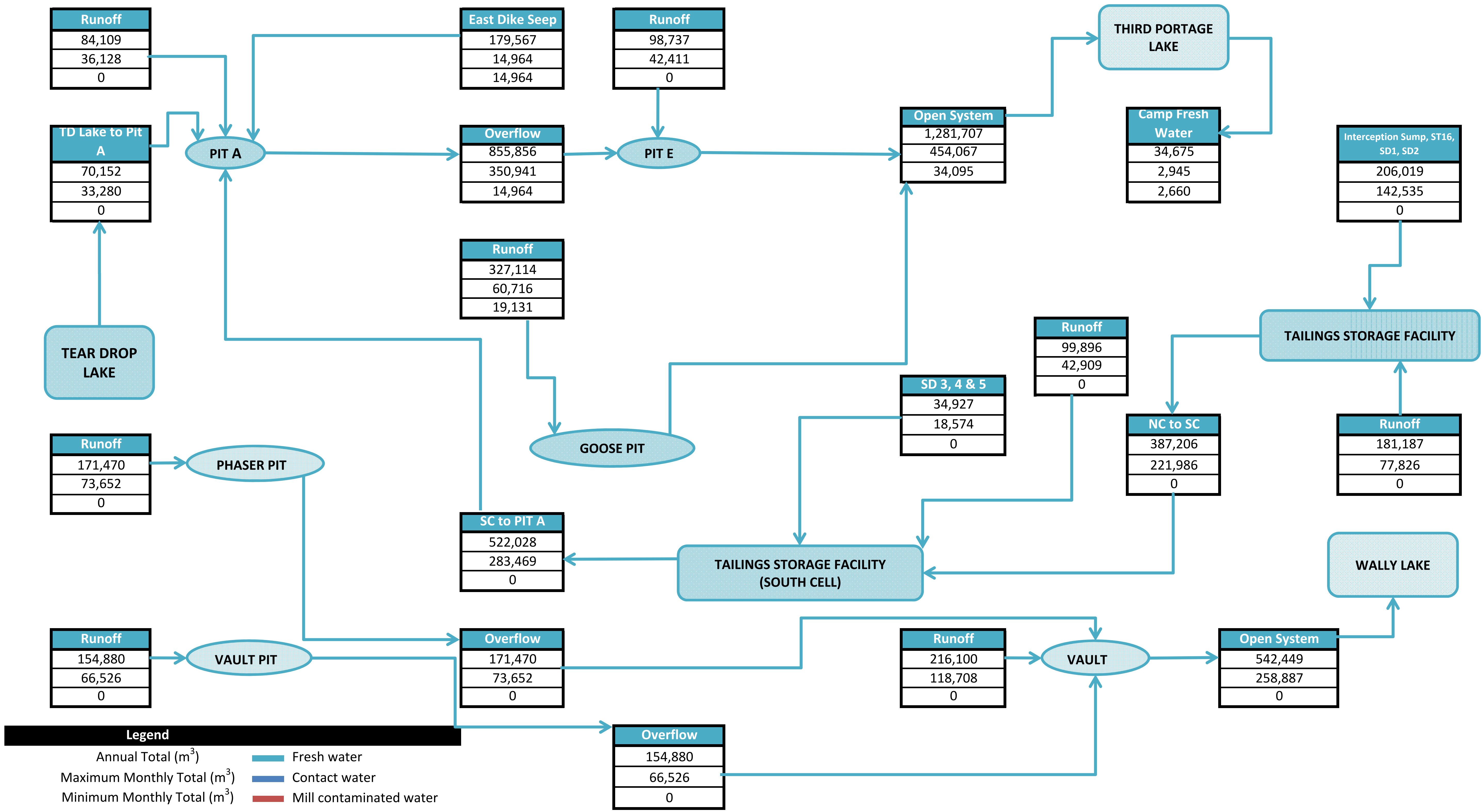
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2029-2030



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

General Water Movement - 2031 - Open System



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

APPENDIX C – 2019 MEADOWBANK WATER QUALITY FORECASTING UPDATE

Title of document: **MEADOWBANK WATER QUALITY FORECASTING UPDATE FOR THE 2019 WATER MANAGEMENT PLAN**

Client: **AGNICO EAGLE**

Project: **MEADOWBANK GOLD PROJECT**

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[1] ICS: Immediate control and supervision.
In terms of supervising the engineering activities and supervision of people who are not engineers or junior engineers, the Ordre des ingénieurs du Québec uses a term often used in its regulation: Immediate control and supervision (ICS). In other words, an engineer must be involved in a continuous and active manner throughout the reserved tasks entrusted to him, and not just before or after.

REVISION INDEX

Revision					Pages Revised	Remarks
#	Prep.	Rev.	App.	Date		
PA	JD/VL	EV	ALN	March 23, 2020		For internal review
PB	JD/VL	EV	ALN	March 31, 2020		For Client review
00	JD/VL	EV	ALN	April 16, 2020	All	Final Version

NOTICE TO READER

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Mandate 1
1.2 Study Objectives and Content 1
1.3 Water Balance 1
2.0 REVIEW OF WATER BALANCE AND WATER QUALITY DATA FOR 2019 4
2.1 Documents Reviewed 4
2.2 Updates to the Water Balance 5
2.3 North and South Cell TSF Reclaim Ponds (ST-21) 7
2.3.1 Measured vs Forecasted Concentrations 7
2.4 Mill Effluent 24
2.4.1 Additional Mill Effluent Water Quality Results 26
2.5 Central Dike Downstream Pond 30
2.5.1 General 30
2.5.2 Water Balance 30
2.5.3 Water Quality 31
2.6 Portage and Goose Pits 33
2.7 Ammonia Loading to Environment at Meadowbank 45
3.0 UPDATED MASS BALANCE MODEL 45
3.1 Description 45
3.2 Assumptions 46
3.3 Limitations 47
3.4 Input Parameters 48
3.4.1 General 48
3.4.2 Mill Effluent Concentration 49
3.4.3 Concentrations used in the Model 54
3.5 Cyanide Decay 58
3.6 Portage and Goose Pit Groundwater Seepage Loading 60
4.0 WATER QUALITY FORECAST RESULTS 63
4.1 Results 63
4.2 Discussions 63
4.2.1 Key Dates 63
4.2.2 Volumes Transferred 64
4.2.3 Forecasted Concentrations in the North and South Cell TSF Reclaim Pond 65
4.2.4 Forecasted Concentration in Portage and Goose Pits 67
4.2.5 Comparison of Forecasted Values 69
4.3 Treatment Requirements 92
4.3.1 Possible Treatment Approach 92
4.3.2 Water Treatment Decision Flow Process 94
5.0 VAULT WATER QUALITY FORECASTING 96
5.1 Review of Vault Water Quality Data 96
5.1.1 Review of Water Quality Discharged to Environment 96
5.1.2 Ammonia Loading to Environment 97
5.2 Vault Water Quality Forecast 99
5.2.1 Model Description 99

5.2.2 Assumptions 99
5.2.3 Input to Model 99
5.2.4 Forecasting Results 100
6.0 CONCLUSION 104
6.1 Limitations 104
6.2 Results Summary and Treatment 105
6.3 Recommendations 107
7.0 REFERENCES 108

LIST OF FIGURES

Figure 2-1: Concentration in the North and South Cell TSF Reclaim Ponds 11
Figure 2-2: Mill Effluent Monthly Average 2019 : Iron, Copper and Cyanide (CN-WAD) 25
Figure 2-3: Mill Effluent Monthly Average 2016 to 2019 : Iron, Copper and Cyanide (CN-WAD) 26
Figure 2-4: Mill Effluent Concentrations Sampled in 2019 – Total Metals 27
Figure 2-5: Mill Effluent Concentrations Sampled in 2019 – Ions 28
Figure 2-6: Concentrations in Portage and Goose Pits 34
Figure 3-1: Cyanide Volatilization Process 58
Figure 4-1: Summary of Water Transfer from South Cell TSF to Portage and Goose Pits 65
Figure 4-2: Total Cyanide Forecasted Concentration 74
Figure 4-3: Total Aluminum Forecasted Concentration 75
Figure 4-4: Total Arsenic Forecasted Concentration 76
Figure 4-5: Total Cadmium Forecasted Concentration 77
Figure 4-6: Total Chromium Forecasted Concentration 78
Figure 4-7: Total Copper Forecasted Concentration 79
Figure 4-8: Total Iron Forecasted Concentration 80
Figure 4-9: Total Nickel Forecasted Concentration 81
Figure 4-10: Total Selenium Forecasted Concentration 82
Figure 4-11: Total Ammonia Forecasted Concentration 83
Figure 4-12: Nitrate Forecasted Concentration 84
Figure 4-13: Chloride Forecasted Concentration 85
Figure 4-14: Fluoride Forecasted Concentration 86
Figure 4-15: Sulphate Forecasted Concentration 87
Figure 4-16: Total Dissolved Solids Forecasted Concentration 88
Figure 4-17: Comparison of Forecasted Dissolved Copper – North Cell TSF Reclaim Pond 89
Figure 4-18: Comparison of Forecasted Dissolved Copper – South Cell TSF Reclaim Pond 90
Figure 4-19: Comparison of Forecasted Chloride – North Cell TSF Reclaim Pond 91
Figure 4-20: Comparison of Forecasted Chloride – South Cell TSF Reclaim Pond 92

Figure 4-21: Water Treatment Decision Flow Process 95
Figure 5-1: Measured Ammonia Concentration in Vault Area 101
Figure 5-2: Forecasted Ammonia Concentration in Vault Area 102
Figure 5-3: Measured Nitrate Concentration in Vault Area 103
Figure 5-4: Forecasted Nitrate Concentration in Vault Area 104

LIST OF TABLES

Table 1-1: Water Management Phases (based on Name of the LOM) – To AEM please confirm the sequence 2
Table 2-1 Updates to the Water Balance 5
Table 2-2: Discharge Criteria and CCME Guidelines for the Parameters Evaluated 9
Table 2-3: Observations from Measured and Forecasted Concentrations in the North and South Cell TSF Reclaim Ponds 19
Table 2-4: Mill Effluent Concentrations Sampled in 2019 29
Table 2-5: Estimated Monthly Inflows and Outflows to Central Dike D/S Pond for 2019 31
Table 2-6: Water Quality in Central Dike D/S Pond for 2019 32
Table 2-7: Observations from Measured and Forecasted Concentrations in Portage and Goose Pits 41
Table 3-1: Mill Effluent Concentrations Selected for the Mass Balance Model (Meadowbank Site Ore) 49
Table 3-2: Average 2019 Mill Effluent Concentrations When Processing Whale Tail Pit Ore 52
Table 3-3: Correction Factor to Metal Concentrations in the Mill Effluent When Processing Whale Tail Pit Ore 54
Table 3-4: Leaching Rate Used in Water Quality Forecast Model 56
Table 3-5: Concentrations used in the Water Quality Forecast Model 57
Table 3-6: Natural Cyanide Degradation – Assumptions and Constants 59
Table 3-7: Estimated Contaminant Loading Rates to Portage Pit 61
Table 3-8: Estimated Contaminant Loading Rates to Goose Pit 62
Table 4-1: Summary of Forecasted Concentrations in Portage and Goose Pits at Closure 71
Table 4-2: Comparison of Parameters of Concerns Concentrations (2019 WMP vs 2018 WMP) 73
Table 5-1: Average and Maximum Concentrations Measured in the Vault Area for 2019 98

LIST OF APPENDIX

APPENDIX A: Water Quality Data

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 2019 Water Management Report and Plan (WMP 2019) to be submitted in March 2020 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 2019 (WB 2019) of Agnico (provided on January 24th, 2020). The WB 2019 was developed according to the updated Life of Mine (LOM) (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, Portage and Goose Pits and Vault Pit.

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 2019 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 2AM-MEA1525 from 2014 to 2019. 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 2019 for this monitoring campaign were analyzed and are presented in section 5.0.

1.3 Water Balance

The Water Balance 2019 (WB 2019) was developed by Agnico Eagle and adapted by SNC-Lavalin (2020) following discussion with 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 2019 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	July 2019	January 2010	March 2015
South Cell	November 2014	April 2019	April 2015	February 2018
Goose pit (in pit tailings deposition)	July 2019	September 2020		
Portage (in pit tailings deposition)	September 2020	December 2021		
Rock Storage Facility (RSF) Operations				
Portage RSF	January 2009	October 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	July 2022	January 2010	February 2018

ACTIVITY	UPDATED START DATE[1]	UPDATED END DATE[1]	WMP 2012 START DATE	WMP 2012 END DATE
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 2023	September 2030	March 2017	September 2023
Flooding of Goose Pit[3]	May 2021	August 2030	July 2015	September 2023
Flooding of Vault Pit[3]	June 2019	August 2030	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 2019

2.1 Documents Reviewed

A review of the available water balance and water quality data measured in 2019 was undertaken by SLI and compiled with previous data measured since 2012. This includes a review of the following documents:

- Water balance model 2019 (WB 2019) based on the life of mine (**BUD2019_V1B**)
- Water quality chemical analysis results for the Portage Area for 2019. 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 September 2019;
  - South Cell TSF Reclaim Pond (ST-21) (former South Cell TSF Attenuation Pond ST-18) from June 2013 to October 2019;
  - Mill effluent metal and cyanide concentrations from January 2013 to December 2019;
  - Four (4) grab samples of Mill Effluent taken in 2019;
  - Portage North Pit (ST-17, Pit A) and Portage South Pit (ST-19, Pit E) from January 2013 to October 2019;
  - Goose Pit (samples taken in the sump pit and in the lake, ST-20) from January 2013 to August 2019;
  - Central Dike seepages collected in the downstream collection pond (ST-S-5) sampled in 2019;
  - East Dike (ST-8) seepage and Saddle Dam 3 (ST-32) sump sampled in 2019;
  - Saddle Dam 1 downstream sump (ST-S-2) and Portage Rock Storage Facility seepage (RSF) (ST-16) sampled from 2015 to 2019;
  - Tailing shake flask extraction tests results conducted in 2019 on the tailings.
- Water quality chemical analysis results for the Vault Area for 2019, specifically:
  - Vault Pit sump (ST-23) from October 2013 to September 2019;
  - Vault RSF (ST-24) sampled in 2019;
  - Vault Attenuation Pond (ST-25) from July 2014 to September 2019;
  - 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) from 2018 to 2019.
  - Phaser Pit (ST-41 and ST-42) from July 2018 to September 2019;
  - Phaser Attenuation Pond (ST-43) sampled in 2019;
  - Wally Lake Exposure Area (ST-MEER-2-EEM) from July 2019 to September 2019.

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 the tailings in-pit deposition, 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 2019.

The WB 2019 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. It also integrates in-pit deposition of tailings in Goose and Portage pits.

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 are 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 are 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 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 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 Cell 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.
2019	July 2022	The tailings deposition and water transfer schedule were extended until July 2022. Tailings will be deposited in the North Cell and South Cell TSF until July 2019 and April 2019 respectively. Tailings will then be deposited in Goose and Portage pits. In-pit deposition started in Goose Pit in July 2019. The additional tailings come from the continuation of the milling of ore produced from the Whale Tail pit operation. The actual volumes of water transfers and tailings deposited in 2019 were integrated into the model. In 2019, Reclaim Water was transferred from South Cell TSF Reclaim Pond to Goose Pit. Reclaim water from Central Dike Downstream Pond was transferred back to SC Reclaim Pond or to Portage North Pit (Pit A). In the Vault area, there was no discharge to Wally Lake in 2019. Natural pit flooding was allowed to begin in the Vault area.

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 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

The Water Quality Forcast performed in 2018 also identified the following elements as element of concern in addition to the elements mentioned above :

- Total Lead
- Total Mercury

However, the measured values of 2018 and 2019 for these two elements showed relatively low concentrations. The measured concentrations were generally below the detection limit and rarely slightly above CCME limit. Moreover, there is no effluent that is discharged form the North and South Cells TSF Reclaim Ponds. Therefore, these elements were not considered in the present review.

Table 2-2 presents the MDMER, Water License 2AM-MEA1526 (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 water quality forecast report, the British 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 2019. Also shown in this figure are the forecasted concentrations from the Water Quality Forecasting Update based on the 2018 Water Management Plan (SLI 2019). 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		
	***MDMER* (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		
	MDMER (1)	*Water License* (2) *(Part F)*	*CCME* (3) *(guideline date)*

Notes:

(1) MDMER 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.

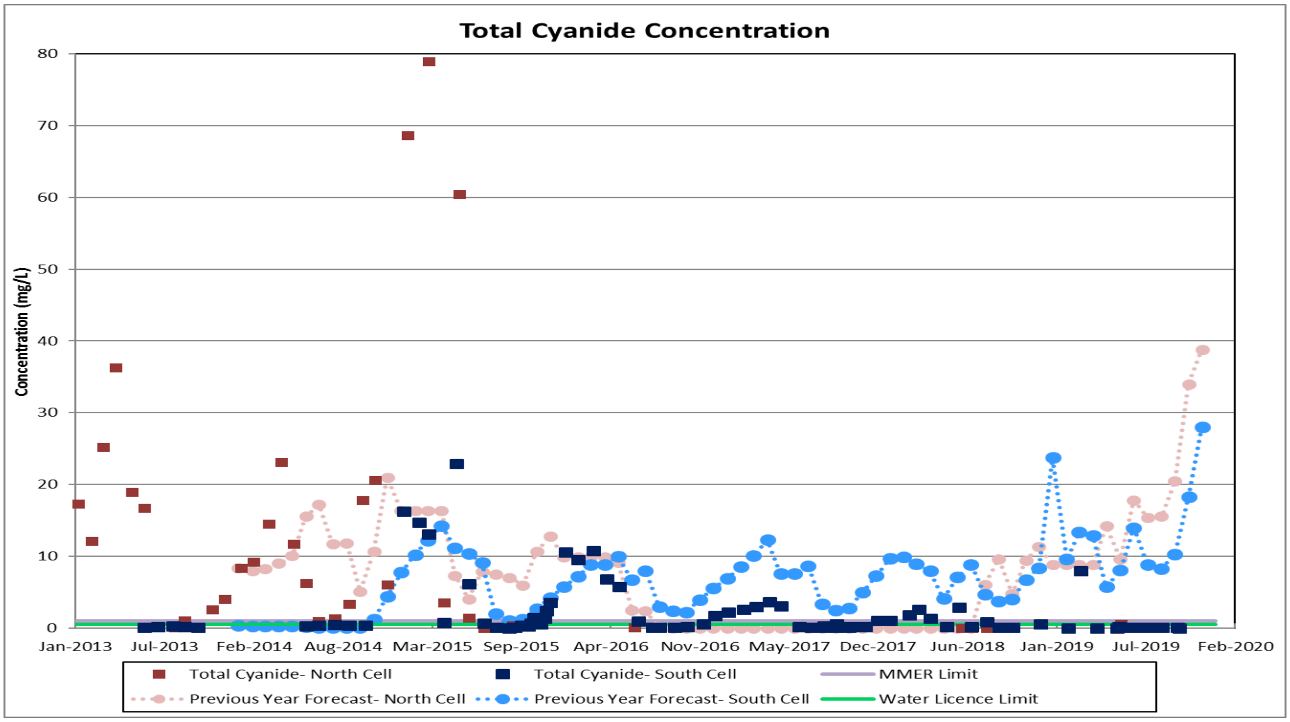
(8) Aluminum discharge criterion depends on the pH. Value shown is for a water pH > 6.5.

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

(10) Cadmium and nickel discharge criterion depend 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



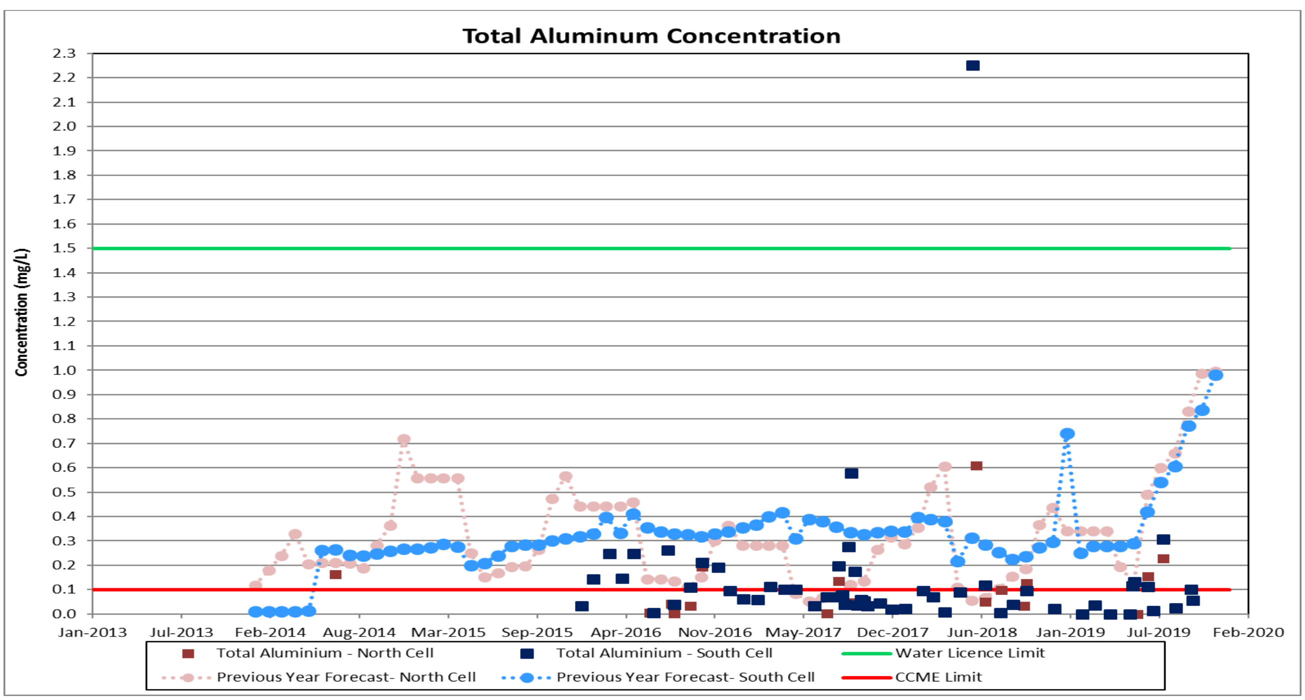
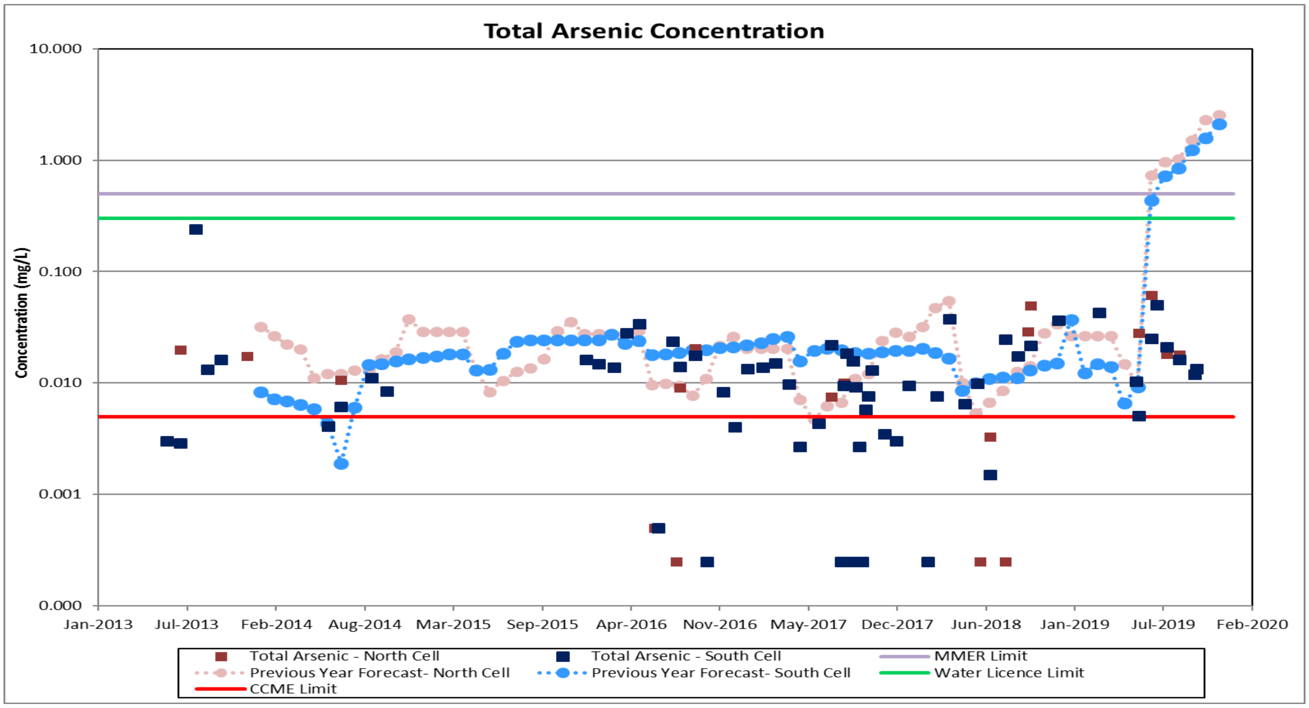


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds



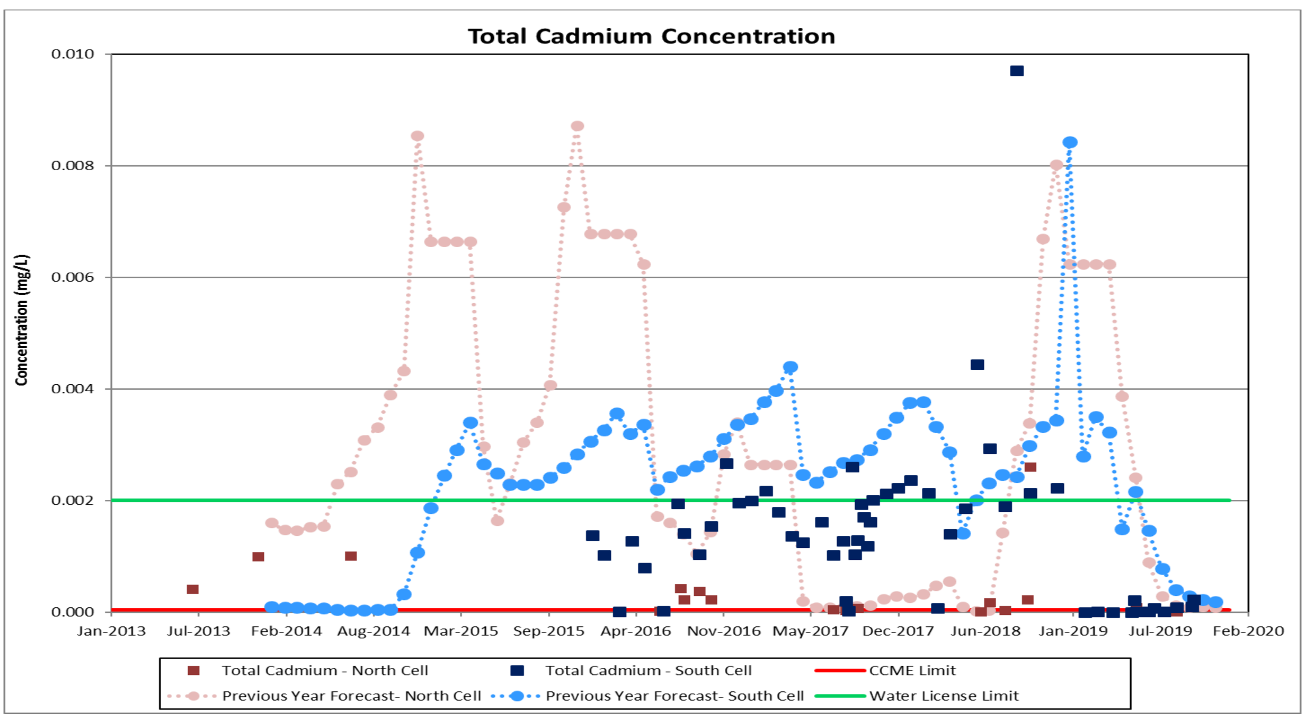
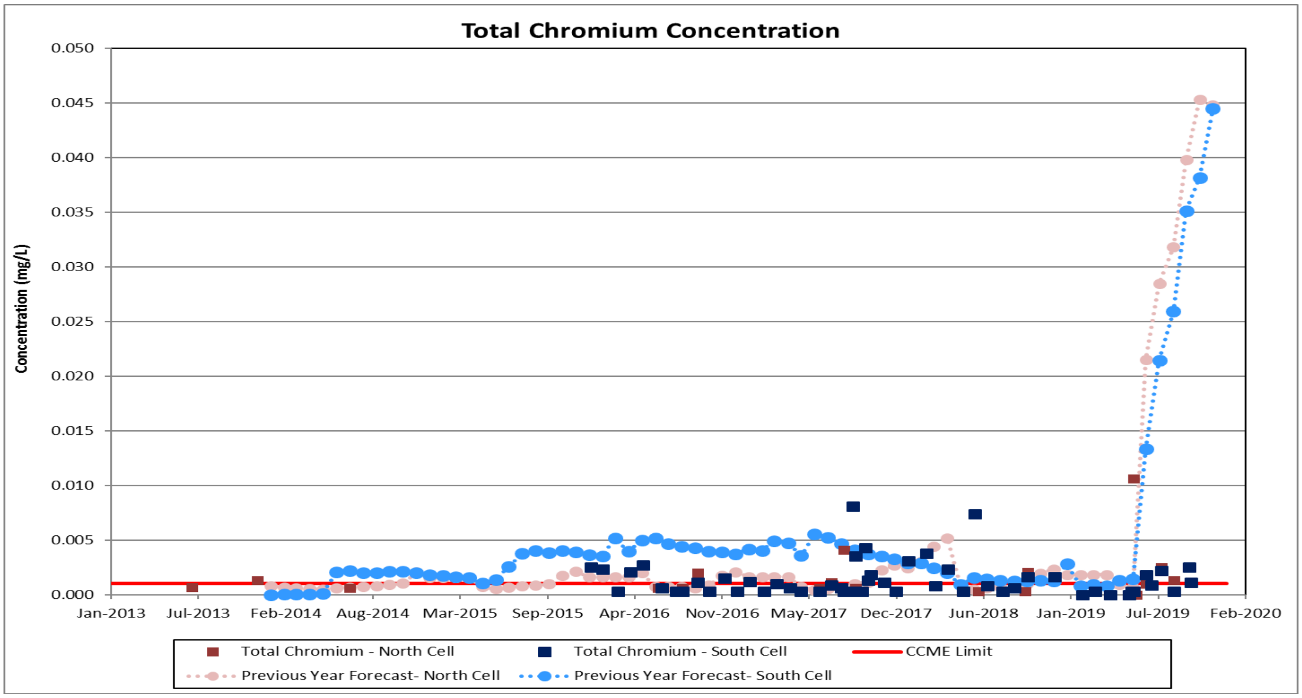


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds



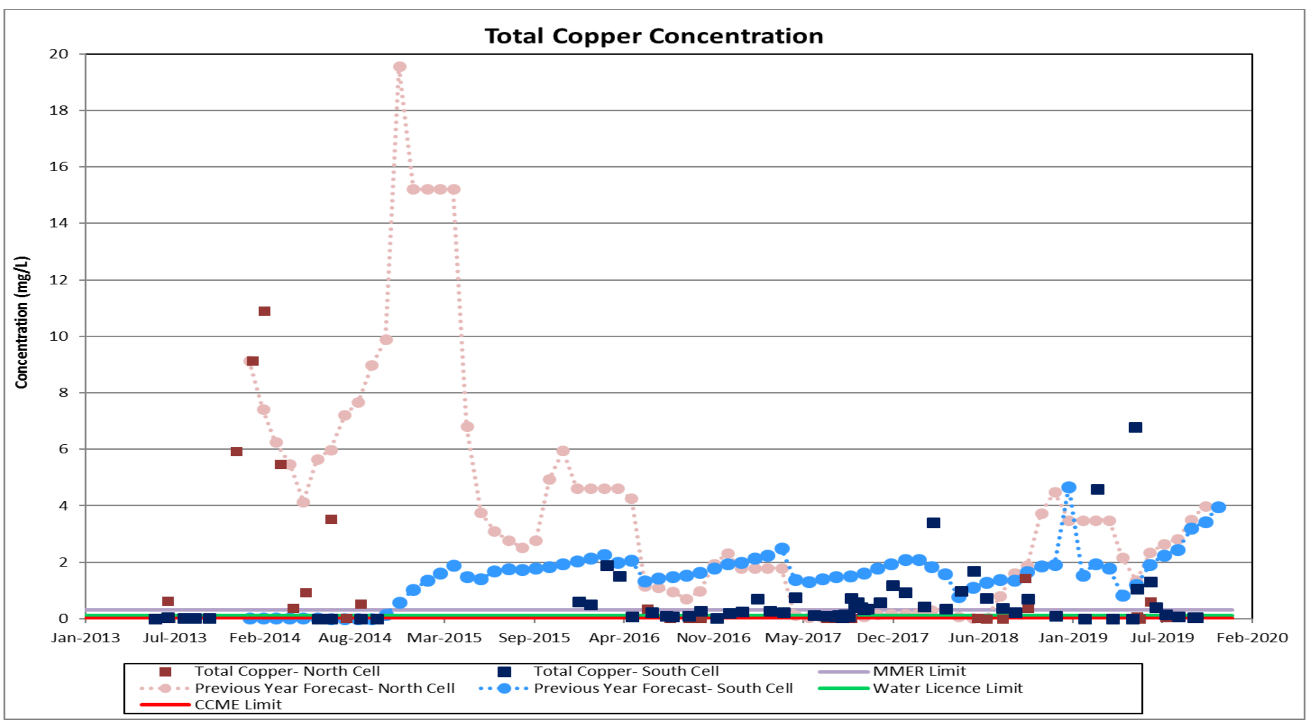
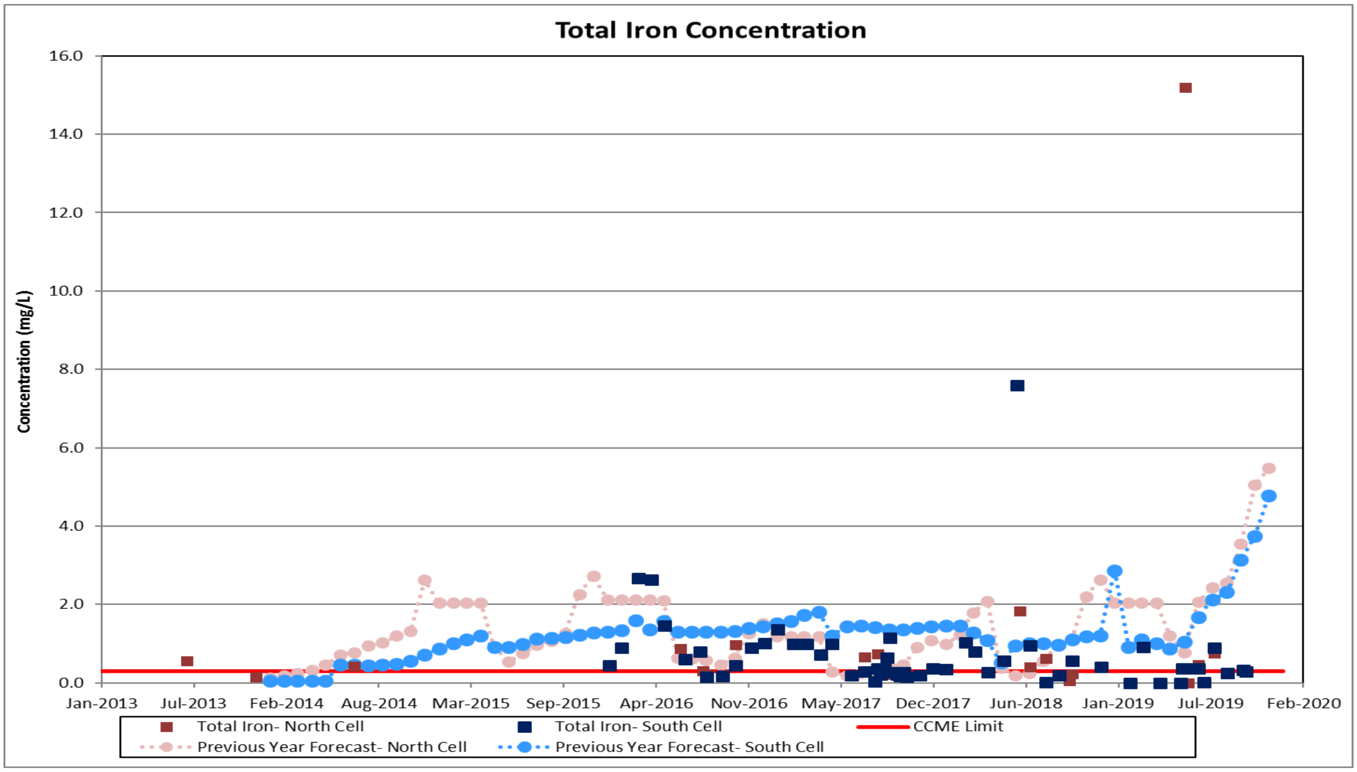


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds



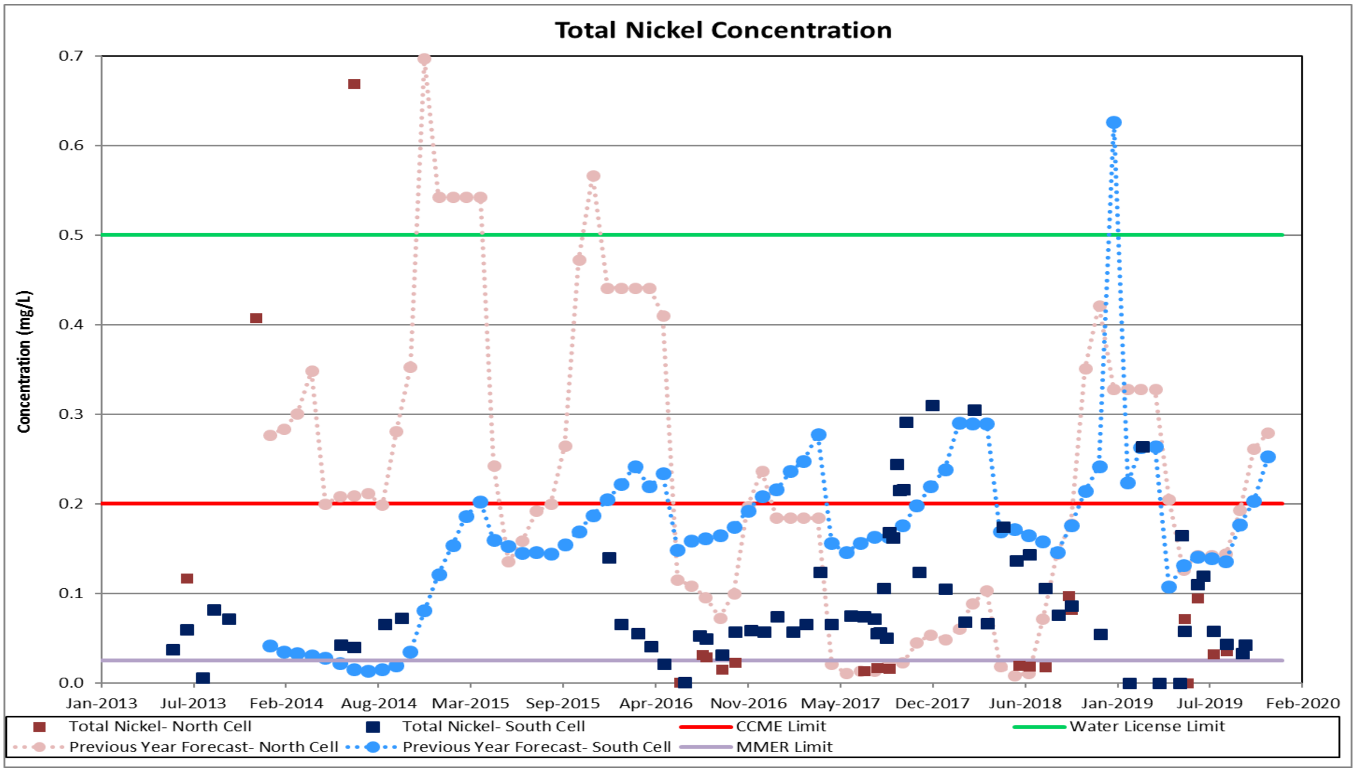
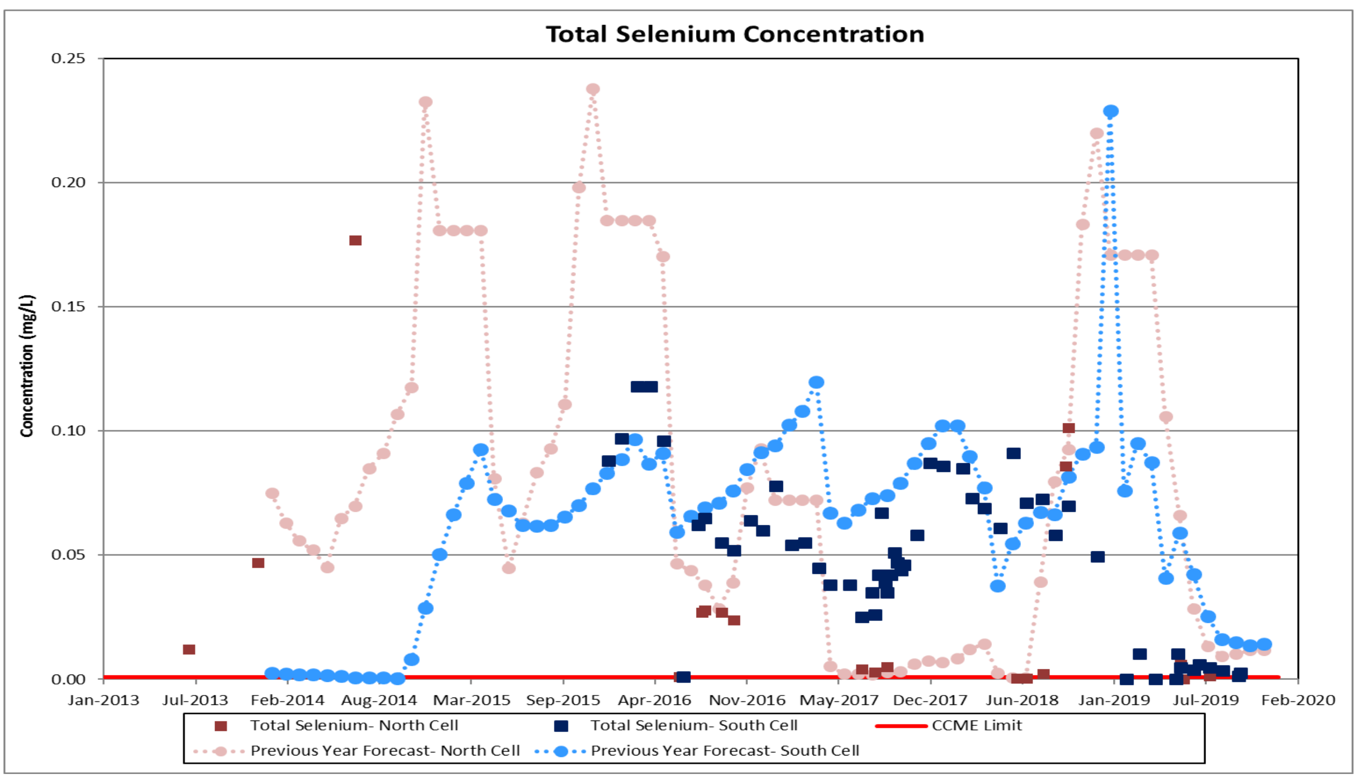


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds



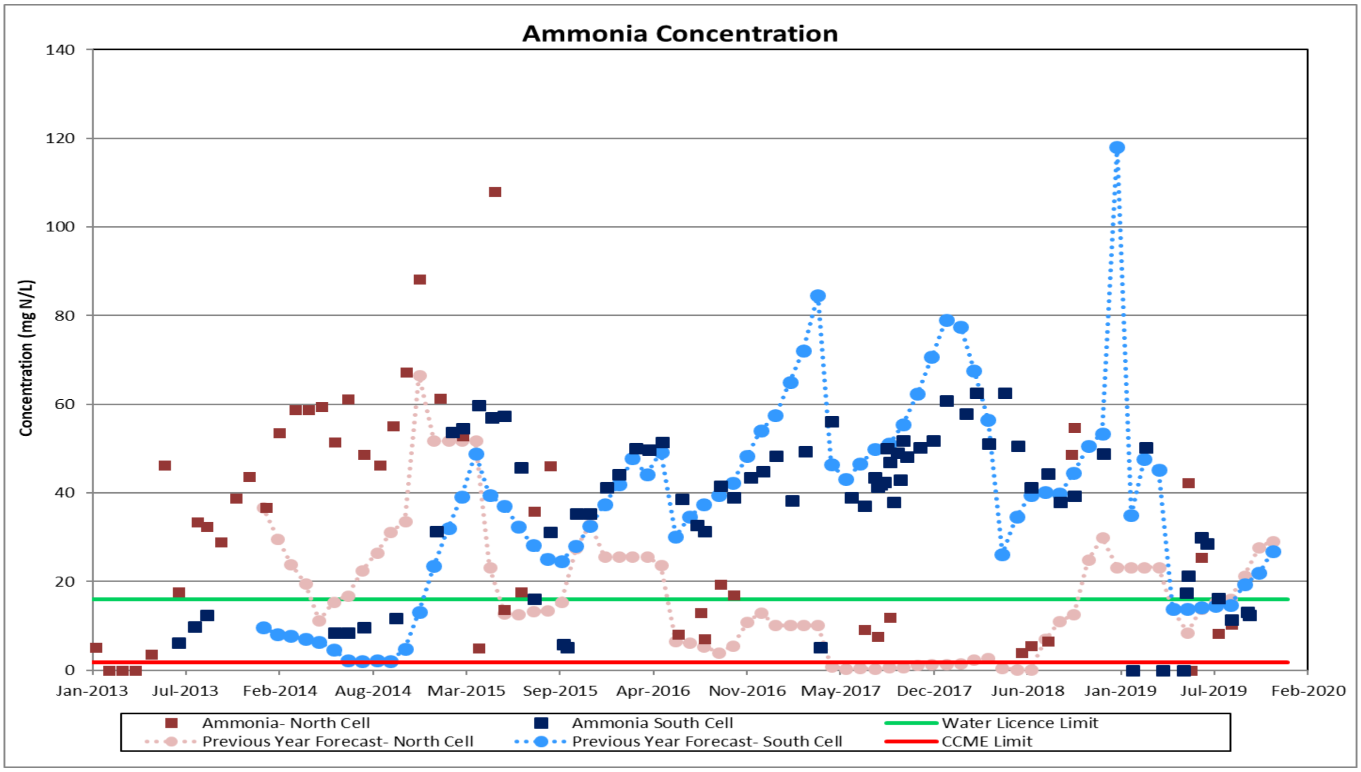
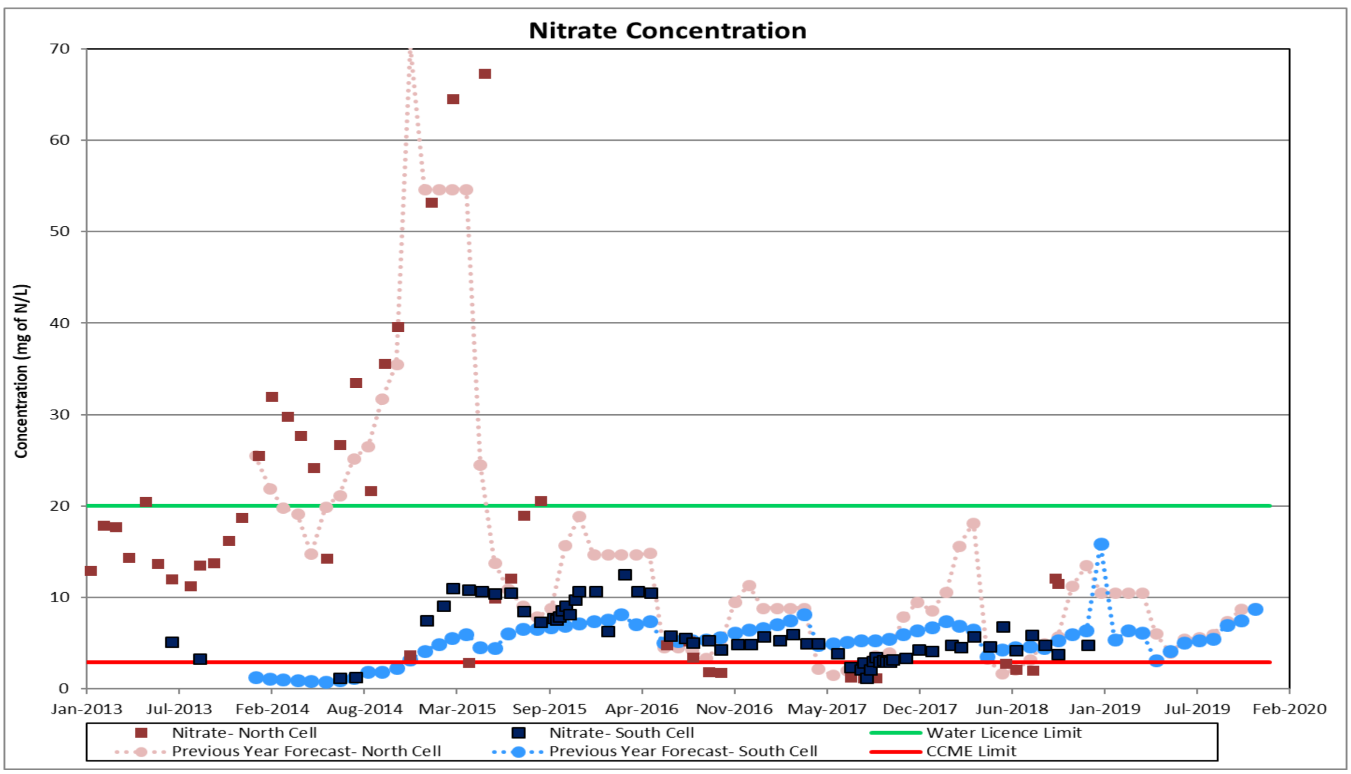


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds



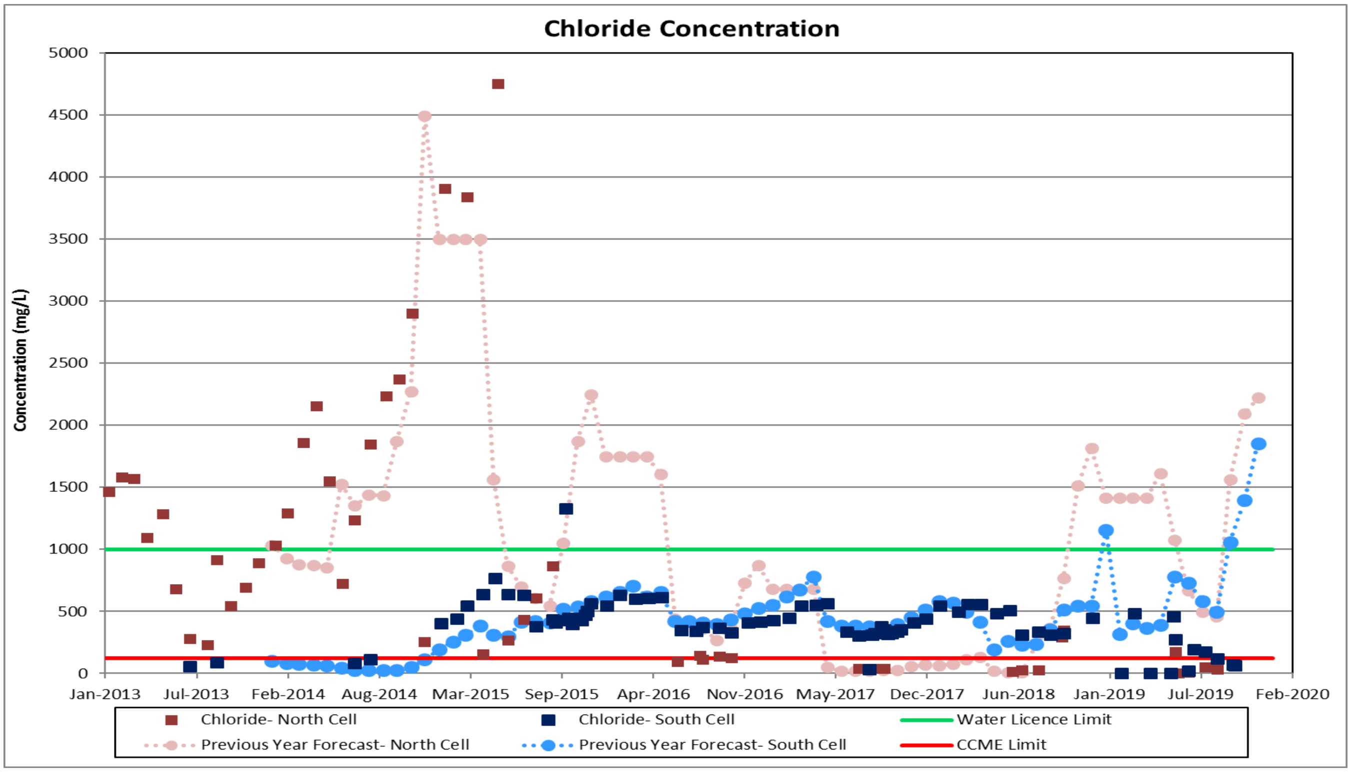


Figure 2-1: (continued) Concentration in the North and South Cell TSF Reclaim Ponds

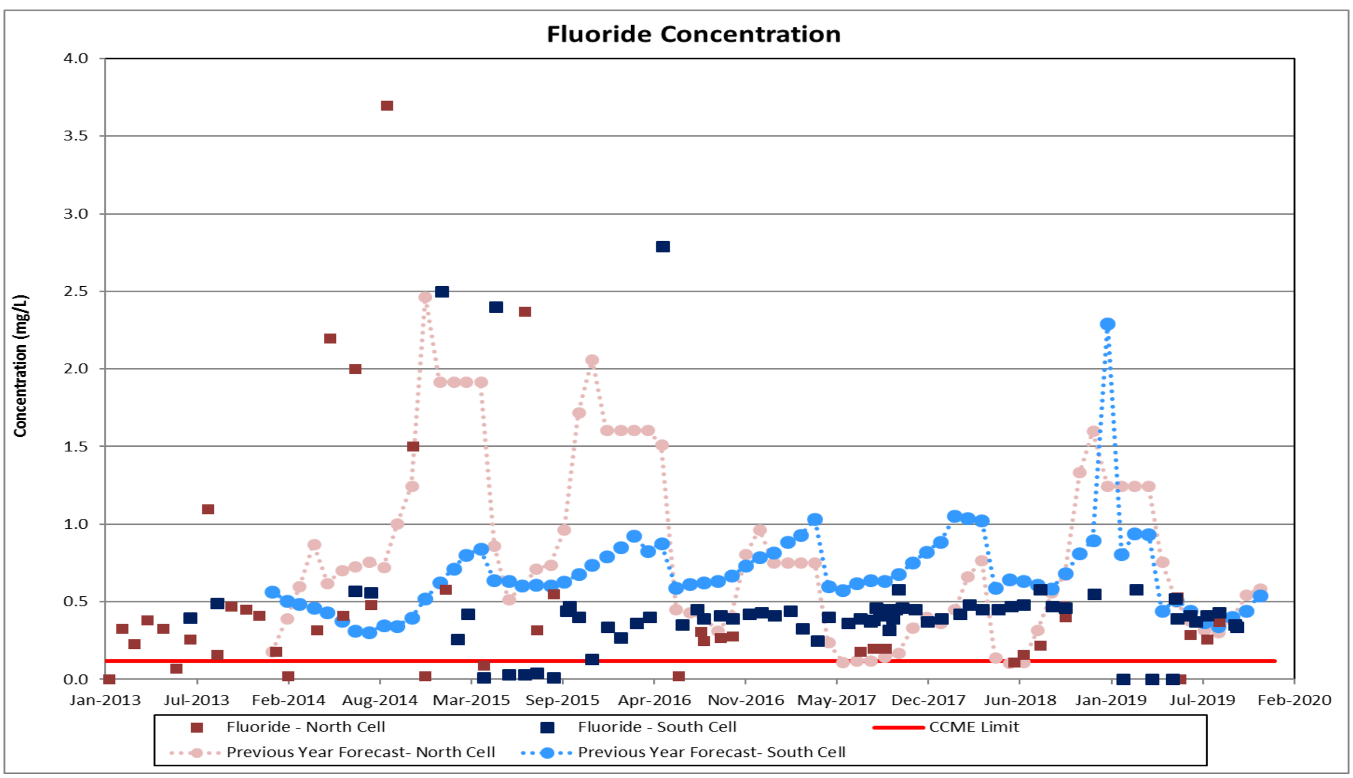


Table 2-3 summarizes the observations that can be made based on the measured values and forecasted concentrations as shown in Figure 2-1. For some parameters, the graphs observations have been divided into North Cell TSF Reclaim Pond (NC) and South Cell TSF Reclaim Pond (SC). The forecasted values are based on the previous model (SLI 2019).

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 low for most of the 2019 year except for the sample collected in June. The concentration is generally decreasing throughout the rest of the year. For comparison purposes only, concentration were below MDMER and Water Licence criterion for all the analysed samples except for one sample collected in June where the measured concentration was above the Water Licence criteria. The concentrations are generally above CCME limit.	**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 2019, it was forecasted that there would be a cyanide increase in the cell since in last year LOM, tailings was to be deposited in the NC in 2019 for 8 months. However, tailings were only deposited in NC for 4 months.
	SC: Measured concentrations were low for most of the 2019 year except for the sample collected in March. The concentration is generally decreasing throughout the rest of the year. For comparison purposes only, concentrations in the South Cell are generally below MDMER and Water Licence criterion. In March 2019, the concentration was above MDMER criteria. The concentrations are generally above CCME limit.	**SC:** Forecasted concentrations don't follow the same trend as the measured values in 2019. The model forecasted an important increase in cyanide concentrations which is not the case in the measured values since in last year LOM, a larger volume of reclaim water from NC to SC was considered in the model.
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 consider 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.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Aluminum	**NC:** Measured values are relatively low except for a sample collected in June . For comparison purposes only, the measured concentrations are generally below Water Licence discharge criteria, and close to the CCME limit. The sample collected in June was above Water Licence discharge criteria. **SC :** Measured values are relatively low. For comparison purposes only, the measured concentrations are below Water Licence discharge criteria, and close to the CCME limit.	**NC:** Forecasted concentrations were higher than measured values. **SC:** Forecasted concentrations were higher than the measured values.
Total Arsenic	**NC & SC:** Measured concentrations are relatively low. For comparison purposes only, all of the collected samples showed concentrations below MDMER and Water Licence criterion but above CCME limit.	**NC:** For the first half of 2019, the measured values were a bit higher than the forecasted values. For the second half, the model tends to increase and the measured values show a small decreasing trend. **SC:** For the first half of 2019, the measured values were close to the forecasted values. For the second half, the model tends to increase and the measured values show a small decreasing trend.
Total Cadmium	**NC:** Measured concentrations are generally below the detection limit. For comparison purposes only, all the samples were below MDMER and Water Licence criterion and a sample collected in June was above CCME limit. **SC:** Measured concentrations are generally below the detection limit. For comparison purposes only, all the samples were below MDMER and Water Licence criterion and samples collected in May, July, September and October were above CCME limit.	**NC:** Forecasted values were in general similar to the measured values, except for the peak registered in the first half of 2019 by the model which is not showed in the measurements. **SC:** Forecasted values in 2019 where higher than what was measured, except for the end of the year where both are similar

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Chromium	**NC:** Measured concentrations are generally low. For comparison purposes only, the concentrations are generally close to the CCME limit. **SC:** Measured concentrations are generally below the detection limit. For comparison purposes only, concentrations are generally close to the CCME limit.	**NC & SC:** Forecasted concentrations were generally higher than the measured values. Refer to Total Metals observations. An important increase in the model's values was not correlated in the measurement taken in 2019. This diversion between the measured and the forecasted values is expected since in last year LOM, tailings was to be deposited in the NC in 2019 for 8 months. However, tailings were only deposited in NC for 4 months.
Total Copper	**NC:** Measured total copper seems relatively constant through 2019. For comparison purposes only, measurements in 2019 were generally below the MDMER and Water Licence criterion except for the sample collected in July and are generally above CCME limit. **SC:** In general, measured total copper is higher during winter period than during summer period. For comparison purposes only, measurements are generally higher than MDMER and Water Licence criterion from March 2019 to August 2019 and are above CCME limit from September to October.	**NC:** For the second half of 2019, the measurement and forecasted values take different trends, downward for the measurement and upward for the model. This diversion between the measured and the forecasted values is expected since in last year LOM, tailings was to be deposited in the NC in 2019 for 8 months. However, tailings were only deposited in NC for 4 months. **SC:** Forecasted concentrations are lower than the measured values for the first half of 2019. For the second half of 2019, the measurement and forecasted values take different trends, slightly downward for the measurement and upward for the model.
Total Iron	**NC:** Measured concentrations were generally low except for the sample collected in June. The concentrations seem to decrease through the year. For comparison purposes only, measurements are below MDMER and Water Licence criterion and generally above CCME limit. Measured concentrations were generally lower than the forecasted values. **SC:** Measured concentrations were generally low. For comparison purposes only, measurements are below MDMER and Water Licence criterion and generally above CCME limit. Measured concentrations were generally lower than the forecasted values.	Refer to Total Metals observations.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Nickel	**NC:** Measured values are generally constant. For comparison purposes only, the concentrations are above MDMER criteria but lower than Water Licence and CCME criterion. Measured values are lower than the forecasted values. **SC:** Measured values seem to decrease through the year. For comparison purposes only, concentrations are above MDMER criteria and are generally lower than Water Licence and CCME criterion. Measured concentrations were generally lower than the forecasted values.	Refer to Total Metals observations.
Selenium	**NC & SC:** Measured concentrations are generally constant in 2019. For comparison purposes only, the concentrations are generally above CCME limit.	**NC & SC:** Forecasted values were in general similar to the measured value, except for a peak in forecasted values in early 2019.
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 June and July 2019, which coincided when deposition was taking place in the NC. For comparison purposes only, concentrations are generally above Water Licence and CCME criterion. **SC:** Total ammonia concentration increased from January to March, and then decreased the following months This coincided with the end of deposition in the SC TSF. For comparison purposes only, concentrations are generally above Water Licence and CCME criterion.	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 was processed at the mill. **NC:** As there was no tailings deposition in North Cell at the start of 2018, forecasted total ammonia concentration is close to zero. An increase in ammonia was forecasted once deposition resumed in the NC in Q2 to Q4 2019. However, deposition only occurred over 4 months only. Forecasted concentrations for total ammonia in the North Cell TSF were lower than the measured value, specifically in the months from June to July. **SC:** Forecasted concentrations for total ammonia in the South Cell TSF were lower than the measured value, specifically in the months from May to August.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Nitrate	**NC:** Nitrate concentrations were not measured in 2019. **SC:** Nitrate concentrations were not measured in 2019.	**NC:** Nitrate concentrations were not measured in 2019. **SC:** Nitrate concentrations were not measured in 2019.
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:** Chloride concentrations were relatively low throughout 2019. For comparison purposes only, the concentrations are generally below Water Licence and CCME criterion except for a sample collected in June which is above CCME limit. **SC:** Measured values from 2019 were generally higher for the first half of 2019 and showed a decrease through the year. For comparison purposes only, measurements from February to August were above CCME Limit.	**NC & SC:** Forecasted concentrations are similar in the first half of 2019. For the second half the measurement and forecasted values take different trends, slightly downward for the measurement and upward for the model.
Fluoride	**NC & SC:** Fluoride concentrations were more or less constant during the year. For comparison purposes only, the concentrations are generally above CCME limit.	**NC:** The forecasted values are following the measurement trend. Peak in forecasted values cannot be correlated to measurement due to lack of data. **SC:** The forecasted values are following the measurement trend except for the first half of 2019. During this period, measurement are lower than the forecasted values.

2.4 Mill Effluent

A review of the chemical analysis for the Mill Effluent was undertaken by SLI to identify the impact of the Mill Effluent water quality on the water quality observed in the North and South Cell TSF Reclaim Ponds as well as in both Portage and Goose pits. The Mill Effluent is tested twice daily for gold (solid and dissolved), 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 2019.

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 2019. 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, 2018 and 2019 for copper and CN-WAD are generally higher, as shown in Figure 2-3. This figure also shows that the concentrations were generally higher in 2019 than the 2016 to 2018 concentrations.

Figure 2-2: Mill Effluent Monthly Average 2019 : Iron, Copper and Cyanide (CN-WAD)

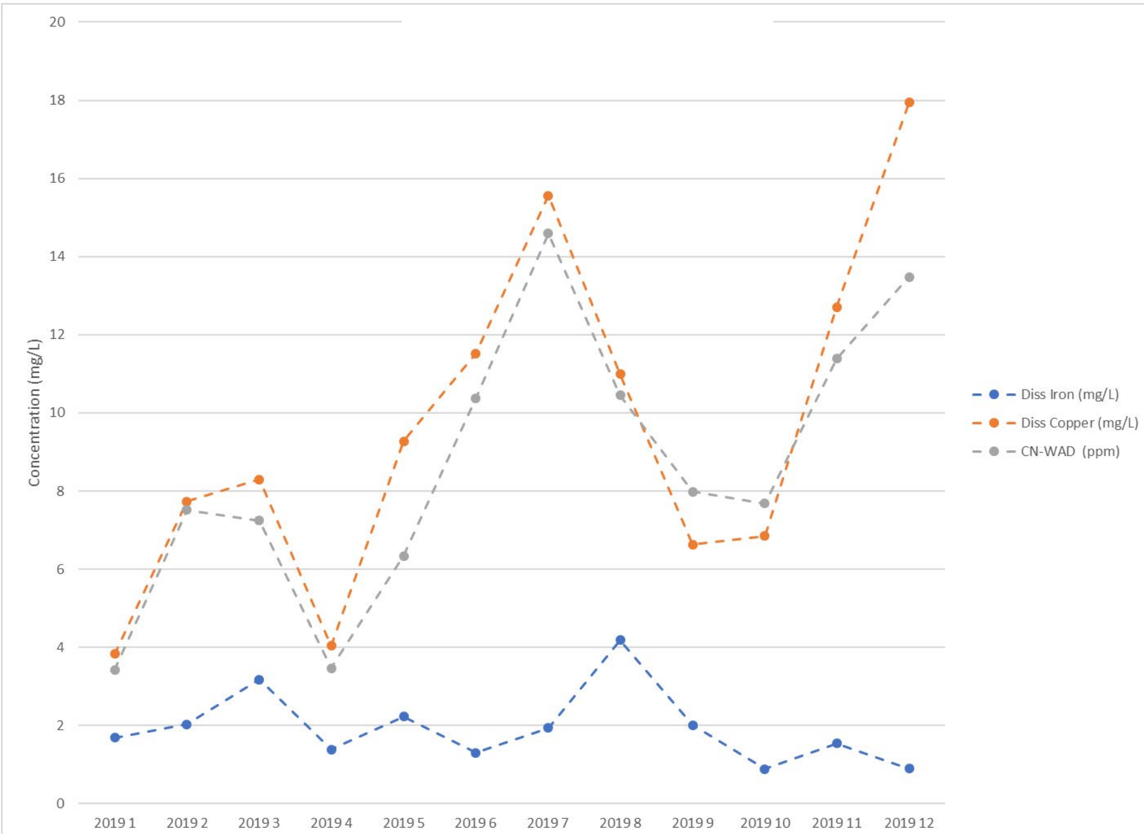
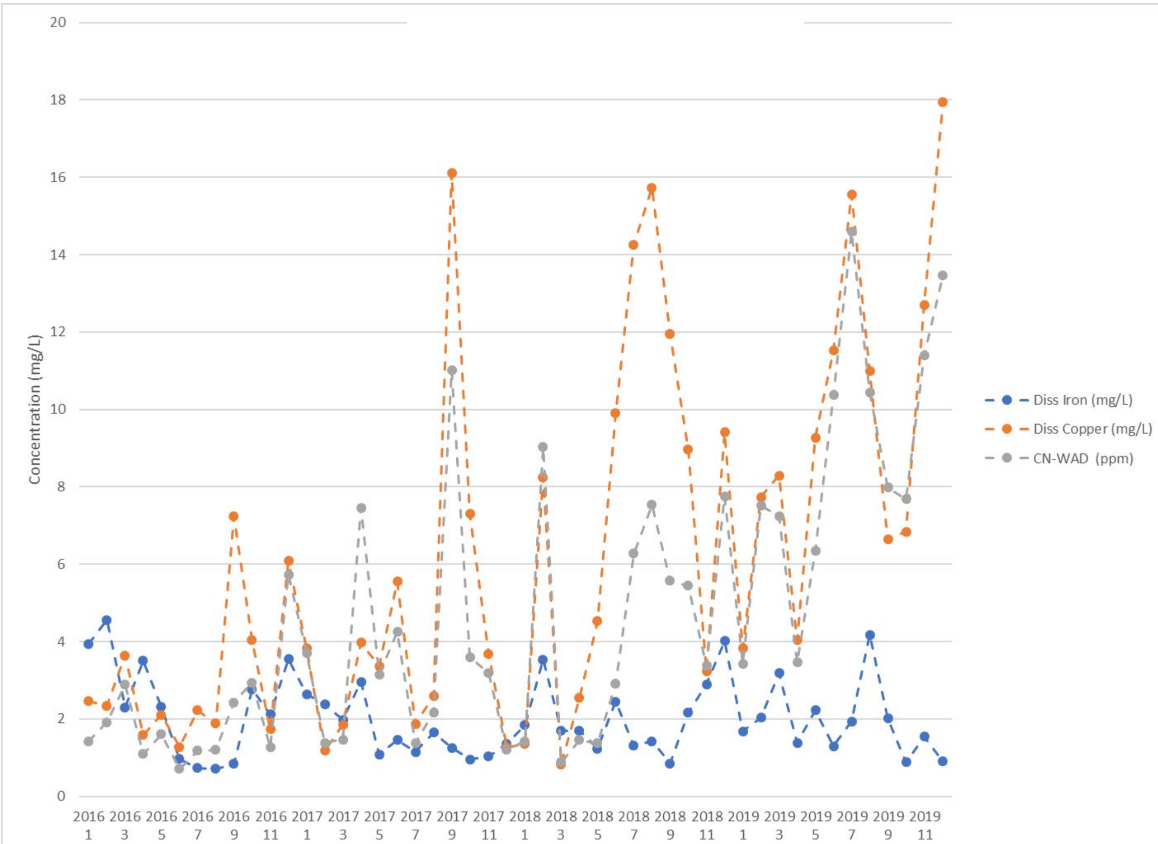


Figure 2-3: Mill Effluent Monthly Average 2016 to 2019 : Iron, Copper and Cyanide (CN-WAD)



2.4.1 Additional Mill Effluent Water Quality Results

Agnico analyzed five (5) different samples of the water fraction of Mill Effluent after cyanide destruction to have representative data of the tailings water being discharged to the North and South Cell TSF and to Goose Pit in 2019. These samples are taken punctually throughout the year. The water quality analysis was completed by an external accredited laboratory.

The chemical analysis results of the quarterly Mill Effluent samples taken in 2019 are presented in Appendix A and concern parameters were plotted in Figure 2-4 and Figure 2-5. Please note that Whale Tail ore processing began in August 2019. This ore has a distinctive effect on the metal concentration but not on the ion's concentration. The metal concentrations are raised up to two orders of magnitude higher than the Meadowbank ore registered concentration.

Since there is no water quality data to adjust the impact of the mill effluent produced when processing Whale Tail ore on the modelled reclaim water quality, assumptions have been made to reduce the concentration of most of the total metals. The correction ratio has been calculated from the difference between total concentration and the dissolved one assuming that the majority of the total suspended solids present in the mill effluent shall settle out in the TSF. They are comprised between 0% (ex.: Mercury) to 99% (ex.: Aluminium).

Figure 2-4: Mill Effluent Concentrations Sampled in 2019 – Total Metals

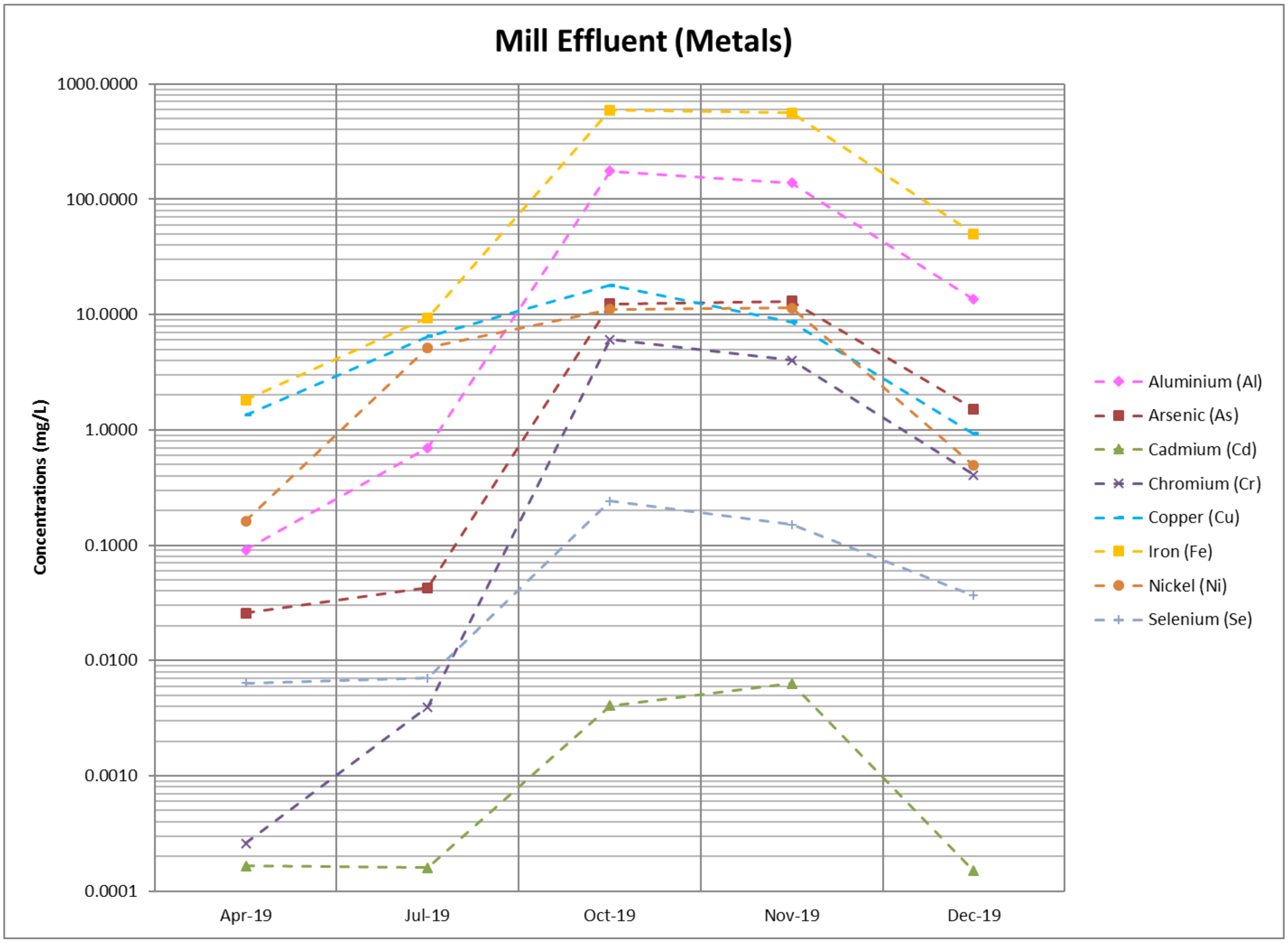
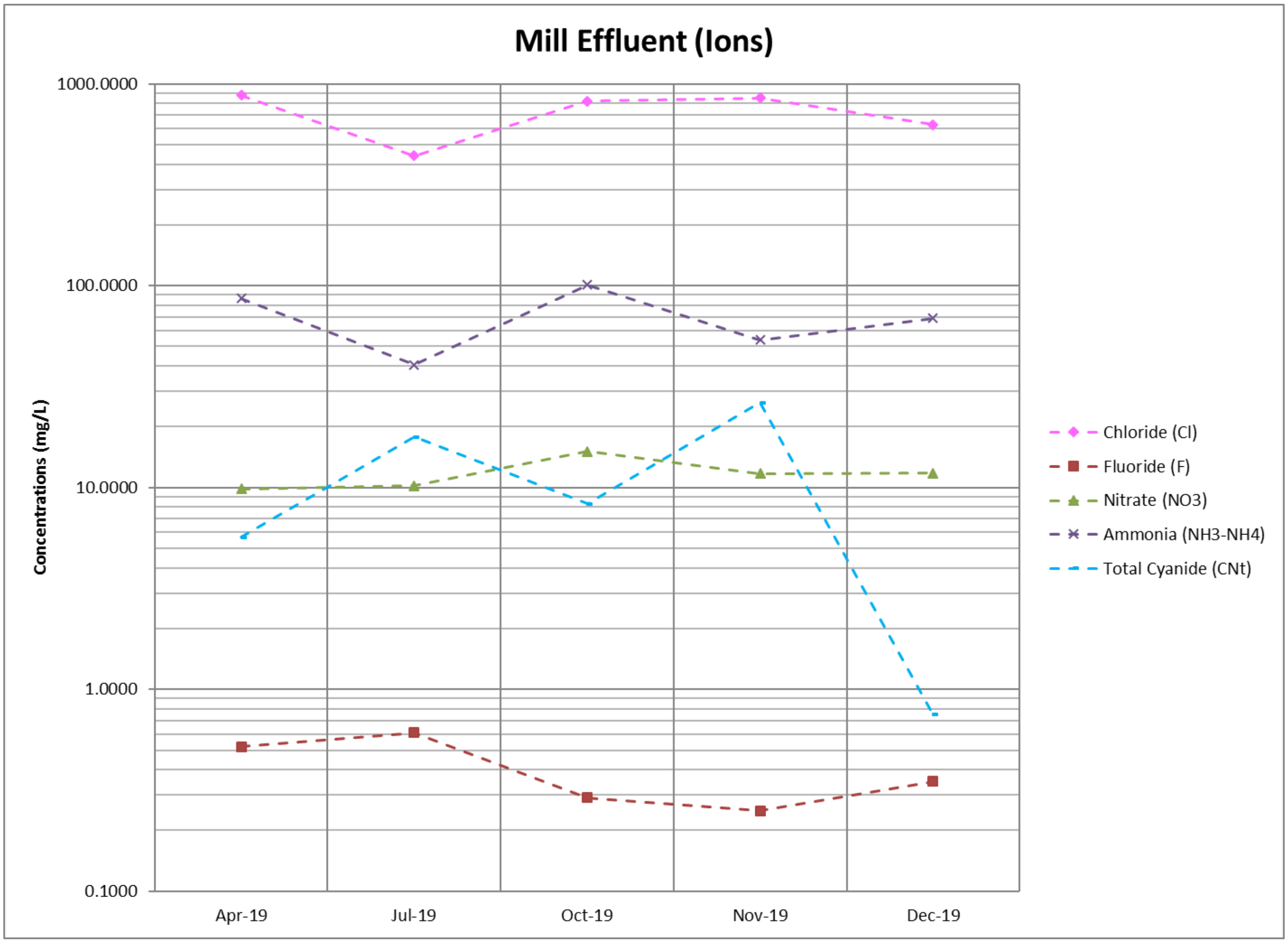


Figure 2-5: Mill Effluent Concentrations Sampled in 2019 – Ions



Samples of mill effluent were taken and analysed throughout the year (4 to 5 times a year) to compare the concentration of key parameters. Table 2-4 compares the yearly average Mill Effluent samples between 2015 and 2019 and South Cell TSF Reclaim Pond water quality for the concerned parameters.

Table 2-4: Mill Effluent Concentrations Sampled in 2019

PARAMETER	MILL EFFLUENT CONCENTRATION (mg/L)						SOUTH CELL (mg/L)
	Average 2015	*Average 2016*	*Average 2017*	*Average 2018*	*Average 2019 w/o Whale tail*	*Average 2019 Whale tail*	*Average 2019*
Total Cyanide (CNt)	18.2	9.3	20.4	6.263	11.730	11.780	0.95
Total Aluminum (Al)	0.629	0.326	1.541	2.249	0.394	109.533	0.10
Total Arsenic (As)	0.036	0.026	0.018	0.025	0.034	9.007	0.02
Total Cadmium (Cd)	0.0020	0.0003	0.0072	0.0004	0.0002	0.0035	0.0001
Total Chromium (Cr)	0.002	0.001	0.009	0.005	0.002	3.496	0.001
Total Copper (Cu)	11.0	3.6	5.3	0.161	3.925	9.149	1.61
Total Iron (Fe)	5.9	2.8	6.9	6.533	5.575	401.733	0.42
Total Nickel (Ni)	0.423	0.024	0.982	0.026	2.661	7.664	0.10
Total Selenium (Se)	0.131	0.166	0.076	0.131	0.007	0.143	0.005
Ammonia (NH_3-NH_4)	127	105	79	84	64	75	22.3
Nitrate (NO_3)	15.9	13.3	12.7	8.978	10.030	12.867	-
Chloride (Cl)	775	558	630	515	660	767	206.3
Fluoride (F)	0.545	0.645	0.335	0.680	0.565	0.297	0.422

With regard to the Mill Effluent measurements from 2019 without Whale Tail ore (i.e. ore from Portage and Vault pits), they are similar to those from 2015 to 2018, except for nickel and selenium. Nickel is almost 3 times higher than the highest concentration registered in 2017 for example and selenium is 10 times lower than the lowest concentration also registered in 2017.

With regard to the Mill Effluent measurements from 2019 with Whale Tail ore processing, the concentration are generally higher than those measured in the previous years. The most important change is for chromium which is 3 order of magnitude higher than the previous year's data. The aluminum, arsenic and iron concentration are 2 order of magnitude (100 to 300 times) higher than the previous year's concentration. Finally, the nickel and copper concentration are 2 to 10 times higher than the previously recorded data.

The average concentrations in the 2019 Mill Effluent without Whale Tail ore remains higher than the average measured concentrations in the South Cell in 2019. These results indicate that the main parameters of concern identified in the South Cell TSF Reclaim Pond can be traced to the Mill Effluent. The concentration of the 2019 Mill Effluent with Whale Tail ore processing is not representative of the South Cell 2019 data. Furthermore, the water quality data available at Goose Pit was sampled at the start of in-pit deposition and is not representative of the reclaim water quality expected.

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 recirculated the accumulated water downstream of Central Dike back to the South Cell Reclaim Pond from 2015 to 2019 to control the pond of water accumulated at the base of Central Dike to an elevation of 115 masl, per the action plan on the Central Dike. Some seepage water accumulated downstream was also transferred to Goose and Portage Pits in 2019.

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, 2018 and part of 2019 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 Dike Downstream Pond to Goose Pit. Between May and November of 2019 water downstream of Central Dike was discharged to the Portage Pit (i.e. North Portage Pit (Pit A)). Additionally, 358,156 m^3 of reclaim water were transferred from the Central Dike Downstream Pond to Goose Pit between May and July 2019.

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 2019 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;

The volume of seepage estimated in 2019 from South Cell TSF to Central Dike Downstream Pond is approximately the same as the volume transferred in 2018. The seepage seems to be regulating itself with the tailing deposition which is possibly reducing the amount of seepage compared to 2017.

Table 2-5: Estimated Monthly Inflows and Outflows to Central Dike D/S Pond for 2019

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	Volume of Water Transferred from Central Dike D/S Pond to Portage Pit (Pit A)
	m^3/month	m^3/month	m^3/month
Jan-19	276,081	171,003	0
Feb-19	220,522	154,560	0
Mar-19	183,072	183,072	0
Apr-19	180,898	180,898	0
May-19	168,080	0	168,080
Jun-19	157,162	0	157,162
Jul-19	405,888	0	405,888
Aug-19	233,389	0	233,389
Sep-19	214,232	0	214,232
Oct-19	138,549	0	138,549
Nov-19	62,085	10,708	51,376
Dec-19	54,105	54,105	0
Total 2019	2,294,063	754,347	1,368,676
		2,123,023	
Total 2018	2,171,246	2,300,416	
Total 2017	4,623,032	4,623,032	

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 2019.

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, cadmium, 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 2019

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)	0.024	0.057	0.213	0.02	0.95	8
Aluminum (Al)	0.0025	0.0206	0.088	0.013	0.099	0.307
Arsenic (As)	0.0097	0.0587	0.0846	0.0051	0.0218	0.05
Cadmium (Cd)	0.00001	0.00014	0.0007	0.00001	8.11E-05	0.00022
Chromium (Cr)	0.0003	0.0008	0.0025	0.0003	0.0011	0.0025
Copper (Cu)	0.00025	0.03061	0.4811	0.039	1.605	6.778
Iron (Fe)	0.02	2.11	3.67	0.005	0.417	0.91
Nickel (Ni)	0.0133	0.0343	0.0794	0.033	0.099	0.264
Selenium (Se)	0.00025	0.00228	0.009	0.0015	0.0052	0.0103
Total Ammonia-Nitrogen (mg N/L)	19.9	25.14	32.2	11.4	22.3	50.2
Nitrates (NO_3) (mg N/L)	No data	No data	No data	No data	No data	No date
Chloride (Cl)	61.9	335	453	21.2	206	484
Fluoride (F)	0.42	0.51	0.62	0.34	0.42	0.58

2.6 Portage and Goose Pits

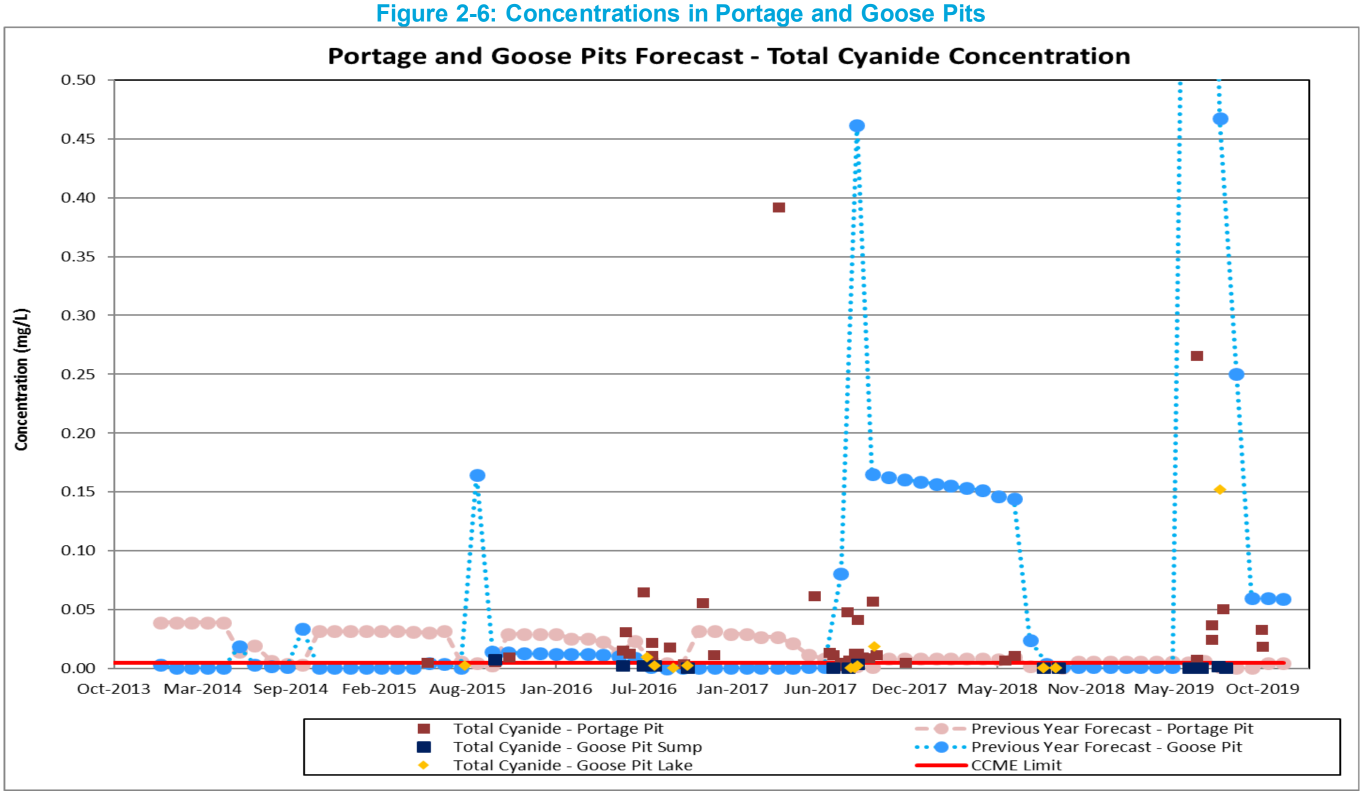
Runoff water accumulates in North Portage Pit (Pit A) since 2017. In 2019, 508,586 m^3 of runoff water, 20,492 m^3 from Stormwater Management Pond, 129,726 m^3 from East Dike seepage, 1,368,676 m^3 from Central Dike pond and 615,600 m^3 of water from Goose Pit were added to Portage Pit total water volume.

While in Goose Pit, as of June 2015, runoff water and seepages were 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 seepage reclaim water was transferred in 2018 to Goose Pit. In 2019, 358,156 m^3 of water was transferred from South Cell downstream pond to Goose Pit. As of July 2019, tailings were deposited in Goose Pit which also added 1,117,576 m^3 of Mill process water to the Goose Pit total volume.

Water quality analysis of samples taken from Portage Pit A (ST-17) and Pit E (ST-19), and in Goose Pit (ST-20) in 2019 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



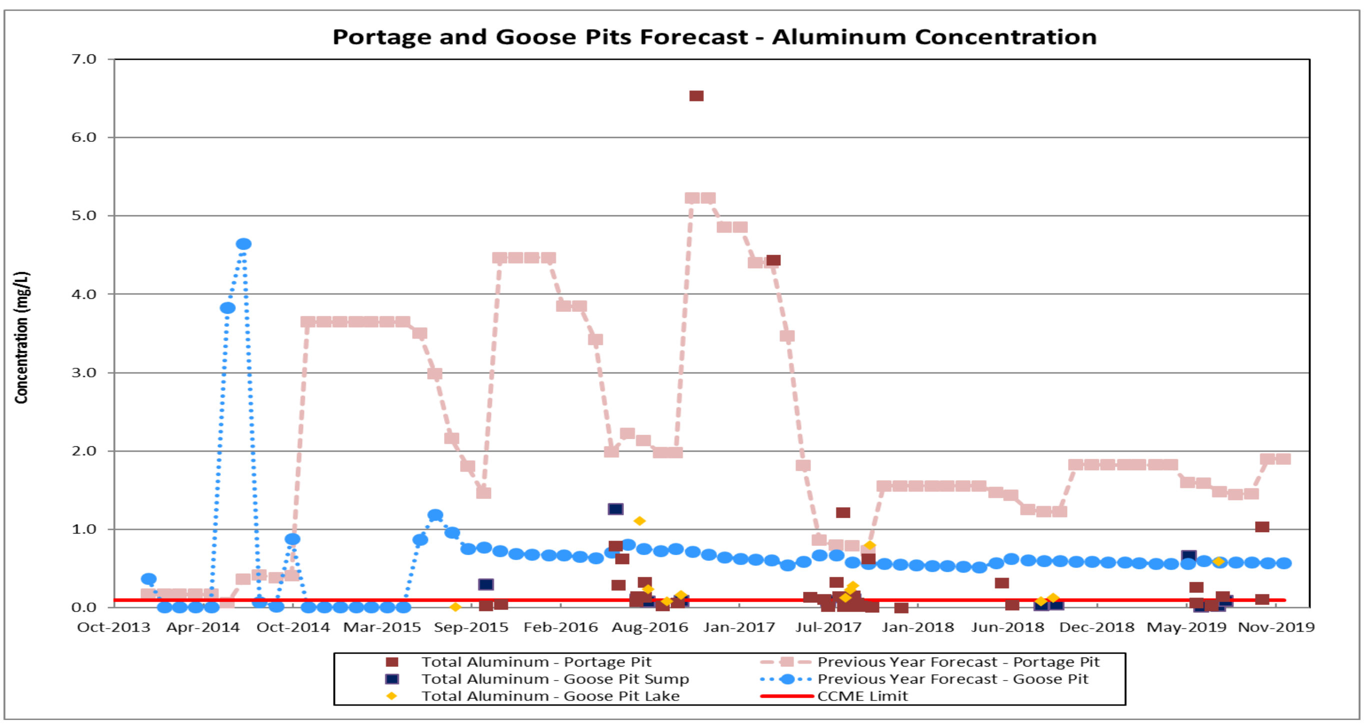
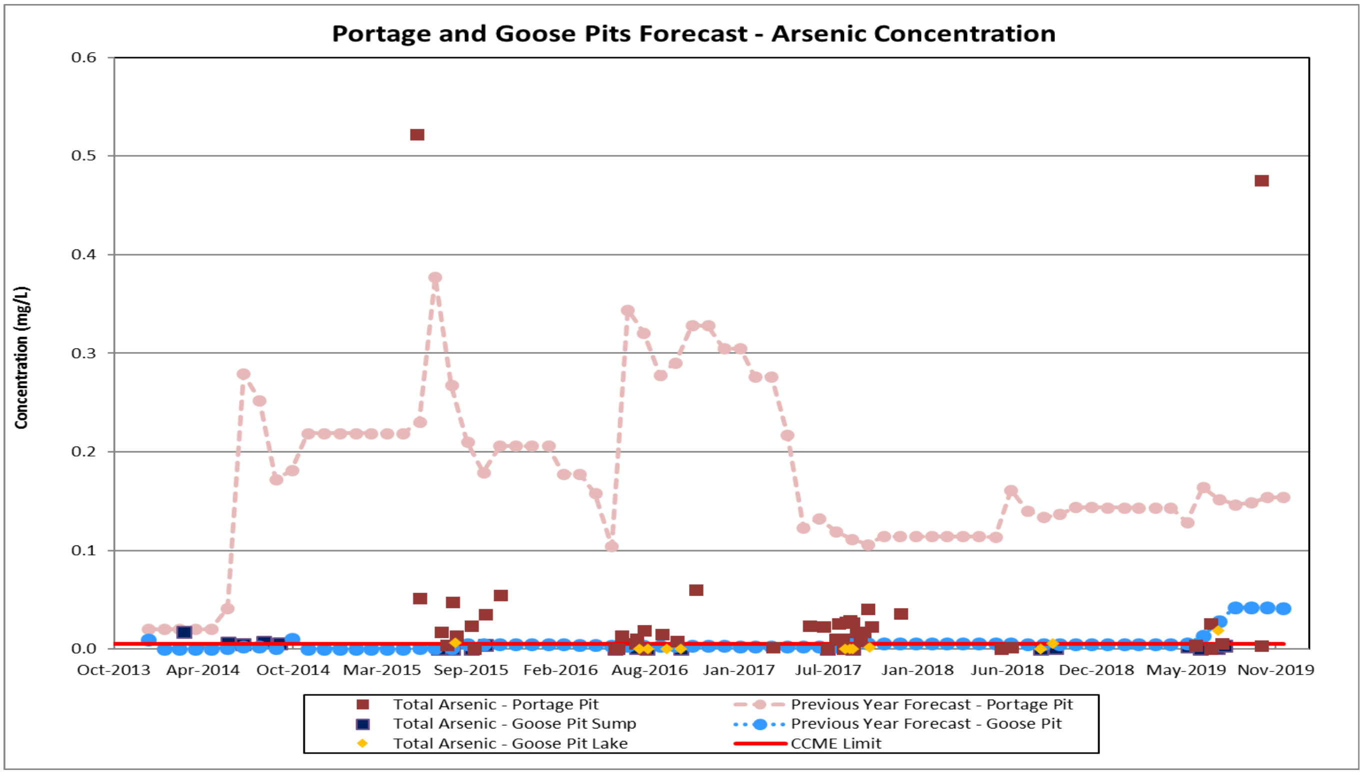


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



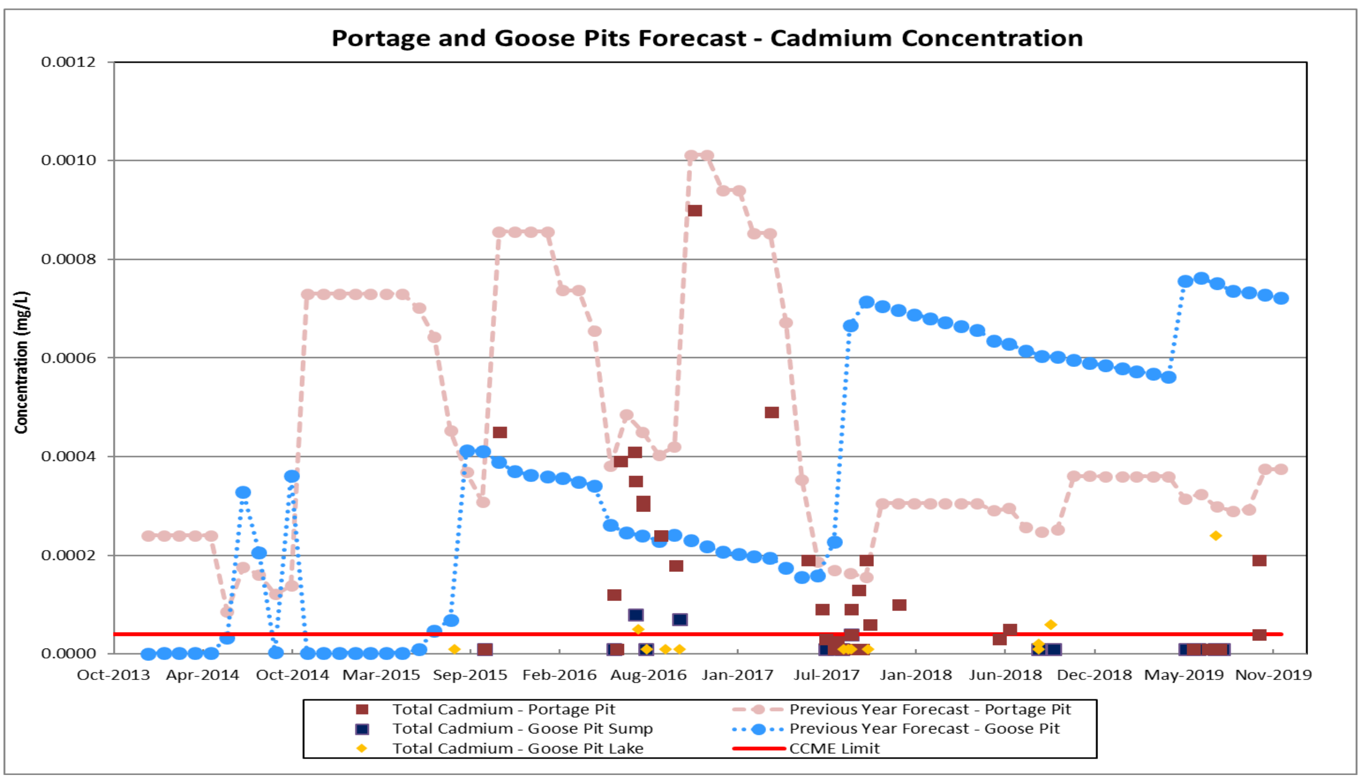
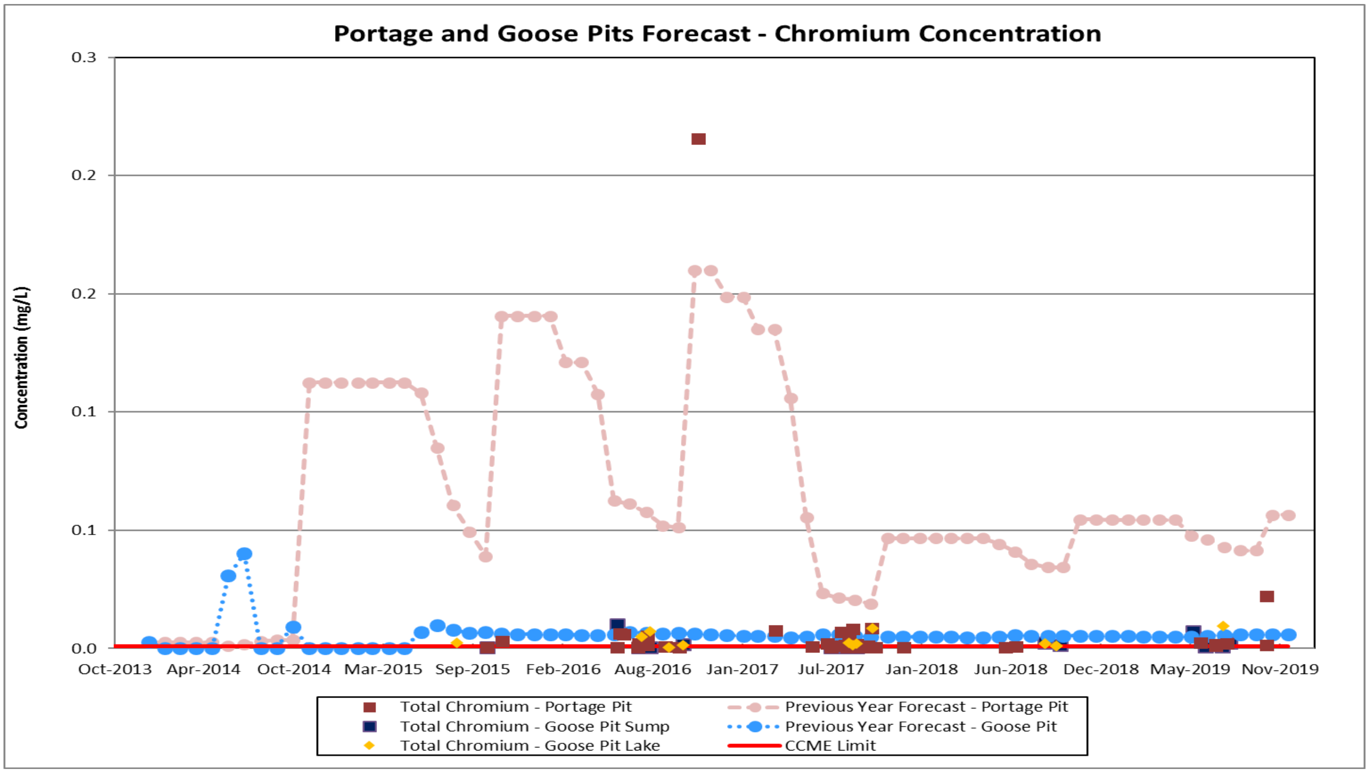


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



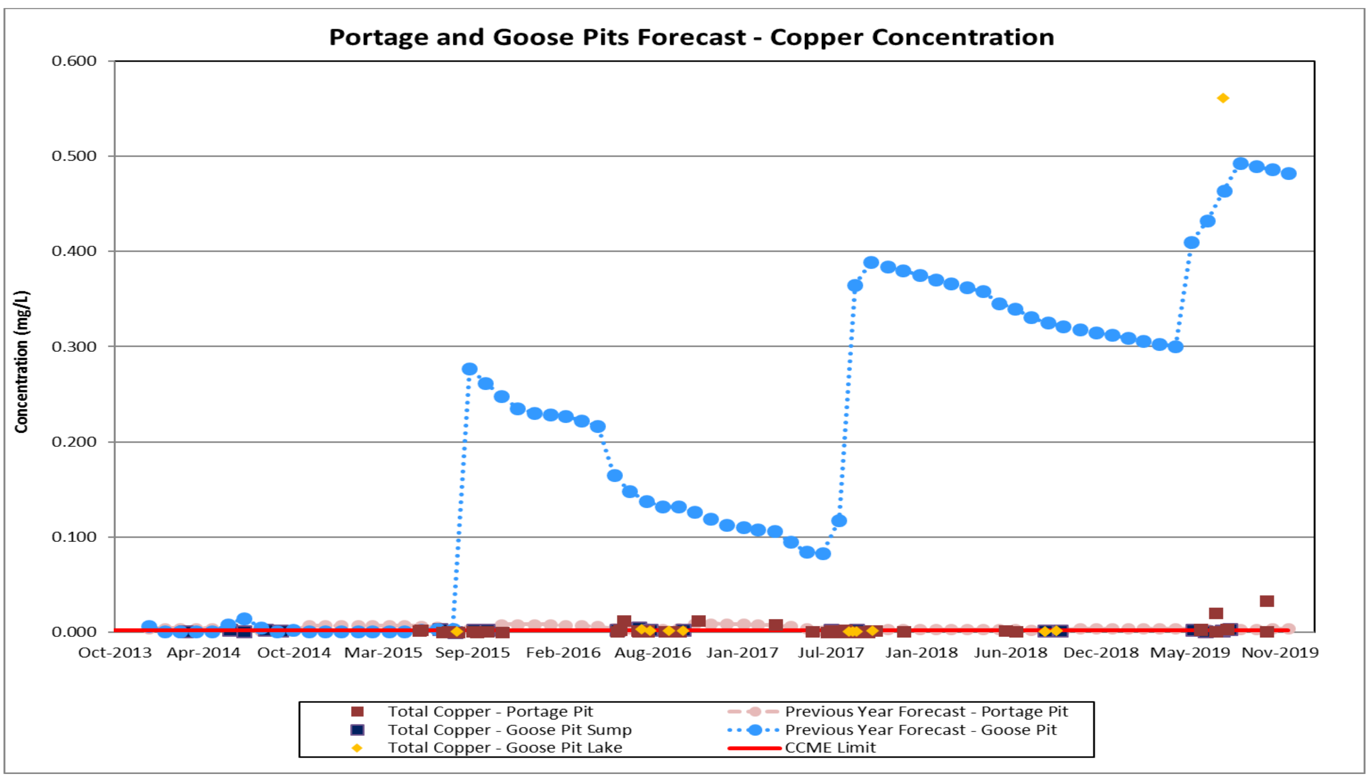
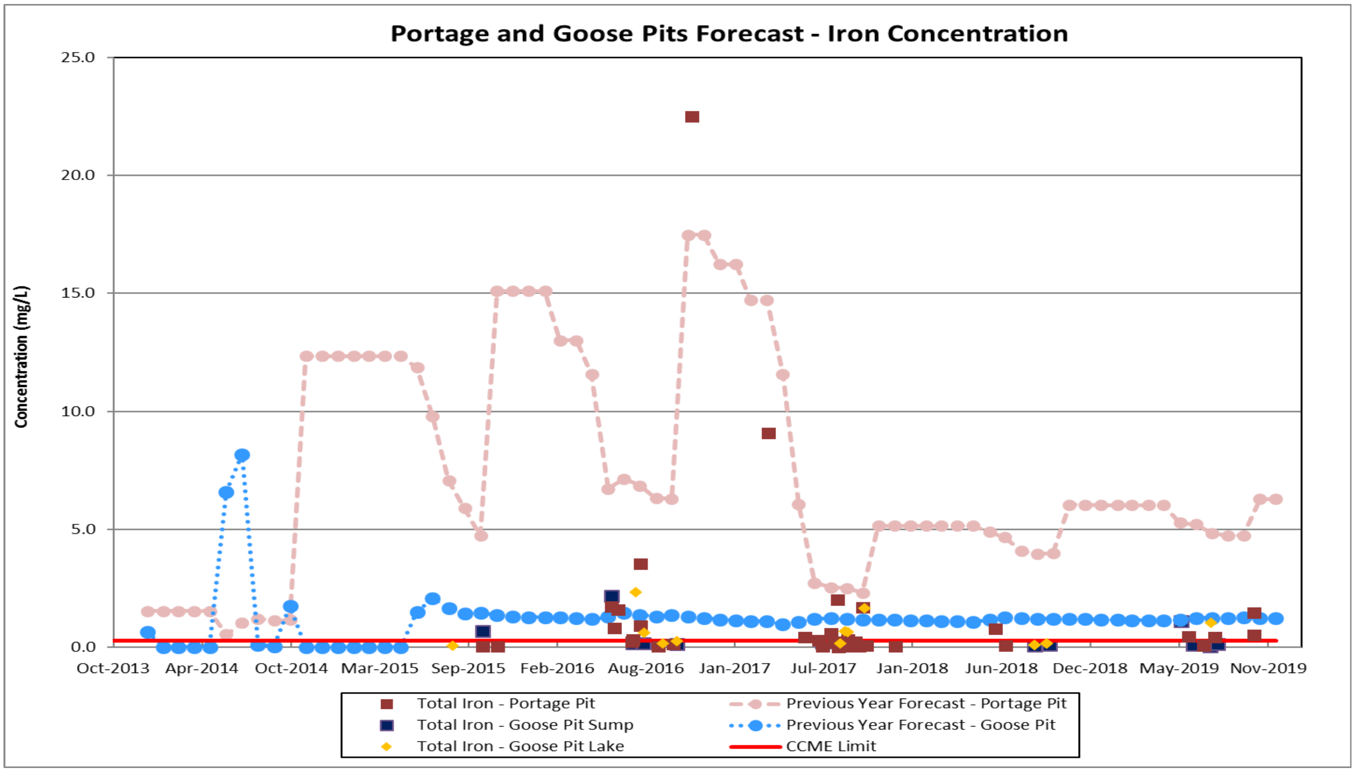


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



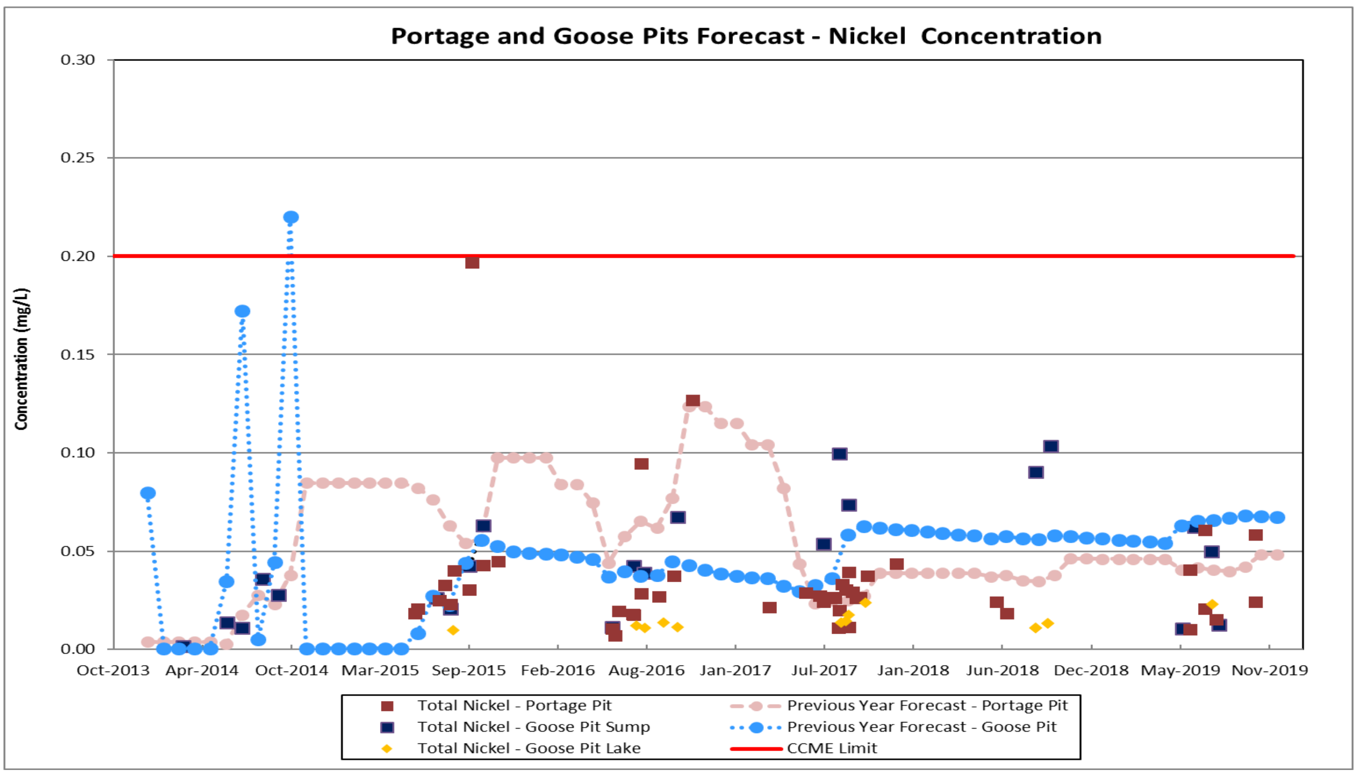
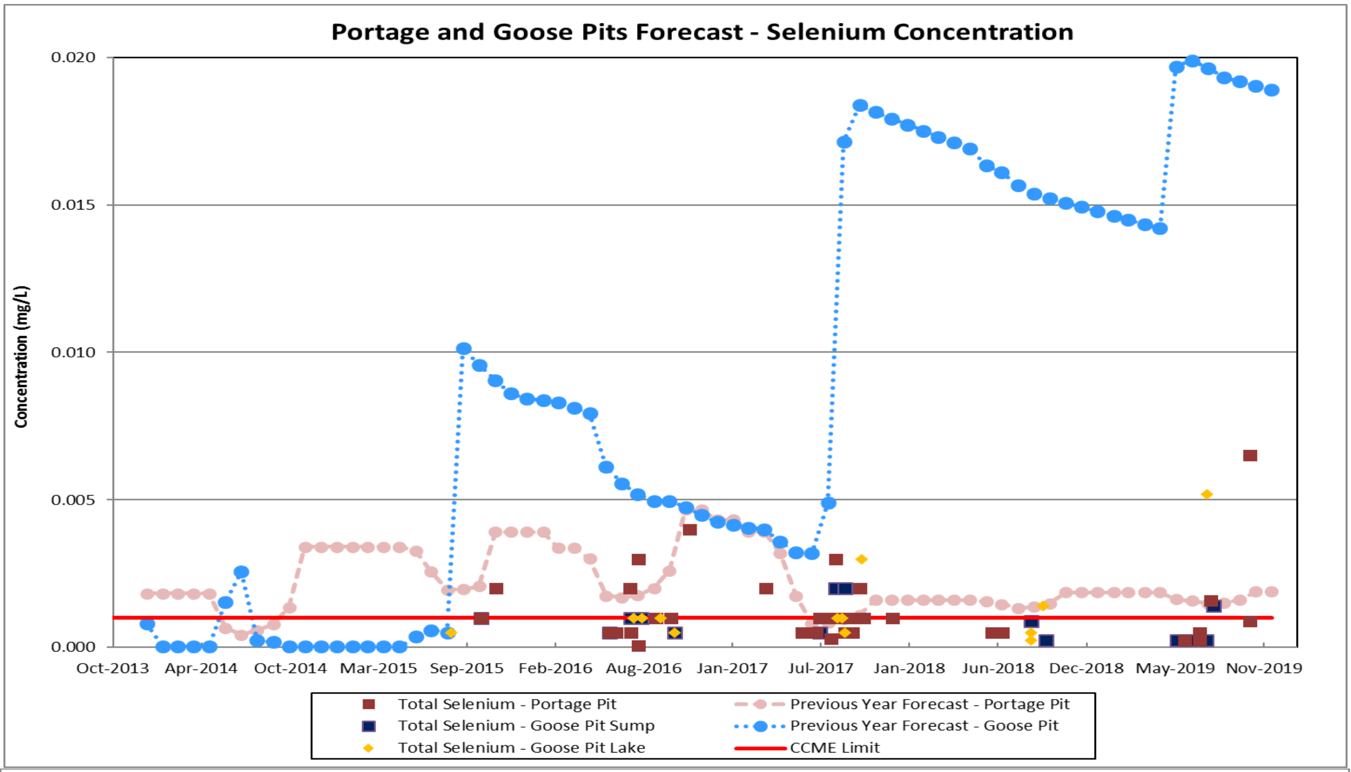


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



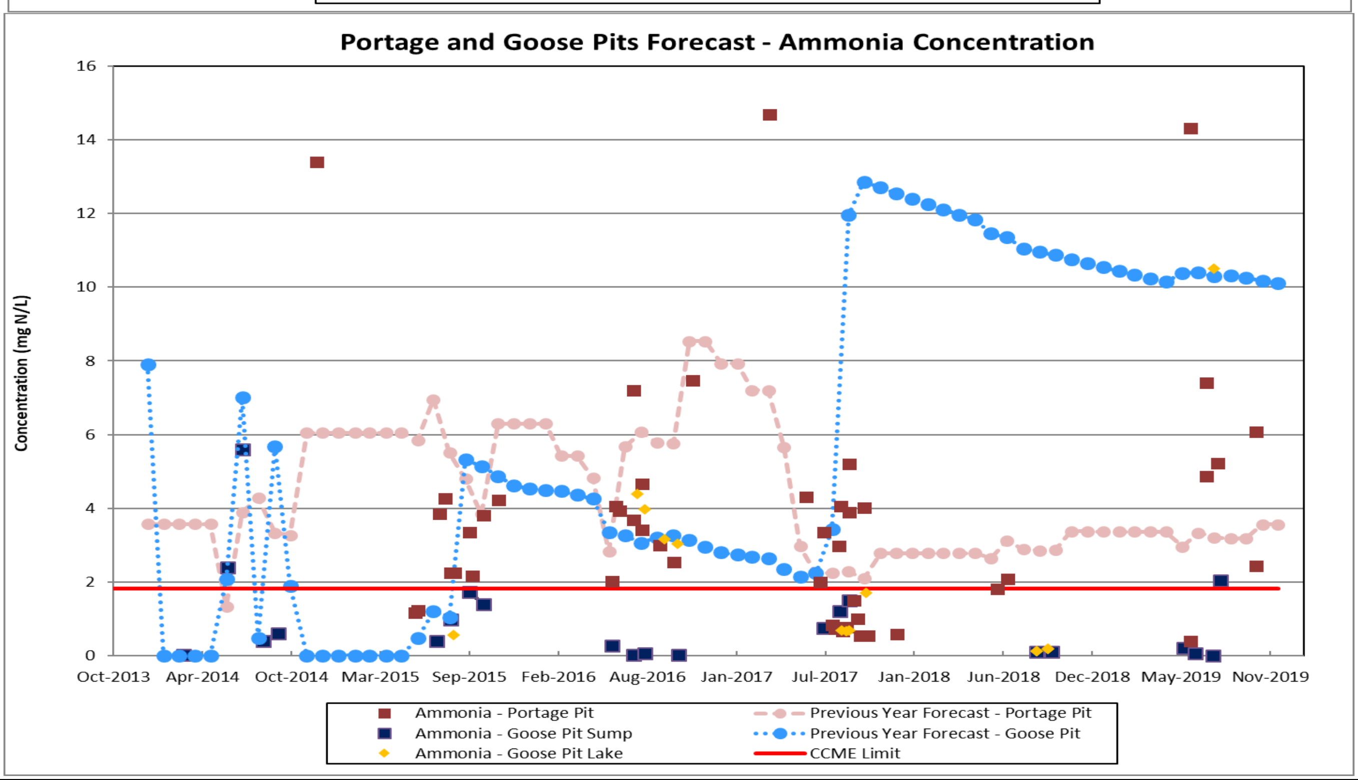
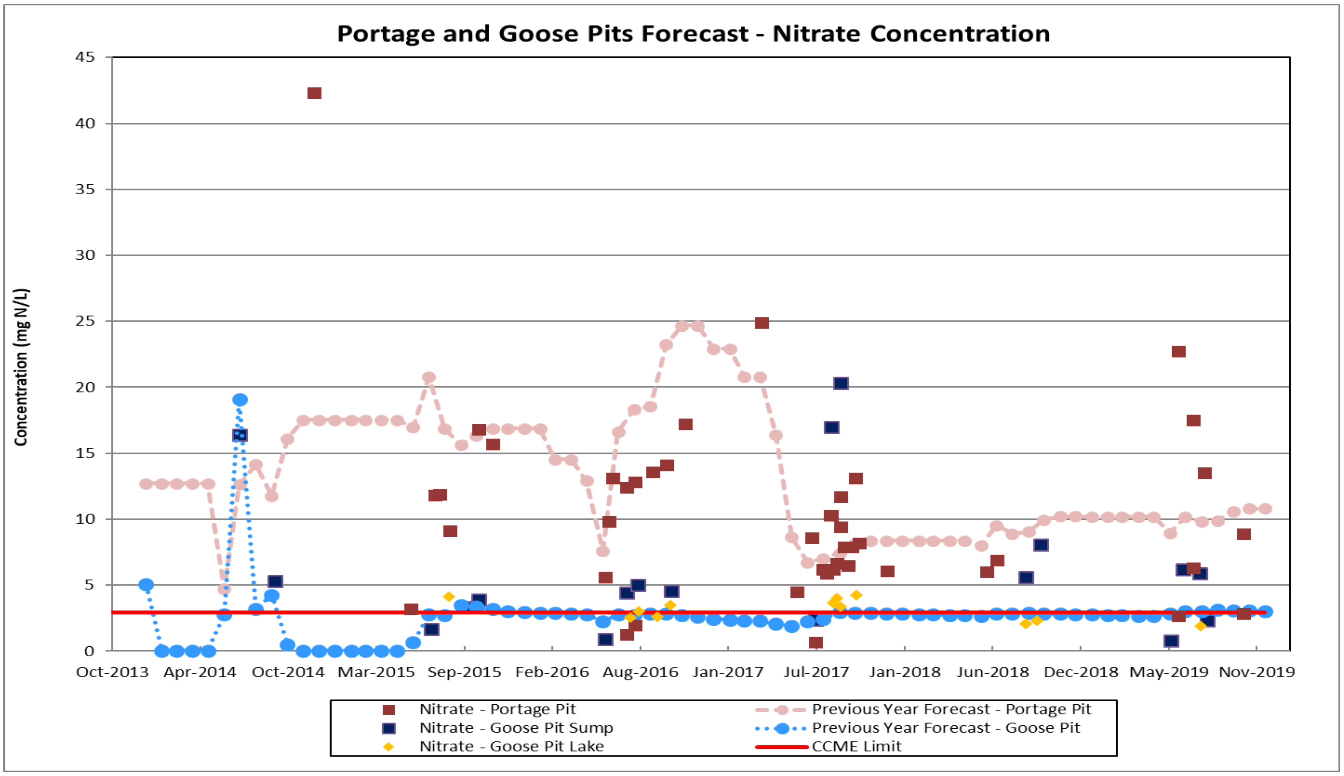


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



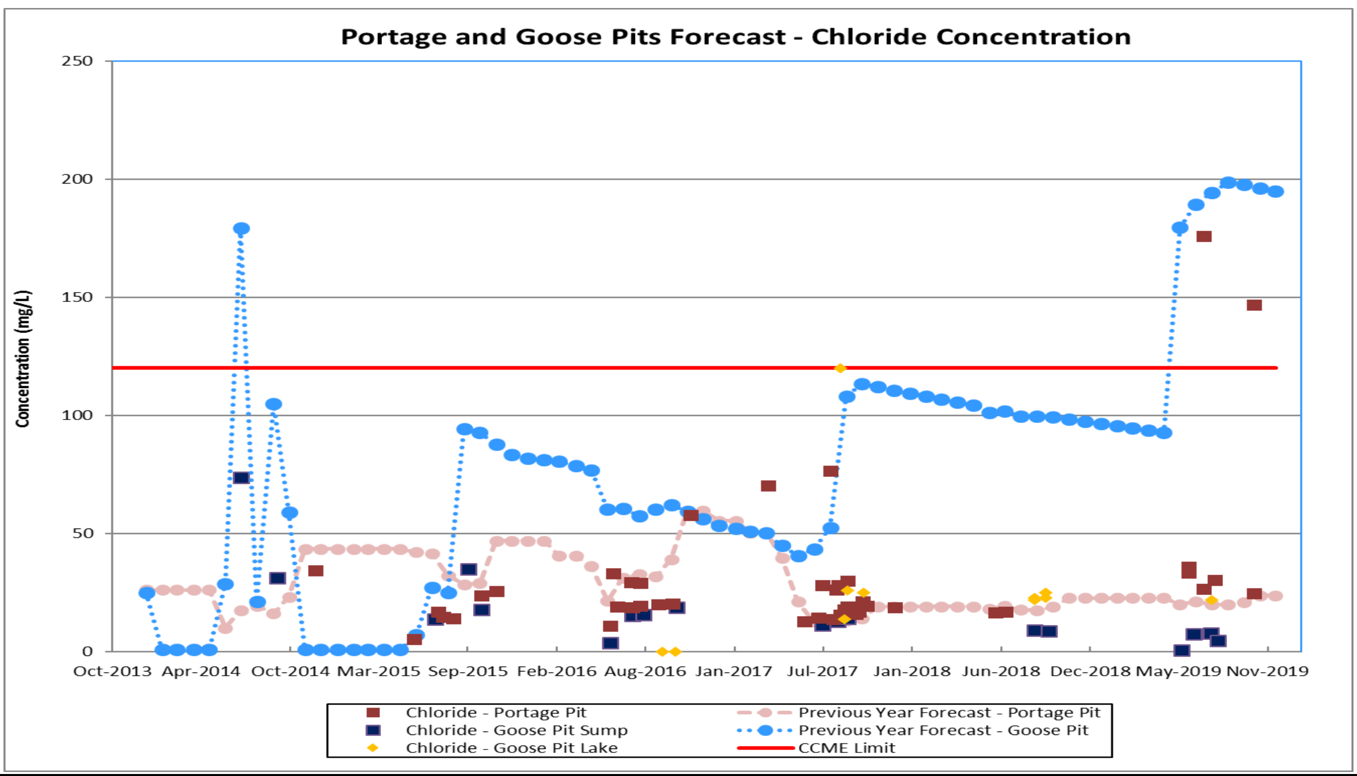
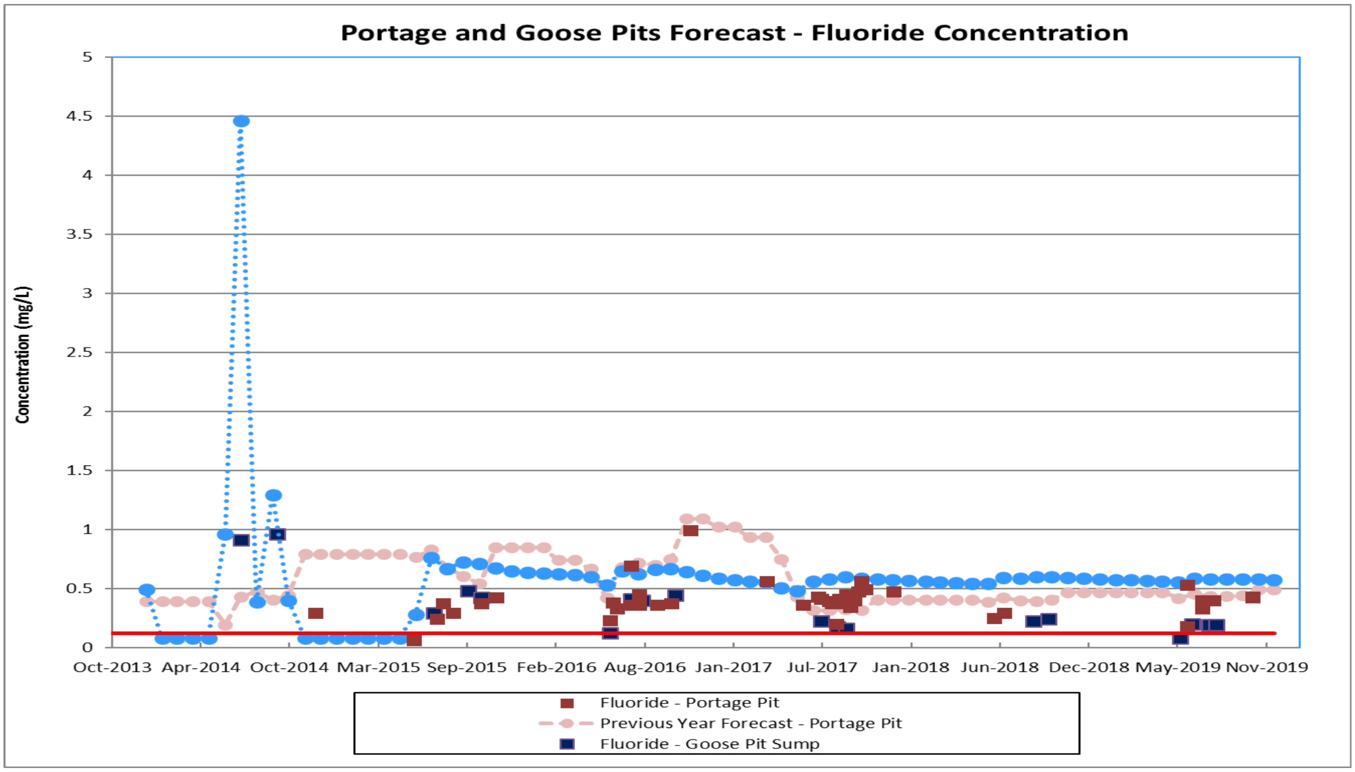


Figure 2-6: (continued) Concentrations in Portage and Goose Pits



The data presented in Figure 2-6 indicate that the previous water quality forecast model for Portage Pit was generally more conservative, except for total cyanide forecast that was lower than measured values. A peak is observed in the measured values of October 2019 in Portage Pit. The measured values of ammonia in Portage Pit is higher than the forecasted values. 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. It is important to note that only one sample was collected in Goose Pit Lake in 2019. One key observation to note is that the water quality forecast of 2019 has been adjusted to take into account that no Reclaim Water has been transferred to Portage Pit in 2018. Indeed, in the water management plan of 2017, 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 most of the parameters was expected at the end of 2018 for the Portage Pit forecasted values. As this transfer did not occur, the forecasted increase did not materialize in 2018.

The observations from measured and forecasted concentrations in Portage and Goose Pits are summarized in Table 2-7.

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

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total cyanide	**PP:** Measured values are relatively constant at an order of magnitude of 0.02 mg/L. The maximum concentration was measured in June. For comparison purposes only, the measured concentrations of Pit E and Pit A are generally above the CCME limit. **GP**: Measured concentrations are relatively low and generally below the detection limit. For comparison purpose only, the concentrations are generally below CCME limit except in the case of the sample collected in July in Goose Pit lake.	**PP:** The forecast model predicted constant total cyanide values. The measured concentrations are constant but globally higher than the forecasted values. **GP:** Forecasted values are higher than measured concentrations.
Aluminum	**PP:** Measured values seem to slightly increase through the year. The maximum concentration was measured in October in Portage Pit E. For comparison purposes only, three (3) sample collected in Pit E are above the CCME limit and one (1) sample collected in Pit A is above CCME limit . **GP**: Measured concentrations are relatively low and constant at an order of magnitude of 0,05 mg/L. For comparison purpose only, the concentrations are generally below CCME limit except in the case of the sample collected in June in Goose Pit sump and for the sample collected in July in Goose Pit Lake.	**PP:** The forecasted concentration in the previous model indicated a seasonal variability (increase in winter, then decrease in summer). The seasonal variations seem less important from 2017 to 2019. The measured concentrations are generally below the forecasted values. **GP:** Forecasted values are generally higher than measured ones.
Arsenic	**PP:** In Portage Pit E, the concentrations are relatively low and constant. In Portage Pit A, the measured concentrations are higher than in Pit E. For comparison purposes only, three (3) measured values are above the CCME limit, one (1) in Pit E and two (2) in Pit A. **GP**: Measured concentrations are relatively low and constant at an order of magnitude of 0,002 mg/L. For comparison purpose only, the concentrations are generally below CCME limit except in the case of the sample collected in July in Goose Pit Lake.	**PP:** Forecasted values are higher than the measured ones. The concentration measured in October in Portage Pit A is higher than the forecast model. **GP:** Forecasted values show a positive trend and measured values seem constant below the forecasted values.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Cadmium	**PP:** Measured concentrations are generally below the detection limit. For comparison purposes only, the concentrations are generally below CCME limit, except for one (1) sample collected in October in Pit A. **GP**: Measured concentrations are generally below the detection limit. For comparison purposes only, the concentrations are generally below CCME limit, except for one sample collected in July in Goose Pit lake.	**PP:** Forecasted values are higher than the measured ones. **GP:** Forecasted values are higher than the measured ones.
Chromium	**PP:** Measured concentrations are generally constant at an order of magnitude of 0,002 mg/L. For comparison purposes only, the concentrations are generally above CCME limit. **GP**: Measured concentrations vary from 0,0009 mg/L to 0.0094 mg/L. For comparison purposes only, three (3) measured values are above CCME limit, two (2) in Goose Pit sump and one (1) in Goose Pit lake.	**PP:** Forecasted values are higher than the measured values. **GP:** Forecasted values are similar to measured values.
Copper	**PP:** Measured concentrations are generally constant at an order of magnitude of 0,002 mg/L. For comparison purposes only, the concentrations are generally above CCME limit. **GP**: Measured concentrations vary from 0.0007 mg/L to 0.56 mg/L with no significant trend. For comparison purposes only, three (3) measured values are above CCME limit, two (2) in Goose Pit sump and one (1) in Goose Pit lake.	**PP:** Forecasted values are similar to measured values **GP:** Forecasted values are considerably higher than the measured values. The measured concentration in Goose Pit Lake is at the same order of magnitude of the forecasted values.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Iron	**PP:** Measured concentrations are at an order of magnitude of 0,4 mg/L. The higher concentration was measured in Pit E in October. For comparison purposes only, the concentrations are generally above CCME limit. **GP**: Measured concentrations are generally low. Two measured concentrations were below 1 mg/L. For comparison purposes only, two (2) measured values are above CCME limit, one (1) in Goose Pit sump and one (1) in Goose Pit lake.	**PP:** Forecasted values are much higher than the measured values. **GP:** Forecasted values are slightly higher than the measured values.
Nickel	**PP & GP:** Measured concentrations are generally low and at an order of magnitude of 0,02 mg/L. For comparison purposes only, no concentrations were above CCME limit.	**PP:** Forecasted values are similar to the measured values. **GP:** Forecasted values are slightly higher than measured concentrations.
Selenium	**PP:** Measured concentrations are relatively low. For comparison purposes only, one (1) sample collected in August in Pit E was above CCME limit and one sample collected in October in Pit A was above CCME limit. **GP**: Measured concentrations are generally below the detection limit. For comparison purposes only, one (1) sample collected in August in Goose Pit sump was above CCME limit and one (1) sample collected in July in Goose Pit Lake was above CCME limit.	**PP:** Forecasted values are globally higher than the measured values. **GP:** Forecasted values are higher than measured ones. Moreover, the forecasted values present a positive trend and measured values seem relatively constant.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
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 concentration in 2019 in the pit lake is about the same as the forecasted value. For comparison purposes only, the measured concentrations are below or a little bit above the CCME limit.	**PP:** Forecasted concentration in the previous model showed in 2019 a seasonal variability (increase in winter, then slight decrease in summer). An increase was observed in August 2019 which coincide in part with the transfer of Reclaim Water from Central Dike D/S pond. **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 months, then an increase in 2017 once Reclaim Water from SC was transferred. The measured data does not closely follow this trend and are an order of magnitude lower than the forecasted data, except for the sample taken in 2019 in Goose Pit lake.
Nitrate	**PP:** Measured concentrations are between 2.65 mg/L and 22.7 mg/L. The higher concentration was measured in Pit E in June. For comparison purposes only, the concentrations are generally above CCME limit. **GP:** Measured concentrations are generally low. The higher concentration was measured in Goose Pit sump in June. For comparison purposes only, two (2) samples collected in June and July in Goose Pit Sump were above CCME limit and no sample collected in Goose Pit Lake was above CCME limit.	**PP:** Forecasted values are generally higher than the measured values. The measured values of June and July are however higher than the forcasted values. **GP:** Forecasted values are generally similar to the measured values. The measured values of June and July are however higher than the forcasted values.
Chloride	**PP:** Measured concentrations are generally low. Pit A present higher concentrations than Pit E. For comparison purposes only, the two (2) samples collected in the Pit are above CCME limit. **GP:** Measured concentrations are generally low. For comparison purposes only, no concentrations were above CCME limit.	**PP:** Measured values are slightly higher than forecasted values. **GP:** Forecasted values are much higher than measured values. Moreover, forecasted values present a positive trend and measured values are globally constant.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Fluoride	**PP:** Measured concentrations are generally constant at an order of magnitude of 0,4 mg/L. For comparison purposes only, all of the measured values in Pit E and Pit A are above CCME limit. **GP:** Measured concentrations are generally constant at an order of magnitude of 0,42mg/L. For comparison purposes only, three (3) measured values in Goose Pit sump were above CCME limit and one (1) measured value in Goose Pit lake was above CCME limit.	**PP:** Forecasted values are similar to 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 reflooding 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 seem 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 2019, as per the Water License, there was no discharge of North or South Cell TSF Reclaim Water to Third Portage Lake.

From May to July 2019, approximately 358,156 m^3 of pond water from the South Cell TSF Reclaim Pond was transferred to Goose Pit, which had a direct effect in drawing down the volume in the SC TSF Reclaim Pond. The concentration measured over these three months was approximately 24 mg N/L. Thus, using this average concentration value of ammonia, the total load of ammonia transferred to Goose Pit between May to July 2019 is evaluated at approximately 8,596 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.

Between May and November 2019, approximately 1,368,676 m^3 of pond water from the Central Dike D/S Pond was transferred to North Portage Pit (Pit A). The average concentration measured over these months was approximately 24.5 mg N/L. Thus, using this average concentration value of ammonia, the total load of ammonia transferred to North Portage Pit between May to November 2019 is evaluated at approximately 33,533 kg of ammonia (expressed as N). Again, there was no discharge of water within North Portage Pit to Third Portage Lake. This additional load of ammonia in North Portage Pit is taken into account in this year's forecasting model

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_2020_Phase 1 (Agnico 2019);
- Assumptions presented below in section 3.2;
- Chemical analyses for ST-21 (North and South Cell TSF Reclaim Pond) (2014-2019);
- Chemical analyses for Third Portage Lake (2015);
- Chemical analyses for the Mill Effluent (quarterly samples taken in 2019);
- Chemical analyses for Portage North Pit (ST-17, Pit A) and Portage South Pit (ST-19, Pit E) (from January 2013 to October 2019);
- Chemical analysis for Goose Pit (samples taken in the sump pit and in the lake, ST-20) (from January 2013 to August 2019);
- East Dike (ST-8) seepage and Saddle Dam 3 (ST-32) sumps sampled in 2019;
- 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 2019).

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

- Deposition of Whale Tail pit tailings in Goose Pit and Portage Pit;
- Goose Pit flooding in 2021 and Portage pit flooding from 2022 to 2027.

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's 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..

x. Portage Pit E and Pit A are hydraulically connected through the waste rock deposited between both pits.

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 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 2019 on tailings from ores from Vault, Portage and Whale Tail Pit (concentration in the liquid portion) were used to compute the loading coming from the leaching of the tailings.
- 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 2019 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 five samples taken in 2019 was used in the model. For certain parameters, the concentration used for the model was increased or decreased so that the forecasted concentrations in 2019 were closer to the measured values taken in 2019 in the South Cell TSF Reclaim Pond.

The key parameters are also compared to the values used in the previous water quality forecast models based on the 2012 to 2018 WMP.

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

Parameter	2019 WMP Forecast (w/o Whale Tail)	2018 WMP Forecast	2017 WMP Forecast	2016 WMP Forecast	2015 WMP Forecast
Alkalinity	305 (as $CaCO_3$)	88 (as $CaCO_3$)	94 (as $CaCO_3$)	66 (as $CaCO_3$)	74.75 (as $CaCO_3$)
Hardness	3266 (as $CaCO_3$)	1167 (as $CaCO_3$)	1538 (as $CaCO_3$)	1313 (as $CaCO_3$)	1690 (as $CaCO_3$)
Aluminum (Al)	0.0004	0.022	0.154	0.326	0.116 (dissolved)
Silver (Ag)	0.001	0.0004	0.0039	0.005	0.028 (dissolved)
Arsenic (As)	0.017	0.013	0.018	0.026	0.0337 (dissolved)
Barium (Ba)	0.191	0.109	0.127	0.128	0.1245 (dissolved)
Cadmium (Cd)	0.0033	0.004	0.002	0.00031	0.00197 (dissolved)
Chromium (Cr)	0.0004	0.001	0.002	0.001	0.0005 (dissolved)
Copper (Cu)	3.925	2.409	1.582 (for North Cell in 2014: 9.9)	3.569(for North Cell in 2014: 9.9)	10.503 (dissolved)
Iron (Fe)	1.115	1.307	1.387	0.832(30% of 2.772)	0.43 (dissolved)
Manganese (Mn)	0.331	0.009	0.523	0.013	0.00714 (dissolved)
Mercury (Hg)	0.00002	0.000005	0.000625	0.000005	0.000016 (dissolved)
Molybdenum (Mo)	1.430	0.941	0.695	0.966	0.8555 (dissolved)
Nickel (Ni)	1.331	0.077	0.295	0.024	0.423 (dissolved)

Parameter	2019 WMP Forecast (w/o Whale Tail)	2018 WMP Forecast	2017 WMP Forecast	2016 WMP Forecast	2015 WMP Forecast
Lead (Pb)	0.00005	0.00016	0.006	0.002	0.00037 (dissolved)
Selenium (Se)	0.135	0.118	0.076	0.166	0.202 (dissolved)
Strontium (Sr)	2.08	2.350	2.775	2.13	
Thallium (Tl)	0.00001	0.00005	0.00022	0.00003	
Uranium (U)	0.008	0.008	0.019	0.013	
Zinc (Zn)	0.00002	0.0002	0.012	0.003	0.139 (dissolved)
Fluoride (F)	0.85	0.34	0.34	0.645	0.545
Nitrate (NO3)	5	4	6 (mg N/L) (for North Cell in 2014: 32)	13 (mg N/L)(for North Cell in 2014: 32)	15.925 (mg N/L)
Total Cyanide (CNt)	9	18.2	15 (for North Cell in 2014: 30)	18	18.1675
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: + 39 (mg N/L/month)	North Cell: + 15 South Cell: + 40 (mg N/L/month)	+ 50 (mg N/L/month)
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: +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)
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: + 400 (mg/L/month)	North Cell: +600 South Cell: + 1400 (mg/L/month)	+ 1600 (mg/L/month)

Parameter	2019 WMP Forecast (w/o Whale Tail)	2018 WMP Forecast	2017 WMP Forecast	2016 WMP Forecast	2015 WMP Forecast
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: +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 2019 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 2019, on average, 72 mg/L of CN-WAD was removed and converted to cyanate (CNO-), compared to 79 mg/L in 2018 and 104 mg/L in 2017. Assuming that 70% of the cyanate is hydrolyzed to ammonia (NH3), it was evaluated that on average approximately 27 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. For in-pit deposition, similar values considered for the North Cell TSF will be used in the model for now and will be re-assessed next year once more pit reclaim water quality data is available.

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 2019. For in-pit deposition, similar values considered for the North Cell TSF will be used in the model for now and will be re-assessed next year once more pit reclaim water quality data is available.

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 2019. For in-pit deposition, similar values considered for the North Cell TSF will be used in the model for now and will be re-assessed next year once more pit reclaim water quality data is available.

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 2019, a percentage adjustment factor was applied to the average measurements taken of the Mill Effluent in 2019 for certain parameters. The adjusted values used in the model are shown in Table 3-1.

As of July 2019, ore from Whale Tail Pit located at the Amaruq site has been processed at Meadowbank and the tailings will be deposited in Goose Pit. The geochemical behavior of the ore body from Whale Tail Pit is different from the ore produced from Portage, Goose and Vault pits. Table 3-2 presents the 2019 average Mill Effluent concentrations when ore produced from Whale Tail Pit was being processed.

Table 3-2: Average 2019 Mill Effluent Concentrations When Processing Whale Tail Pit Ore

PARAMETER	MILL EFFLUENT CONCENTRATION (mg/L)
Alkalinity	77 (as $CaCO_3$)
Hardness	1658 (as $CaCO_3$)
Aluminum (Al)	109.53
Silver (Ag)	0.00182
Arsenic (As)	9.007
Barium (Ba)	0.615
Cadmium (Cd)	0.00351
Chromium (Cr)	3.496
Copper (Cu)	9.149
Iron (Fe)	401.73
Manganese (Mn)	9.7
Mercury (Hg)	0.000005
Molybdenum (Mo)	0.0972
Nickel (Ni)	7.664
Lead (Pb)	0.846

PARAMETER	MILL EFFLUENT CONCENTRATION (mg/L)
Selenium (Se)	0.143
Strontium (Sr)	1.38
Thallium (Tl)	0.0018
Uranium (U)	0.008
Zinc (Zn)	0.27
Fluoride (F)	0.30
Nitrate (NO3)	12.87
Total Cyanide (CNt)	11.8
Total Ammonia (NH_3-NH_4)	+ 15 (mg N/L/month)
Chloride	Winter: +2000 Summer: +500 (in mg/L/month)
Sulphate (SO_4)	+600 (mg/L/month)
Total dissolved solids	Winter: +3929 Summer: +1444 (in mg/L/month)

Since in-pit deposition has recently started in Goose Pit and that there is a limited amount of data available on the reclaim water when Whale Tail Pit ore is being processed, it is not possible to assess if the water quality measured in the mill effluent is representative of the reclaim water. For the purpose of this assessment, adjustment ratios were applied to total metal measurements according to the difference between Total concentration and Dissolved concentration measured in the Mill Effluent since it is expected that most of the suspended solids should settle out in the pit. Table 3-3 presents the correction ratio used and the selected mill effluent quality considered in the model when Whale Tail Pit ore is being processed at the mill.

Table 3-3: Correction Factor to Metal Concentrations in the Mill Effluent When Processing Whale Tail Pit Ore

Metals	Measured Concentration (mg/L)		Correction process				Corrected value (selected value) (mg/L)
	Total	Dissolved	Dissolved (%)	Potential of Precipitation (%)	Correction (*100=%)	Initial Total concentration (mg/L)	
Total Aluminium (Al)	109.530	0.357	0.326	99.674	-0.990	109.530	1.095
Total Silver (Ag)	0.002	0.000	22.852	77.148	-0.900	0.002	0.000
Total Arsenic (As)	9.007	1.196	13.279	86.721	-0.900	9.007	0.901
Total Barium (Ba)	0.615	0.112	18.275	81.725	-0.900	0.615	0.061
Total Cadmium (Cd)	0.004	0.000	3.945	96.055	-0.900	0.004	0.000
Total Chromium (Cr)	3.496	0.009	0.262	99.738	-0.900	3.496	0.350
Total Copper (Cu)	9.149	3.637	39.758	60.242	-0.600	9.149	3.659
Total Iron (Fe)	401.733	1.497	0.373	99.627	-0.900	401.733	40.173
Total Manganese (Mn)	9.700	0.057	0.592	99.408	-0.900	9.700	0.970
Total Mercury (Hg)	0.000	0.000	100.000	0.000	0.000	0.000	0.000
Total Molybdenum (Mo)	0.097	0.105	108.333	-8.333	0.000	0.097	0.097
Total Nickel (Ni)	7.664	6.132	80.015	19.985	-0.200	7.664	6.131
Total Lead (Pb)	0.846	0.003	0.367	99.633	-0.900	0.846	0.085
Total Selenium (Se)	0.143	0.163	113.690	-13.690	0.000	0.143	0.143
Total Strontium (Sr)	1.383	1.280	92.530	7.470	-0.100	1.383	1.245
Total Thallium (Tl)	0.002	0.002	100.000	0.000	0.000	0.002	0.002
Total Uranium (U)	0.008	0.003	35.377	64.623	-0.600	0.008	0.003
Total Zinc (Zn)	0.272	0.001	0.490	99.510	-0.900	0.272	0.027

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 Pits 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 2019 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 2019 at sampling station ST-S-2.
- Saddle Dam 3 sump that is transferred to the South Cell is based on the average concentration measured in 2016 and 2019 at sampling station ST-32.
- East dike seepage quality is based on the average concentrations measured in 2016 to 2019 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, Vault and Whale Tail ore bodies in 2019 were used to account for possible leaching of contaminants from the tailings.

Table 3-4 and Table 3-5 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 3-5, which are used for comparison purpose only.

Table 3-4: Leaching Rate Used in Water Quality Forecast Model

PARAMETERS	UNITS	LEACHING OF TAILS FROM PORTAGE / VAULT (kg/ton)	LEACHING OF TAILS FROM WHALE TAIL PIT (kg/ton)
		From SFE Leach Test- Avg 2019 tests	From SFE Leach Test- Avg 2019 tests
Alkalinity	mg $CaCO_3$/L	3.90E+01	5.47E-02
Hardness	mg $CaCO_3$/L	1.89E+02	1.87E+02
Total dissolved solids	mg/L	0 (1)	1.18E+00
Total Aluminum (Al)	mg/L	8.67E-02	7.97E-02
Total Silver (Ag)	mg/L	2.50E-05	8.50E-05
Total Arsenic (As)	mg/L	1.26E-02	1.22E+00
Total Barium (Ba)	mg/L	1.13E-02	2.59E-02
Total Cadmium (Cd)	mg/L	0 (1)	1.53E-05
Total Chromium (Cr)	mg/L	1.20E-04	1.60E-04
Total Copper (Cu)	mg/L	1.54E-03	2.17E-03
Total Iron (Fe)	mg/L	1.34E-01	1.73E-01
Total Manganese (Mn)	mg/L	1.57E-02	1.12E-02
Total Mercury (Hg)	mg/L	6.67E-06	5.00E-06
Total Molybdenum (Mo)	mg/L	4.63E-02	1.96E-02
Total Nickel (Ni)	mg/L	1.13E-03	2.88E-02
Total Lead (Pb)	mg/L	6.67E-05	4.40E-04
Total Selenium (Se)	mg/L	1.43E-03	1.17E-02
Total Strontium (Sr)	mg/L	2.44E-01	1.89E-01
Total Thallium (Tl)	mg/L	9.00E-06	2.33E-05
Total Uranium (U)	mg/L	9.30E-04	1.15E-03
Total Zinc (Zn)	mg/L	1.00E-03	1.00E-03
Chloride	mg/L	0 (1)	3.20E-02
Fluoride (F)	mg/L	3.40E-01	1.63E-01
Sulfate (SO_4)	mg SO_4/L	2.30E+02	2.17E+02
Total Cyanide (CNt)	mg/L	0 (1)	5.84E-03
Total Ammonia ($NH_3 + NH_4$)	mg N/L	3.10E+00	5.07E+00
Nitrate (NO_3)	mg N/L	3.00E-01	8.63E-01

Notes :

(1) No data. Assume negligible.

Table 3-5: 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 2015/19 sampled at ST-16	Average 2015/19 sampled at ST-S-2	Average 2016/19 sampled at ST-32	Average 2016/19 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	67	54	220	29	129	9.1	72.2	129.8	n/a	n/a
Hardness	mg $CaCO_3$/L	1329	362	176	235	269	36	134	12	274	130	n/a	n/a
Total dissolved solids	mg/L	1329	1437	290	242	412	89	293	22	320	326	n/a	1400
Total Aluminum (Al)	mg/L	0.119 (1)	0.010 (1)	0.189	0.505	3.505	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	0.000	0.000	0.000005	0.00005	0.00005	0.00025	n/a
Total Arsenic (As)	mg/L	0.032 (1)	0.008 (1)	0.024	0.024	0.015	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	0.019	0.093	0.008	0.020	0.0037	0.0110	0.0219	n/a	n/a
Total Cadmium (Cd)	mg/L	0.00160	0.00010	0.00006	0.00003	0.00007	0.00003	0.00001	0.000003	0.000240	0.000000	0.00004	0.002
Total Chromium (Cr)	mg/L	0.0008	0 (4)	0.002	0.005	0.020	0.002	0.002	0.0001	0.0027	0.0026	0.001	n/a
Total Copper (Cu)	mg/L	9.135	0.033 (1)	0.023	0.009	0.030	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)	0.736	1.353	7.371	0.345	0.880	0.017	1.5	0.7	0.3	n/a
Total Manganese (Mn)	mg/L	0.065 (1)	2.898 (1)	1.917	0.243	1.245	0.015	0.410	0.002	0.257	0.108	n/a	n/a
Total Mercury (Hg)	mg/L	0.000000	0.000117	0.000130	0.000182	0.000026	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)	0.014	0.012	0.006	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)	0.027	0.032	0.121	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	0.007	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	0.002	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)	0.169	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)	0.0026	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)	0.002	0.077	0.023	0.003	0.005	0.002	0.016	0.015	0.03	0.4
Chloride	mg/L	1035	98	9	7	19	0.967	52	0.793	26.117	24.978	120	1000
Fluoride (F)	mg/L	0.180	0.565	0.192	0.202	0.338	0.092	0.860	0.0793	0.3900	0.4922	0.12	n/a
Sulfate (SO_4)	mg SO_4/L	2115	542	33	164	154	10	30	5	224	77	128 (5)	n/a
Total Cyanide (CNt)	mg/L	8	0.346	0.002	0.012	0.021	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	0.537	0.454	3.861	0.010	1.320	0.015	3.6	7.9	1.83	16
Nitrate (NO_3)	mg N/L	26	1	8	8	15	0.4233	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 shading] 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 tailing's 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.

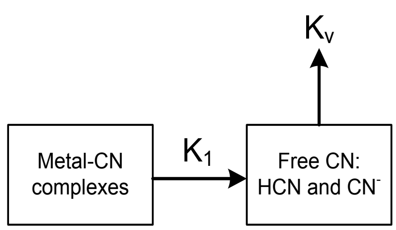
Cyanide volatilization can be summarized as a two (2) step process presented in Figure 3-1 below:

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 tailing's 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 to represent more accurately and conservatively the expected cyanide concentrations on a monthly time-step.

Table 3-6 presents the assumptions and cyanide decay constants used in the water quality model.

Table 3-6: 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, 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 were 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 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 consider the underground water seepages and surface runoff in contact with PAG rock. The same data was used for 2017, 2018 and 2019 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 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 3-7: 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 3-8: 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
- Nickel
- Lead
- 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 2030. Breaching is assumed to occur at the end of 2030 or early 2031. 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 there is no water treatment during or after in-pit tailings deposition.

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 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 2019. 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 North Portage Pit (Pit A);
- August to October 2017: Approximately 332,177 m³ of pond water is transferred from Central Dike Downstream Pond to Goose Pit;
- August to October 2018: Deposition in North and South Cell TSF;
- April 2019: Deposition end in South Cell TSF;
- April to July 2019: Deposition resumes in North Cell TSF;
- May to July 2019: Approximately 358,156 m³ of pond water is transferred from Central Dike Downstream Pond to Goose Pit;
- July 2019: Start of deposition of tailings from Whale Tail Pit;
- July 2019 to August 2020: Deposition of tailings in Goose Pit;
- September 2019: End of deposition of tailings from Portage and Vault Pits.
- As of 2019: Allow East Dike Seepage to accumulate in the Portage Pit as long as water quality meets discharge criteria;
- May 2020: Start of water transfer from South Cell TSF Reclaim Pond to Portage Pit;
- 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;
- October 2020: 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;
- September 2020 to August 2021: Deposition of tailings in Pit E of Portage Pit;
- June 2021 to September 2021 flooding of Goose Pit by pumping 3,500,000 m³ of water from Third Portage Lake;
- September 2021 to July 2022: Deposition of tailings in Pit A of Portage Pit;
- July 2022: End of in-pit tailings deposition;
- June 2023 to September 2027: flooding of Portage Pit by pumping 21,700,000 m³ of water from Third Portage Lake.

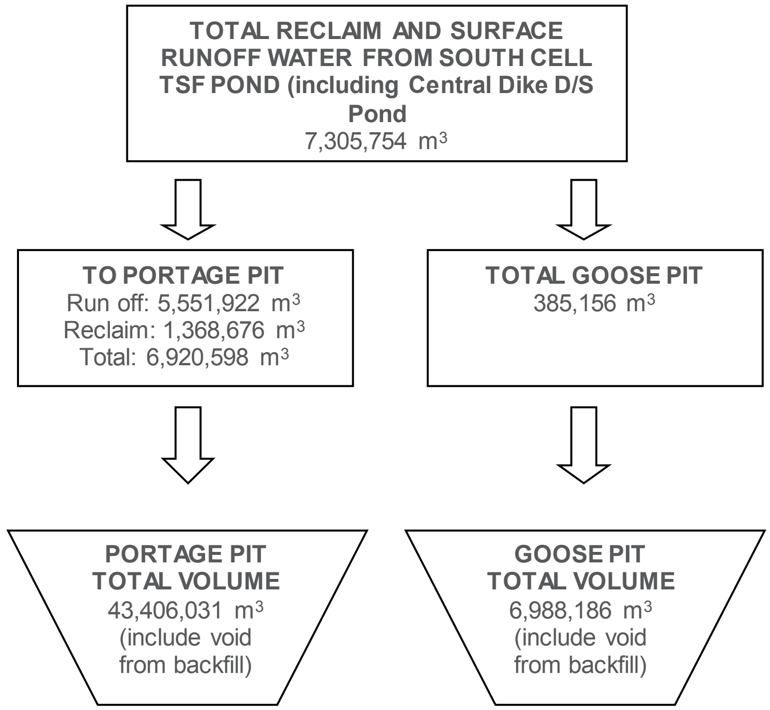
4.2.2 Volumes Transferred

Based on the WB 2019, approximately 385,156 m³ of Reclaim Water from South Cell TSF was transferred to Goose Pit between May and July 2019. As of 2020 until closure, runoff water that accumulates in the North and South Cells TSF will be transferred to Portage Pit between May and September. The annual volumes of these transfers are between 434,980 m³ and 522,028 m³. A total runoff volume from 2020 to 2030 of about 5,551,922 m³ of water will be transferred from the North and South Cell TSF to Portage Pit.

Based on the WB 2019, 1,368,676 m³ of Central Dike Downstream Pond water was transferred to Portage Pit (North Portage Pit (Pit A)) in 2019.

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 considered 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 2030 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 (USGS, 2017), simulating equilibrium concentration in the pits at closure, before dike breaching, from the mass balance results. PHREEQC is a well-known computer program that is designed to perform a wide variety of aqueous geochemical calculations. It has capabilities for speciation and saturation-index calculations; batch-reaction and one-dimensional (1D) transport calculations with reversible and irreversible reactions, which include aqueous, mineral, gas, solid-solution, surface-complexation, and ion-exchange equilibria. In the present study, this software was used to model the long-term speciation of the water quality obtained with the mass balance calculation including precipitation and adsoption of iron oxy-hydroxides. It is to be noted that the kinetics of the reactions has not been taken into account in this analysis. It is assumed that enough time is available for all the possible reactions to reach equilibrium conditions. It is also assumed that water in the pits is in equilibrium with atmospheric gases.

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 vi. concern the forecast model using the mass balance approach, while items vii. to viii. concern results obtained with the PHREEQC analysis):

i. This year's water quality forecast considers 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.

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. The forecasted concentrations for the following parameters does not meet the CCME guidelines in December 2030:

   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, Goose 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 Portage Pit, 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 Reclaim Water transferred from the South Cell TSF 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 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.

g. **Total Lead**: Total forecasted concentration 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.

h. Total Nickel: Higher forecasted total concentration than the CCME guidelines in Portage Pit, Goose Pit and in mixed conditions. A higher load of nickel is forecasted in Goose Pit is due to the higher concentration value considered in the Mill Effluent for this parameter. It is also due in part by the additional volume of pond water that was transferred to this pit in 2017 and in 2019 .

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

j. **Total Thallium**: Total forecasted concentration is slightly higher than the CCME guidelines in Portage Pit and mixed pit conditions.

k. **Chloride**: Higher forecasted concentration than the CCME guidelines in Portage Pit, Goose Pit and in mixed conditions.

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

m. **Sulfate**: Since 2019, 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 is higher than the threshold value in Portage Pit, Goose Pit and in mixed conditions.

n. **Total Ammonia**: Ammonia forecasted concentrations are higher than the CCME guidelines in Portage Pit, Goose Pit and in mixed conditions. A higher load of ammonia is forecasted in the pits due to the additional ammonia load coming from the mill effluent.

o. **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 Portage Pit in 2019 which was not accounted for in last year's model.

b. Deposition of Whale Tail tailings in the Goose and Portage Pits.

c. Extension of tailings deposition until Jun. 2022.

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 TDS. As for chlorides and sulfates, they show higher concentrations thant their comparative criteria.

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 0.007 to 0.01 mg/L in both pits, which is slightly higher than the CCME guideline. However, the forecasted concentrations with the mass balance calculation are around 0.6 to 1.1 mg/L initially, which means that, 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 2017) to evaluate the equilibrium concentration of the other metal parameters listed in item ii., except for arsenic, cadmium, chromium, nickel, selenium and thallium, 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 consider 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 enough 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 arsenic,cadmium, chromium, copper, nickel, selenium, thallium, chloride, sulfate 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, 2018 and the most recent WB 2019. 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. Considering that in-pit deposition has started in 2019, the model comparison shall focus on the forecast concentrations estimated in Portage and Goose pits.

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. 2030					
				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)				7.5	7.9	7.5	7.9	7.5	7.9
Alkalinity	mg CaCO3/L	n/a	9.1	81	35	62	38	75	36
Hardness	mg CaCO3/L	n/a	12.05	670	640	455	440	602	578
Total dissolved solids	mg/L	n/a	22.1	1919	789	909	370	1598	655
Total Aluminium (Al)	mg/L	0.10	0.0075	0.73	0.00012	0.56	0.00013	0.68	0.00012
Total Silver (Ag)	mg/L	0.00025	0.000005	0.00012	0.00012	0.00007	0.00007	0.00010	0.00010
Total Arsenic (As)	mg/L	0.005	0.0005	0.77	0.017	0.352	0.014	0.637	0.009
Total Barium (Ba)	mg/L	n/a	0.0037	0.040	0.00005	0.027	0.00019	0.036	0.00007
Total Cadmium (Cd)	mg/L	0.00004	0.000003	0.0002	0.0002	0.0001	0.0001	0.0002	0.0002
Total Chromium (Cr)	mg/L	0.001	0.0001	0.177	0.170	0.089	0.081	0.149	0.142
Total Copper (Cu)	mg/L	0.002	0.0006	1.111	0.007	0.637	0.010	0.960	0.009
Total Iron (Fe)	mg/L	0.30	0.0173	13.14	1.69E-08	7.28	1.96E-08	11.27	1.74E-08
Total Manganese (Mn)	mg/L	n/a	0.0016	0.342	5.06E-12	0.208	3.26E-12	0.299	4.47E-12
Total Mercury (Hg)	mg/L	0.000026	0.000003	0.000023	0.000023	0.000006	0.000006	0.000017	0.000017
Total Molybdenum (Mo)	mg/L	0.073	0.0002	0.062	0.062	0.036	0.036	0.054	0.054
Total Nickel (Ni)	mg/L	0.025	0.0006	1.844	1.135	1.038	0.763	1.588	1.063
Total Lead (Pb)	mg/L	0.001	0.0000	0.026	0.00011	0.0140	0.00010	0.0222	0.00012
Total Selenium (Se)	mg/L	0.001	0.0000	0.048	0.048	0.027	0.027	0.041	0.042
Total Strontium (Sr)	mg/L	n/a	0.0132	0.485	0.485	0.339	0.339	0.439	0.439
Total Thallium (Ti)	mg/L	0.0008	0.000005	0.0011	0.0011	0.0008	0.0008	0.0010	0.0010
Total Uranium (U)	mg/L	0.015	0.000049	0.0017	0.0017	0.0031	0.0031	0.0022	0.0022
Total Zinc (Zn)	mg/L	0.03	0.0015	0.013	0.004	0.008	0.004	0.011	0.004

PARAMETERS	UNITS	CCME GUIDELINES	3rd PORTAGE LAKE (avg. Summer 2015)	AT CLOSURE, BEFORE BREACHING DEC. 2030					
				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.
Chloride	mg/L	120	0.7925	614	611	271	270	505	503
Fluoride (F)	mg/L	0.12	0.07925	0.39	0.39	0.43	0.43	0.40	0.40
Sulphate (SO4)	mg SO4/L	128 (2)	5.1	383	383	221	221	331	331
Total Cyanide (CNt)	mg/L	0.005	0.0005	0.0002	0.0002	0.0001	0.0001	0.0002	0.0002
Total Ammonia (NH3 + NH4)	mg N/L	1.83	0.0145	9.0	-	4.4	-	7.5	-
Nitrate (NO3)	mg N/L	2.94	0.03305	6.3	6.3	3.5	3.5	5.4	5.4
Total N equivalent	mg N/L	0.35 (1)	0.04755	15.2	-	7.9	-	12.9	-

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 box] Mass balance forecasted concentration or PHREEQC analysis concentration higher than the CCME guidelines.

Table 4-2: Comparison of Parameters of Concerns Concentrations (2019 WMP vs 2018 WMP)

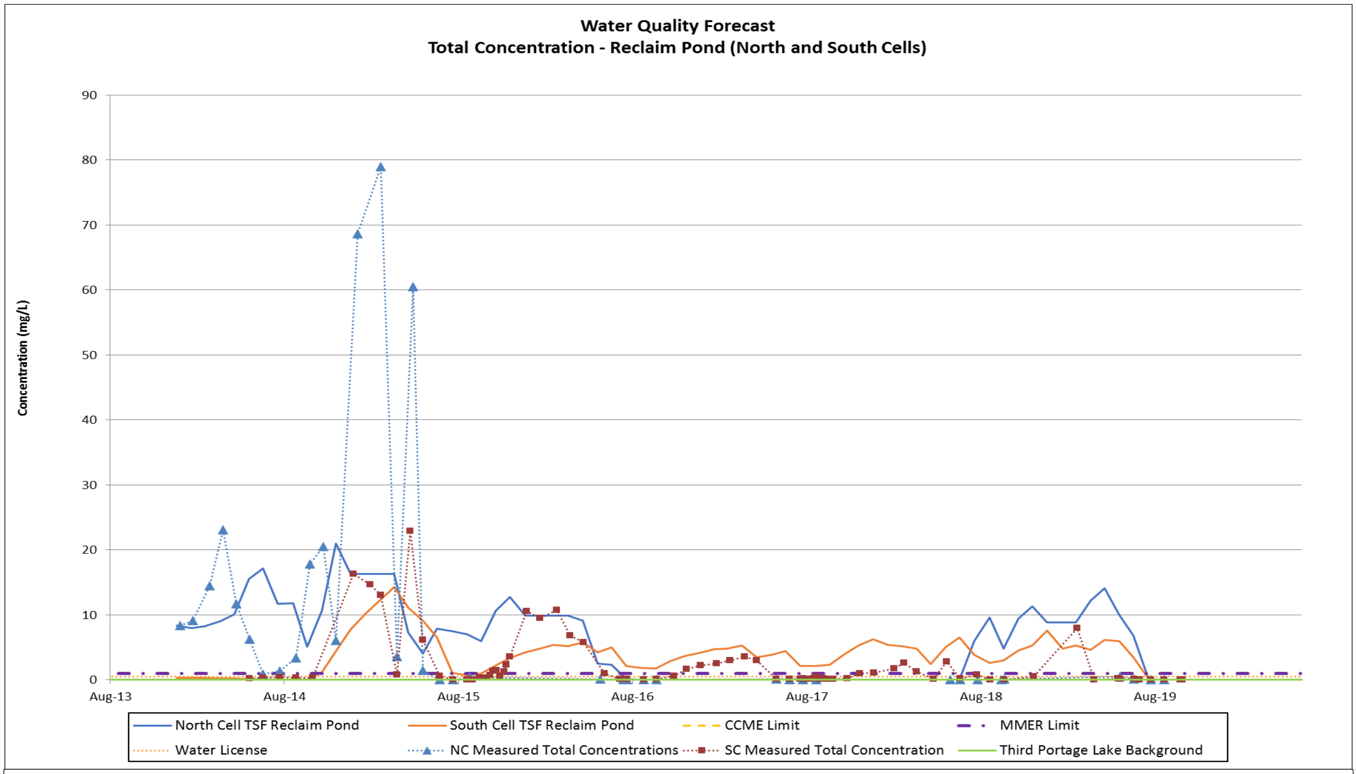
PARAMETERS	UNITS	CCME GUIDELINES	AT CLOSURE, BEFORE BREACHING					
			FORECASTED VALUE BASED ON 2019 WMP (DEC. 2030)			FORECASTED VALUE BASED ON 2018 WMP (DEC. 2029)		
			Portage Pit	Goose Pit	Mixed Pit	Portage Pit	Goose Pit	Mixed Pit
Total Aluminum (Al)	mg/L	0.10	0.73	0.56	0.68	0.16	0.47	0.21
Total Arsenic (As)	mg/L	0.005	0.77	0.352	0.637	0.018	0.013	0.017
Total Cadmium (Cd)	mg/L	0.00004	0.0002	0.0001	0.0002	0.00003	0.00024	0.00007
Total Chromium (Cr)	mg/L	0.001	0.177	0.089	0.149	0.005	0.004	0.005
Total Copper (Cu)	mg/L	0.002	1.111	0.637	0.960	0.042	0.140	0.060
Total Iron (Fe)	mg/L	0.30	13.14	7.28	11.27	0.50	0.85	0.56
Total Mercury (Hg)	mg/L	0.000026	0.000023	0.000006	0.000017	0.001917	0.001951	0.001923
Total Nickel (Ni)	mg/L	0.025	1.844	1.038	1.588	0.008	0.032	0.012
Total Lead (Pb)	mg/L	0.001	0.026	0.0140	0.0222	0.0040	0.0029	0.0038
Total Selenium (Se)	mg/L	0.001	0.048	0.027	0.041	0.0003	0.0056	0.0012
Total Thallium (Tl)	mg/L	0.0008	0.0011	0.0008	0.0010	0.0001	0.003	0.0006
Chloride (Cl)	mg/L	120	614	271	505	10	68	20
Fluoride (F)	mg/L	0.12	0.39	0.43	0.40	0.12	0.43	0.17
Sulphate (SO_4)	mg SO4/L	128 (2)	383	221	331	50	196	76
Total Ammonia ($NH_3 + NH_4$)	mg N/L	1.83	9.0	4.4	7.5	1.2	3.4	1.6
Total N equivalent	mg N/L	0.35 (1)	15.2	7.9	12.9	2.1	5.2	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



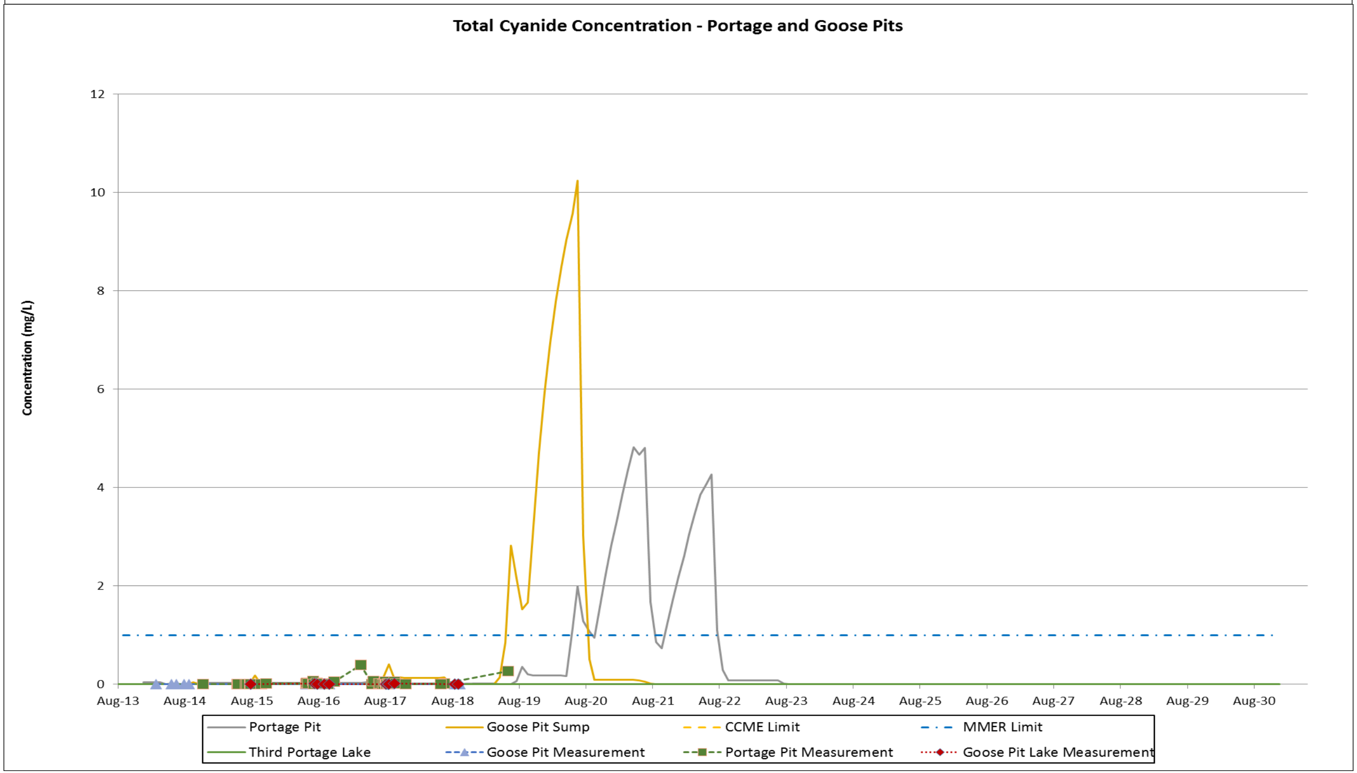
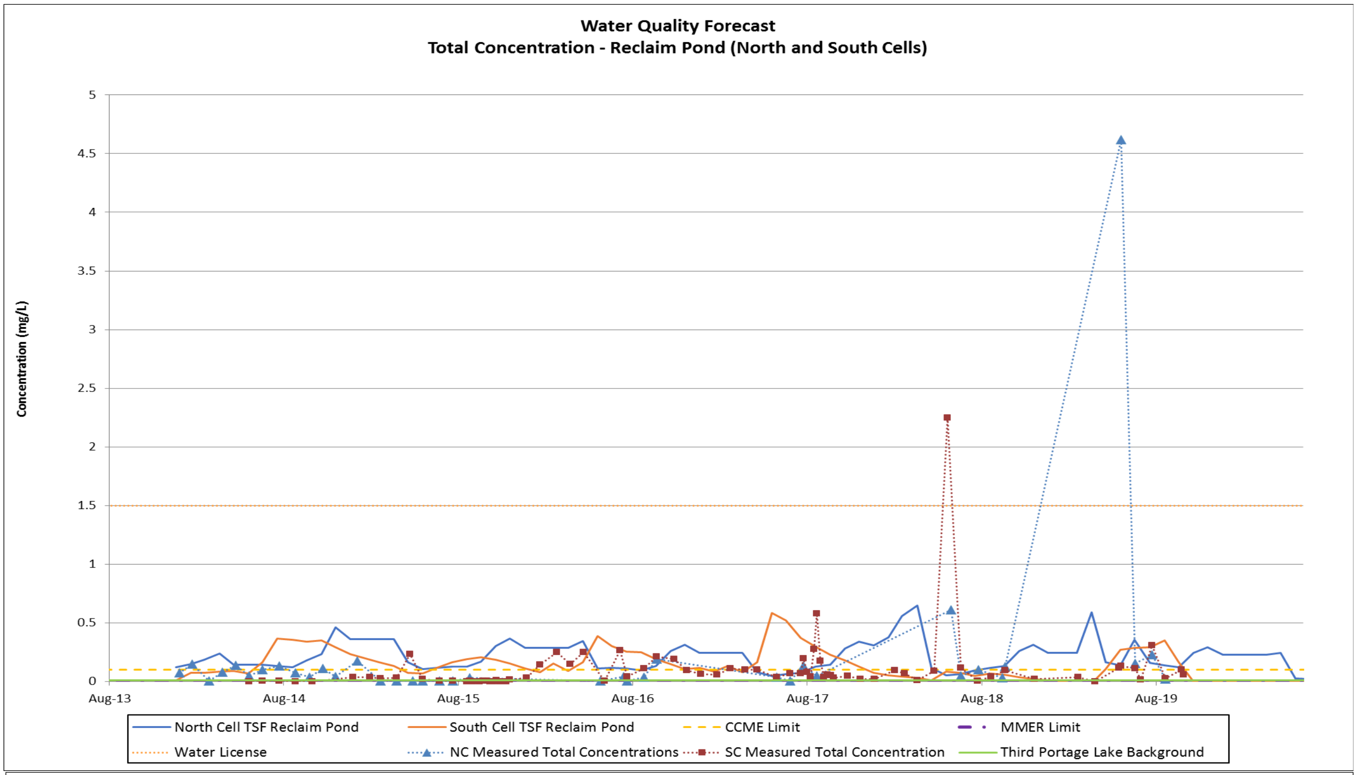


Figure 4-3: Total Aluminum Forecasted Concentration



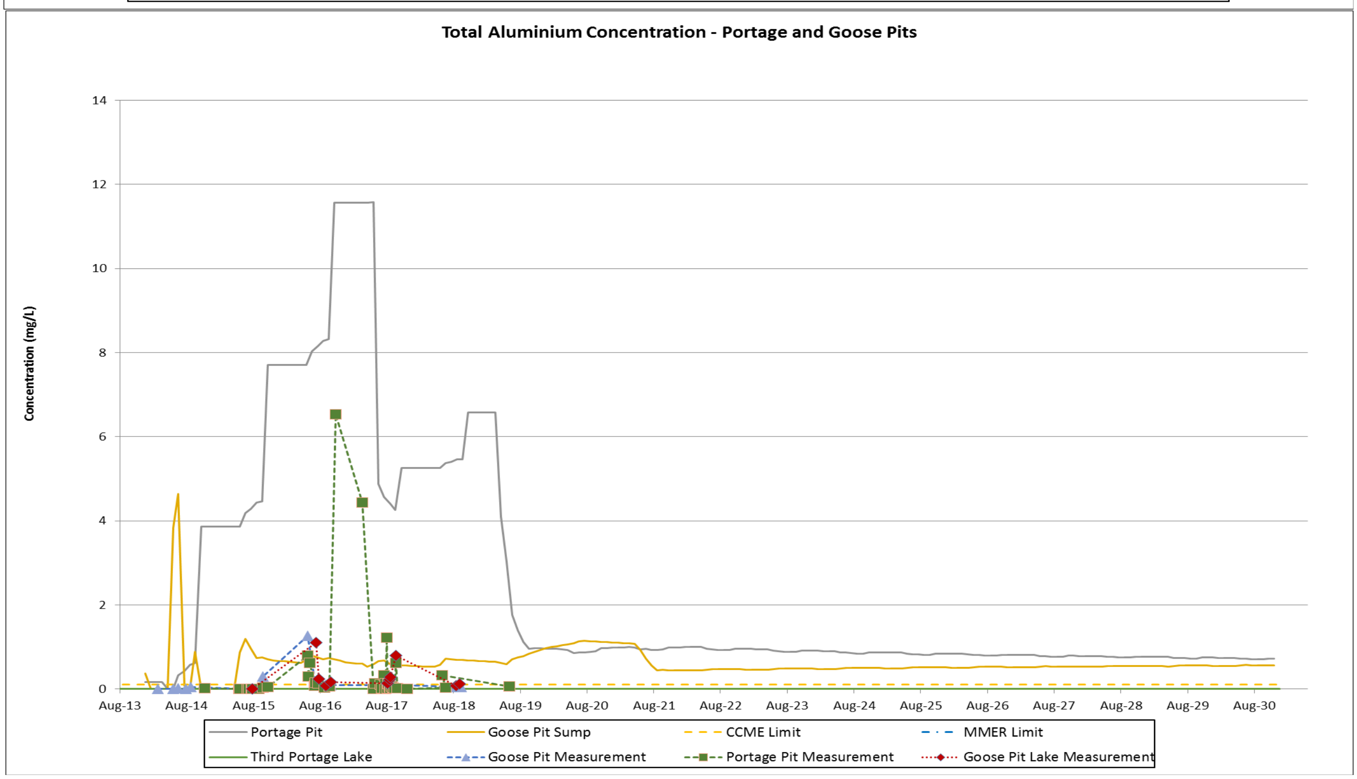
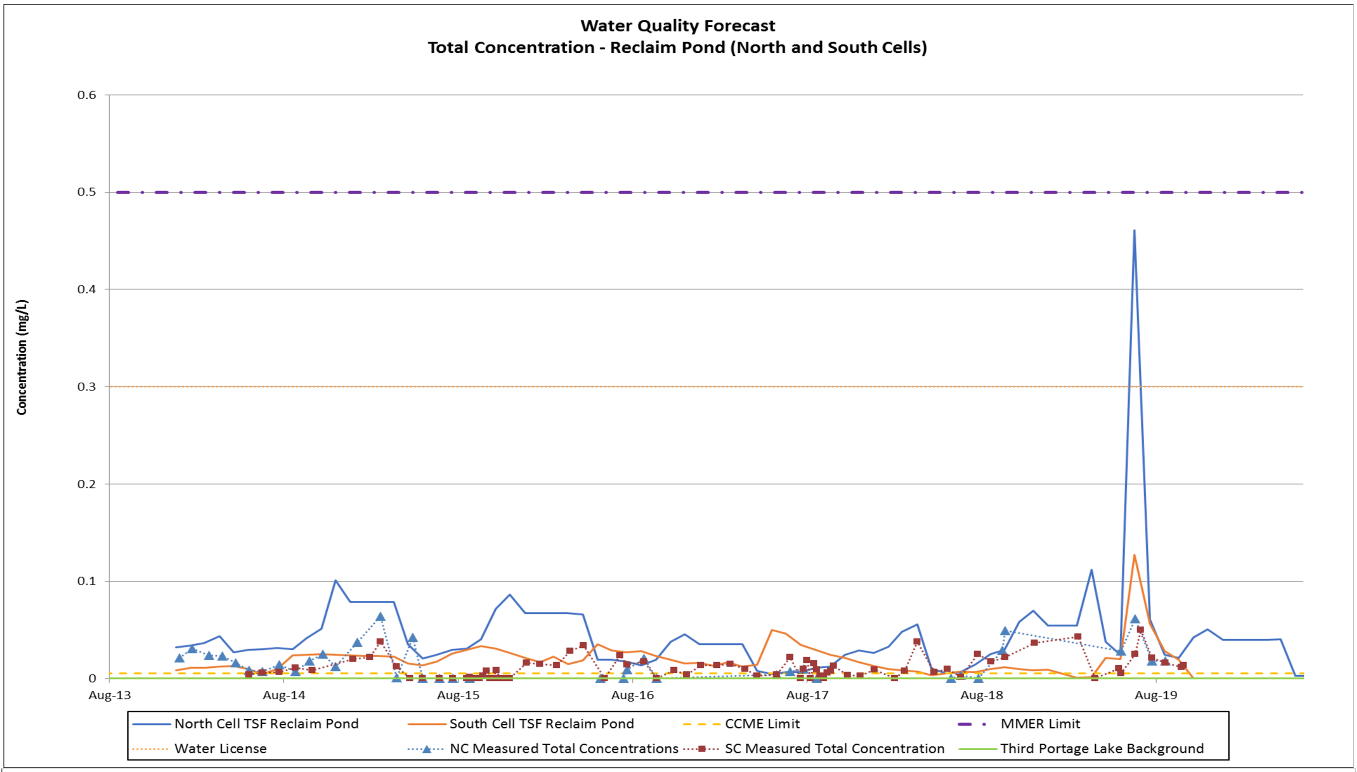


Figure 4-4: Total Arsenic Forecasted Concentration



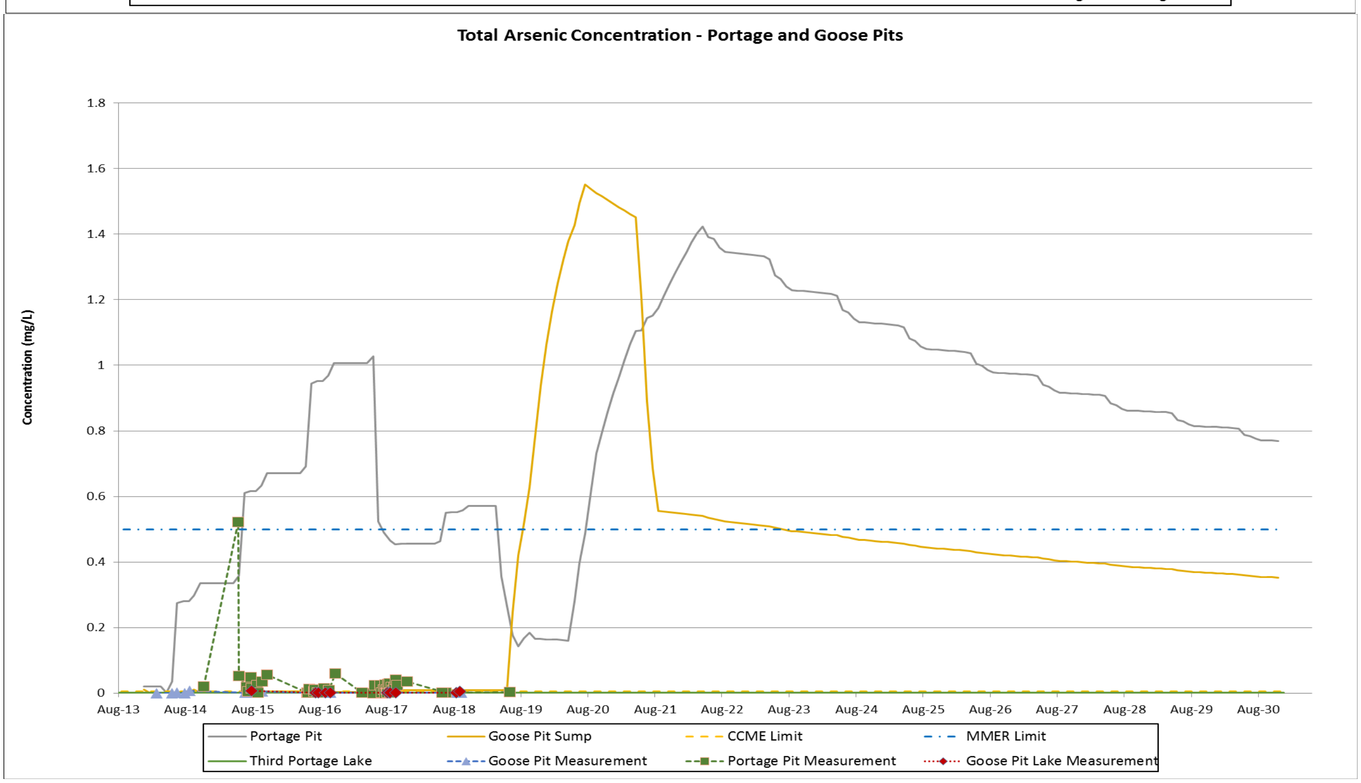
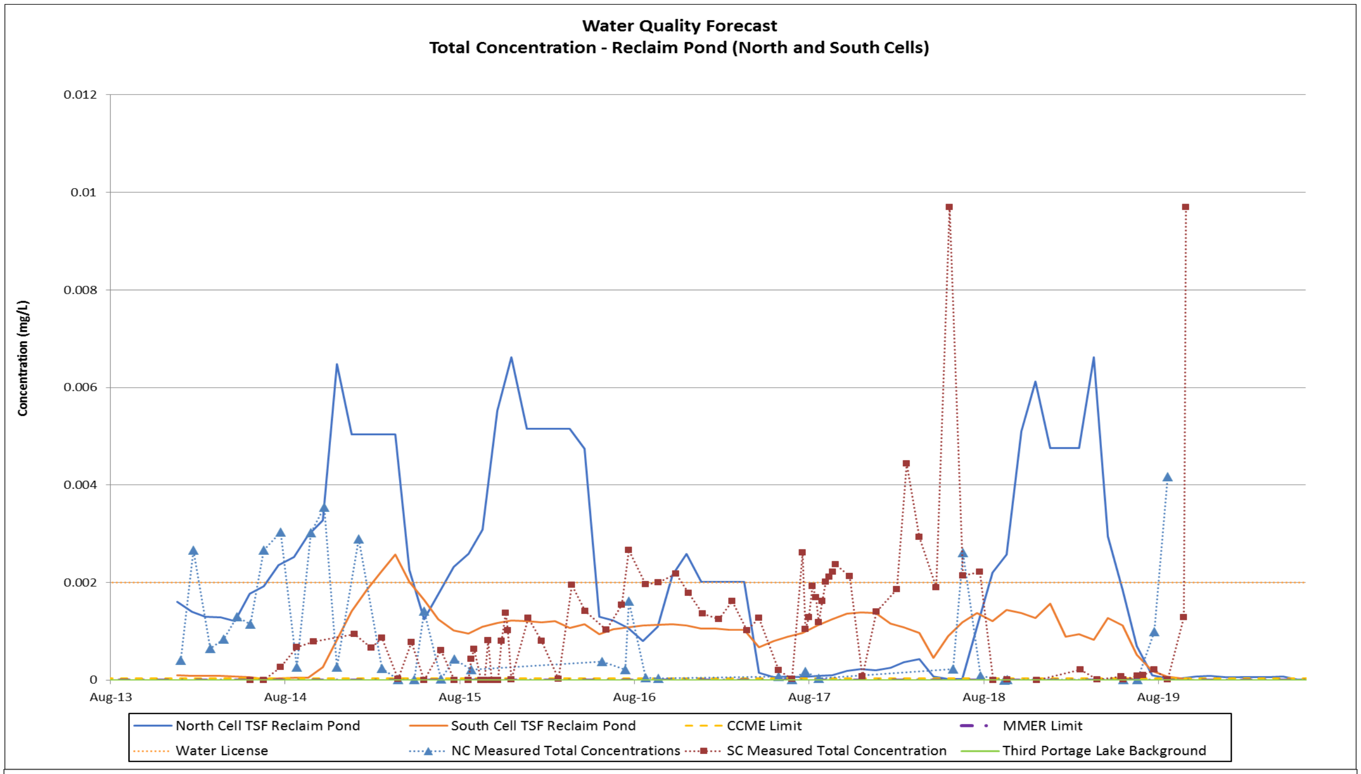


Figure 4-5: Total Cadmium Forecasted Concentration



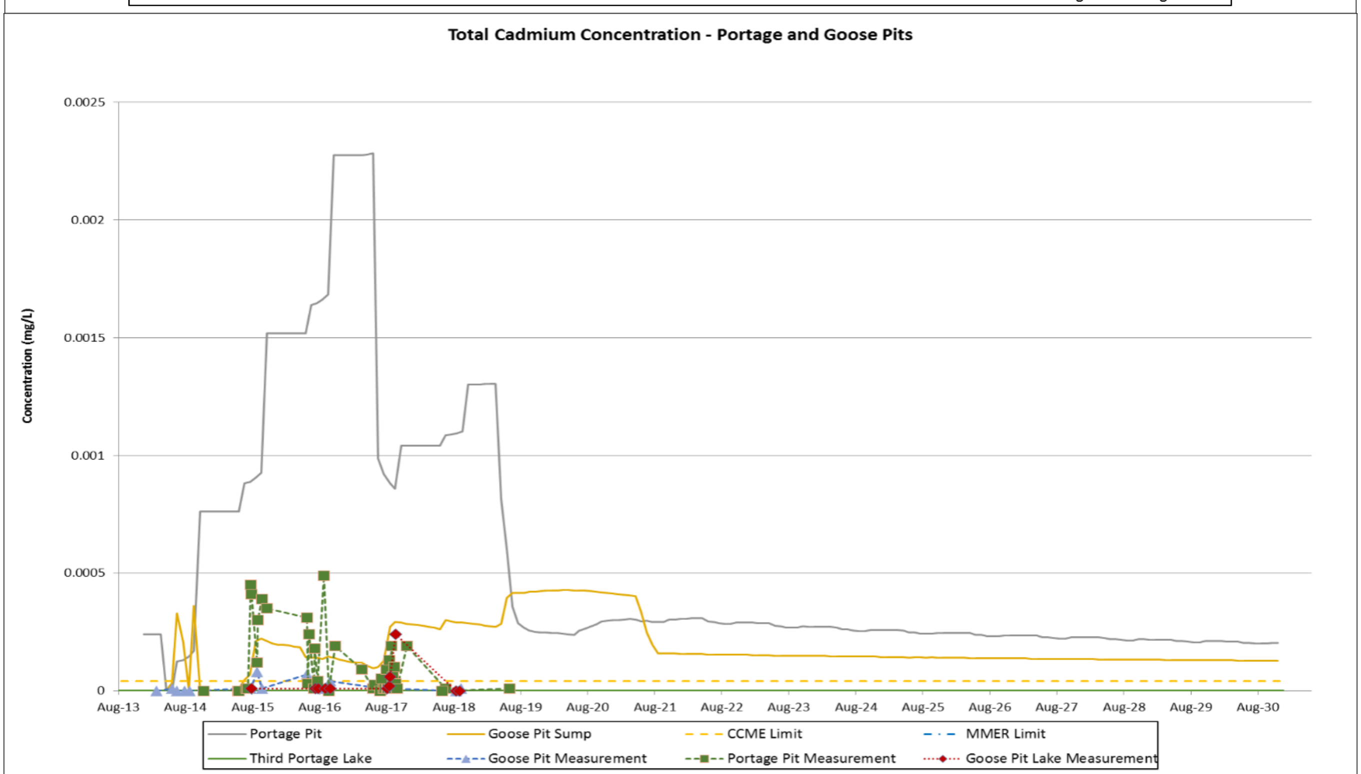
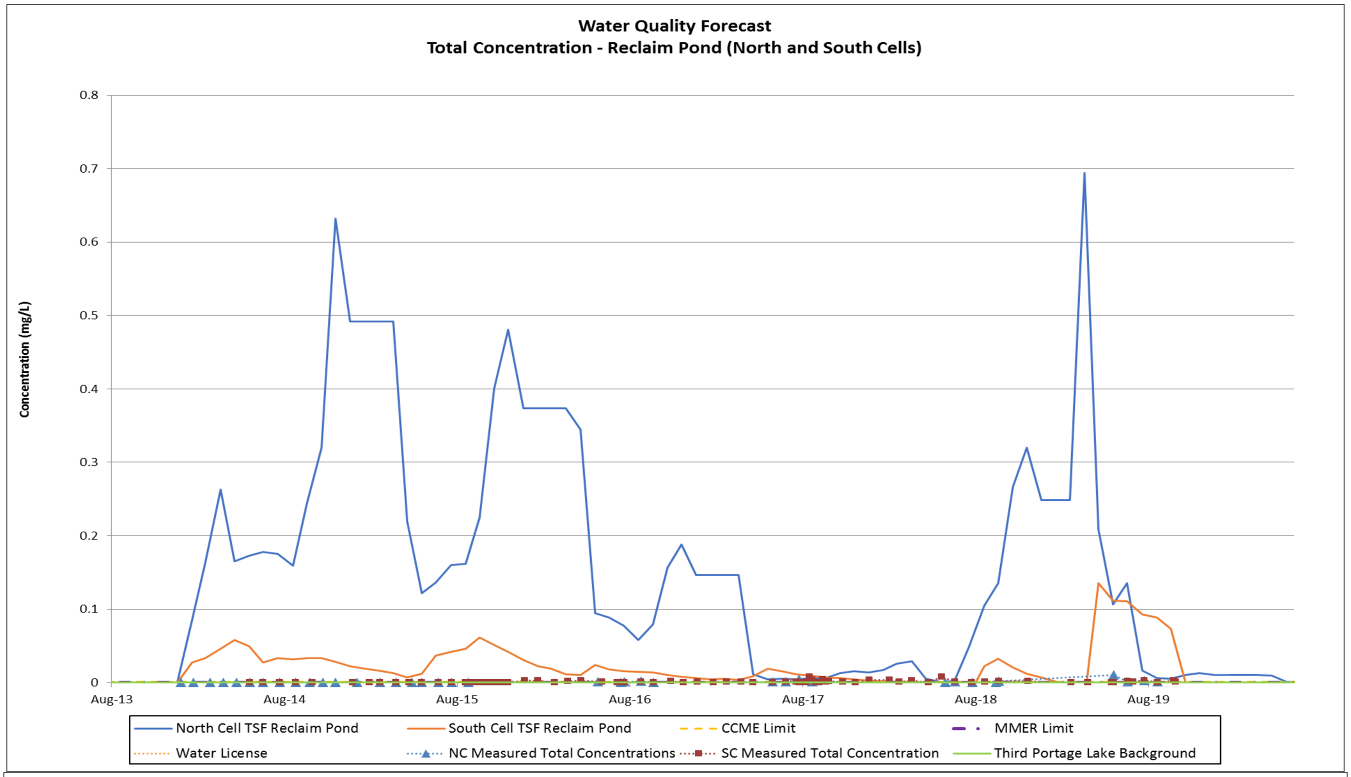


Figure 4-6: Total Chromium Forecasted Concentration



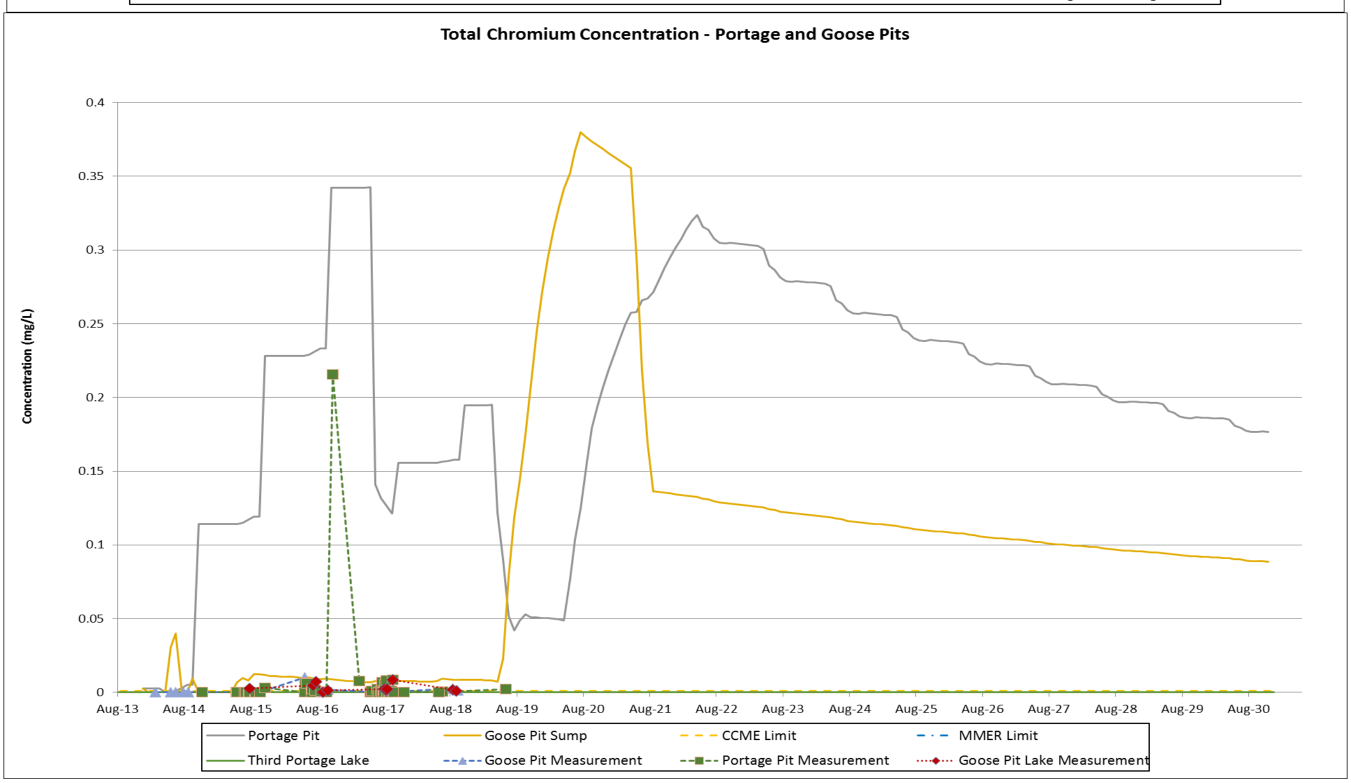
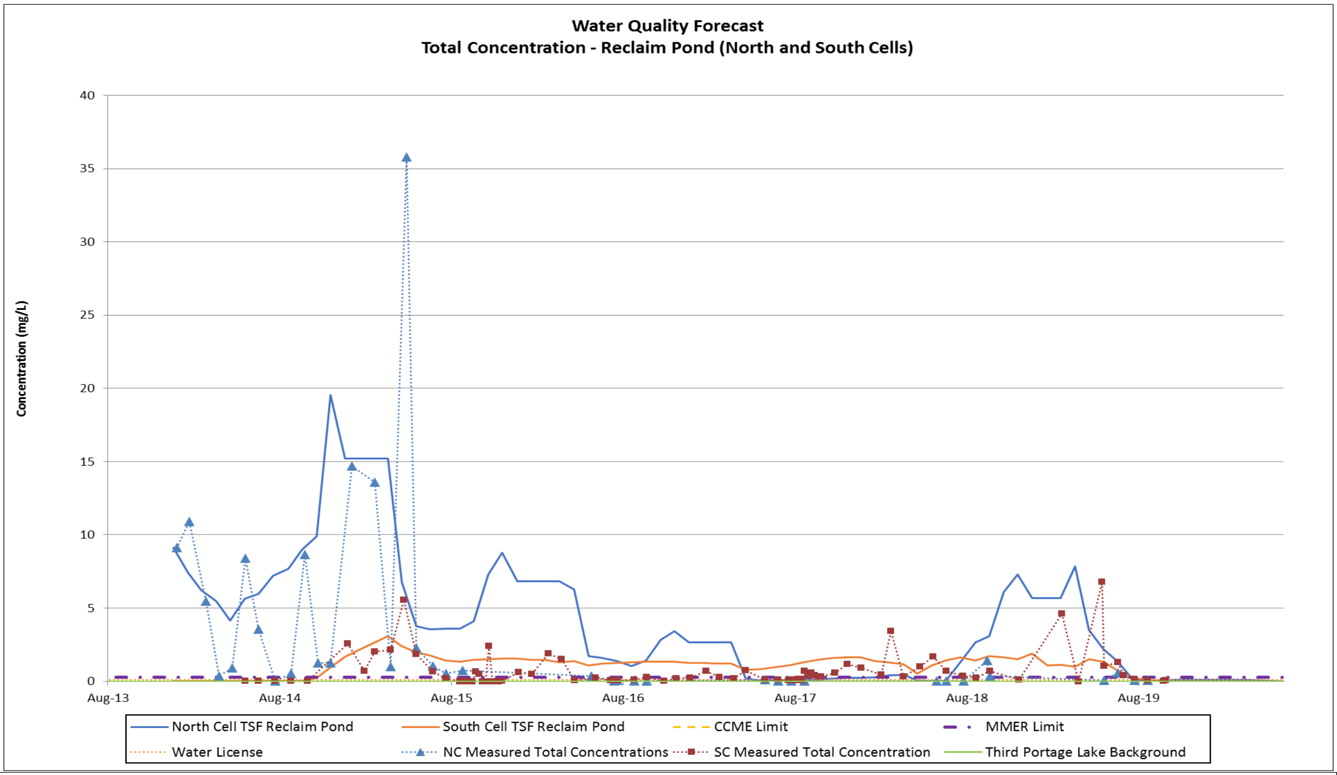


Figure 4-7: Total Copper Forecasted Concentration



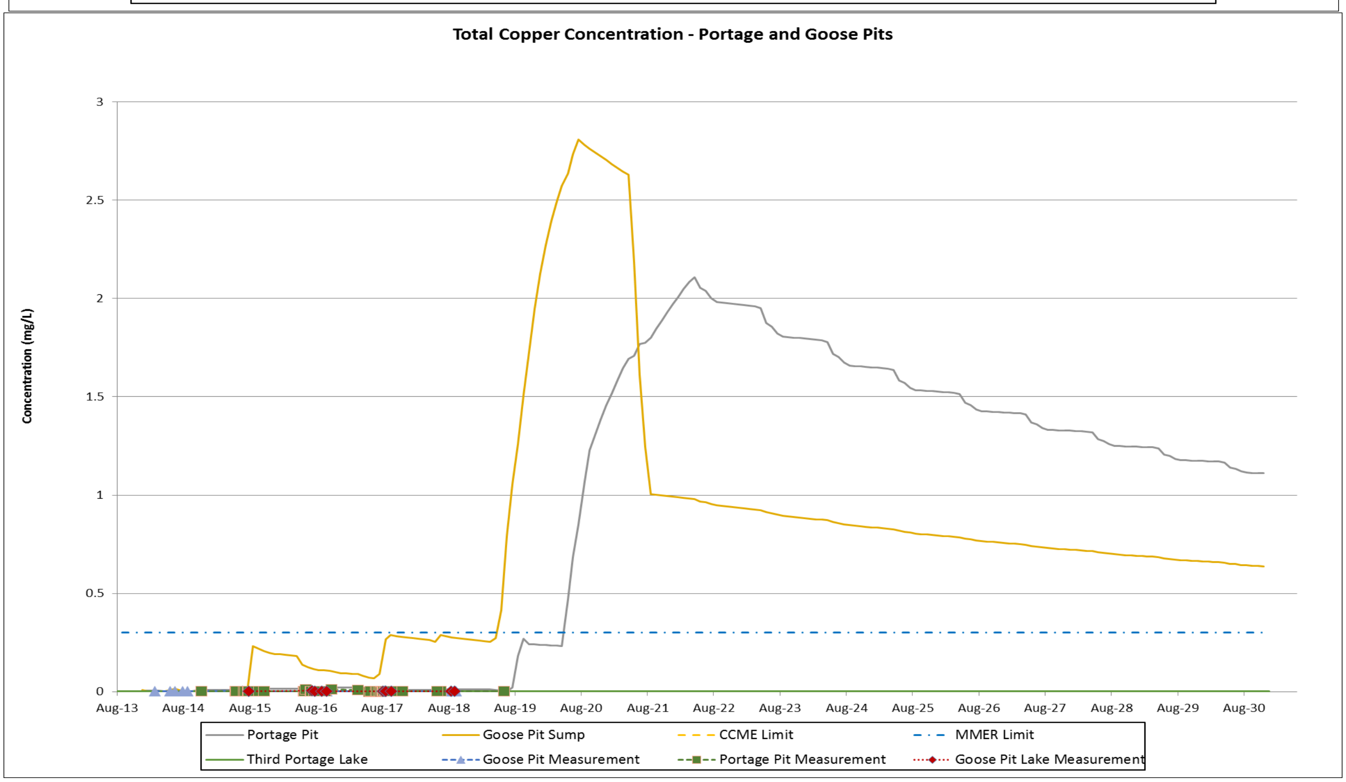
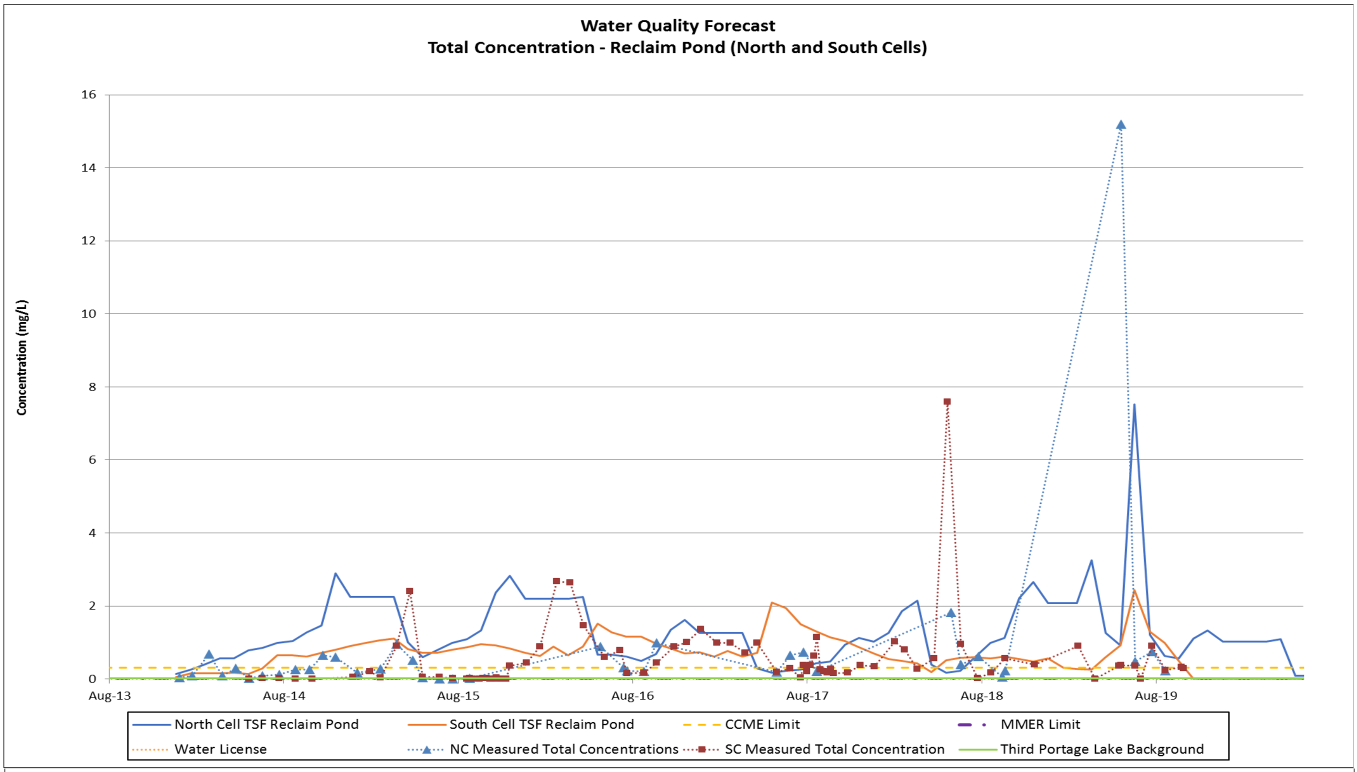


Figure 4-8: Total Iron Forecasted Concentration



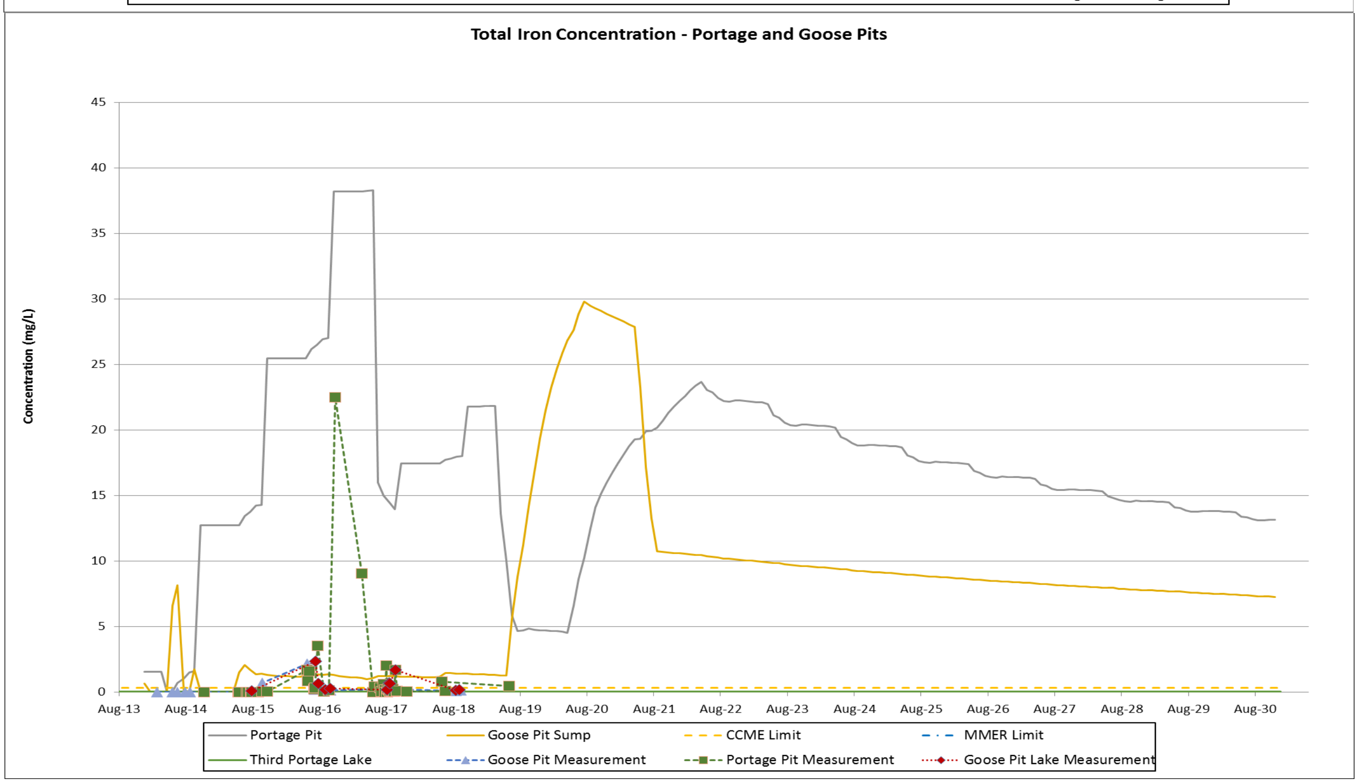
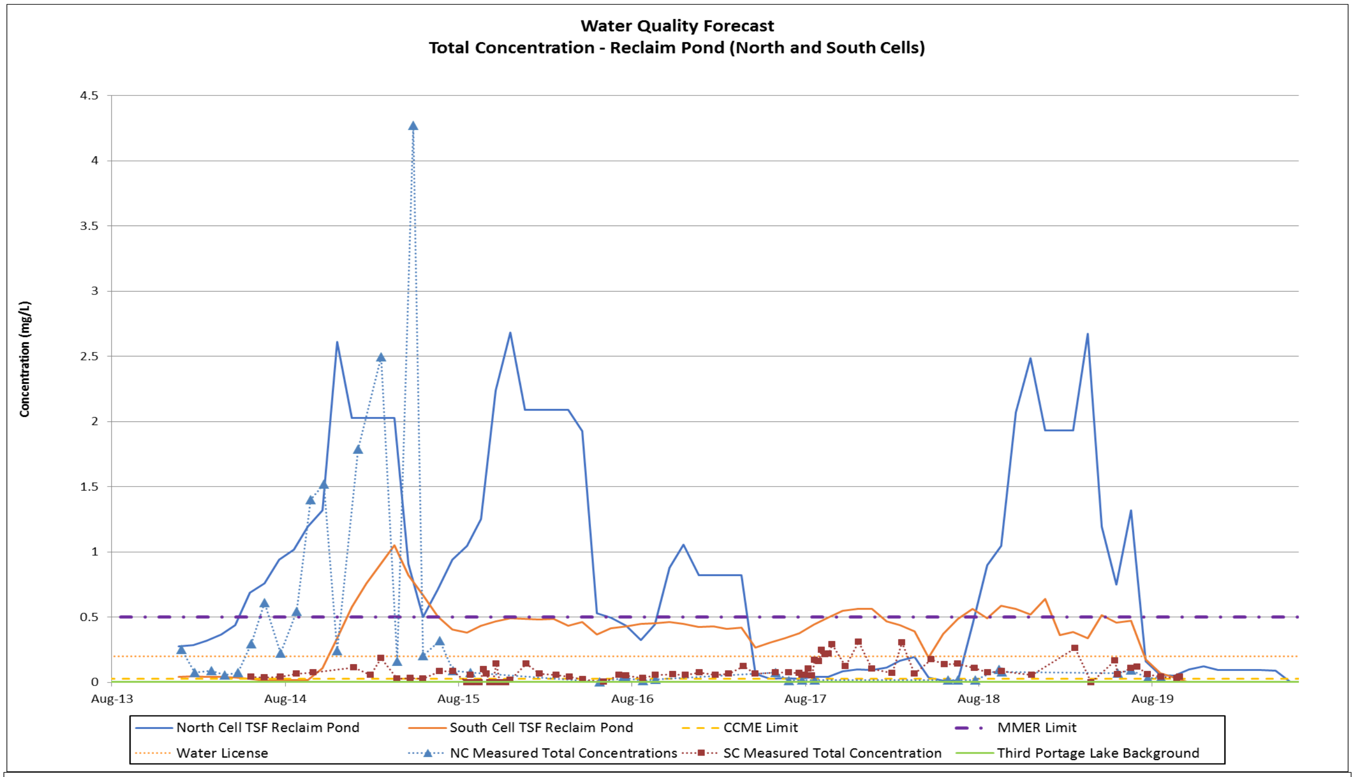


Figure 4-9: Total Nickel Forecasted Concentration



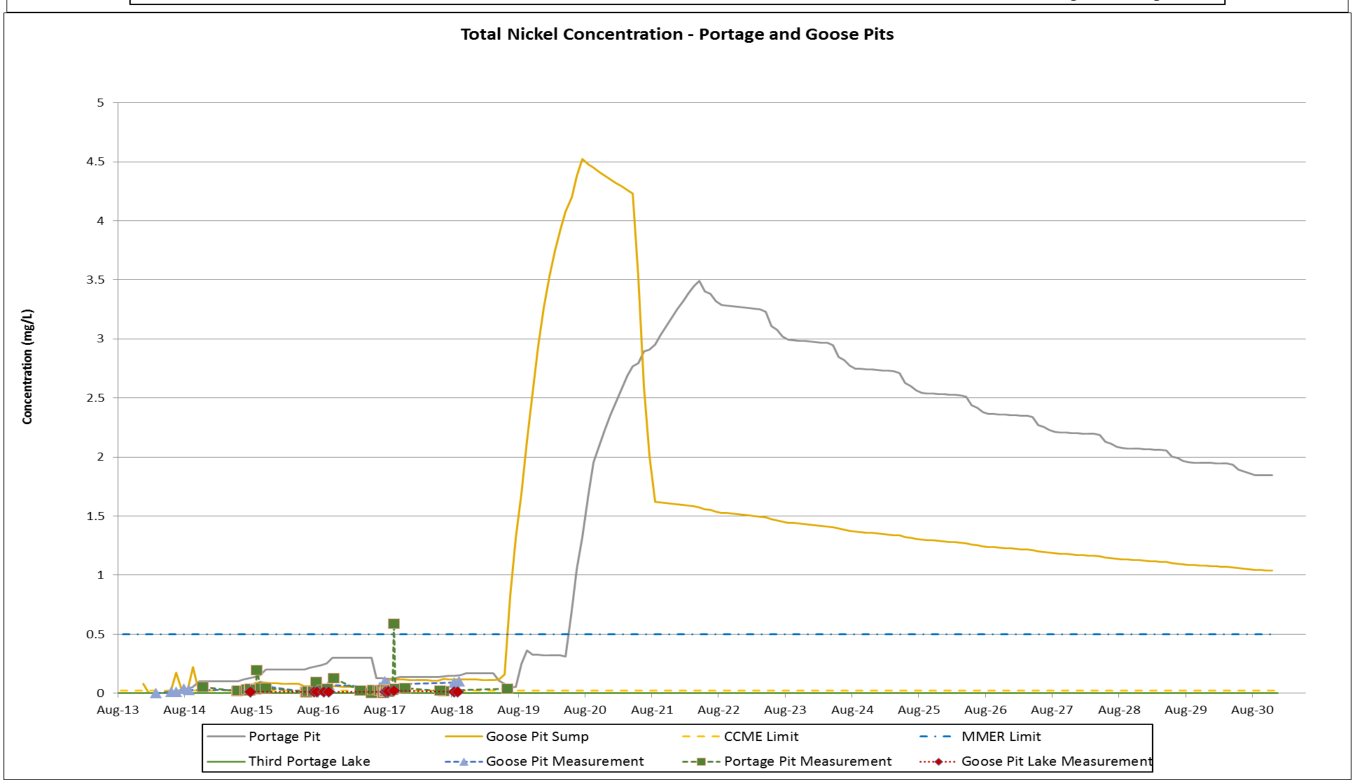
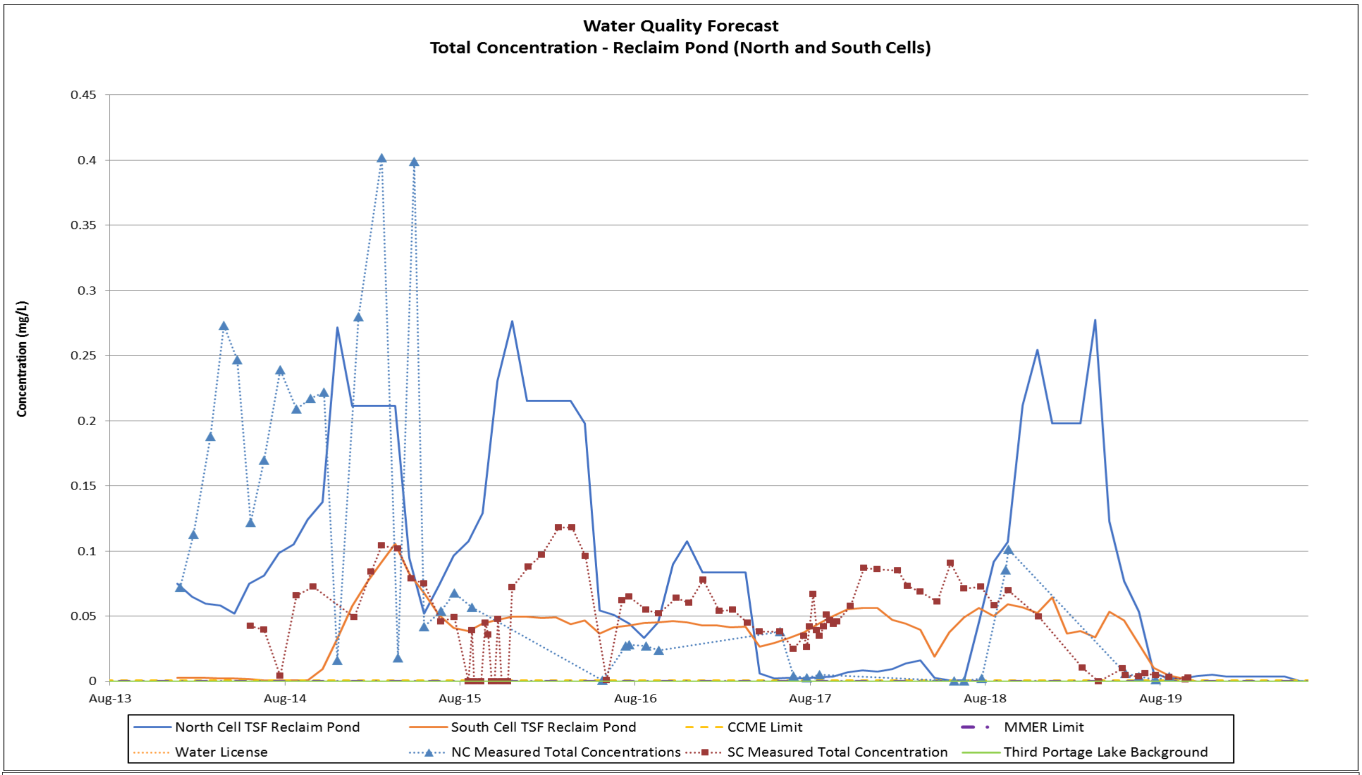


Figure 4-10: Total Selenium Forecasted Concentration



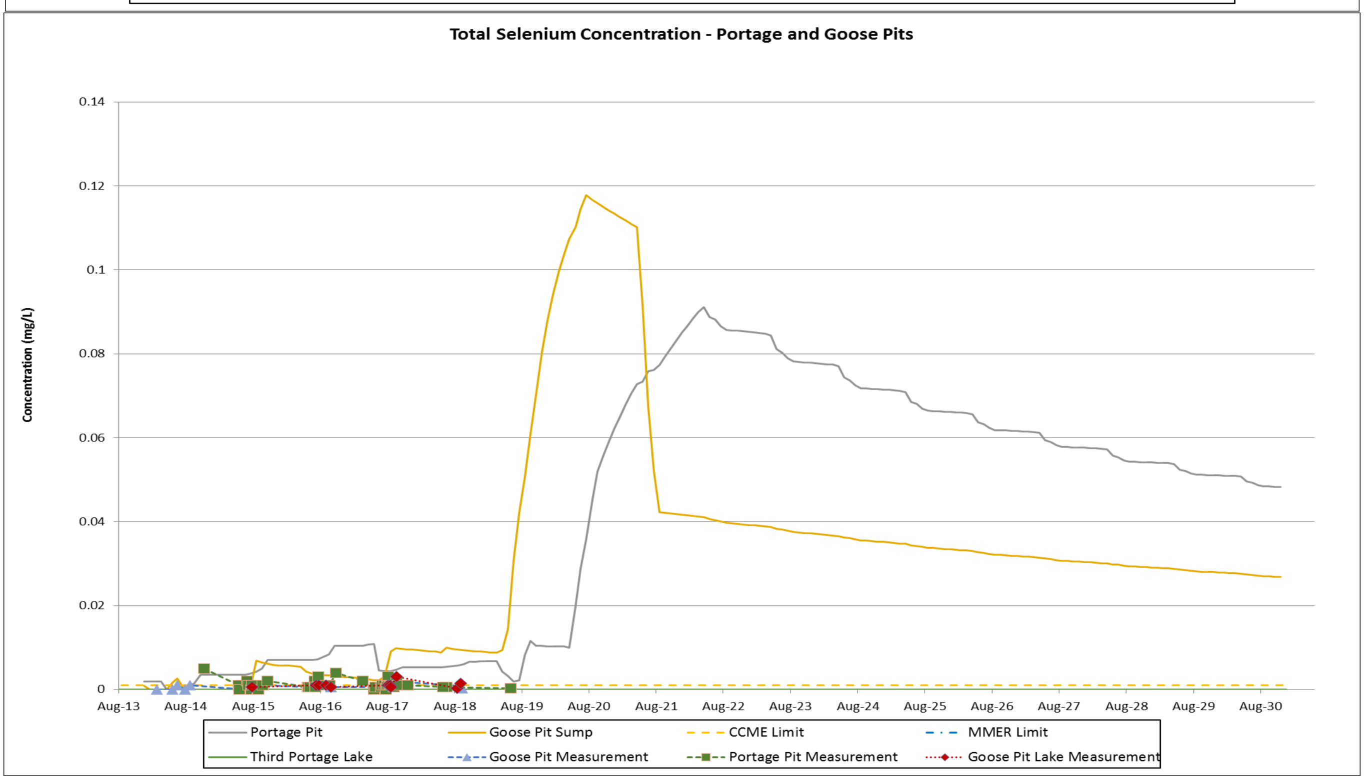
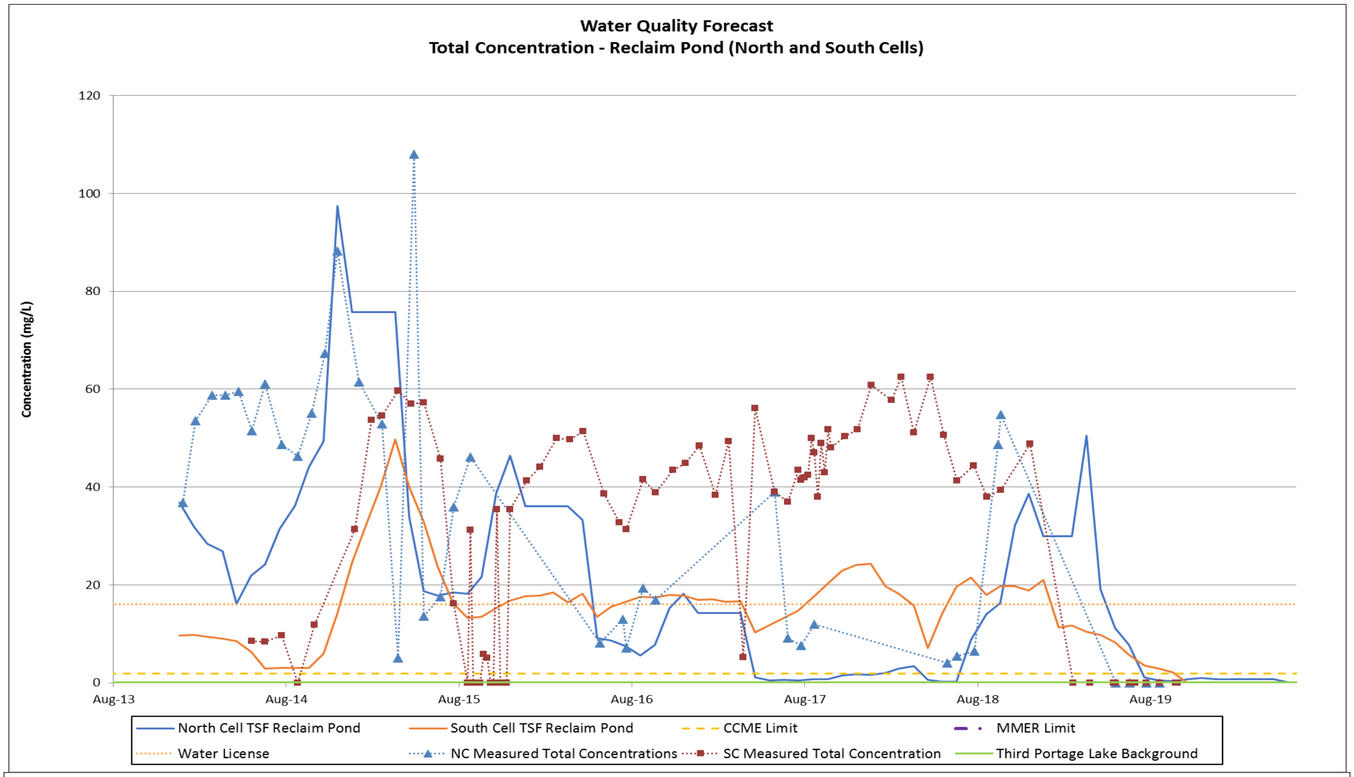


Figure 4-11: Total Ammonia Forecasted Concentration



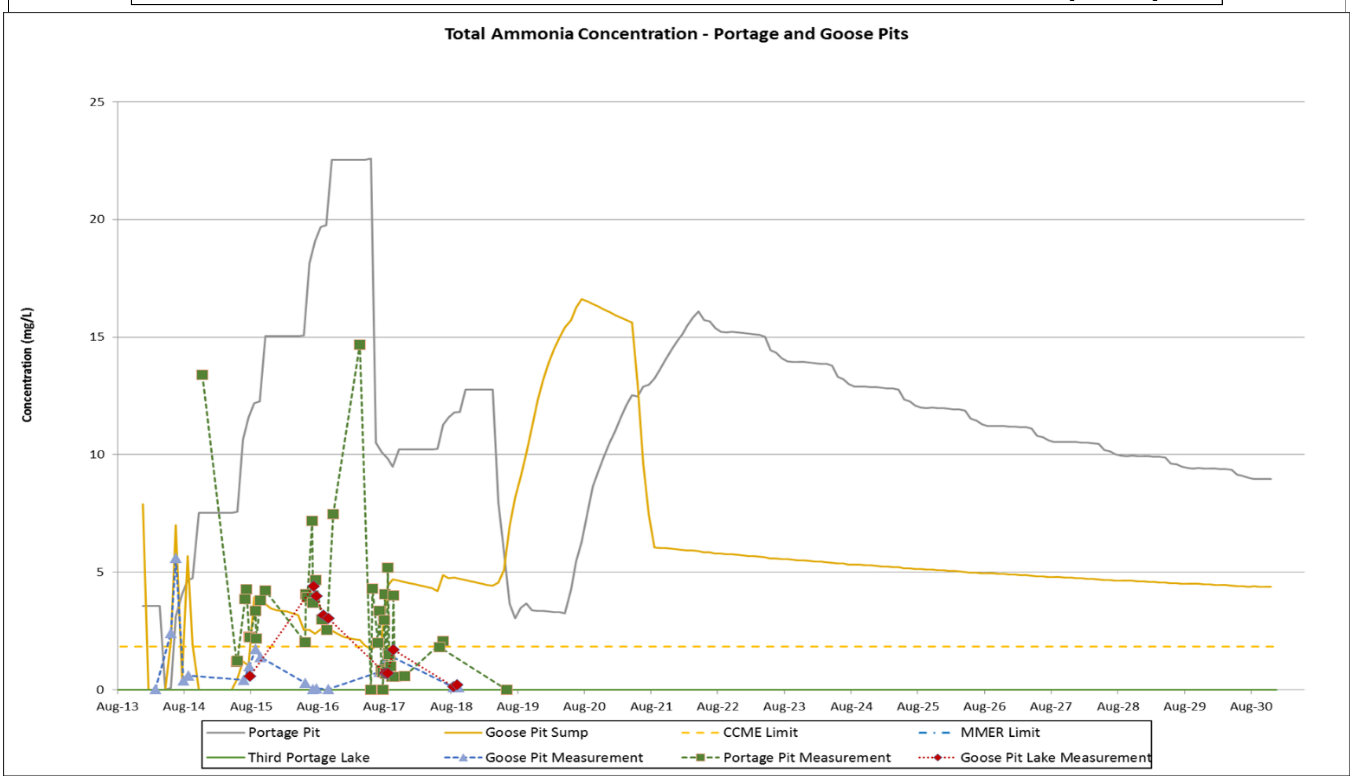
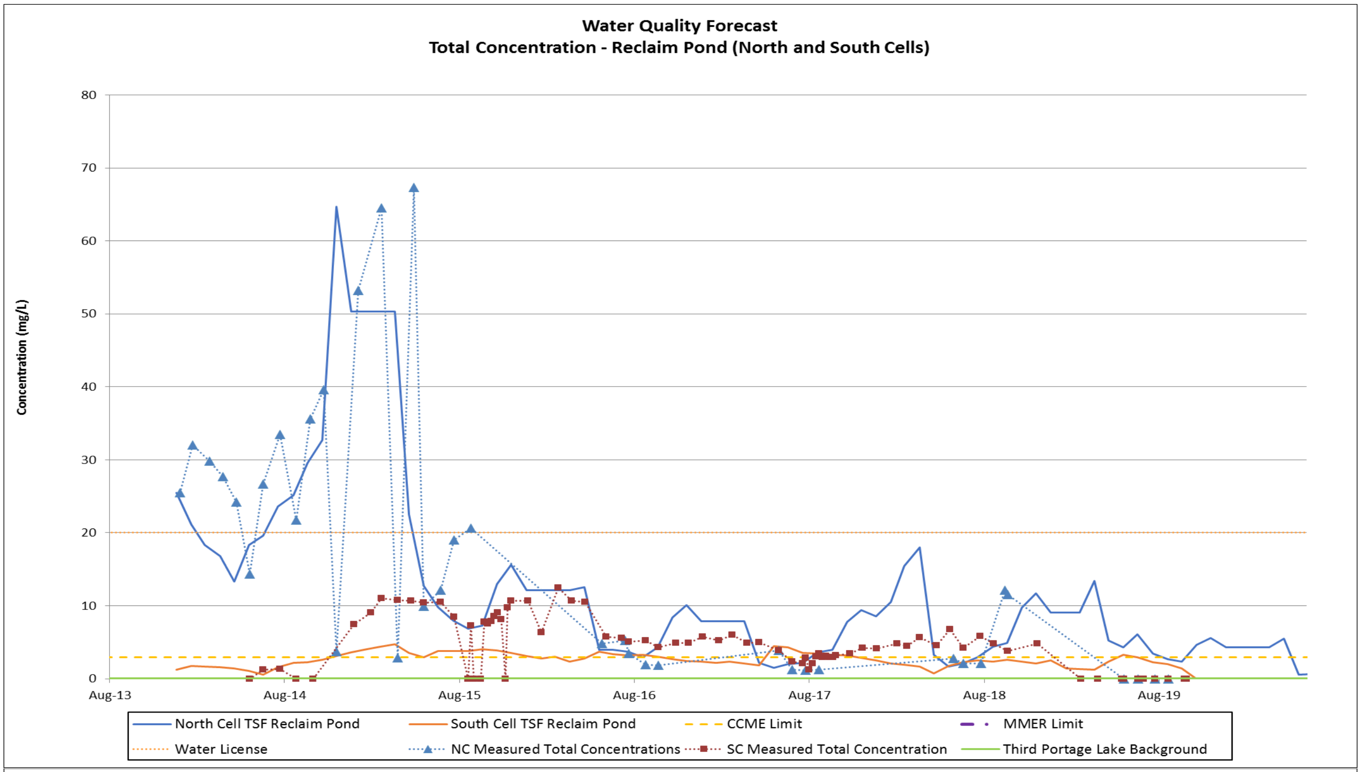


Figure 4-12: Nitrate Forecasted Concentration



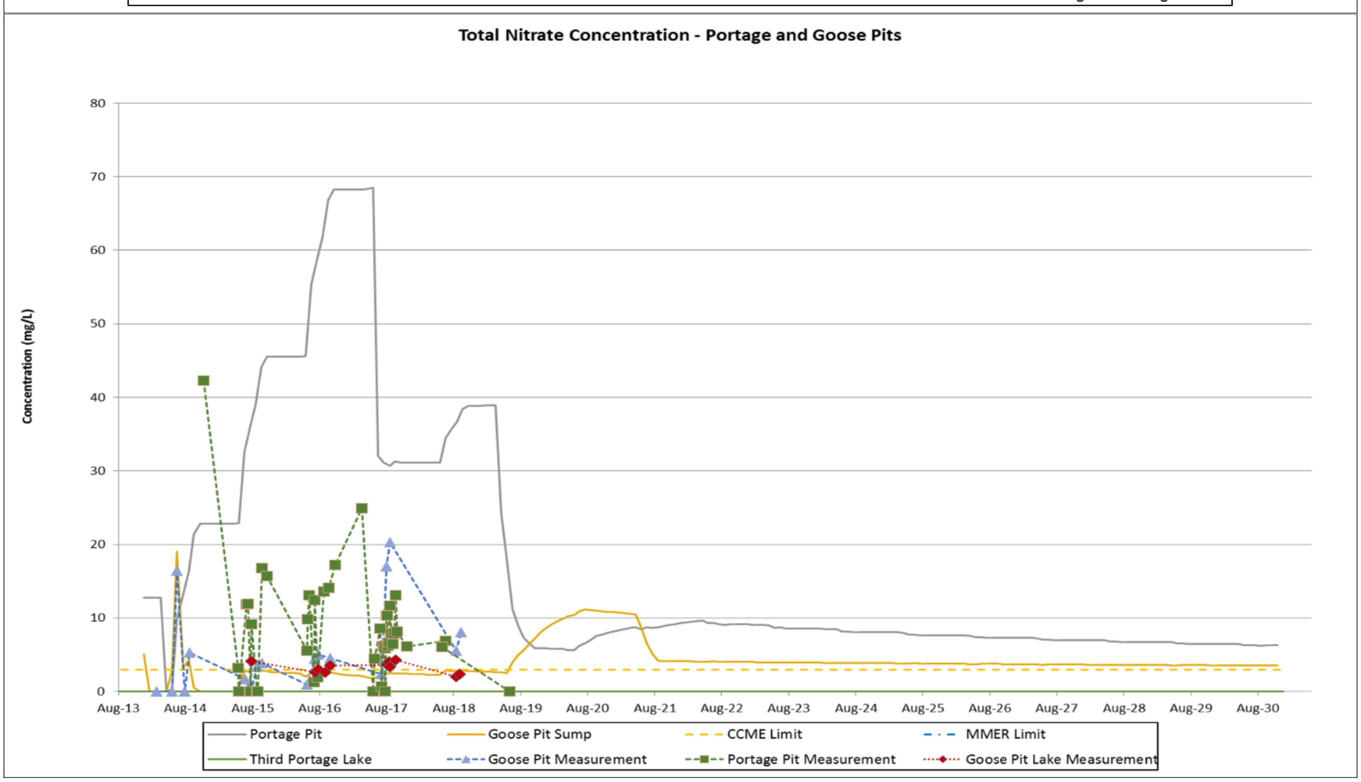
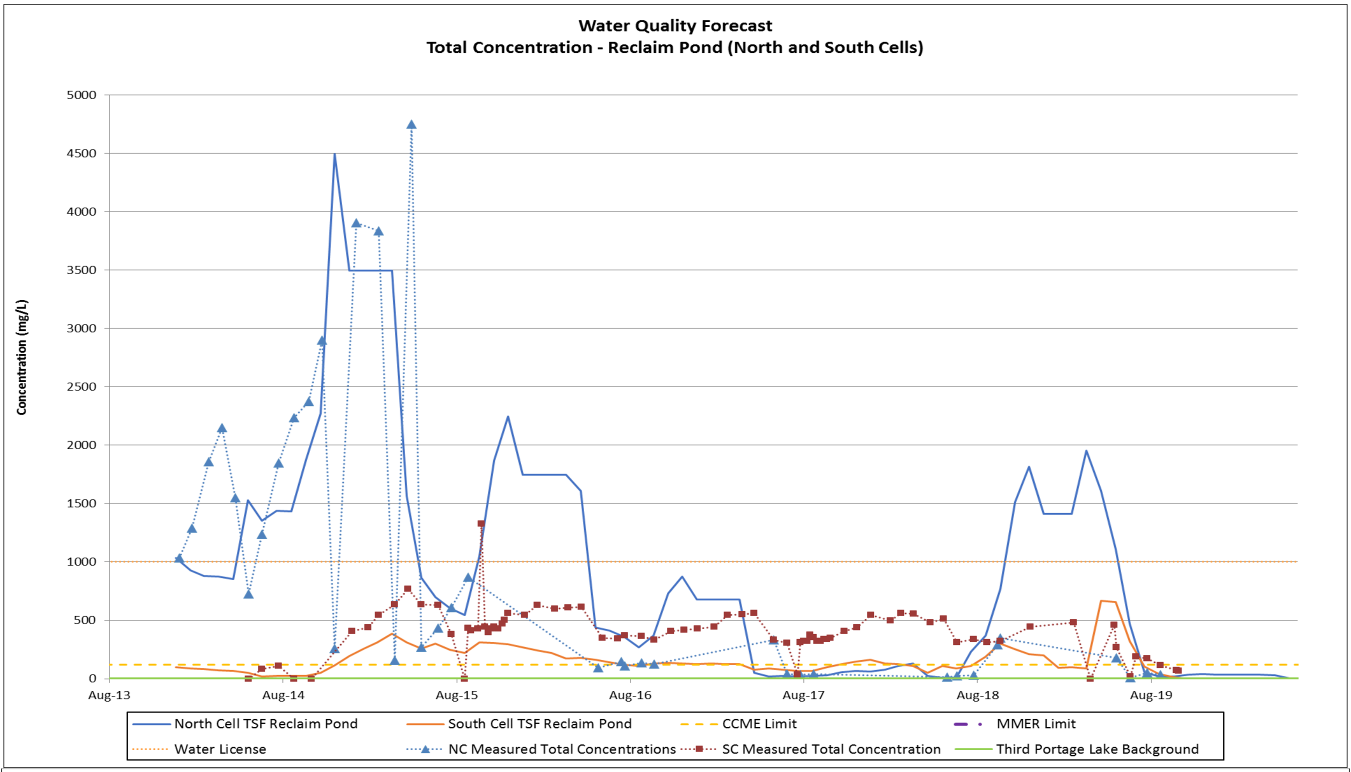


Figure 4-13: Chloride Forecasted Concentration



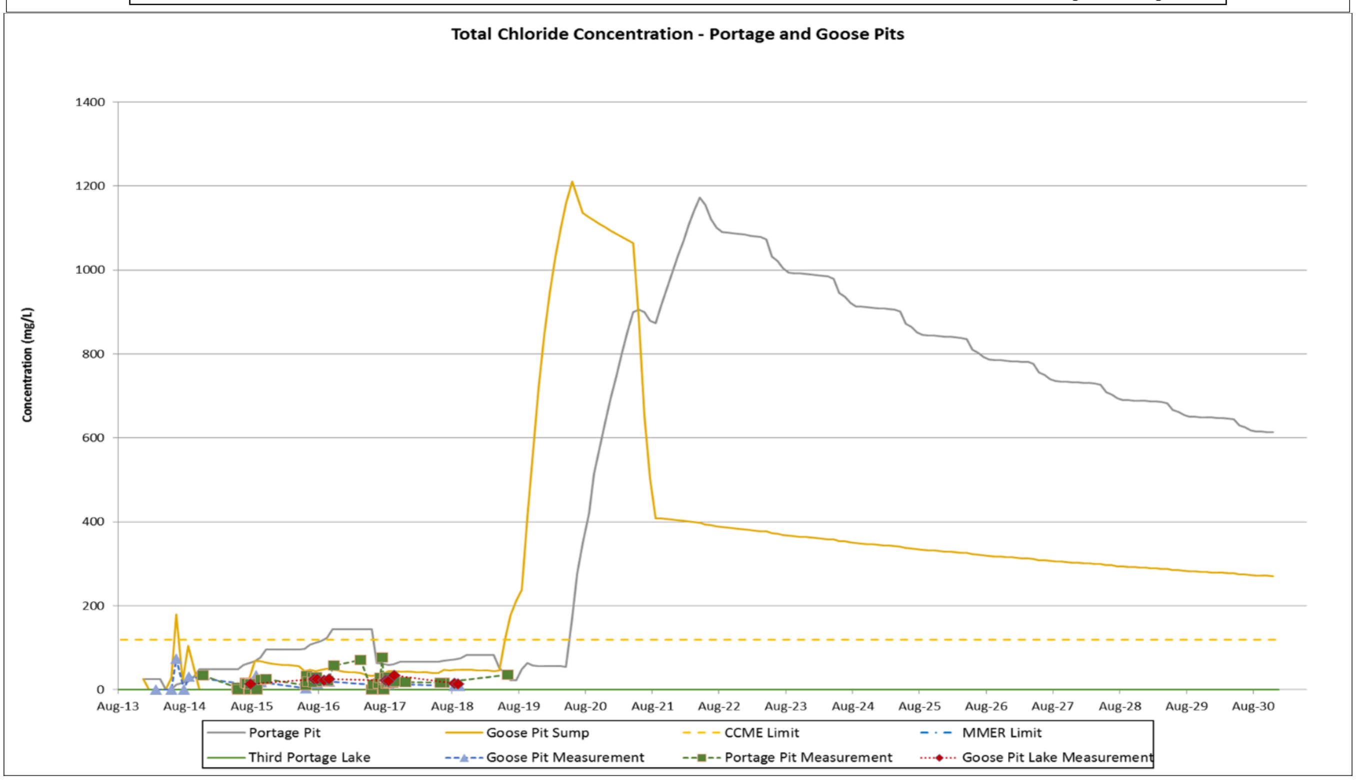


Figure 4-14: Fluoride Forecasted Concentration

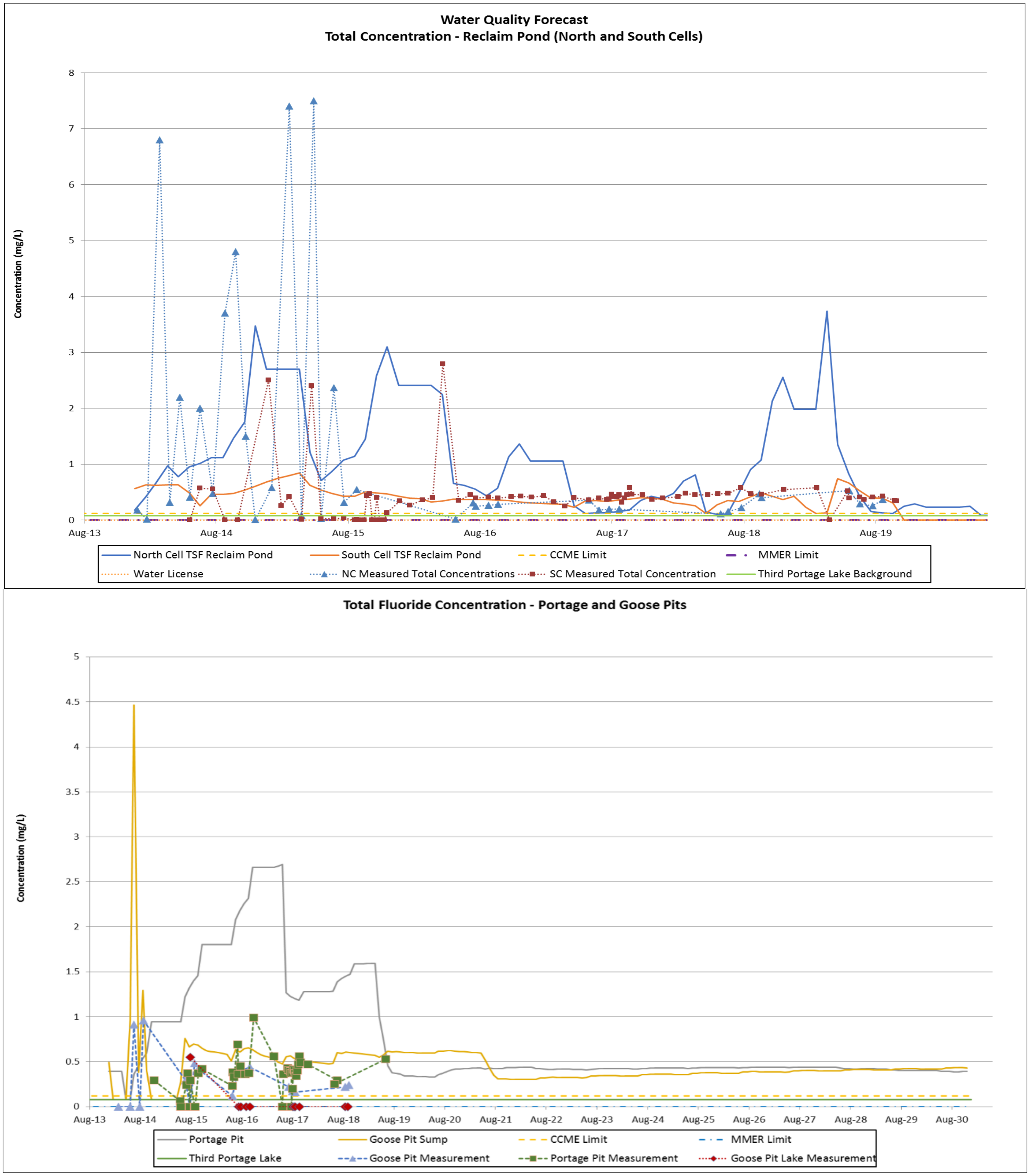
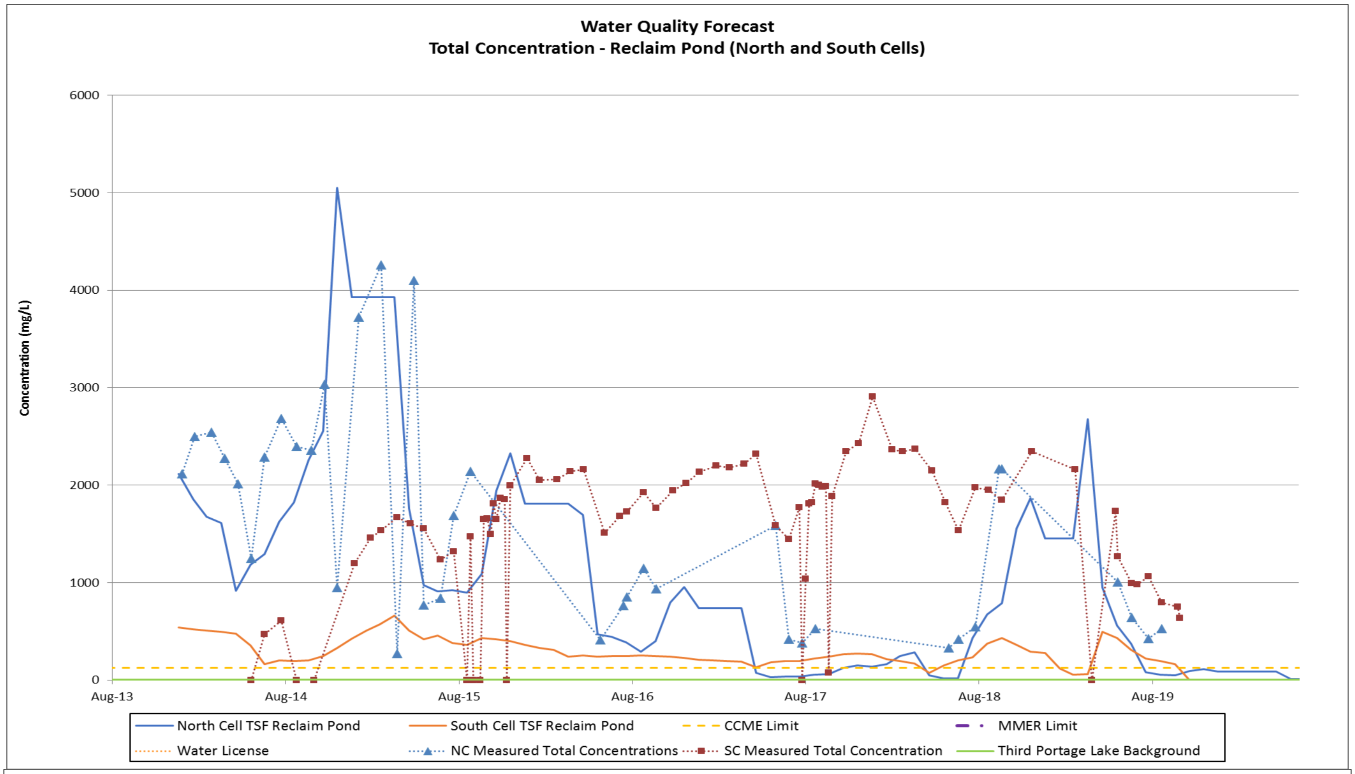


Figure 4-15: Sulphate Forecasted Concentration



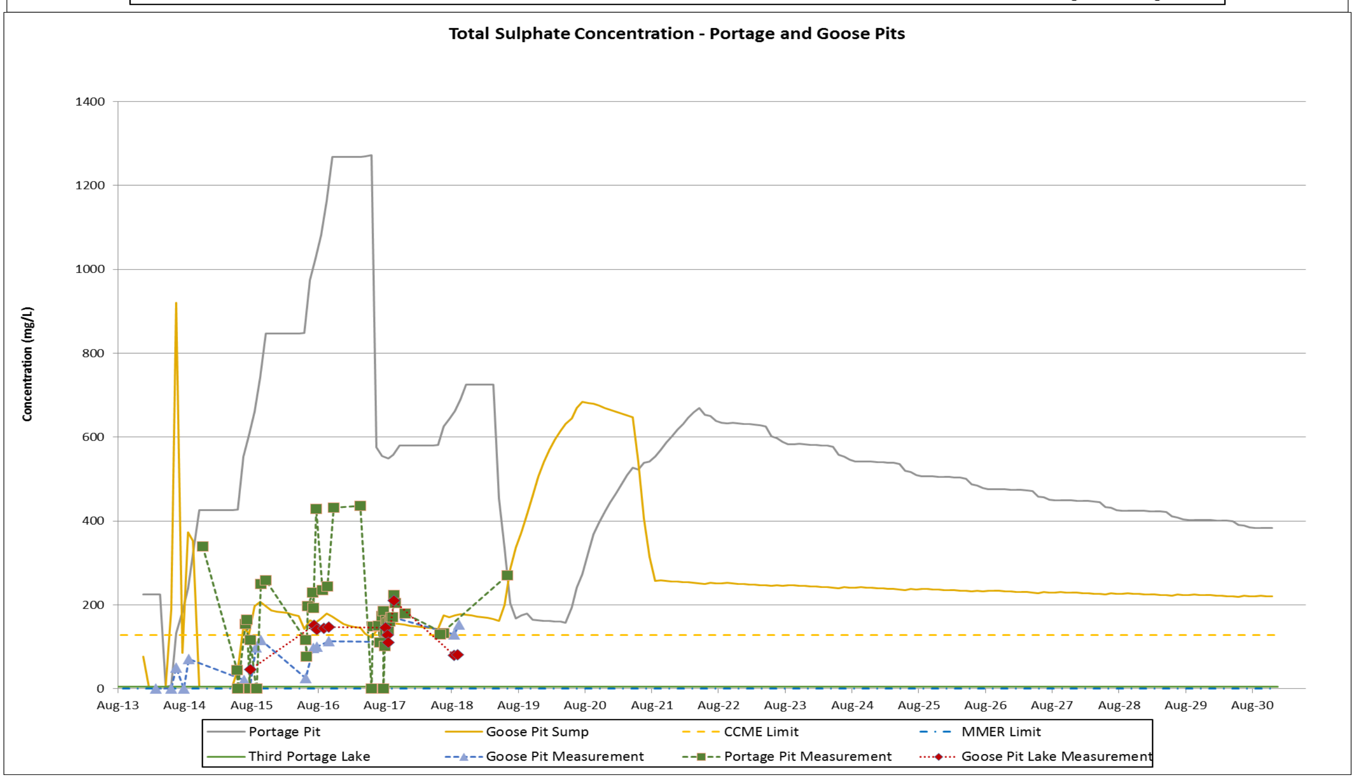
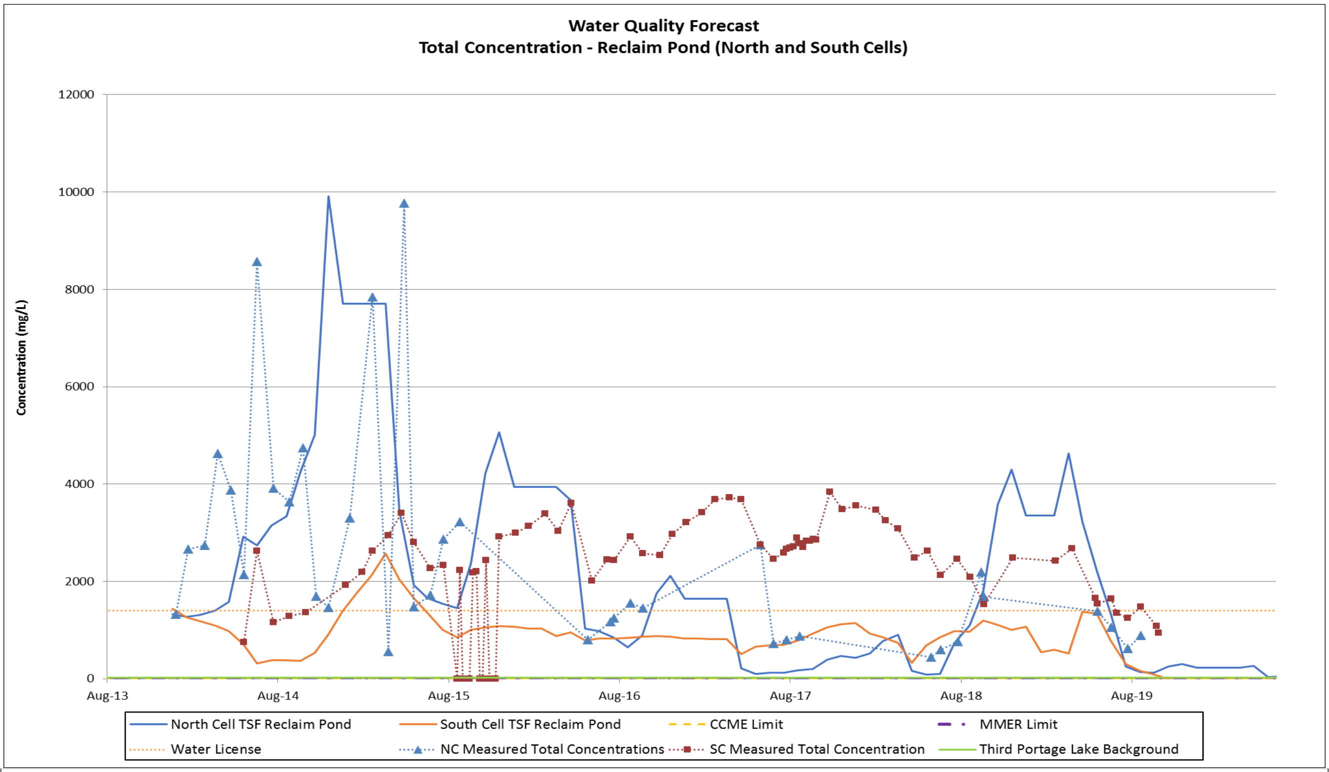


Figure 4-16: Total Dissolved Solids Forecasted Concentration



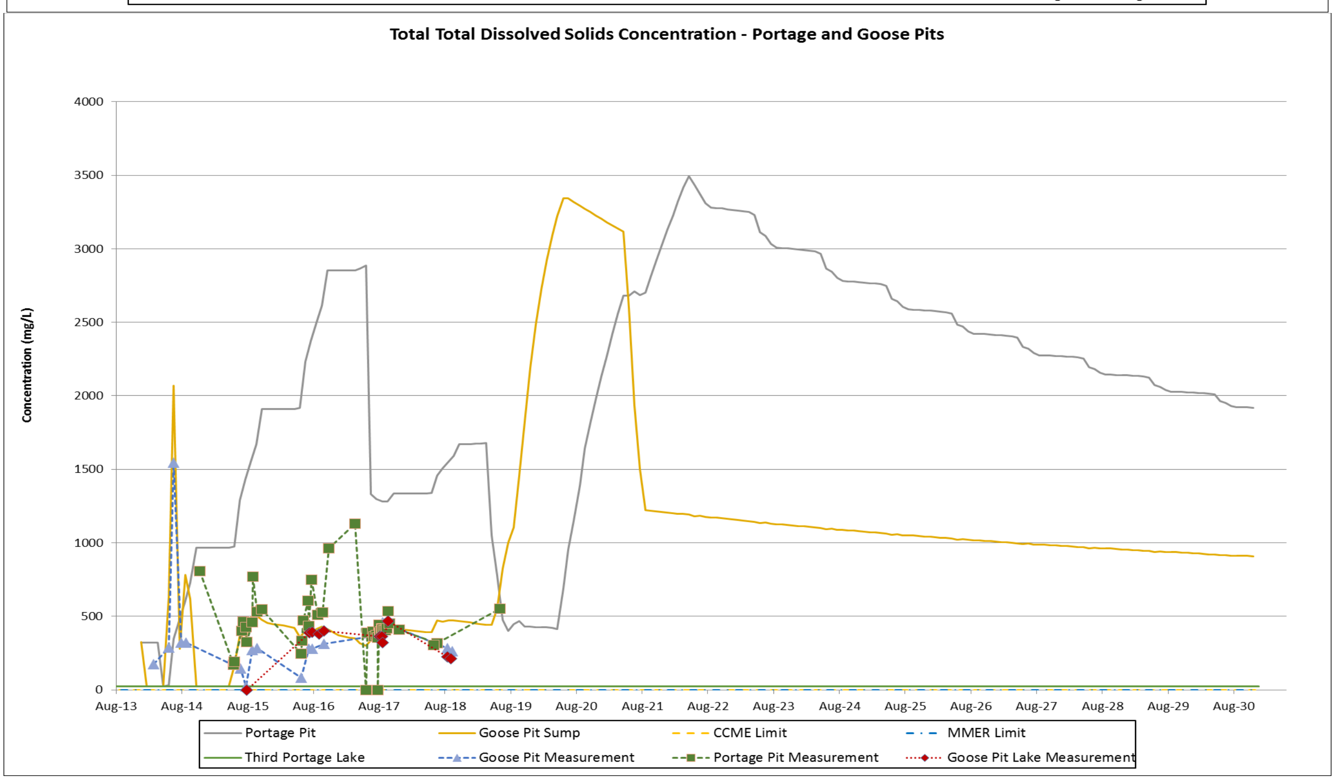


Figure 4-17: Comparison of Forecasted Dissolved Copper – North Cell TSF Reclaim Pond

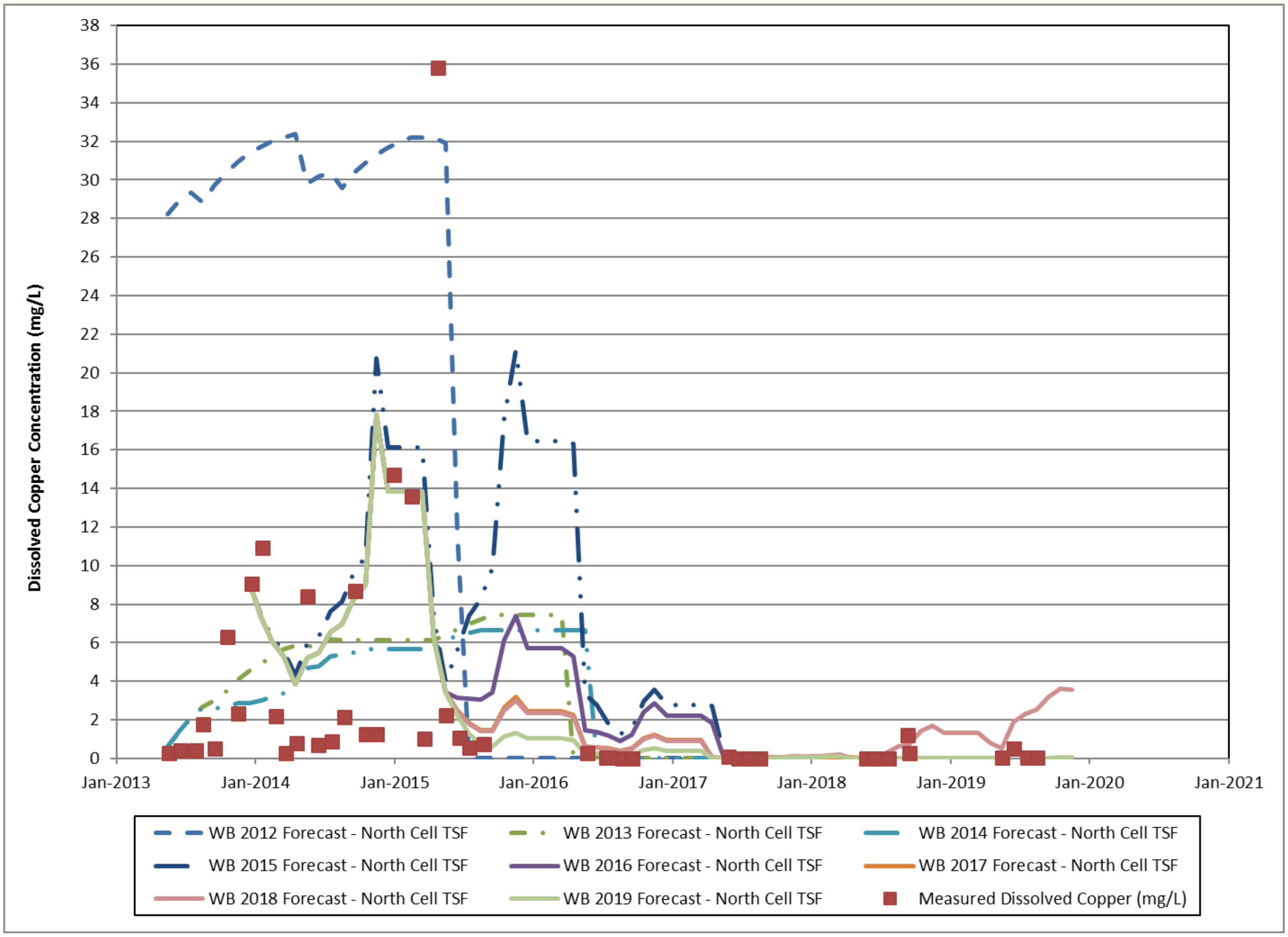


Figure 4-18: Comparison of Forecasted Dissolved Copper – South Cell TSF Reclaim Pond

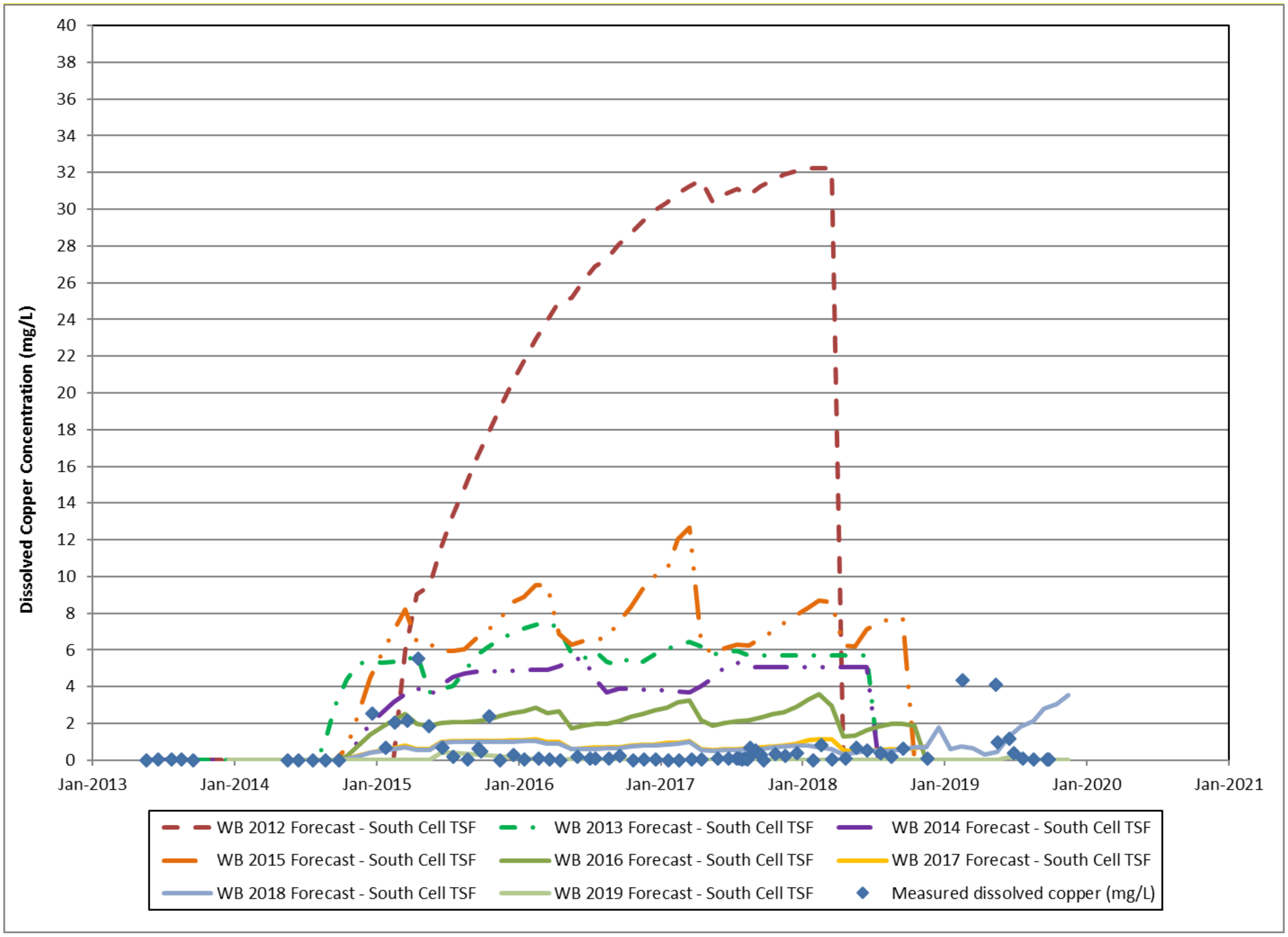


Figure 4-19: Comparison of Forecasted Chloride – North Cell TSF Reclaim Pond

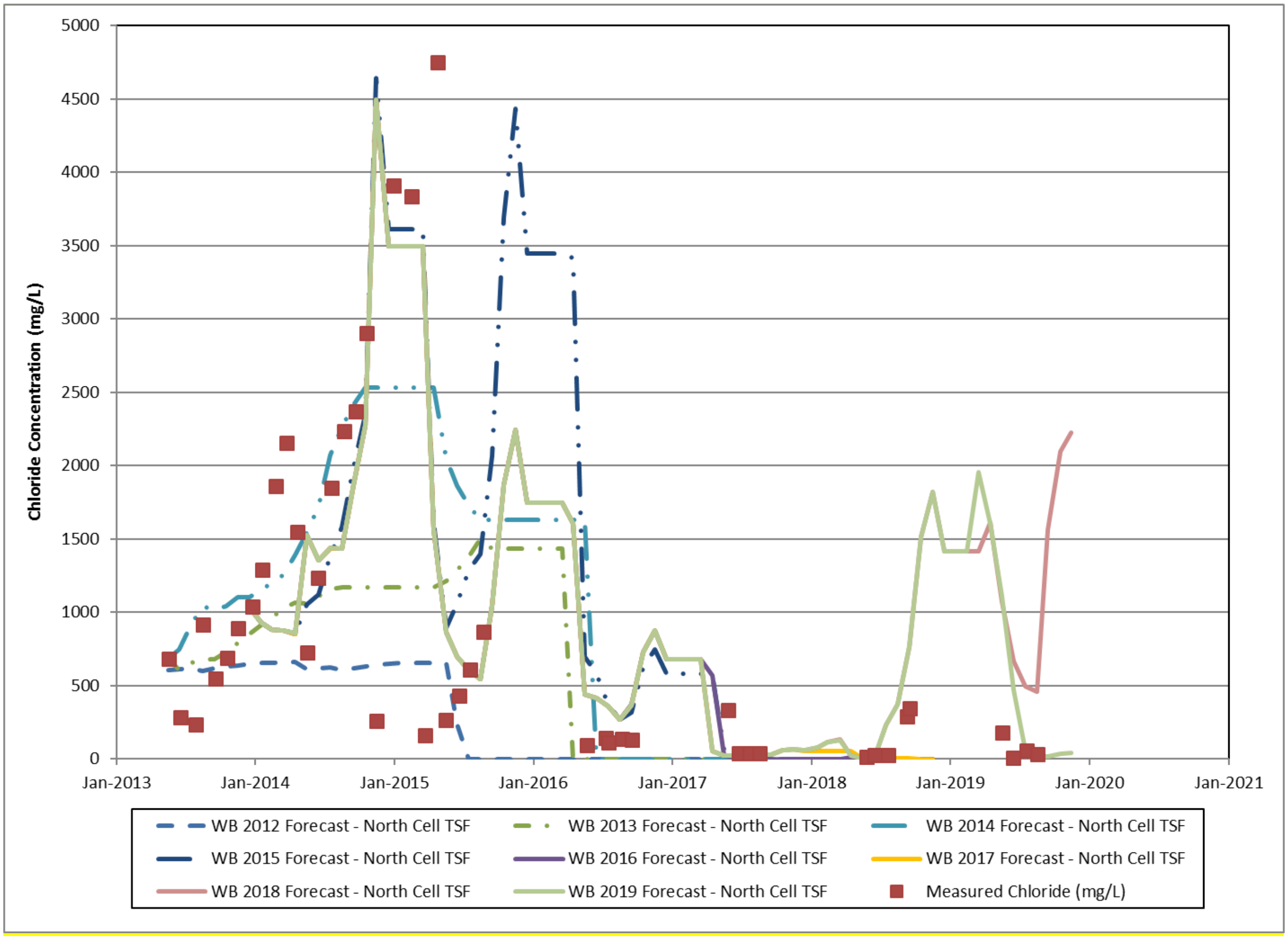
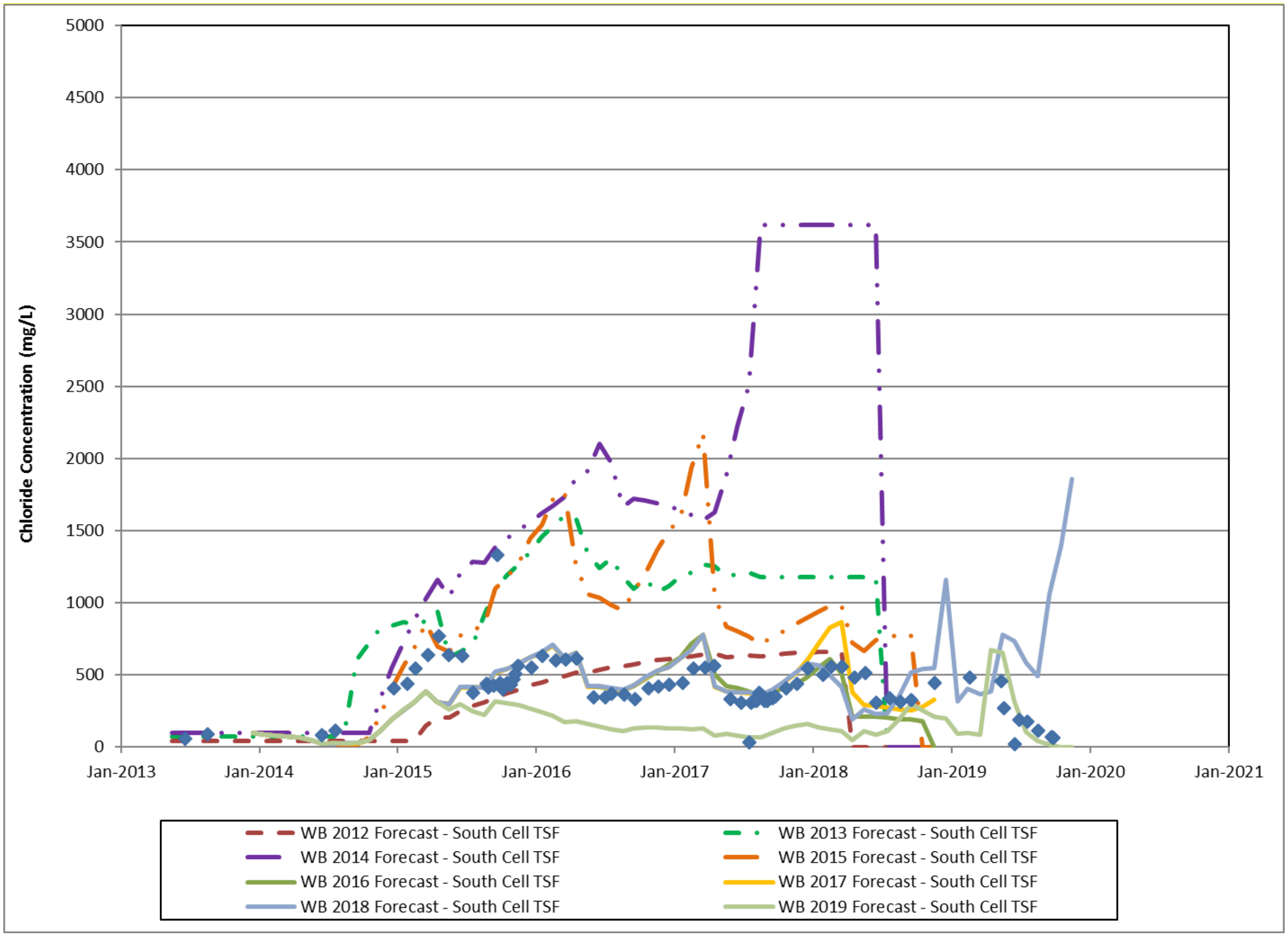


Figure 4-20: Comparison of Forecasted Chloride – South Cell TSF Reclaim Pond



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 pits could be done at the end of in-pit tailings desposition.

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 an oxidation step to help oxidize any metal complexes, or post-treatment such as media filter and ion exchange for final polishing.

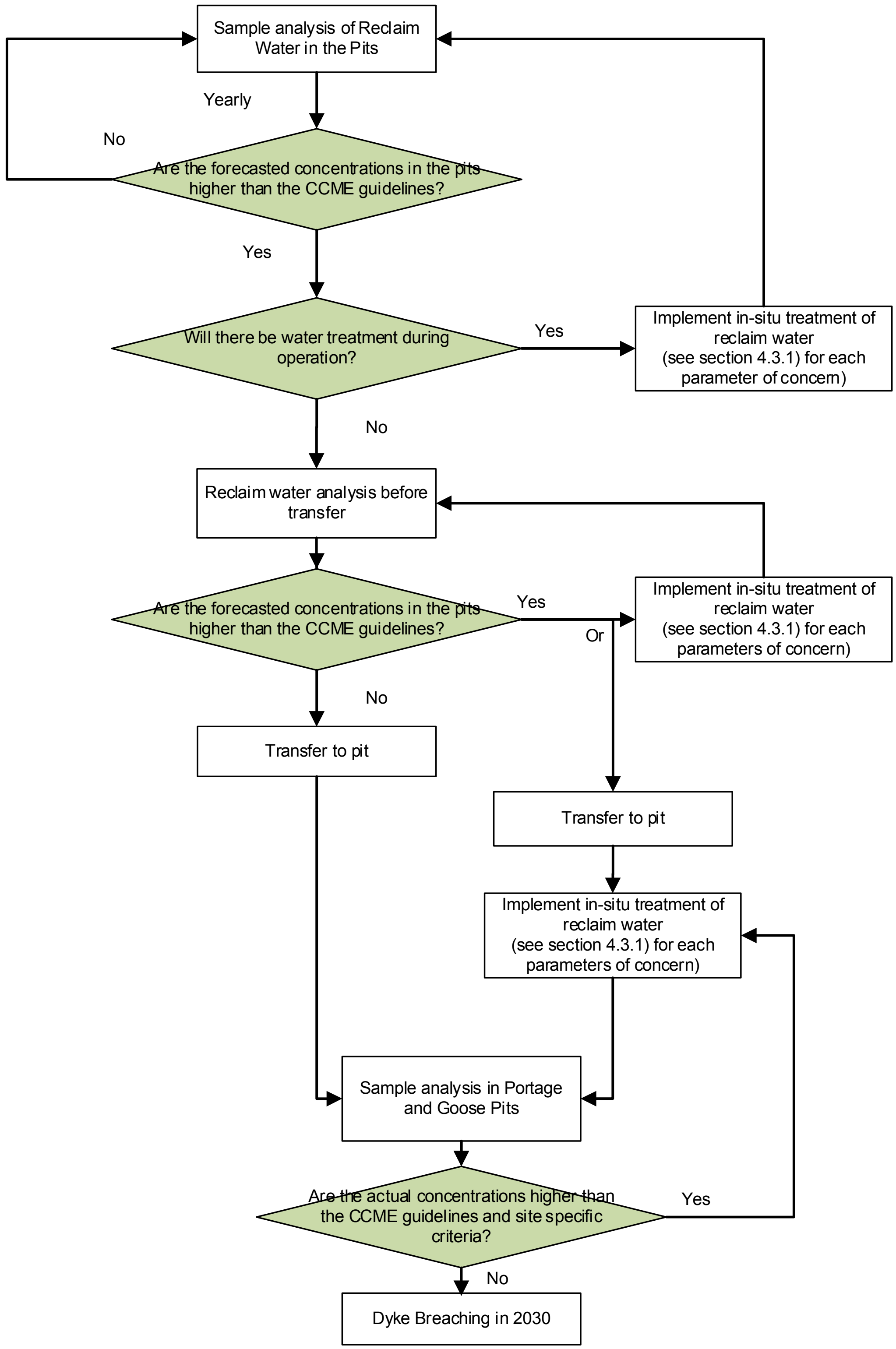
- If fluoride and/or arsenic concentrations could present an issue, one of the most efficient techniques to reduce their concentration is by coagulation-clarification/filtration process. Possible treatment options includes the following:
  - The existing Water Treatment Plant (WTP) can be used to coagulate 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 was transferred from Vault Pit to the Vault Attenuation Pond until the end of 2018. 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 and no treatment for total suspended solid was required. The water treatment plant, which was designed for total suspended solids removal, was transferred in 2018 to the Amaruq site. In 2019, no water was discharged to Wally Lake.

Based on the water balance 2019, natural reflooding of the Vault Pit is expected to occur from 2019 to 2026/2027, and Vault Dike will be breached in 2030/2031, 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 2019 was performed. The Vault Area includes Vault Pit, Vault Attenuation Pond, Vault Waste Rock Storage Facility, Phaser Pits (Phaser Pit and BB Phaser Pit), Phaser Attenuation Pond, Discharge to Wally Lake and Exposure Area in Wally Lake.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 MDMER. 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 2019.

In 2019, no water was discharged to Wally Lake. All of the water was contained within the Vault Attenuation Pond and surrounding pits. No sample collected was above Water License criteria. Furthermore, the concentrations of metals, chlorides and sulfates in the water sampled in the Vault Pit, the Vault Attenuation Pond, the Vault Waste Rock Storage Facility, the Phaser Pits and the Phaser Attenuation Pond are relatively low compared to the Water License requirements. Some elements were above CCME limit in the water sampled in the Vault Pit, the Vault Attenuation Pond, the Vault Waste Rock Storage Facility, the Phaser Pit and the Phaser Attenuation Pond. More precisely the average value of the following elements were above CCME limit: fluroride, total copper, total aluminium, total cadmium, total iron, total silver, total nickel,total selenium and total cyanide. Finally, all samples measured in the exposure area of Wally Lake have concentrations below the CCME guidelines.

Ammonia nitrogen and un-ionized ammonia in Vault Pit and Phaser Pit were above CCME limit. In 2019, nitrate concentrations, specifically in the Vault and Phaser Pits, 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 2019, no water was discharged to Wally Lake. Thus, for 2019, there is no ammonia loading discharged to the environment.

Table 5-1: Average and Maximum Concentrations Measured in the Vault Area for 2019

Parameters	Units	Vault Pit (ST-23)		Phaser Pits (ST-41/42)		Vault Attenuation Pond (ST-25)		Vault Waste Rock Storage Facility (ST-24)		Phaser Attenuation Pond (ST-43)		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 2019	Max. 2019	Avg 2019	Max. 2019	Avg 2019	Max. 2019	Avg 2019	Max. 2019	Avg 2019	Max. 2019	No Discharge in 2019	Avg 2019	Max. 2019		Part F of License
Alkalinity	mg $CaCO_3$/L	63	75	46	71	36	77	39	83	35	73		29	39	n/a	n/a
Hardness	mg $CaCO_3$/L	197	277	100	131	84	104	85	114	74	85		31	36	n/a	n/a
Total Aluminum (Al)	mg/L	0.05	0.12	0.22	0.52	0.157	0.361	0.123	0.419	0.708	1.32		0.027	0.039	0.1	1.5
Dissolved Aluminum (Al)	mg/L	0.00025	0.00025	0.025	0.054					0.011	0.041				0.1	1
Total Silver (Ag)	mg/L	0.00005	0.00005	0.00005	0.00005	0.0002	0.0007	0.0003	0.0013	0.00005	0.00005				0.00025	n/a
Total Arsenic (As)	mg/L	0.005	0.006	0.003	0.003	0.002	0.002	0.005	0.006	0.0017	0.002				0.005	0.1
Total Barium (Ba)	mg/L	0.029	0.036	0.025	0.033	0.017	0.032	0.015	0.04	0.02	0.032				n/a	n/a
Total Cadmium (Cd)	mg/L	0.00001	0.00002	0.00005	0.00011	0.00009	0.00014	0.00006	0.00015	0.0002	0.00035		0.00001	0.00001	0.00004	0.002
Total Chromium (Cr)	mg/L	0.001	0.002	0.0009	0.002	0.0009	0.001	0.0009	0.0012	0.0009	0.002		0.000817	0.002	0.001	n/a
Total Copper (Cu)	mg/L	0.0027	0.0034	0.007	0.01	0.007	0.014	0.006	0.011	0.016	0.023				0.002	0.1
Total Iron (Fe)	mg/L	0.15	0.29	0.334	0.6	0.373	0.5	0.254	0.85	1.34	1.71		0.032	0.07	0.3	n/a
Total Manganese (Mn)	mg/L	0.06	0.075	0.102	0.145	0.101	0.132	0.051	0.1	0.175	0.223		0.0006	0.001	n/a	n/a
Total Mercury (Hg)	mg/L	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005		0.000005	0.000005	0.000026	0.004
Total Molybdenum (Mo)	mg/L	0.048	0.071	0.011	0.019	0.003	0.004	0.014	0.024	0.005	0.01		0.00025	0.00025	0.073	n/a
Total Nickel (Ni)	mg/L	0.004	0.005	0.007	0.012	0.009	0.016	0.005	0.007	0.027	0.032				0.025	0.2
Total Lead (Pb)	mg/L	0.0003	0.0006	0.0002	0.0004	0.00015	0.00015	0.00015	0.00015	0.00019	0.0003				0.001	0.1
Total Selenium (Se)	mg/L	0.0009	0.002	0.0007	0.002	0.001	0.002	0.0004	0.0011	0.0044	0.0068		0.00025	0.00025	0.001	n/a
Total Zinc	mg/L	0.003	0.004	0.003	0.009	0.007	0.011	0.006	0.022	0.026	0.029				0.03	0.2
Ammonia (unionized NH3)	mg N/L	0.03	0.05	0.028	0.04	0.005	0.005	0.005	0.005	0.0075	0.01		0.005	0.005	0.016	n/a
Total Ammonia Nitrogen (NH_3-NH_4)	mg N/L	1.18	1.93	1.75	2.13	0.45	0.68	0.19	0.24	1.91	3.11		0.028	0.13	1.83	20
Chloride	mg/L	11	16	3	4	6	8	2	3	2	2		0.95	1.5	120	500
Fluoride (F)	mg/L	0.17	0.2	0.126	0.15	0.138	0.2	0.102	0.13	0.103	0.13				0.12	n/a
Nitrate (NO_3)	mg N/L	7.45	11.1	3.28	4.69										2.94	50
Total Cyanide (CNt)	mg/L	0.01	0.01	0.005	0.02	0.0006	0.001	0.0008	0.002	0.003	0.011				0.005	n/a
Sulphate (SO4)	mg SO_4/L	134	193	59	75	58	71	66	98	65	74		8	12	128 (1)	n/a
Total dissolved solids	mg/L	312	391	174	226	138	185	143	244	122	171				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 dike at Vault will be breached in 2030/2031

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 combinaiton 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 concentrations measured in 2018 were used (3.1 mg N/L). In 2019, average values of nitrate measured concentrations is 7.5 mg N/L.

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 2019 were below the limit. All of the samples 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

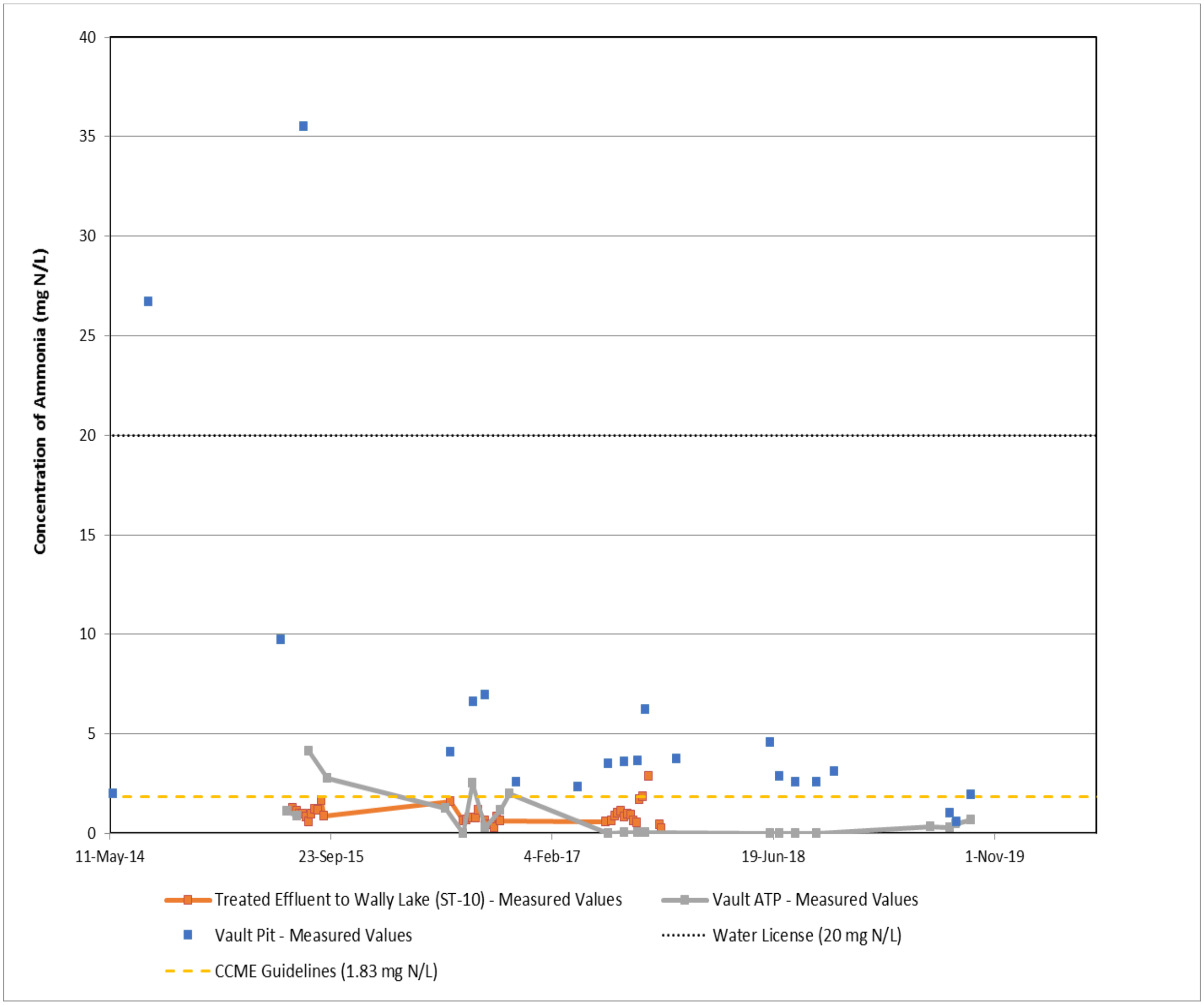


Figure 5-2: Forecasted Ammonia Concentration in Vault Area

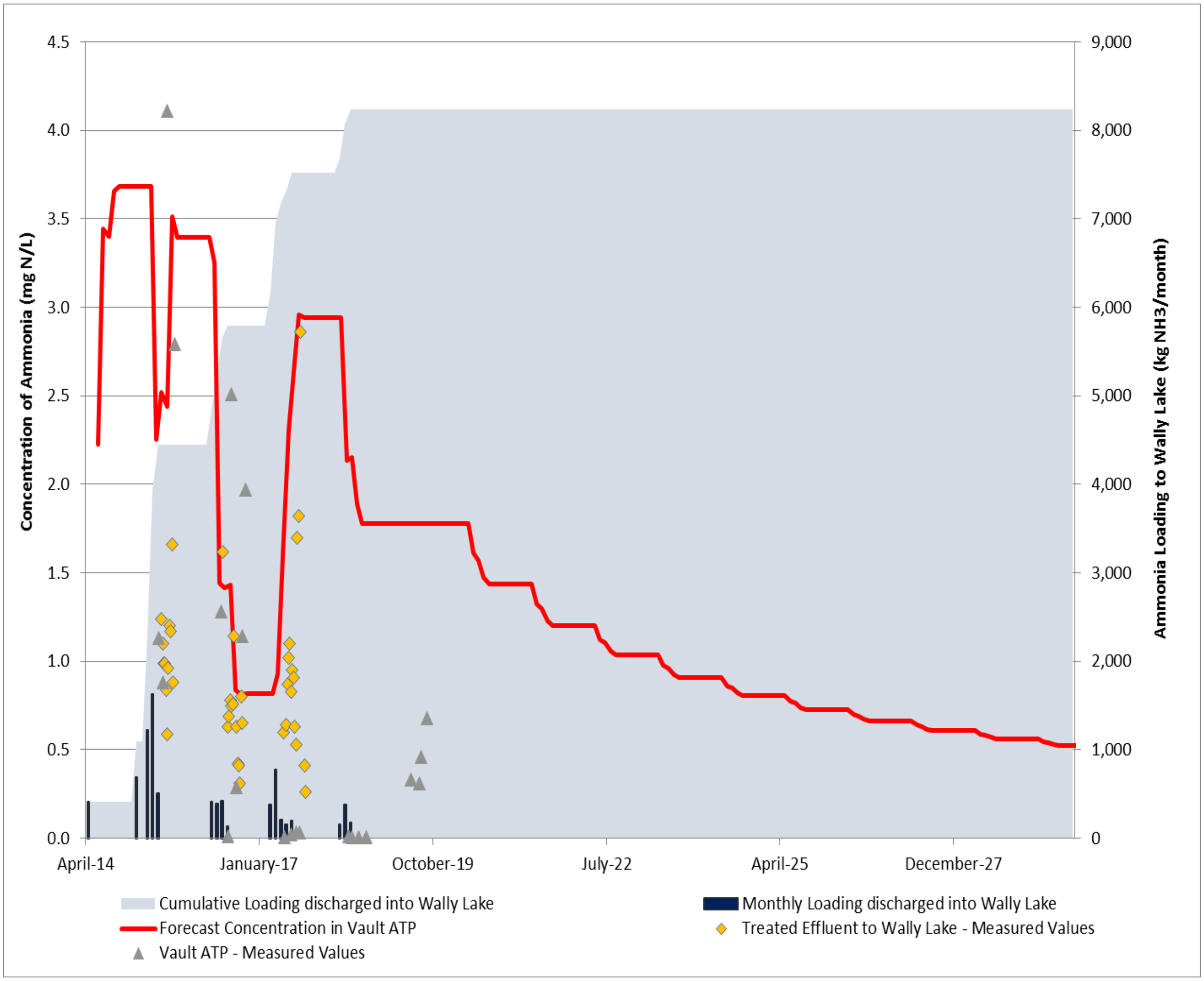


Figure 5-3: Measured Nitrate Concentration in Vault Area

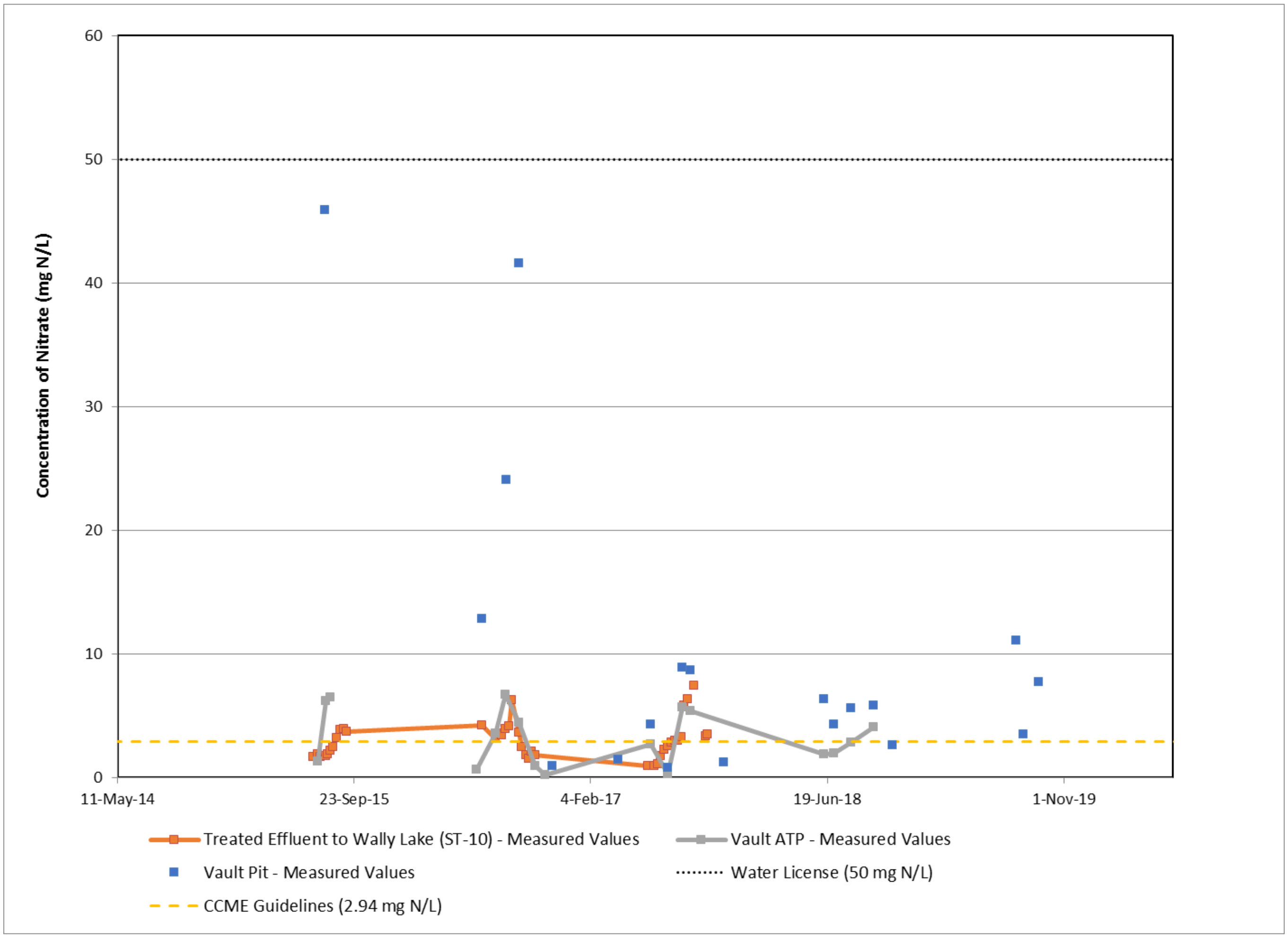
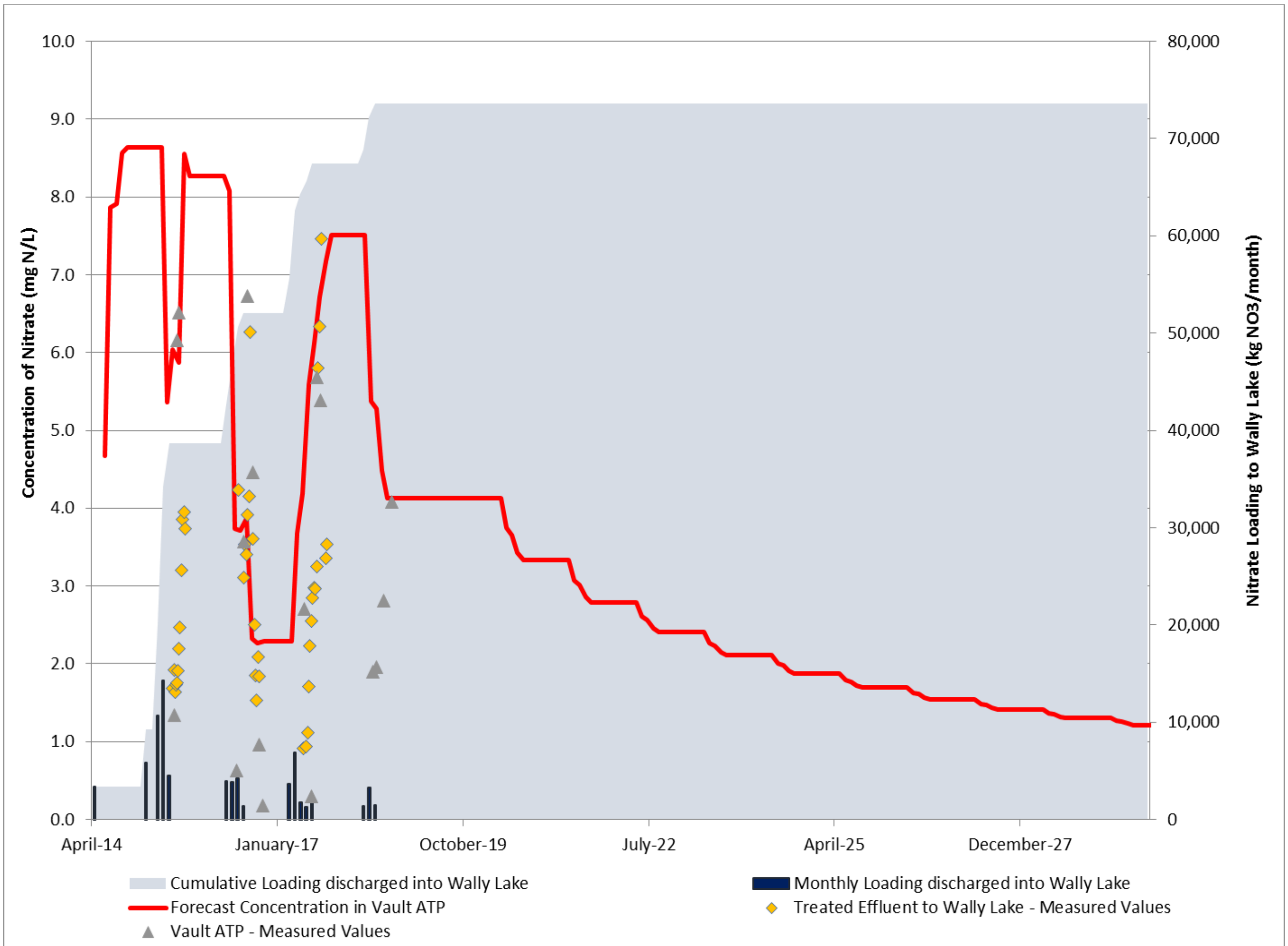


Figure 5-4: Forecasted Nitrate Concentration in Vault Area



6.0 Conclusion

Based on the water balance 2019 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 2030/2031. The water quality mass balance model was updated to forecast these long-term concentrations.

The water balance 2019 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
- Total Nickel
- Total Selenium
- Total Thallium
- Chloride
- Fluoride
- Sulphate
- Total Ammonia / Total Nitrogen Equivalent

All of the parameters listed above were identified in last year's water quality forecast report, with the exception of thallium and chloride. The increasing trend from year to year in the number of parameters forecasted to exceed the CCME guidelines in the pits at 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 concern.
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 the 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. As of 2019, Whale Tail ore is being processed and the mill effluent it produces has different geochemical characteristics when compared to the mill effluent quality produced when processing Portage/Vault Pit ore. For example, arsenic concentration seems to be higher in the mill effluent when processing Whale Tail ore.
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, some of the metals could precipitate out of solution, or be adsorbed onto iron oxy-hydroxides, 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 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 higher than the CCME guideline. This parameter still requires close monitoring. Speciation analysis of the selenium 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 Pond for cyanide, a complete total and dissolved metal scan, ammonia, nitrate, fluoride, chloride, sulfates, total dissolved solids (TDS) and total suspended solids. This will provide an indication of the runoff quality that accumulated in these ponds following the end of tailings deposition in these areas.
2. Considering that depositon of the tailings are now occurring in the pits, regularly monitor pit water quality (Portage and Goose), 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 the mill effluent, surface runoff and possible underground water seepage.
3. 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.
4. 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.
5. 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.
6. 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

Agnico (2018). Water Balance of February 2019 based on Life of Mine BUD2019_V1B production plan.

Botz, M. and Mudder, T. (2000). Modeling of Natural Cyanide Attenuation in Tailings Impoundments. Mineral and Metallurgical Processing, Vol. 17, No. 4, pp. 228-233. November 2000.

CCME. Water Quality Guidelines for the Protection of Aquatic Life. Canadian Environmental Quality Guidelines Summary Table. <http://st-ts.ccme.ca/?chems=all&chapters=1>. Accessed on February 2016.

Nunavut Water Board License (2015). Water License No: 2AM-MEA1525. Agnico-Eagle Mines Ltd. July 2015.

SLI (2012). Water Management Plan 2012. Agnico-Eagle Mines. Document No. 610756-0000-40ER-0001, Rev. 02. March, 2013.

SLI (2013). Meadowbank Gold Project, Water Quality Forecasting for the Portage Area 2012-2025. Document No. 610756-0000-40ER-0002, Rev. 01. March, 2013.

SLI (2014). Meadowbank Gold Project, Water Quality Forecasting Update for 2013-2025. Document No. 617429-0000-40ER-0001, Rev. 02. March, 2014.

SLI (2015). Meadowbank Water Quality Forecasting Update for the 2014 Water Management Plan. Document No. 625618-0000-40ER-0001, Rev. 00. February, 2015.

SLI (2016). Meadowbank Water Quality Forecasting Update for the 2015 Water Management Plan. Document No. 635062-0000-40ER-0001, Rev. 00. March, 2016.

SLI (2017). Meadowbank Water Quality Forecasting Update for the 2016 Water Management Plan. Document No. 644523-0000-40ER-0001, Rev. 00. March, 2017.

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

SLI (2019). Meadowbank Water Quality Forecasting Update for the 2018 Water Management Plan. Document No. 663133-0000-40ER-0001, Rev. 00, March 2018.

US Geological Survey, 2017. PHREEQC Interactive software, Version 3.4.0.12927, released November 2017.

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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)	Ammonia-nitrogen (NH4)	Dissolved Barium	Dissolved Cadmium	Calcium (Ca)	Chloride	Copper	Dissolved Copper	Total cyanide	Cyanide WAD	CN Free	Cyanate	D.O.C	Total organic carbon	Bicarbonate	Carbonate	Reactive silica	Thyocyanate	Hardness	iron (Fe)	Dissolved Iron	Fluoride	Un-Ionized Ammonia, calculated	Total nitrogen	Ammonia (as NH3)	Nitrate	Nitrite
Units			NTU	uS/cm		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/L	mg CaCO3/L	mg CaCO3/L	mg/kg	mg/L	mg CaCO3/L		mg/L	mg/L	mg/L	mg/L	mg N/L	mgN/L	mgN/L
4-Jun-13	2013	6.75	17.32	496		80										0.0063		0.117																0.18		
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		0.005	0.395			0.235	5.1	0.185
8-Aug-13	2013	7.2	13.25	1224		108				9.8						0.0189		0.236																0.35		
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		0.01	0.49			0.12	3.3	0.6
3-Oct-13	2013	7.57	30.7	1472		121										0.0099		0.039																0.11		
3-Jun-14	2014	6.86	38.9	1830		113				8.5						0.0076		0.247																0.12		
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		0.01	0.57			0.2	1.2	0.27
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		0.01	0.56				1.3	0.21
7-Sep-14	2014					114										0.0054		0.346																0.18		
13-Oct-14	2014					106				11.8						0.0065		0.336																0.19		
6-Jan-15	2015					117	0.037		0.0203	31.3		0.0827	0.00026		406		2.561	16.29										893.5444		0.05	2.5				7.45	
10-Feb-15	2015					116	0.036		0.022	53.7		0.1157	0.00068		439		0.6986	14.71										1099		0.2	0.26				9.08	
4-Mar-15	2015					126	0.024		0.0379	54.6		0.1208	0.00079		543		2.045	13.08										1224		0.03	0.42				11	
7-Apr-15	2015					113	0.029		0.0126	59.7		0.1296	0.00094		638		2.165	0.762										1325		0.9	0.01				10.8	
5-May-15	2015					80	0.232		<0.0005	57		0.1062	0.00066		770		5.541	22.93										1395		2.4	2.4				10.7	
1-Jun-15	2015					76	0.022		0.0005	57.3		0.107	0.00086		637		1.857	6.13										1329		0.05	0.03				10.4	
6-Jul-15	2015					107	0.006		0.0005	45.8		0.0772	0.00002		633		0.6646	0.638										1315		0.05	0.03				10.5	
3-Aug-15	2015					157	0.006		0.0005	16.1		0.0581	0.00078		378		0.1869	0.047										1029		0.02	0.04				8.51	
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		0.01	0.01				7.29	
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		0.02	0.44				7.77	
13-Oct-15	2015					137	0.003		0.0081	5.09		0.0453	0.00063		445		0.485	0.272										1100		0.02	0.47				7.53	
20-Oct-15	2015														399			0.676																	7.88	
26-Oct-15	2015														429			1.37																	8.56	
2-Nov-15	2015					137	0.01		0.0088	35.4		0.0535	0.00081		445		2.403	1.45										1263		0.03	0.4				9.09	
10-Nov-15	2015														431			0.56																	8.17	
19-Nov-15	2015														471			1.28																		
23-Nov-15	2015														505			2.37																	9.77	
1-Dec-15	2015					144	0.014	0.0003	0.00025	35.4		0.076	0.0008		562		0.0155	3.58										1461		0.36	0.13				10.7	
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	0.44	0.14	0.34			2.61	10.7	0.22
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	0.89	0.77	0.27			4.83	6.34	0.23
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	2.67	1.22	0.36			2.6	12.5	0.24
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	2.64	0.7	0.4			2.94	10.7	0.24
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	1.46	1.31	2.79			2.79	10.5	0.22
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	0.6	0.02	0.35			0.01	5.79	0.1
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	0.79	0.06	0.45			1	5.55	0.14
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	0.16	0.05	0.39			0.93	5.04	0.12
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	0.17	0.03	0.41			1.36	5.28	0.22
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	0.44	0.04	0.39			0.99	4.32	0.18
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	0.89	0.35	0.42			1.73	4.91	0.18
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	1.01	0.66	0.43			1.71	4.89	0.21
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	1.37	0.31	0.41			2.46	5.76	0.21
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	0.99	0.56	0.44			1.82	5.26	0.23
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	0.99	1.12	0.33			2.45	6.01	0.35
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	0.71	0.43	0.25			0.28	4.93	0.33
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		0.99	0.33	0.4			1.61	4.98	0.39
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	0.19	0.05	0.36			0.78	3.86	0.24
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	0.29	0.02	0.39			0.45	2.36	0.4
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	0.03	0.03	0.37			1.24	2.08	0.16
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	0.37	0.02	0.38				2.83	0.15
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	0.21	0.03	0.46			0.87	1.21	0.17
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	0.37	0.03	0.421			1.24	2.09	0.15
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	0.63	0.03	0.41			1.53	3	0.15
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	1.14	1.06	0.45			0.73	3.46	0.16
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	0.26	0.02	0.32			0.89	2.94	0.18
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	0.2	0.02	0.39			0.8	3.13	0.19
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	0.17	0.02	0.45			0.94	2.97	0.19
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	0.27	0.02	0.58			1.29	2.92	0.16
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	0.16	0.005	0.46			1.34	3.21	0.18
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	0.18	0.04	0.45			1.31	3.41	0.23
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	0.37	0.03	0.37			2.36	4.26	0.2
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	0.339	0.018	0.39			2.17	4.13	0.2
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	1.03	0.59	0.42			1.93	4.82	0.22
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	0.799	0.01	0.48			2.39	4.51	0.2
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	0.27	0.08	0.45			2.09	5.68	0.15
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	0.56	0.02	0.45			2.34	4.6	0.19
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	7.59	0.02	0.47			3.88	6.77	0.16
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	0.96	0.05	0.48			1.58	4.24	0.08
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	0.02	0.01	0.58			1.04	5.86	5.86
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	0.18	0.01	0.47			0.87	4.83	0.11
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	0.57	0.005	0.46			0.3	3.79	0.15
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	0.4	0.06	0.55			2.04	4.78	0.13
5-Feb-19	2019	8.24|8.27	3.79|3.5	4360|4.32		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
5-Mar-19	2019	-	-	-		105	0.032	0.00005	0.0351	50.2	-	0.1035	0.00001	384	484	4.602	4.352	8	4.89	3.2	67	52	-	-	-	-	61.9	1112	0.91	0.41	0.58	1.23	-			
9-Apr-19	2019	8.04	9.57	5.5		124	-	-	-	-	-	-	-	-	-	-	-	-	-	0.864	-	55	-	-	-	-	-	-	-	-	-	-	-			
24-May-19	2019	7.51	11.4	4150		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
29-May-19	2019	-	-	-		58	0.00025	0.00005	0.0068	17.5	-	0.0618	0.00001	398	460	6.778	4.125	0.189	0.014	-	0.43	56.1	-	-	-	-	148	1053	0.36	0.005	0.52	0.44	-			
3-Jun-19	2019	7.85	8.94	3120		44	0.0025	0.00005	0.0061	21.3	-	0.0284	0.00001	255	271	1.061	0.9719	0.087	0.102	0.43	80	28.9	-	-	-	-	91.4	-	0.37	0.01	0.39	0.33	-			
2-Jul-19	2019	-	-	-		61	0.00025	0.0013	0.024	30	-	0.0363	0.00001	216	21.2	1.317	1.179	0.091	0.041	0.004	51	25	-	-	-	-	39.7	-	0.36	0.02	0.41	0.67	-			
14-Jul-19	2019	-	-	-		71	0.011	0.0007	0.0479	28.5	27.4	0.0351	0.00004	194	191	0.4018	0.3937	0.048	0.018	-	-	19	19	71	1	-	-	552	0.005	0.005	0.37	1.02	41.2			
6-Aug-19	2019	8.71	33	241		137	0.0025	0.00005	0.0171	16.3	-	0.0296	0.00001	202	174	0.1351	0.0658	0.077	0.011	0.007	11.2	29.4	-	-	-	-	21.5	-	0.9	0.03	0.41	1.05	-			
3-Sep-19	2019	8.01	22.3	2200		44	0.00025	0.00005	0.0119	11.4	-	0.0283	0.00001	186	117	0.0662	0.0379	0.027	0.0005	0.004	7.68	9.6	-	-	-	-	22.1	-	0.24	0.02	0.43	0.2	-			
7-Oct-19	2019	8.03	12.1	1870		67	0.01	0.00005	0.0086	13.1	-	0.028	0.0001	160	73.1	0.039	0.021	0.027	0.003	0.003	2.91	15.1	-	-	-	-	34.3	-	0.32	0.03	0.35	0.42	-			
12-Oct-19	2019	-	-	-		79	0.00025	0.00005	0.0103	12.5	-	0.0262	0.0002	165	65.4	0.0462	0.0281	0.02	0.001	-	-	9.8	5.4	79	2.5	6.97	-	523	0.29	0.07	0.34	-	15.9			
END OF DATABASE																																				

Indicate values = 1/2 of detection limit

ATTENUATION POND / SOUTH CELL TSF RECLAIM POND (ST-18 AND SOUTH CELL ST-21)

Date	Année	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)	Bromide (Br)	Cadmium (Cd)	chromium (Cr)	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)
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	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/kg	mg/L	mg/L
4-Jun-13	2013	<0,0003	379												0.003									0.0371						0.001						
4-Jul-13	2013	0.00245	633.5		277.5	1.8265	0.0001	0.0154	0.04185	<0,0003	0.001	<0,005	<0,001		0.0029									0.0593						0.008						
8-Aug-13	2013	0.0089	779												0.2403									0.0056						0.007						
2-Sep-13	2013	0.0003	806		451	2.44	<0,0001	0.0306	0.0822	<0,0003	0.002	<0,005	0.004		0.0133									0.0822						0.009						
3-Oct-13	2013	<0,0003	814												0.0163									0.0718						<0,001						
3-Jun-14	2014	0.0003	754												0.0041									0.0427						0.002						
1-Jul-14	2014	0.0003	2628		471	2.43	0.0001	0.0237	0.0346	0.0003	0.001	0.005	0.001		0.0061									0.0398						0.04						
5-Aug-14	2014		1155		612	2.858	0.0001	0.0269	0.041	0.0003	0.004	0.005	0.001																							
7-Sep-14	2014	0.0003	1283												0.0111									0.0659						0.006						
13-Oct-14	2014	0.0017	1363												0.0084									0.0727						0.012						
6-Jan-15	2015		1924		1200	0.02	0.00038	0.1849	0.1146	0.00015	0.049	0.0025	0.001																							
10-Feb-15	2015		2190		1456	0.003	0.00061	0.2755	0.0571	0.00015	0.084	0.0025	0.0005																							
4-Mar-15	2015		2628		1537	0.0254	0.00077	0.3331	0.1832	0.00015	0.104	0.0025	0.002																							
7-Apr-15	2015		2946		1670	0.014	0.00058	0.3948	0.0258	0.00015	0.102	0.0025	0.004																							
5-May-15	2015		3411		1604	0.0084	0.00057	0.4086	0.0304	0.00015	0.079	0.0025	0.0005																							
1-Jun-15	2015		2801		1557	0.057	0.00037	0.3877	0.0287	0.00015	0.075	0.0025	0.003																							
6-Jul-15	2015		2270		1235	0.1811	0.00031	0.3019	0.0853	0.00015	0.046	0.0025	0.0005																							
3-Aug-15	2015		2328		1316	0.6803	0.00015	0.25	0.0834	0.00015	0.049	0.0025	0.005																							
1-Sep-15	2015																																			
8-Sep-15	2015		2230		1473	1.018	0.00009	0.244	0.0578	0.00015	0.039	0.0025	0.0005																							
13-Sep-15	2015									0.00015																										
28-Sep-15	2015																																			
6-Oct-15	2015		2184		1650	1.254	0.00007	0.3034	0.0962	0.0003	0.045	0.0025	0.0005																							
13-Oct-15	2015		2210		1656	1.129	0.00005	0.2468	0.0668	0.0003	0.036	0.0025	0.0005																							
20-Oct-15	2015				1500					0.0003																										
26-Oct-15	2015				1811					0.0015																										
2-Nov-15	2015		2433		1651	0.9792	0.00024	0.3123	0.1404	0.0003	0.048	0.0025	0.001																							
10-Nov-15	2015				1866					0.0003																										
19-Nov-15	2015				1852					0.0003																										
23-Nov-15	2015									0.0003																										
1-Dec-15	2015		2926		1998	0.1727	0.00028	0.3233	0.018	0.0003	0.072	0.0025	0.0005																							
5-Jan-16	2016	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		0.080	0.00036	0.337	0.1396		0.088	0.0002		0.0025	0.007						
1-Feb-16	2016	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		0.081	0.00027	0.400	0.0659		0.097	0.0007		0.001	0.002						
8-Mar-16	2016	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		0.114	0.00021	0.482	0.0553		0.118	0.0003		0.001	0.001						
5-Apr-16	2016	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		0.195	0.0003	0.464	0.0408		0.118	0.0041		0.001	0.004						
3-May-16	2016	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		0.137	0.00056	0.504	0.021		0.096	0.0007		0.001	0.007						
16-Jun-16	2016	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		0.001	0.00001	0.001	0.0005		0.001	0.0017		0.002	0.001						
18-Jul-16	2016	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		0.418	0.00044	0.454	0.0531		0.062	0.0019		0.0004	0.001						
2-Aug-16	2016	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		0.355	0.00042	0.478	0.0491		0.065	0.0005		0.0004	0.005						
6-Sep-16	2016	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		0.317	0.00017	0.518	0.0312		0.055	0.00005		0.0004	0.001						
3-Oct-16	2016	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		0.368	0.00032	0.465	0.0572		0.052	0.0001		0.0004	0.0005						
8-Nov-16	2016	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		0.159	0.00065	0.450	0.0588		0.064	0.00005		0.0004	0.006						
5-Dec-16	2016	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		0.271	0.00049	0.537	0.0566		0.06	0.00005		0.0004	0.006						
3-Jan-17	2017	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		0.174	0.00042	0.537	0.0742		0.078	0.00005		0.0004	0.005						
6-Feb-17	2017	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		0.231	0.00042	0.571	0.0573		0.054	0.00005		0.0004	0.001						
6-Mar-17	2017	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		0.138	0.00056	0.543	0.0657		0.055	0.00005		0.0004	0.001						
6-Apr-17	2017	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		0.286	0.0005	0.538	0.124		0.045	0.0003		0.0004	0.166						
1-May-17	2017	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		0.254	0.00027	0.509	0.0654		0.038	0.00005		0.0004	0.0005						
12-Jun-17	2017	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		0.450	0.00032	0.359	0.0752		0.038	0.00005		0.0004	0.0005						
10-Jul-17	2017	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		0.406	0.000005	0.359	0.0739		0.025	0.0002		0.0004	0.0005						
1-Aug-17	2017	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		0.426	0.000005	0.426	0.0714		0.035	0.00005		0.0004	0.002						
7-Aug-17	2017	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		0.423	0.000005	0.420	0.055		0.026	0.00025		0.0004	0.005						
14-Aug-17	2017	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		0.412	0.00016	0.521	0.0558		0.042	0.00005		0.0004	0.0005						
21-Aug-17	2017	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		0.622	0.00015	0.977	0.1055		0.067	0.00005		0.0004	0.0005						
28-Aug-17	2017	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		0.308	0.000005	0.494	0.0498		0.039	0.00005		0.0004	0.003						
3-Sep-17	2017	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		0.220	0.000005	0.563	0.1684		0.035	0.0025		0.0004	0.003						
11-Sep-17	2017	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		0.160	0.00044	0.537	0.1622		0.042	0.0007		0.0004	0.0005						
18-Sep-17	2017	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		0.115	0.0003	0.590	0.2446		0.051	0.0013		0.0004	0.004						
25-Sep-17	2017	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		0.156	0.000005	0.488	0.2147		0.047	0.0006		0.0004	0.0005						
2-Oct-17	2017	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		0.234	0.00028	0.427	0.2159		0.044	0.00005		0.0004	0.0005						
9-Oct-17	2017	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		0.223	0.00044	0.510	0.2911		0.046			0.0004	0.0005						
7-Nov-17	2017	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		0.224	0.000618	0.555	0.1241		0.058	0.00005		0.0004	0.001						
4-Dec-17	2017	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		0.218	0.00054	0.686	0.31		0.087	0.00005		0.0004	0.001						
2-Jan-18	2018	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		0.2085	0.00045	0.7219	0.1052		0.086	0.00005		0.0004	0.002						
13-Feb-18	2018	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		0.4385	0.00064	0.7054	0.068		0.085	0.00005		0.0004	0.005						
6-Mar-18	2018	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		0.3445	0.000005	0.6229	0.3051		0.073	0.0006		0.0004	0.002						
2-Apr-18	2018	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		0.3162	0.00067	0.5221	0.0668		0.069	0.00005		0.0004	0.004						
7-May-18	2018	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		0.3818	0.00002	0.6365	0.1738		0.061	0.00005		0.0004	0.0005						
4-Jun-18	2018	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		0.2235	0.000005	0.5224	0.1361		0.091	0.00005		0.0004	0.007						
2-Jul-18	2018	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	28.4	0.487	0.00003	0.3821	0.1436	96.6	0.071	0.0002		0.0004	0.02						
9-Jul-18	2018																																			
6-Aug-18	2018	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	19.7	0.298	0.00018	0.4087	0.1061	82	0.0727	0.0001	599	0.0001	0.003						
3-Sep-18	2018	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	29.4	0.6312	0.00005	0.3779	0.0755	87.2	0.0581	0.00005	575	0.0001	0.003						
2-Oct-18	2018	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	30.1	0.8848	0.00005	0.4065	0.0863	105	0.0699	0.00005	759	0.0001	0.006						
6-Nov-18	2018																																			
4-Dec-18	2018	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	43.8	0.8694	0.000005	0.4844	0.0544	130	0.0495	0.0001	758	0.0002	0.003						
5-Feb-19	2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5-Mar-19	2019	0.00015	2428	6	2159	0.3592	0.000005	0.4127	0.2727	0.00015	0.0083	0.0024	0.0005	0.036	0.0429	0.0946	-	0.00001	0.0003	37.7	0.4161	0.000005	0.3968	0.2635	115	0.0103	0.00005	648	0.0022	0.0005	-	-	-	-	-	-
9-Apr-19	2019	-	2681	13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24-May-19	2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29-May-19	2019	0.0012	1658	11	1733	0.2187	0.000005	0.4044	0.159	0.00015	0.0191	0.0001	0.0005	0.114	0.0104	0.0632	-	0.00021	0.0003	14.9	0.2281	0.000005	0.3862	0.1648	104	0.0102	0.0007	647	0.0001	0.0005	-	-	-	-	-	-
3-Jun-19	2019	0.00015	1548	9	1266	0.6585	0.000005	0.2016	-	0.00015	0.0055	0.0001	0.0005	0.133	0.0051	0.0279	-	0.00001	0.0003	28.3	0.7965	0.000005	0.2057	0.0581	67.1	0.0046	0.00005	389	0.0001	0.0005	-	-	-	-	-	-
2-Jul-19	2019	0.00015	1642	12	991	0.3496	0.000005	0.2837	-	0.00015	0.009	0.0001	0.0005	0.112	0.0249	0.0367	-	0.00001	0.0018	20.6	0.3474	0.000005	0.2592	0.1104	70.2	0.0037	0.0009	288	0.0001	0.0005	-	-	-	-	-	-
14-Jul-19	2019	0.00015	1356	7	983	0.2079	0.0001	0.2305	0.1225	0.00015	0.0045	0.0001	0.004	0.013	0.05	0.0361	1.28	0.00007	0.0009	16.3	0.2035	0.000005	0.2271	0.1197	62.1	0.006	0.0009	247	0.0001	0.007	0.0047	0.00025	0.0025	0.799	0.0005	0.005
6-Aug-19	2019	0.0069	1245	34	1063	0.1479	0.000005	0.217	-	0.00015	0.0026	0.0001	0.001	0.307	0.0211	0.0357	-	0.00001	0.0022	19.1	0.1965	0.000005	0.2237	0.0582	64.8	0.0046	0.00005	293	0.0001	0.005	-	-	-	-	-	-
3-Sep-19	2019	0.0034	1474	36	793	0.1752	0.000005	0.1596	-	0.0008	0.0029	0.0001	0.003	0.024	0.0162	0.0316	-	0.00009	0.0003	20.6	0.2319	0.000005	0.1859	0.0432	59.4	0.0035	0.00005	285	0.0001	0.009	-	-	-	-	-	-
7-Oct-19	2019	0.0036	1088	17	750	0.28	0.00005	0.13	-	0.00055	0.0023	0.001	0.0025	0.1	0.012	0.028	-	0.0001	0.0025	21	0.29	0.00005	0.14	0.033	45	0.0015	0.0005	180	0.001	0.0071	-	-	-	-	-	0.005
12-Oct-19	2019	0.0028	936	8	639	0.3607	0.000005	0.1131	0.0418	0.00015	0.0026	0.0001	0.006	0.055	0.0135	0.0247	0.86	0.00022	0.0011	26.6	0.3684	0.000005	0.1112	0.0429	44.7	0.0027	0.00005	183	0.0001	0.009	0.002	0.00025	0.0025	0.772	0.0005	0.005
END OF DATABASE																																				

Indicate values = 1/2 of detection limit

Date	Année	uranium (U)	vanadium (V)	Selenium 4 (Se)	Selenium 6 (Se)	Acidity	Ferrous Iron Fe2+	Ferric Iron Fe3+	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		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
4-Jun-13	2013																			
4-Jul-13	2013																			
8-Aug-13	2013																			
2-Sep-13	2013																			
3-Oct-13	2013																			
3-Jun-14	2014																			
1-Jul-14	2014																			
5-Aug-14	2014																			
7-Sep-14	2014																			
13-Oct-14	2014																			
6-Jan-15	2015																			
10-Feb-15	2015																			
4-Mar-15	2015																			
7-Apr-15	2015																			
5-May-15	2015																			
1-Jun-15	2015																			
6-Jul-15	2015																			
3-Aug-15	2015																			
1-Sep-15	2015																			
8-Sep-15	2015																			
13-Sep-15	2015																			
28-Sep-15	2015																			
6-Oct-15	2015																			
13-Oct-15	2015																			
20-Oct-15	2015																			
26-Oct-15	2015																			
2-Nov-15	2015																			
10-Nov-15	2015																			
19-Nov-15	2015																			
23-Nov-15	2015																			
1-Dec-15	2015																			
5-Jan-16	2016																			
1-Feb-16	2016																			
8-Mar-16	2016																			
5-Apr-16	2016																			
3-May-16	2016																			
16-Jun-16	2016																			
18-Jul-16	2016																			
2-Aug-16	2016			0.005	0.061															
6-Sep-16	2016			0.006	0.047															
3-Oct-16	2016			0.003	0.049															
8-Nov-16	2016			0.002	0.05															
5-Dec-16	2016			0.001	0.045															
3-Jan-17	2017			0.001	0.06															
6-Feb-17	2017			0.001	0.038															
6-Mar-17	2017			0.001	0.03															
6-Apr-17	2017			0.003	0.022															
1-May-17	2017			0.002	0.014															
12-Jun-17	2017			0.004	0.017															
10-Jul-17	2017			0.003	0.018															
1-Aug-17	2017			0.003	0.021	8	0.01	0.04	0.01											
7-Aug-17	2017			0.004	0.023	4	0.01	0.42												
14-Aug-17	2017			0.002	0.02															
21-Aug-17	2017																			
28-Aug-17	2017					8	0.19	0.44	0.04											
3-Sep-17	2017																			
11-Sep-17	2017			0.002	0.033	6	0.01	0.26	0.04											
18-Sep-17	2017					5	0.01	0.2	0.04											
25-Sep-17	2017					7	0.01	0.16	0.02											
2-Oct-17	2017			0.002	0.037	10	0.04	0.23	0.06											
9-Oct-17	2017					8	0.03	0.13	0.03											
7-Nov-17	2017																			
4-Dec-17	2017																			
2-Jan-18	2018																			
13-Feb-18	2018																			
6-Mar-18	2018																			
2-Apr-18	2018																			
7-May-18	2018																			
4-Jun-18	2018																			
2-Jul-18	2018																			
9-Jul-18	2018																			
6-Aug-18	2018																			
3-Sep-18	2018																			
2-Oct-18	2018																			
6-Nov-18	2018																			
4-Dec-18	2018																			
5-Feb-19	2019	-	-						-	-	-	-	-	-	-	-	-	-	-	-
5-Mar-19	2019	-	-						-	-	-	-	0.0003	-	-	-	-	-	-	-
9-Apr-19	2019	-	-						-	-	-	-	-	-	-	-	-	-	-	-
24-May-19	2019	-	-						-	-	-	-	-	-	-	-	-	-	-	-
29-May-19	2019	-	-						-	-	-	-	0.0003	-	-	-	-	-	-	-
3-Jun-19	2019	-	-						-	-	-	-	0.0003	-	-	-	-	-	-	-
2-Jul-19	2019	-	-						-	-	-	-	0.0003	-	-	-	-	-	-	-
14-Jul-19	2019	0.008	0.00025						0.05	0.04	0.05	0.00025	0.0003	0.0025	0.0043	0.0005	0.831	0.005	0.008	0.00025
6-Aug-19	2019	-	-						-	-	-	-	0.0003	-	-	-	-	-	-	-
3-Sep-19	2019	-	-						-	-	-	-	0.0003	-	-	-	-	-	-	-
7-Oct-19	2019	-	-						-	-	-	-	0.00025	-	-	-	-	0.005	-	-
12-Oct-19	2019	0.008	0.0054						0.04	0.03	0.01	0.00025	0.0003	0.0025	0.0021	0.0005	0.779	0.005	0.008	0.0008
END OF DATABASE																				

Indicate values = 1/2 of detection limit

DATE	ANNÉE	pH	Turbidity	Alkalinity	Dissolved Aluminum	Dissolved Silver	Dissolved Arsenic	Ammonia nitrogen (NH3)	Un-ionized Ammonia, calculated	Dissolved Barium	Dissolved Cadmium	Chloride	Copper	Dissolved Copper	Cyanide (total)	CN Free	CN-WAD	Cyanate	Thyocyanate	Hardness	Iron	Ferric Iron	Ferrous Iron	Dissolved Iron	Dissolved Chromium	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	Barium
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/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/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	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		<0,0006	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		<0,0006	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	0.058
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	0.0826
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	0.0774
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	0.0672	61.4		0.1626	0.00602	6907		14.71	68.67					1961				0.17		0.58	0.0266	0.00151	0.9494	0.79	1.787	56.2			0.00015	0.28	6604		6724	0.0025	0.0005			
4-Mar-15	2015			296	0.006	0.00005	0.0646	52.9		0.1226	0.00654	6868		16.6	78.98					1806				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	0.006	0.0056	0.0011	4.99		0.0085	0.00026	159		1.008	6.54					126				0.96		0.09	0.0062	0.00002	0.0668	0.15	0.1586	2.85			0.00015	0.018	559		274	0.0025	0.0005			
11-May-15	2015			674	0.006	0.0069	0.0424	108		0.0507	0.00289	4751		65.8	60.47					1447				0.51		7.5	0.0075	0.00659	1.608	1.93	4.271	67.6			0.00015	0.699	9776		4106	0.0025	0.009			
1-Jun-15	2015			46	0.006	0.0098	0.00025	16.6		0.0266	0.00024	267		2.258	1.45					685				0.06		0.06	0.065	0.065	0.1116	0.09	0.2058	9.96			0.0008	0.042	1474		770	0.0025	0.0005			
6-Jul-15	2015			62	0.006	0.005	0.00025	17.6		0.0289	0.00001	462		1.06	0.009					559				0.005		2.67	0.0529	0.00011	0.1765	0.33	0.6169	12.1			0.00015	0.054	1720		846	0.0025	0.0005			
6-Aug-15	2015			97	0.006	0.0068	0.00025	65.9		0.0809	0.00001	608		0.5671	0.079					1005				0.005		0.62	0.0229	0.00066	0.68	0.71	0.0886	19			0.00015	0.068	2866		1692	0.0025	0.0005			
8-Sep-15	2015			99	0.066	0.00005	0.00025	46.1		0.0874	0.00141	868		0.7407	0.696					1880				0.02		0.55	0.029	0.00056	0.5175	0.62	0.0758	20.6			0.00015	0.057	6262		2140	0.0025	0.0005			
7-Jun-16	2016	7.71	14.55	61	0.006	0.0001	0.0005	8.05		0.0116	0.00008	94.9	0.3547	0.2621	0.112					628	0.88			0.01		0.02	0.0688	0.00006	0.0598	0.07	0.0699	4.82	0.05	0.0003	0.0003	0.017	800	17	416	0.002	0.001	0.006	0.0005	0.001
26-Jul-16	2016	7.52	6.1	54	0.006	0.00005	0.00025	12.9		0.0269	0.00067	144	0.0326	0.0267	0.06	0.751	0.015	3.2	124	564	0.3			0.01		0.61	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	0.046	0.00025	0.028
2-Aug-16	2016	7.87	5.15	55	0.006	0.00005	0.0068	7.06		0.0276	0.00026	112	0.047	0.0601	0.068		0.02	0.005	80	514	0.22			0.01		0.25	0.186	0.00005	0.1209	0.1	0.0606	6.46	0.61	0.0032	0.00015	0.029	1244	6	854	0.0004	0.0005	0.006	0.0091	0.026
6-Sep-16	2016	8.28	4.98	56	0.011	0.00005	0.00025	19.6		0.0611	0.0006	168	0.0144	0.0169	0.066	0.013	0.016	2.2	77	597	0.2			0.06		0.27	0.2067	0.00005	0.164	0.28	0.0144	1.9	0.46	0.0011	0.00015	0.06	1558	3	1145	0.0004	0.016	0.064	0.0204	0.031
6-Oct-16	2016	8.01	18.7	61	0.006	0.00005	0.00025	16.9		0.0217	0.00021	127	0.0161	0.0122	0.061	0.013	0.014	2.0	67	699	0.98			0.01		0.28	0.2694	0.000005	0.112	0.18	0.021	1.81	0.27	0.0053	0.00015	0.026	1457	17	967	0.0004	0.006	0.196	0.00025	0.021
12-Jun-17	2017	7.7	55.4	104	0.008	0.00005	0.0057	69		0.0446	0.00085	666	0.1097	0.0868	0.146	0.005	0.11	0.005	92.70	980	0.19			0.05		0.66	0.4074	0.00046	0.2808	0.78	0.0641	6.86	0.24	0.0002	0.00015	0.062	2750	2	1585	0.0004	0.0005	0.064	0.0043	0.053
10-Jul-17	2017	8.5	8.5	66	0.006	0.00005	0.0075	9.1		0.0158	0.0001	69.4	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	0.0461	0.12	0.0162	1.24	0.16	0.0002	0.00015	0.004	719	15	422	0.0004	0.0005	0.006	0.0075	0.017
7-Aug-17	2017	7.65	12.8	78	0.006	0.00005	0.00025	7.58		0.0212	0.00004	66.4	0.0121	0.0059	0.009	0.003	0.002	0.005	8.04	692	0.74			0.005		0.2	0.2667	0.000005	0.0506	0.18	0.0166	1.16	0.14	0.0096	0.00015	0.006	802	15	682	0.0004	0.002	0.164	0.01	0.022
6-Sep-17	2017	7.74	6.92	76	0.006	0.00005	0.00025	12		0.026	0.00015	69.6	0.0137	0.0061	0.009	0.003	0.004	0.005	2.76	640	0.2			0.005		0.2	0.1248	0.000005	0.049	0.17	0.0167	1.22	0.12	0.0002	0.0009	0.006	878	2	529	0.0004	0.001	0.046	0.00025	0.027
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	0.0111
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	0.0202
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	0.0176
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	0.0716
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	0.1218
6-Jun-19	2019	8.14	90	54	0.019	0.00005	0.018	42.3	1.51	0.0466	0.00012	178	0.0745	0.0341	0.528	0.053	0.0005	309	60.2		15.2	15.2	0.005	0.08	0.0003	0.53	0.0019	0.000005	0.5176		0.0207			0.0776	0.00015	0.0029	1393	431	1005	0.0001	0.0005	4.62	0.028	0.0814
9-Jun-19	2019	7.49	3.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-		-			-	-	-	-	-	-	-	-	-	-	-
2-Jul-19	2019	8.09	9.52	58	0.009	0.0007	0.0541	25.5	0.66	0.0307	0.00001	9.6	0.597	0.5175	0.106	0.003	0.001	41	41.1		0.47	0.4	0.07	0.005	0.0003	0.29	0.0952	0.000005	0.2091		0.0869			0.00015	0.00015	0.0041	1059	14	645	0.0001	0.0005	0.154	0.0616	0.0282
6-Aug-19	2019	7.78	147	140	0.005	0.00005	0.0145	8.32	0.08	0.0166	0.00001	53.3	0.0552	0.0403	0.052	0.015	0.019	3.57	17.4		0.75	0.68	0.07	0.01	0.0003	0.26	0.1418	0.000005	0.1012		0.0317			0.0041	0.0023	0.0014	626	8	423	0.0001	0.0005	0.228	0.0183	0.0208
6-Sep-19	2019	7.97	6.24	60	0.00025	0.00005	0.0115	10.3	0.23	0.0199	0.00001	34.3	0.0652	0.0362	0.014	0.007	0.006	1.44	4.2		0.23	0.23	0.005	0.005	0.0003	0.37	0.1709	0.000005	0.0876		0.0282			0.0017	0.00015	0.0037	896	1	527	0.0001	0.0005	0.022	0.0178	0.0286
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	ANNÉE	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
2-Jan-13	2013																						
5-Jan-13	2013																						
8-Jan-13	2013																						
11-Jan-13	2013																						
14-Jan-13	2013																						
19-Jan-13	2013																						
22-Jan-13	2013																						
30-Jan-13	2013																						
4-Feb-13	2013																						
6-Feb-13	2013																						
10-Feb-13	2013																						
17-Feb-13	2013																						
23-Feb-13	2013																						
28-Feb-13	2013																						
4-Mar-13	2013																						
5-Mar-13	2013																						
10-Mar-13	2013																						
19-Mar-13	2013																						
25-Mar-13	2013																						
31-Mar-13	2013																						
2-Apr-13	2013																						
6-Apr-13	2013																						
12-Apr-13	2013																						
16-Apr-13	2013																						
21-Apr-13	2013																						
27-Apr-13	2013																						
7-May-13	2013																						
8-May-13	2013																						
12-May-13	2013																						
15-May-13	2013																						
19-May-13	2013																						
25-May-13	2013																						
31-May-13	2013																						
4-Jun-13	2013																						
8-Jun-13	2013																						
12-Jun-13	2013																						
16-Jun-13	2013																						
20-Jun-13	2013																						
27-Jun-13	2013																						
4-Jul-13	2013	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	2013																						
12-Jul-13	2013																						
19-Jul-13	2013																						
25-Jul-13	2013																						
1-Aug-13	2013																						
11-Aug-13	2013																						
13-Aug-13	2013																						
14-Aug-13	2013																						
19-Aug-13	2013																						
26-Aug-13	2013																						
2-Sep-13	2013																						
6-Sep-13	2013																						
13-Sep-13	2013																						
23-Sep-13	2013																						
3-Oct-13	2013																						
9-Oct-13	2013																						
16-Oct-13	2013																						
22-Oct-13	2013																						
1-Nov-13	2013																						
4-Nov-13	2013																						
9-Nov-13	2013																						
14-Nov-13	2013																						
29-Nov-13	2013																						
2-Dec-13	2013	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	2013																						
14-Dec-13	2013																						
20-Dec-13	2013																						
8-Jan-14	2014																						
4-Feb-14	2014																						
11-Mar-14	2014																						
8-Apr-14	2014																						
6-May-14	2014																						
3-Jun-14	2014																						
1-Jul-14	2014	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	2014																						
7-Sep-14	2014																						
7-Oct-14	2014																						
4-Nov-14	2014																						
1-Dec-14	2014																						
15-Jan-15	2015																						
4-Mar-15	2015																						
7-Apr-15	2015																						
11-May-15	2015																						
1-Jun-15	2015																						
6-Jul-15	2015																						
6-Aug-15	2015																						
8-Sep-15	2015																						
7-Jun-16	2016	0.00002	0.0006	0.001	0.00001	0.001	0.001	0.001				0.002	0.001										
26-Jul-16	2016	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	2016	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	2016	0.00038	0.002	0.204	0.000005	0.135	0.015	0.027	0.0005	0.024	0.00005	0.0004	0.015										
6-Oct-16	2016	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	2017	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	2017	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	2017	0.00004	0.0041	0.234	0.000005	0.051	0.017	0.003	0.0005	0.003	0.00005	0.0004	0.002										
6-Sep-17	2017	0.00007	0.0006	0.175	0.00009	0.049	0.016	0.005			0.00005	0.0004	0.001										
11-Jun-18	2018	0.00001	0.0003	0.1502	0.000005	0.0116	0.019	0.0005			0.00005	0.0004	0.0005										
2-Jul-18	2018	0.00018	0.0009	0.2564	0.000005	0.0202	0.0182	0.0005			0.00005	0.0004	0.003										
7-Aug-18	2018	0.00003	0.0003	0.2573	0.000005	0.0284	0.0175	0.0022			0.00005	0.0001	0.0005										
26-Sep-18	2018	0.00023	0.0003	0.1092	0.000005	0.5302	0.0975	0.0858			0.00005	0.0001	0.0005										
2-Oct-18	2018	0.00261	0.0021	0.687	0.00001	0.6018	0.0816	0.1014			0.00005	0.0001	0.004										
6-Jun-19	2019	0.00009	0.0106	0.3606	0.000005	0.4963	0.0714	0.0061			0.00005	0.0001	0.021										
9-Jun-19	2019	-	-	-	-	-	-	-			-	-	-										
2-Jul-19	2019	0.00001	0.001	0.0876	0.000005	0.2004	0.0943	0.0039			0.0008	0.0001	0.0005										
6-Aug-19	2019	0.00001	0.0025	0.1451	0.000005	0.0998	0.0325	0.0014			0.00005	0.0001	0.0005										
6-Sep-19	2019	0.00001	0.0013	0.2177	0.000005	0.1095	0.0356	0.0037			0.00005	0.0001	0.0005										
END OF DATABASE																							

Indicate values = 1/2 of detection limit

YEAR	Date	conductivity	pH	Temperature	Turb	DO	Salinity	CN WAD	Alkalinity	Total acidity	Bicarbonate	Carbonate	Al	Ag	As
		µs/cm		°C	NTU		ppm	ppm	mg CaCO3/L	mg/kg	mg CaCO3/L	mg CaCO3/L	mg/L	mg/L	mg/L
2016	05-janv-2016	3.19	7.48		9.25			0.864	157				0.011	<0.00005	0.0368
2016	01-févr-2016	3.40			22.81				160				0.046	<0.00005	0.0434
2016	08-mars-2016	2.49	7.05	24.5	10.96			0.389	160				<0.003	<0.00005	0.0457
2016	05-avr-2016	4.54	7.65	15.8	13.23			0.374	161				0.01	0.0015	0.0452
2016	03-mai-2016	4.87	7.94	10.3	11.6				156				<0.003	<0.00005	0.045
2016	05-mai-2016	4.83	8.25	10.3	11.1			0.074							
2016	06-mai-2016	4.7	7.37	11.5	9.05										
2016	07-mai-2016	4.61	7.47	8.9	12.18										
2016	07-juin-2016	4.27	7.89	12.5	7.24				148				0.039	<0.00005	0.0407
2016	18-juil-2016	4.69	7.96	10.6	15.77				133				0.011	<0.00005	0.048
2016	03-août-2016	3450	7.76	8.1	4.1			0.052	137				<0.003	<0.00005	0.0383
2016	06-sept-2016	4.11	7.91	11.6	2.33			0.042	137				0.046	<0.00005	0.0072
2016	03-oct-2016	3891	7.27	8.2	11.8			0.039	133				0.015	<0.00005	0.0426
2016	08-nov-2016	3570	7.84	8	7.67			0.033	132				0.008	<0.00005	0.0427
2016	05-déc-2016	2620	8.3	7.9	12.5				129				0.047	<0.00005	0.1082
2016	19-déc-2016	2.45	7.58	8	3.7										
2017	03-janv-2017	2110	7.99	11.6	6.67				130				0.023	<0.00005	0.0563
2017	06-févr-2017	2.57	7.51	13.5	8.62				135				<0.003	<0.00005	0.0472
2017	06-mars-2017	3.57	7.36	5	6.43				138				<0.003	<0.00005	0.048
2017	03-avr-2017	4.7	7.59	6.2	3.73			0.101	130				<0.003	<0.00005	0.0307
2017	01-mai-2017	2.84	7.71	12.2	7.65			0.109	126				<0.003	<0.00005	0.0395
2017	09-mai-2017	3410	7.66	9.8	5.16										
2017	12-mai-2017	3420	7.42	9.9	3.18										
2017	16-mai-2017	3230	7.11	5.6	6.98										
2017	24-mai-2017	3370	7.15	20.6	13										
2017	27-mai-2017	3380	7.67	11.6	4.72										
2017	31-mai-2017	2520	7.56	7.7	4.26										
2017	02-juin-2017	2630	7.6	9.8	4.09										
2017	04-juin-2017	2380	7.96	5.5	4.68										
2017	07-juin-2017	2380	7.58	8.1	5.88										
2017	12-juin-2017	2890	7.42	10	9.52			0.183	117				<0.003	<0.00005	0.0325
2017	21-juin-2017	2350	7.52	10.4	11.1										
2017	23-juin-2017	2720	7.64	8.3	13.2										
2017	25-juin-2017	2850	7.61	5.8	19										
2017	28-juin-2017	2510	7.29	12.5	14.4										
2017	30-juin-2017	1941	7.63	16.8	10.3										
2017	03-juil-2017	2410	7.77	11.1	4.73										
2017	09-juil-2017	285	7.89	6.9	17.3										
2017	10-juil-2017	2.95	7.65	11.1	12.4			6.686	120				<6.663	<0.00005	6.6329
2017	11-juil-2017	3.92	7.44	6.3	10.3										
2017	12-juil-2017	3.38	7.3	6.9	13.6										
2017	19-juil-2017				15.2			0.104	122				0.018	<0.00005	0.0174
2017	22-juil-2017	3985	7.63	8.93	14.9				125				<0.003	<0.00005	0.451
2017	22-juil-2017	3677	7.62	13.24	16.8				120				0.074	<0.00005	0.021
2017	26-juil-2017	2810	7.41	8.1	10.6										
2017	27-juil-2017	3090	7.49	8	11.9										
2017	28-juil-2017	2840	7.61	6.6	10.2										
2017	29-juil-2017	3080	7.94	3.7	13.4										
2017	31-juil-2017	3150	7.56	2.8	10.7										
2017	01-août-2017	2960	7.8	5	10.3			0.086	128				0.01	<0.00005	<0.00025
2017	02-août-2017	2660	7.63	7.5	11										
2017	03-août-2017	2640	7.28	15.2	13.2										
2017	04-août-2017	2080	7.64	10.8	8.17										
2017	05-août-2017	2870	7.21	12.4	10										
2017	06-août-2017	3160	7.45	3	8										
2017	07-août-2017	3060	7.74	5.6	11.4			0.079	125				<0.0015	<0.00025	0.0292
2017	08-août-2017	3350	7.6	3.4	19										
2017	09-août-2017	131.2	7.43	5	20.1										
2017	10-août-2017	3380	7.67	3.2	16.5										
2017	11-août-2017	3150	7.56	6.4	13.3										
2017	12-août-2017	2920	7.24	15.7	12.6										
2017	13-août-2017	3080	7.33	9.4	12.4										
2017	14-août-2017	2840	7.3	16.2	12.2			0.057	133				0.011	<0.000005	0.0474
2017	15-août-2017	3050	7.16	7.9	12.3										
2017	16-août-2017	2810	7.65	14.1	11.2										
2017	17-août-2017	647	7.54	12.7	7.84										
2017	18-août-2017	3070	7.2	11.5	11.5										
2017	19-août-2017	3470	7.39	1.9	8.18										
2017	20-août-2017	2970	7.51	12.7	14.2										
2017	21-août-2017	2980	7.63	6.7	8.1	5.9			132				<0.03	<0.00005	0.0344
2017	22-août-2017	3020	8.14	10.5	2.98										
2017	23-août-2017	2990	7.31	18.7	11.9										
2017	25-août-2017	3110	7.32	17.8	12.2										
2017	28-août-2017	3480	7.8	13	22.4				115				<0.0015	0.0005	0.032
2017	03-sept-2017	3310	7.48	2.1	23.4	7.9			120				0.065	<0.00005	0.0399
2017	11-sept-2017	3130	7.76	6	17.5	9.89		0.081	122				<0.003	<0.00005	0.0248
2017	18-sept-2017	3140	7.73	15.1	17.6	7.6		0.052	123				<0.003	<0.00005	0.026
2017	19-sept-2017														
2017	20-sept-2017	3.12	7.42	12.5	15.1										
2017	21-sept-2017	3.27	7.81	1.1	18.5										
2017	22-sept-2017	3.22	7.22	10.7	18.5										
2017	23-sept-2017	3.34	7.44	2.1	19										
2017	24-sept-2017	3.31	7.44	1.9	15.1										
2017	25-sept-2017	3.04	7.1	13.9	14.9			0.013	122				0.0016	<0.00005	0.03
2017	26-sept-2017														
2017	27-sept-2017	3350	7.55	2.4	7.55										
2017	28-sept-2017	3590	6.83	0.3	19.6										
2017	29-sept-2017	3440	7.1	2.2	14.5										
2017	30-sept-2017	3550	7.51	0.1	18.8										
2017	01-oct-2017	3450	7.65	0.1	10.9										
2017	02-oct-2017	3220	7.2	4.6	17.6			0.051	117				0.031	<0.00005	0.0236
2017	03-oct-2017	3.28	7.81	0	14.6										
2017	09-oct-2017	3.29	7.15	0.9	9.06	7		0.036	124				<0.003	<0.00005	0.0332
2017	06-nov-2017	3.47	7.21	3.1	11.4			0.053	119				0.014	<0.00005	0.0434
2017	04-déc-2017	3.13	7.83		11.9			0.08	121				<0.003	<0.00005	0.0528
2018	02-janv-2018	3.15	7.87	0.9	13.5			0.077	125				<0.003	<0.00005	0.0587
2018	06-févr-2018	3.65	7.59	5.3	13				118				0.009	<0.00005	0.0292
2018	05-mars-2018	2.46	7.46	5.7	14.1			0.073	117				0.01	<0.00005	0.0577
2018	02-avr-2018	3.86	7.28	2.5	17			0.117	116				<0.003	<0.00005	0.0485
2018	07-mai-2018	3.68	7.61	3.68	15.6			0.09	116				0.011	<0.00005	0.0443
2018	04-juin-2018	3.35	7.47	6.8	20.4			0.098	108				0.017	<0.00005	0.0365
2018	02-juil-2018							0.067	109				<0.003	<0.00005	0.0357
2018	06-août-2018	3.45	7.76	9.1	16.4			0.075	117				<0.0025	<0.00005	0.0102
2018	03-sept-2018	3.3	7.38	8.8	24.9			0.045	109				<0.0025	<0.00005	0.0397
2018	01-oct-2018	3.7	7.8		21.6				108				<0.0025	<0.00005	0.0441
2018	05-nov-2018	4.09	7.37	3.1	16.2				113				<0.0025	<0.00005	0.0532
2018	04-déc-2018								134				<0.0025	<0.00005	0.0466
2019	09-janv-2019	4440	7.59	4.4	24.2				105	-	-	-	<0.0025	<0.00005	0.0712
2019	06-févr-2019	4220	7.56	5.7	21.6				109	-	-	-	<0.0025	<0.00005	0.0659
2019	05-mars-2019								109	-	-	-	0.023	<0.00005	0.0683
2019	09-avr-2019	4700	7.58	0	14.2				101	-	-	-	<0.0025	<0.00005	0.0656
2019	06-mai-2019	4100	7.51	12.5	19.3				104	-	-	-	<0.0025	<0.00005	0.0802
2019	03-juin-2019	4130	7.56	9.1	14.6				81	-	-	-	0.023	<0.00005	0.0657
2019	24-juin-2019	4080	7.17	2.7	18.2				79	-	-	-	<0.0025	<0.00005	0.0097
2019	01-juil-2019	3340	7.85	14.4	18.8				61	-	-	-	0.043	<0.00005	0.0408
2019	11-juil-2019	37300	7.82	12.6	14.5				67	-	67	<1	<0.0025	<0.00005	0.0168
2019	22-juil-2019	3470	7.62	18	17.5				63	-	-	-	<0.0025	0.0014	0.0458
2019	29-juil-2019	4130	7.57	7.3	25.8				78	-	-	-	0.088	<0.00005	0.0627
2019	06-août-2019	390	7.61	11.9	22.2				132	8.07	-	-	0.036	<0.00005	0.0733
2019	19-août-2019	4030	7.5	7.9	17.2				87	-	-	-	<0.0025	<0.00005	0.0657
2019	03-sept-2019	4140	7.76	10.9	12				71	-	-	-	<0.0025	<0.00005	0.0352
2019	16-sept-2019	3650	7.67	12	24.9				83	-	-	-	0.086	<0.00005	0.0628
2019	23-sept-2019	3980	7.58	8.35	32.4				107	-	-	-	0.08	<0.00005	0.0507
2019	30-sept-2019	3980	7.7	11.6	18.2				108	-	-	-	0.03	<0.00005	0.0386
2019	07-oct-2019	3690	7.63	7.2	16.1				93	-	-	-	0.01	0.0005	0.058
2019	10-oct-2019	4080	7.76	4.7	16.4				71	-	71	<2.5	0.028	<0.00005	0.0623
2019	21-oct-2019	3990	7.61	8.3	21				58	-	-	-	<0.0025	<0.00005	0.0828
2019	29-oct-2019	4110	7.67	5.6	20.5				66	-	-	-	0.041	<0.00005	0.0714
2019	04-nov-2019	3960	7.58	6.1	18.7				84	-	-	-	0.006	<0.00005	0.0673
2019	18-nov-2019	39.7	7.58	5.5	22.5				88	-	-	-	<0.0025	<0.00005	0.0617
2019	25-nov-2019	4200	7.66	7.4	18.5				94	-	-	-	0.008	<0.00005	0.0846
2019	02-déc-2019	4280	7.59	5.6	19.1				108	-	-	-	<0.0025	<0.00005	0.0603
2019	09-déc-2019	4270	7.51	3.8	15.6				99	-	-	-	<0.0025	<0.00005	0.0592

YEAR	Date	Total nitrogen	Ammoniacal Nitrogen as NH4	Un-Ionized Ammonia, calculated	Ammonia nitrogen	Total phosphorus	Total orthophosphate (as	Total organic carbon	Dissolved organic carbon	Reactive silica	B	Ba	Be	Bromide	Ca
		mg/L	mg/L	mg/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/kg	mg/L	mg/L	mg/L	mg/L	mg/L
2016	05-janv-2016				25.3							0.0274			
2016	01-févr-2016				25.9							0.0347			
2016	08-mars-2016				26.9							0.036			
2016	05-avr-2016				30							0.0353			
2016	03-mai-2016				29							0.0413			
2016	07-juin-2016				27.6							0.0409			
2016	18-juil-2016				25.9							0.0295			
2016	03-août-2016				22.1							0.0284			
2016	06-sept-2016				28.8							0.0324			
2016	03-oct-2016				27.5							0.0273			
2016	08-nov-2016				29.3							0.0268			
2016	05-déc-2016				29.5							0.0274			
2017	03-janv-2017				28.8							0.0314			
2017	06-févr-2017				27.5							0.0216			
2017	06-mars-2017				26							0.0256			
2017	03-avr-2017				29.41							0.0174			
2017	01-mai-2017				29.39							0.0212			
2017	12-juin-2017				34							0.0147			
2017	10-juil-2017				33							6.6262			
2017	19-juil-2017				29.6							0.0225			
2017	22-juil-2017				24.5							<0.00025			
2017	22-juil-2017				26.1							<0.00025			
2017	01-août-2017				29.7							0.021			
2017	07-août-2017				29.8							0.0243			
2017	14-août-2017				28.1							0.0257			
2017	21-août-2017				29.4							0.023			
2017	28-août-2017				37							0.0334			
2017	03-sept-2017				33							0.0279			
2017	11-sept-2017				27							0.0269			
2017	18-sept-2017				35							0.0213			
2017	25-sept-2017				31.6							0.0209			
2017	02-oct-2017				30.8							0.0163			
2017	09-oct-2017				30.1							0.0192			
2017	06-nov-2017				27.7							0.0264			
2017	04-déc-2017				24.9							0.0269			
2018	02-janv-2018				31.4							0.0259			
2018	06-févr-2018				31.3							0.0189			
2018	05-mars-2018				29							0.0313			
2018	02-avr-2018				33.5							0.025			
2018	07-mai-2018				32.5							0.0243			
2018	04-juin-2018				25							0.0204			309
2018	02-juil-2018				34.4							0.0308			353
2018	06-août-2018				37.7							0.0248			338
2018	03-sept-2018				34.3							0.022			326
2018	01-oct-2018				29.1							0.0256			343
2018	05-nov-2018				27.4							0.0219			355
2018	04-déc-2018				32.3							0.0233			361
2019	09-janv-2019	-	-	0.29	26.7	-	-	-	35.5	-	-	0.0292	-	-	477
2019	06-févr-2019	-	-	0.22	27.3	-	-	-	25.8	-	-	0.0197	-	-	401
2019	05-mars-2019	-	-	0.35	31.4	-	-	-	37.4	-	-	0.025	-	-	476
2019	09-avr-2019	-	-	0.51	32	-	-	-	17.6	-	-	0.0202	-	-	367
2019	06-mai-2019	-	-	0.18	23.1	-	-	-	18.3	-	-	0.0267	-	-	403
2019	03-juin-2019	-	-	0.18	20.6	-	-	-	38.7	-	-	0.0214	-	-	296
2019	24-juin-2019	-	-	0.29	29.3	-	-	-	37.8	-	-	0.025	-	-	322
2019	01-juil-2019	-	-	0.43	27.5	-	-	-	34.7	-	-	0.0265	-	-	281
2019	11-juil-2019	57.9	26.6	0.45	27.1	0.05	<0.005	28	26	-	0.06	0.0247	<0.00025	2.01	247
2019	22-juil-2019	-	-	0.28	25.7	-	-	-	27	-	-	0.029	-	-	266
2019	29-juil-2019	-	-	0.26	31	-	-	-	29.8	-	-	0.025	-	-	288
2019	06-août-2019	-	-	0.35	31.3	-	-	-	33.5	-	-	0.0283	-	-	301
2019	19-août-2019	-	-	0.4	28.6	-	-	-	30	-	-	0.0159	-	-	285
2019	03-sept-2019	-	-	0.53	32.2	-	-	-	27	-	-	0.0281	-	-	333
2019	16-sept-2019	-	-	0.27	20.2	-	-	-	31.6	-	-	0.033	-	-	285
2019	23-sept-2019	-	-	0.34	21.3	-	-	-	25.9	-	-	0.0323	-	-	304
2019	30-sept-2019	-	-	0.37	21.2	-	-	-	28.4	-	-	0.0255	-	-	333
2019	07-oct-2019	-	-	0.36	19.9	-	-	-	29.6	-	-	0.021	-	-	330
2019	10-oct-2019	53.3	-	-	22.4	0.07	0.03	29	29.8	11.1	0.07	0.0214	<0.00025	2.91	294
2019	21-oct-2019	57.5	20.8	0.35	21.2	-	-	-	28.1	-	-	0.0146	-	-	327
2019	29-oct-2019	-	-	0.25	20.6	-	-	-	27.7	-	-	0.0175	-	-	275
2019	04-nov-2019	-	-	0.25	21.6	-	-	-	56.5	-	-	0.0192	-	-	287
2019	18-nov-2019	-	-	0.19	21.9	-	-	-	31	-	-	0.0112	-	-	256
2019	25-nov-2019	-	-	0.24	23.7	-	-	-	32	-	-	0.0257	-	-	421
2019	02-déc-2019	-	-	0.24	23.2	-	-	-	3.5	-	-	0.0176	-	-	333
2019	09-déc-2019	-	-	0.2	22.7	-	-	-	30	-	-	0.0157	-	-	285

YEAR	Date	Cd	Chloride	Cr	Cu	Hardness	Fe	Fluoride	Li	Mg	Mn	Hg
		mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L		mg/L	mg/L
2016	05-janv-2016	0.00079	500	0.0022	0.0566	1108	1.32	0.49			2.435	0.00008
2016	01-févr-2016	0.00057	491	<0.0003	0.2502	1123	1.52	0.43			2.078	0.00024
2016	08-mars-2016	<0.00001	532	<0.0003	0.1463	1309	1.58	0.52			2.38	0.00004
2016	05-avr-2016	0.0007	520	0.0011	0.0785	1316	1.85	0.53			2.187	0.00006
2016	03-mai-2016	0.00059	511	0.0046	0.0236	1358	1.34	1.47			2.316	0.00014
2016	07-juin-2016	0.00063	533	0.0059	0.0171	1368	1.68	0.07			2.072	0.00004
2016	18-juil-2016	0.00135	392	<0.0003	0.0054	1074	1.85	0.49			2.002	0.0001
2016	03-août-2016	0.00099	391	<0.0003	0.0091	1104	1.64	0.49			2.065	<0.00005
2016	06-sept-2016	0.00054	370	0.0007	0.0061	1106	2.75	0.47			2.339	<0.00005
2016	03-oct-2016	0.00065	359	<0.0003	0.031	1217	2.2	0.49			2.159	<0.00005
2016	08-nov-2016	0.00168	357	0.001	0.0112	1140	2.01	0.48			2.414	0.0001
2016	05-déc-2016	0.00161	458	<0.0003	0.0077	887	5.07	0.48			1.975	0.0001
2017	03-janv-2017	0.00134	482	0.0015	0.0074	1222	2.68	0.46			2.358	<0.00005
2017	06-févr-2017	0.00129	523	<0.0003	0.0056	1229	2.18	0.55			2.448	0.00005
2017	06-mars-2017	0.00119	508	<0.0003	0.0087	1009	2.42	0.45			2.44	0.00009
2017	03-avr-2017	0.00073	571.7	<0.0003	0.0041	1027	1.89	0.51			2.074	<0.000005
2017	01-mai-2017	0.00081	532.3	<0.0003	0.0053	1248	2.36	0.46			2.326	<0.000005
2017	12-juin-2017	0.00109	98.9	<0.0003	0.0041	925	1.74	0.47			2.155	<0.000005
2017	10-juil-2017	6.66677	438	6.6669	6.6663	1666	1.29	6.52			2.641	<6.66661
2017	19-juil-2017	0.00105	83.2	<0.0003	0.008	1026	1.02	0.46			1.821	0.00006
2017	22-juil-2017	0.00043	396	<0.0003	0.0061	900	2.05	0.48			2.091	0.00065
2017	22-juil-2017	0.00083	349	0.0008	0.0066	876	0.79	0.45			1.542	0.0008
2017	01-août-2017	0.00074	13.5	<0.0003	0.0057	1211	0.09	0.43				<0.000005
2017	07-août-2017	0.0002	377	<0.00005	0.0005	1841	0.89	0.41			2.152	<6.666665
2017	14-août-2017	<0.00001	389	<0.0003	0.0058	1168	2.04	0.52			2.2433	0.00008
2017	21-août-2017	0.00075	358	<0.0003	0.0072	1184	2.24	0.477			2.444	0.00047
2017	28-août-2017	0.00057	355	0.0078	0.005	1089	1.19	0.44			1.893	<0.000005
2017	03-sept-2017	0.00062	582	0.003	0.0047	1327	1.96	0.5			2.384	<0.000005
2017	11-sept-2017	0.00088	362	<0.0003	0.0056	1163	1.65	0.4			2.247	0.00008
2017	18-sept-2017	0.0008	366	<0.0003	0.0046	976	2.24	0.45			1.921	0.00003
2017	25-sept-2017	0.00052	375	0.0008	<0.00025	1003	1.53	0.51			2.048	<0.000005
2017	02-oct-2017	0.00089	382	0.0015	0.0039	980	1.39	0.71			1.958	<0.000005
2017	09-oct-2017	0.00094	363	0.0014	0.0071	1016	1.29	0.54			1.94	0.00005
2017	06-nov-2017	0.00096	417	0.0009	0.0051	1021	2.27	0.54			2.084	0.000169
2017	04-déc-2017	0.00097	376	<0.0003	0.0056	1208	3.24	0.48			2.601	0.00009
2018	02-janv-2018	0.001	520	0.0018	0.0063	1175	1.97	0.5			2.362	0.00006
2018	06-févr-2018	0.00065	428	<0.0003	0.0066	926	2	0.61			1.913	0.00004
2018	05-mars-2018	0.00003	579	<0.0003	0.0005	1489	1.73	0.55			2.58	0.00003
2018	02-avr-2018	0.00076	599	0.003	0.0041	1099	2.04	0.59			2.34	0.00008
2018	07-mai-2018	0.00071	496	<0.0003	0.0048	877	2.26	0.54			2.127	<0.000005
2018	04-juin-2018	0.00189	426	<0.0003	0.003	997	2.29	0.47		54.8	1.617	0.00023
2018	02-juil-2018	0.00165	362	<0.0003	0.0034	1114	1.74	0.57		56.6	2.231	0.00001
2018	06-août-2018	0.00125	427	<0.0003	0.0069	1059	0.03	0.66		52.3	2.406	0.00022
2018	03-sept-2018	0.00058	421	<0.0003	0.0055	1034	1.79	0.51		53.6	2.261	<0.000005
2018	01-oct-2018	0.00107	420	<0.0003	0.006	1109	0.05	0.5		61.4	1.995	<0.000005
2018	05-nov-2018	0.00005	404	<0.0003	<0.00025	1122	1.81	0.51		57.8	2.211	<0.000005
2018	04-déc-2018	0.00107	433	0.0009	0.0079	1132	2.5	0.58		56.2	2.399	<0.000005
2019	09-janv-2019	<0.00001	396	<0.0003	<0.00025	1522	3.3	0.54	-	81.1	2.952	<0.000005
2019	06-févr-2019	0.00002	430	<0.0003	0.0088	1280	3.01	0.48	-	67.9	2.43	<0.000005
2019	05-mars-2019	<0.00001	449	<0.0003	<0.00025	1464	2.83	0.56	-	67.6	2.504	<0.000005
2019	09-avr-2019	<0.00001	453	<0.0003	<0.00025	1177	3.67	0.53	-	63.9	2.397	<0.000005
2019	06-mai-2019	0.0007	79.4	<0.0003	<0.00025	1275	3.27	0.52	-	66	2.708	<0.00001
2019	03-juin-2019	<0.00001	378	<0.0003	0.0013	951	2.34	0.53	-	51.9	2.026	0.00012
2019	24-juin-2019	<0.00001	419	<0.0003	<0.00025	989	0.12	0.5	-	45.5	1.853	<0.000005
2019	01-juil-2019	<0.00001	337	0.0007	0.4811	887	1.38	0.45	-	45.6	1.435	<0.000005
2019	11-juil-2019	<0.00001	300	0.0016	0.0946	767	0.02	0.42	0.006	37	1.092	<0.000005
2019	22-juil-2019	<0.00001	61.9	0.0009	0.0987	824	1.21	0.43	-	39.3	1.166	<0.000005
2019	29-juil-2019	<0.00001	316	0.0011	0.0282	923	2.11	0.45	-	49.8	1.783	<0.000005
2019	06-août-2019	<0.00001	316	0.0012	0.0067	989	2.82	0.5	-	57.7	2.027	<0.000005
2019	19-août-2019	<0.00001	346	<0.0003	<0.00025	923	2.3	0.52	-	51.5	1.909	<0.000005
2019	03-sept-2019	<0.00001	317	<0.0003	0.003	1103	1.05	0.54	-	66	2.254	<0.000005
2019	16-sept-2019	<0.00001	306	0.001	0.0247	914	2.14	0.46	-	49.2	1.652	<0.000005
2019	23-sept-2019	0.00007	322	0.0015	0.0054	995	2.47	0.48	-	57.5	2.012	<0.000005
2019	30-sept-2019	0.00006	348	0.0008	0.002	1083	1.35	0.51	-	61.5	2.195	<0.000005
2019	07-oct-2019	<0.0001	341	<0.0025	<0.0005	1025	2	0.49	-	49	1.9	<0.00005
2019	10-oct-2019	0.00037	330	0.0014	0.0036	951	1.95	0.5	0.008	52.8	2.046	<0.000005
2019	21-oct-2019	0.0003	338	0.0008	0.0041	1054	2.72	0.52	-	58.2	2.204	<0.000005
2019	29-oct-2019	0.00015	331	0.0008	0.0049	876	2.39	0.52	-	46	1.881	<0.000005
2019	04-nov-2019	0.00032	319	0.0007	0.0026	932	2.22	0.52	-	52.5	1.942	<0.000005
2019	18-nov-2019	0.00029	351	<0.0003	0.0038	807	1.64	0.54	-	41.2	1.621	<0.000005
2019	25-nov-2019	0.00058	387	0.001	0.0076	1328	2.61	0.53	-	67.3	2.658	<0.000005
2019	02-déc-2019	0.00036	375	0.0017	0.0069	1041	2.02	0.54	-	51.3	1.889	<0.000005
2019	09-déc-2019	0.00023	352	0.0007	0.0059	916	1.87	0.62	-	50.1	1.935	<0.000005

Indicate values = 1/2 of detection limit

YEAR	Parameter	Mo	Ammonia (NH3)	Ni	Nitrate (NO3)	Nitrite (NO2)	Pb	Se	Potassium	Sb	Sn	Sodium	Sr	Sulphate (SO2-4)	TDS	TSS	Ti	Tl	Total Cyanide CNt	CN WAD	CN Free	U	V	Zn	Dissolved Al	Dissolved Ag	Dissolved As	Dissolved B	Dissolved Ba	Dissolved Be	Dissolved Cd	Dissolved Cr	Dissolved Cu	Dissolved Fe	Dissolved Li	Dissolved Mn	Dissolved Hg	Dissolved Mo	Dissolved Ni	Dissolved Pb	Dissolved Sb	Dissolved Se	Dissolved Sr
YEAR	Date	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 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	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
2016	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	0.0021	0.052	0.1		2.664	<0.000005	0.187	0.1077	<0.00015		0.052	
2016	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	0.0062	0.2288	0.13		2.252	0.00013	0.2525	0.1246	<0.00015		0.051	
2016	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	<0.0006	0.1435	0.07		2.303	<0.000005	0.2719	0.0759	<0.00015		0.056	
2016	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	<0.0006	0.072	0.06		2.153	0.00006	0.282	0.0506	<0.00015		0.063	
2016	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	0.0029	0.0184	0.04		2.239	0.00014	0.326	0.0313	<0.00015		0.044	
2016	05-mai-2016																																										
2016	06-mai-2016																				0.074																						
2016	07-mai-2016																																										
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	0.0027	0.0134	0.05		2.121	0.00005	0.3367	0.022	<0.00015		0.037	
2016	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	<0.0006	0.0045	0.05		2.006	0.0001	0.3167	0.0298	<0.00015		0.036	
2016	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	<0.0006	0.0055	0.06		1.953	<0.00005	0.299	0.228	<0.00015		0.026	
2016	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	<0.0006	0.0061	0.04		2.339	<0.000005	0.3153	0.0099	<0.00015		0.022	
2016	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	<0.0006	0.0047	0.04		2.032	<0.000005	0.2998	0.0187	<0.00015		0.014	
2016	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	<0.0006	0.0103	1.38		2.308	0.0001	0.2984	0.0244	0.0052		0.018	
2016	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	<0.0006	0.0044	0.04		1.785	<0.00005	0.3479	0.0145	<0.00015		0.022	
2016	19-déc-2016																																										
2017	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	0.0015	0.0092	0.07		2.261	<0.00005	0.3338	0.0211	<0.00015		0.037	
2017	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	<0.0006	0.0042	0.09		2.544	0.00014	0.3611	0.0209	<0.00015		0.037	
2017	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	<0.0006	0.0066	0.05		2.248	0.00009	0.3225	0.0226	<0.00015		0.024	
2017	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	<0.0006	0.0051	<0.005		2.215	<0.000005	0.3333	0.0126	<0.00015		0.024	
2017	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	<0.0006	0.0047	0.03		2.34	<0.000005	0.3414	0.014	<0.00015		0.014	
2017	09-mai-2017																																										
2017	12-mai-2017																																										
2017	16-mai-2017																																										
2017	24-mai-2017																																										
2017	27-mai-2017																																										
2017	31-mai-2017																																										
2017	02-juin-2017																																										
2017	04-juin-2017																																										
2017	07-juin-2017																																										
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	<0.0006	0.0041	0.06		2.022	0.0001	0.2357	0.0217	<0.00015		0.018	
2017	21-juin-2017																																										
2017	23-juin-2017																																										
2017	25-juin-2017																																										
2017	28-juin-2017																																										
2017	30-juin-2017																																										
2017	03-juil-2017																																										
2017	09-juil-2017																																										
2017	10-juil-2017	6.3652	6.16	6.6174	6.11	6.62	<6.6663	6.61						1468	2729	5		<0.0004	6.247	6.686	<0.005			6.661	<6.666	<6.6661	6.6291				6.66682	6.6668	6.6681	6.64		2.671	<6.666665	6.3168	6.6162	6.6265		6.615	
2017	11-juil-2017																																										
2017	12-juil-2017																																										
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	<0.0006	0.0073	0.15		1.773	0.0001	0.3174	0.0201	<0.00015		0.014	
2017	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	<0.0006	0.0061	0.03		2.357	0.00057	0.2551	0.0215	0.0408		0.017	
2017	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	<0.0006	0.0066	0.02		1.407	0.00076	0.2639	0.0257	<0.00015		0.013	
2017	26-juil-2017																																										
2017	27-juil-2017																																										
2017	28-juil-2017																																										
2017	29-juil-2017																																										
2017	31-juil-2017																																										
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	0.0009	0.0069	0.04			<0.000005	0.2601	0.02	<0.00015		0.017	
2017	02-août-2017																																										
2017	03-août-2017																																										
2017	04-août-2017																																										
2017	05-août-2017																																										
2017	06-août-2017																																										
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	<0.00005	<0.0005	0.1		1.932	<6.666665	0.2991	0.0089	<0.00025		0.001	
2017	08-août-2017																																										
2017	09-août-2017															2.3																											
2017	10-août-2017															2																											
2017	11-août-2017															2.9																											
2017	12-août-2017															2.6																											
2017	13-août-2017															2.8																											
2017	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	<0.0003	0.0068	0.04		2.243	<0.000005	0.3181	0.0184	<0.00015		0.023	
2017	15-août-2017															4.3																											
2017	16-août-2017															2																											
2017	17-août-2017															1.4																											
2017	18-août-2017															3.6																											
2017	19-août-2017															1.6																											
2017	20-août-2017															5.8		0.0004																									
2017	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	<0.0003	0.0068	0.04		2.205	0.00009	0.2979	0.0153	<0.00015		0.013	
2017	22-août-2017																																										
2017	23-août-2017															5.7																											
2017	25-août-2017																																										
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	0.001	0.0065	0.07		1.803	<0.000005	0.297	0.0214	0.0041		0.015	
2017	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	<0.0003	0.0035	0.03		2.342	0.00002	0.2977	0.0145	<0.00015		0.011	
2017	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	<0.0003	0.0052	0.04		2.201	0.00004	0.2863	0.0182	<0.00015		0.016	
2017	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	<0.0003	0.0044	0.06		2.076	0.00018	0.3089	0.0159	<0.00015		0.015	
2017	19-sept-2017																																										
2017	20-sept-2017																																										
2017	21-sept-2017																																										
2017	22-sept-2017																																										
2017	23-sept-2017																																										
2017	24-sept-2017																																										
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	<0.0003	<0.0005	0.05		2.075	0.0003	0.2983	0.0148	<0.00015		0.017	
2017	26-sept-2017																																										
2017	27-sept-2017																																										
2017	28-sept-2017																																										
2017	29-sept-2017																																										
2017	30-sept-2017																																										
2017	01-oct-2017																																										
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	0.0008	0.0033	0.02		1.951	0.00005	0.2466	0.0181	<0.00015		0.014	
2017	03-oct-2017																																										
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	<0.0003	0.0066	0.05		2.14	0.00009	0.2954	0.0268	<0.00015		0.015	
2017	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	<0.0003	0.0042	0.06		2.054	0.000129	0.2903	0.0191	<0.00015		0.017	
2017	04-déc-2017	0.3267	0.25	0.0232	<0.005	<0.005	<0.00015	0.019													0.052																						
2018	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	0.0021	0.0067	0.086		2.4	0.00006	0.3292	0.0233	<0.00015		0.026	
2018	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	0.0013	0.0098	0.14		2.514	0.00003	0.2601	0.0237	<0.00015		0.027	
2018	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	<0.0003	0.0005	0.017		2.687	<0.000005	0.39	0.0131	<0.00015		0.008	
2018	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	0.0017	0.004	0.1		2.208	0.00008	0.2902	0.0177	<0.00015		0.01	
2018	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	<0.0003	0.0034	0.05		2.127	<0.000005	0.2627	0.0161	<0.00015		0.005	
2018	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	<0.0003	0.0035	0.07		1.772	<0.000005	0.2778	0.0295	<0.00015		0.024	
2018	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	<0.0003	0.0111	1.74		2.231	<0.000005	0.2922	0.0327	<0.00015		0.027	
2018	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	0.0007	0.0064	0.03		2.232	<0.000005	0.2857	0.0334	<0.00015		0.0216	
2018	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	0.0008	0.0063	0.04		2.154	<0.000005	0.287	0.0307	<0.00015		0.0159	
2018	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	0.0009	0.006	0.05		2.277	<0.000005	0.2997	0.029	<0.00015		0.0227	
2018	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	<0.0003	<0.0005	0.02		2.527	<0.000005	0.3438	0.0099	<0.00015		0.008	
2018	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	0.0016	0.0074	0.05		2.14	<0.000005	0.2594	0.0265	<0.00015		0.0125	
2019	09-janv-2019	0.1549		0.0231			<0.00015	<0.00025	111	-	-	809	-	2003	2292	4	-	<0.0001	0.212	0.096	0.038	-	-	<0.0005	<0.00025	<0.00005	0.0076	-	0.0272	-	<0.00001	<0.0003	<0.00025	0.01	-	2.765	<0.000005	0.1237	0.0205	<0.00015	-	<0.00025	-
2019	06-févr-2019	0.2565		0.0173			<0.00015	0.003	88	-	-	637	-	2172	2202	9	-	<0.0001	0.213	0.048	0.043	-	-	<0.0005	<0.00025	<0.00005	0.0109	-	0.0162	-	0.00009	<0.0003	0.0027	0.02	-	2.284	<0.000005	0.2163	0.0169	<0.00015	-	0.0031	-
2019	05-mars-2019	0.2683		0.0133			<0.00015	0.009	92.3	-	-	626	-	2028	2208	12	-	0.0029	0.063	0.025	0.025	-	-	<0.0005	<0.0025	<0.00005	0.0084	-	0.0224	-	<0.00001	<0.0003	<0.00025	0.005	-	2.347	<0.000005	0.258	0.0133	<0.00015	-	0.006	-
2019	09-avr-2019	0.2358		0.0369			<0.00015	0.0009	91.2	-	-	649	-	1943	2194	4	-	<0.0001	0.073	0.029	0.024	-	-	<0.0005	<0.00025	<0.00005	0.0203	-	0.0182	-	0.00004	<0.0003	<0.00025	0.02	-	2.686	<0.000005	0.2605	0.0405	<0.00015	-	0.0007	-
2019	06-mai-2019	0.2836		0.0747			<0.00015	<0.00025	91.4	-	-	665	-	1907	2034	6	-	<0.0001	0.043	0.013	0.017	-	-	<0.0005	<0.0025	<0.00005	0.0072	-	0.0167	-	0.00051	0.0012	<0.00025	0.1	-	2.489	0.00016	0.2504	0.0645	<0.00015	-	<0.00025	-
2019	03-juin-2019	0.2119		0.0719			<0.00015	<0.00025	78.8	-	-	525	-	1652	2009	7	-	<0.0001	0.061	0.031	0.031	-	-	<0.0005	<0.00025	<0.00005	0.0137	-	0.0212	-	0.00004	<0.0003	<0.00025	0.005	-	1.79	0.00066	0.2229	0.0707	<0.00015	-	0.004	-
2019	24-juin-2019	0.2123		0.0565			<0.00015	0.0049	71.5	-	-	494	-	1734	2615	4	-	<0.0001	0.05	0.018	0.019	-	-	<0.0005	<0.00025	<0.00005	0.0079	-	0.0168	-	<0.00001	<0.0003	<0.00025	<0.005	-	1.859	<0.000005	0.199	0.0599	<0.00015	-	0.0037	-
2019	01-juil-2019	0.2428		0.0794			<0.00015	<0.00025	75.2	-	-	478	-	1548	2116	10	-	<0.0001	0.056	0.03	0.013	-	-	<0.0005	<0.00025	<0.00005	0.0171	-	0.0261	-	<0.00001	<0.0003	0.3579	0.005	-	1.52	<0.000005	0.2477	0.0833	<0.00015	-	0.0028	-
2019	11-juil-2019	0.213		0.064			<0.00015	0.0028	66.2	0.001	<0.0005	375	1.08	1568	1786	5	<0.005	<0.0001	0.075	0.037	-	0.016	<0.00025	<0.0005	0.007	<0.00005	0.0144	0.07	0.0251	<0.00025	0.00009	<0.0003	0.0794	<0.005	0.006	1.141	0.00009	0.2244	0.0656	<0.00015	0.0016	0.0014	1.11
2019	22-juil-2019	0.231		0.058			<0.00015	0.001	69.8	-	-	425	-	1388	1884	6	-	<0.0001	0.024	0.009	0.005	-	-	0.004	<0.00025	0.0002	0.0102	-	0.0291	-	<0.00001	<0.0003	0.0333	0.01	-	1.142	<0.000005	0.2229	0.056	<0.00015	-	0.0016	-
2019	29-juil-2019	0.2456		0.0449			<0.00015	<0.00025	74.1	-	-	473	-	1798	1880	5	-	<0.0001	0.028	0.004	0.004	-	-	0.008	<0.00025	<0.00005	0.0095	-	0.0239	-	<0.00001	<0.0003	0.0008	0.02	-	1.516	<0.000005	0.2081	0.0365	<0.00015	-	0.0038	-
2019	06-août-2019	0.2412		0.0412			<0.00015	0.0037	78	-	-	525	-	1631	1982	8	-	<0.0001	0.032	0.006	0.001	-	-	<0.0005	<0.00025	<0.00005	0.0274	-	0.0232	-	<0.00001	<0.0003	0.0021	0.01	-	2.153	<0.000005	0.2466	0.0408	<0.00015	-	0.0035	-
2019	19-août-2019	0.2044		0.0294			<0.00015	0.0024	71.2	-	-	476	-	1792	2890	6	-	0.0021	0.026	0.005	0.005	-	-	0.02	<0.00025	<0.00005	0.0156	-	0.0157	-	0.00009	<0.0003	<0.00025	0.005	-	1.94	<0.000005	0.2125	0.0271	<0.00015	-	0.0037	-
2019	03-sept-2019	0.24		0.0293			<0.00015	0.0055	87.2	-	-	612	-	1794	2791	4	-	<0.0001	0.043	0.003	0.004	-	-	<0.0005	<0.00025	<0.00005	0.0166	-	0.0266	-	<0.00001	<0.0003	0.0007	<0.005	-	2.336	<0.000005	0.2498	0.0307	<0.00015	-	0.0038	-
2019	16-sept-2019	0.2396		0.0254			0.0016	<0.00025	76	-	-	487	-	1471	2382	17	-	<0.0001	0.027	0.004	0.004	-	-	0.002	<0.00025	<0.00005	0.009	-	0.0185	-	<0.00001	<0.0003	0.0034	0.05	-	1.465	<0.000005	0.2088	0.0201	<0.00015	-	0.0023	-
2019	23-sept-2019	0.2404		0.0224			<0.00015	0.0008	82.4	-	-	585	-	1634	2558	6	-	<0.0001	0.03	0.005	0.005	-	-	0.012	<0.00025	<0.00005	0.0039	-	0.0196	-	0.00005	<0.0003	0.0015	<0.005	-	1.711	<0.000005	0.2033	0.0182	<0.00015	-	0.0028	-
2019	30-sept-2019	0.2406		0.0294			<0.00015	0.0015	85.7	-	-	548	-	1674	2642	7	-	<0.0001	0.04	0.009	0.006	-	-	<0.0005	0.0086	<0.00005	0.0112	-	0.0226	-	<0.00001	<0.0003	<0.00025	<0.005	-	2.102	<0.000005	0.2343	0.0278	<0.00015	-	0.0037	-
2019	07-oct-2019	0.23		0.018			<0.00025	<0.0015	71	-	-	440	-	1647	2134	7	-	<0.001	0.036	0.007	0.006	-	-	<0.0035	<0.005	<0.00005	0.015	-	0.021	-	<0.0001	<0.0003	-	<0.03	-	2	<0.00005	0.23	0.017	<0.0005	-	0.0034	-
2019	10-oct-2019	0.2361		0.0233			0.0003	0.0022	78	<0.00005	<0.0005	335	1.29	1489	1984	5	<0.005	<0.0001	0.037	0.004	-	0.018	0.0048	0.006	0.0141	<0.00005	0.0169	0.15	0.0221	<0.00025	0.00039	<0.0003	0.003	0.13	0.01	2.392	<0.000005	0.2871	0.0262	<0.00015	0.0002	0.0055	1.52
2019	21-oct-2019	0.2476		0.0224			<0.00015	0.0023	86.3	-	-	516	-	1670	2265	6	-	<0.0001	0.051	0.008	0.005	-	-	<0.0005	<0.0025	<0.00005	0.0223	-	0.0168	-	0.00027	<0.0003	0.0037	0.17	-	2.111	<0.000005	0.2328	0.0216	<0.00015	-	0.0053	-
2019	29-oct-2019	0.1996		0.0226			<0.00015	0.0031	69.6	-	-	426	-	1654	2105	8	-	<0.0001	0.036	0.005	0.005	-	-	<0.0005	0.005	<0.00005	0.0238	-	0.0182	-	0.00027	<0.0003	0.0042	0.22	-	1.841	<0.000005	0.1951	0.0217	<0.00015	-	0.0046	-
2019	04-nov-2019	0.2224		0.0142			<0.00015	0.0035	76.3	-	-	377	-	1683	2218	2	-	<0.0001	0.038	0.005	0.008	-	-	<0.0005	<0.0025	<0.00005	0.0186	-	0.0212	-	0.0003	<0.0003	0.0023	0.1	-	2.005	<0.000005	0.2372	0.0146	<0.00015	-	0.0043	-
2019	18-nov-2019	0.184		0.015			<0.00015	0.0055	67.8	-	-	<0.025	-	1638	2391	6	-	<0.0001	0.038	0.005	0.005	-	-	<0.0005	<0.0025	<0.00005	0.0091	-	0.0054	-	0.00029	<0.0003	0.005	0.09	-	1.64	<0.000005	0.1848	0.0155	<0.00015	-	0.0065	-
2019	25-nov-2019	0.309		0.0262			0.0019	0.0018	108	-	-	384	-	1548	2488	6	-	<0.0001	0.053	0.009	0.006	-	-	0.002	<0.0025	<0.00005	0.0093	-	0.0204	-	0.00046	<0.0003	0.0072	0.22	-	2.477	<0.000005	0.2837	0.0237	<0.00015	-	0.0039	-
2019	02-déc-2019	0.1942		0.0148			<0.00015	0.0021	82.8	-	-	508	-	1791	24	8	-	<0.0001	0.057	0.011	0.002	-	-	<0.0005	<0.0025	<0.00005	0.0045	-	0.0139	-	0.00035	<0.0003	0.0073	0.1	-	1.654	<0.000005	0.1709	0.0148	<0.00015	-	0.003	-
2019	09-déc-2019	0.2033		0.017			<0.00015	<0.00025	80.8	-	-	502	-	1751	2459	54	-	<0.0001	0.052	0.01	0.008	-	-	<0.0005	<0.0025	<0.00005	0.0035	-	0.0165	-	0.00026	<0.0003	0.0048	0.08	-	1.898	<0.000005	0.1973	0.0158	<0.00015	-	<0.00025	-

Indicate values = 1/2 of detection limit

	Parameter	Dissolved Sn	Dissolved Ti	Dissolved Tl	Dissolved U	Dissolved V	Dissolved Zn
YEAR	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
2016	05-janv-2016			< 0.0025			0.003
2016	01-févr-2016			< 0.001			0.002
2016	08-mars-2016			< 0.001			< 0.0005
2016	05-avr-2016			< 0.001			< 0.0005
2016	03-mai-2016			< 0.001			< 0.0005
2016	05-mai-2016						
2016	06-mai-2016						
2016	07-mai-2016						
2016	07-juin-2016			< 0.001			0.003
2016	18-juil-2016			< 0.0004			< 0.0005
2016	03-août-2016			< 0.0004			0.001
2016	06-sept-2016			< 0.0004			0.002
2016	03-oct-2016			< 0.0004			0.001
2016	08-nov-2016			< 0.0004			0.011
2016	05-déc-2016			< 0.0004			< 0.001
2016	19-déc-2016						
2017	03-janv-2017			< 0.0004			0.008
2017	06-févr-2017			< 0.0004			< 0.0005
2017	06-mars-2017			< 0.0004			< 0.0005
2017	03-avr-2017			< 0.0004			< 0.0005
2017	01-mai-2017			< 0.0004			< 0.0005
2017	09-mai-2017						
2017	12-mai-2017						
2017	16-mai-2017						
2017	24-mai-2017						
2017	27-mai-2017						
2017	31-mai-2017						
2017	02-juin-2017						
2017	04-juin-2017						
2017	07-juin-2017						
2017	12-juin-2017			< 0.0004			< 0.0005
2017	21-juin-2017						
2017	23-juin-2017						
2017	25-juin-2017						
2017	28-juin-2017						
2017	30-juin-2017						
2017	03-juil-2017						
2017	09-juil-2017						
2017	10-juil-2017			< 0.0004			< 0.0005
2017	11-juil-2017						
2017	12-juil-2017						
2017	19-juil-2017			< 0.0004			< 0.0005
2017	22-juil-2017			< 0.0004			< 0.0005
2017	22-juil-2017			< 0.0004			< 0.0005
2017	26-juil-2017						
2017	27-juil-2017						
2017	28-juil-2017						
2017	29-juil-2017						
2017	31-juil-2017						
2017	01-août-2017			< 0.0004			< 0.0005
2017	02-août-2017						
2017	03-août-2017						
2017	04-août-2017						
2017	05-août-2017						
2017	06-août-2017						
2017	07-août-2017			< 0.0004			< 0.0005
2017	08-août-2017						
2017	09-août-2017						
2017	10-août-2017						
2017	11-août-2017						
2017	12-août-2017						
2017	13-août-2017						
2017	14-août-2017			< 0.0004			< 0.0005
2017	15-août-2017						
2017	16-août-2017						
2017	17-août-2017						
2017	18-août-2017						
2017	19-août-2017						
2017	20-août-2017						
2017	21-août-2017			< 0.0004			< 0.0005
2017	22-août-2017						
2017	23-août-2017						
2017	25-août-2017						
2017	28-août-2017			< 0.0004			0.001
2017	03-sept-2017			< 0.0004			< 0.0005
2017	11-sept-2017			< 0.0004			< 0.0005
2017	18-sept-2017			< 0.0004			< 0.0005
2017	19-sept-2017						
2017	20-sept-2017						
2017	21-sept-2017						
2017	22-sept-2017						
2017	23-sept-2017						
2017	24-sept-2017						
2017	25-sept-2017			< 0.0004			< 0.0005
2017	26-sept-2017						
2017	27-sept-2017						
2017	28-sept-2017						
2017	29-sept-2017						
2017	30-sept-2017						
2017	01-oct-2017						
2017	02-oct-2017			< 0.0004			< 0.0005
2017	03-oct-2017						
2017	09-oct-2017			< 0.0004			< 0.0005
2017	06-nov-2017			< 0.0004			0.004
2017	04-déc-2017						
2018	02-janv-2018			< 0.0004			< 0.0005
2018	06-févr-2018			< 0.0004			< 0.0005
2018	05-mars-2018			< 0.0004			< 0.0005
2018	02-avr-2018			< 0.0004			< 0.0005
2018	07-mai-2018			< 0.0004			< 0.0005
2018	04-juin-2018			< 0.0004			< 0.0005
2018	02-juil-2018			< 0.0004			0.001
2018	06-août-2018			< 0.0001			0.001
2018	03-sept-2018			< 0.0001			< 0.0005
2018	01-oct-2018			< 0.0001			< 0.0005
2018	05-nov-2018			< 0.0001			0.002
2018	04-déc-2018			< 0.0001			0.001
2019	09-janv-2019	-	-	< 0.0001	-	-	0.002
2019	06-févr-2019	-	-	< 0.0001	-	-	< 0.0005
2019	05-mars-2019	-	-	0.0024	-	-	< 0.0005
2019	09-avr-2019	-	-	< 0.0001	-	-	< 0.0005
2019	06-mai-2019	-	-	< 0.0001	-	-	< 0.0005
2019	03-juin-2019	-	-	< 0.0001	-	-	< 0.0005
2019	24-juin-2019	-	-	< 0.0001	-	-	< 0.0005
2019	01-juil-2019	-	-	< 0.0001	-	-	< 0.0005
2019	11-juil-2019	< 0.0005	< 0.005	< 0.0001	0.016	< 0.00025	0.002
2019	22-juil-2019	-	-	< 0.0001	-	-	0.004
2019	29-juil-2019	-	-	< 0.0001	-	-	0.002
2019	06-août-2019	-	-	< 0.0001	-	-	< 0.0005
2019	19-août-2019	-	-	< 0.0001	-	-	< 0.0005
2019	03-sept-2019	-	-	< 0.0001	-	-	< 0.0005
2019	16-sept-2019	-	-	< 0.0001	-	-	< 0.0005
2019	23-sept-2019	-	-	< 0.0001	-	-	0.003
2019	30-sept-2019	-	-	0.0004	-	-	< 0.0005
2019	07-oct-2019	-	-	< 0.001	-	-	< 0.0025
2019	10-oct-2019	< 0.0005	< 0.005	< 0.0001	0.021	0.0012	0.002
2019	21-oct-2019	-	-	< 0.0001	-	-	< 0.0005
2019	29-oct-2019	-	-	< 0.0001	-	-	< 0.0005
2019	04-nov-2019	-	-	< 0.0001	-	-	< 0.0005
2019	18-nov-2019	-	-	< 0.0001	-	-	< 0.0005
2019	25-nov-2019	-	-	< 0.0001	-	-	< 0.0005
2019	02-déc-2019	-	-	< 0.0001	-	-	< 0.0005
2019	09-déc-2019	-	-	< 0.0001	-	-	0.002

Indicate values = 1/2 of detection limit

Pit	Date	pH	Turbidity	Conductivity	DO	CN Free	Total Cyanide	Alkalinity	Un-Ionized Ammonia, calculated	Ammonia Nitrogen as NH4	Ammonia-Nitrogen (NH3-NH4)	Ammonia	TDS	TSS
	Units	Units	NTU	aS/cm	mg/L	mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L	mg N/L	mg N/L	mg/L	mg/L
	CCME Guidelines	*6.5 to 9.0*	--	--	--	--	*0.005*	--	*0.02*	--	*1.83*	*0.016*	--	--
	2015-05-28	8.52	9.92			0.005	0.005	60			1.17	0.010	171	
	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	
	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
	2015-11-02	7.9	1.07				0.010	100			4.22	0.100	548	3
	2016-06-07	8.08	49.2			0.007	0.016	45			2.02	0.050	245	41
	2016-06-20	8.13	23.8			0.011	0.013	79			3.94	0.090	473	23
	2016-07-18	8.03	18.31					79			3.69	0.090	436	5
	2016-08-03	7.91	10.46				0.011	80			3.42	0.090	473	69
	2016-09-06					0.003	0.018	84			2.99	0.070	510	0.5
	2016-10-03	7.34	4.54			0.006	0.004	86			2.55	0.050	528	5
	2016-11-08	7.93	212			0.005	0.056	227			7.46	0.200	964	228
	2016-11-30	7.97	5.87				0.012							
	2017-04-04	8.14				0.099	0.392	279			14.680	0.350	1131	673
	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
	2017-07-10	8	7.47			0.009	0.014	84			2.000	0.005	395	7
	2017-08-01	8.15	7.65			0.003	0.005	86			0.830	0.010	372	50
	2017-08-07					0.003	0.003	87			0.730	0.010	356	1
	2017-08-08	7.8	5.91											
	2017-08-14	8	30			0.013	0.048	112			2.970	0.060	442	38
	2017-08-21	7.56	5.52	653	9	0.003	0.003	89			0.670	0.010	397	1
	2017-08-28					0.003	0.013	77			0.780	0.025	419	7
	2017-09-03	8.23	6.27	758	9	0.012	0.042	83			3.900	0.025	430	7
	2017-09-11	7.22	2.35	717	11	0.005	0.010	80			1.500	0.005	405	3
	2017-09-18	7.65	2.85	610	8	0.003	0.009	79			1.000	0.005	405	3
	2017-09-25	7.21	2.54	644		0.005	0.009	82			0.540	0.010	419	5
	2017-10-02	8.01	4.94	334		0.033	0.057	79			4.010	0.130	533	51
	2017-10-09	7.93	6.1	798	8	0.003	0.012	85			0.550	0.010	453	6
	2017-12-03	8.28	3.06	664	9	0.003	0.005	91			0.590	0.010	408	2
	2018-06-13						0.007	61			1.82	0.03	303	22
ST-17 Lake	6019-07-16	7.74	3.25	2510	8.9	0.015	0.037	73	0.11	-	7.41		1409	12
ST-17 Lake	6019-10-60	7.93	5.09	2420	9.3	0.012	0.033	67	0.1	5.97	6.07		1372	4

Indicate values = 1/2 of detection limit

Pit	Date	CN-WAD	Dissolved organic carbon	Total organic carbon	Total calcium	Total magnésium	Total potassium	Total sodium	Chloride	Hardness	Fluoride	Nitrate	Nitrite	Sulphate
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mgN/L	mgN/L	mg/L
	CCME Guidelines	--	--	--	--	--	--	--	*120*	--	*0.12*	*2.94*	*0.060*	--
	2015-05-28								5	82	0.06	3.190	0.120	45
	2015-06-01													
	2015-07-23								15	227	0.37	11.900	0.350	165
	2015-08-04													
	2015-09-08													
	2015-10-05								24	306	0.37	16.800	0.150	250
	2015-11-02								26	340	0.42	15.700	0.050	258
	2016-06-07	0.005							11	127	0.23	5.570	0.110	117
	2016-06-20	0.010							19	264	0.33	13.100	0.150	197
	2016-07-18	0.010							19	222	0.36	12.400	0.050	193
	2016-08-03	0.006							19	259	0.36	12.800	0.050	205
	2016-09-06	0.003							20	250	0.36	13.600	0.040	235
	2016-10-03	0.004							20	329	0.37	14.100	0.030	244
	2016-11-08	0.006							58	690	0.99	17.200	0.090	432
	2016-11-30	0.005												
	2017-04-04	0.078							70	55	0.56	24.9	0.75	436
	2017-06-04													
	2017-06-12	0.031							13	193	0.36	4.5	0.11	148
	2017-07-10	0.006							14	205	0.43	8.6	0.07	150
	2017-08-01	0.001							77	221	0.39	6.2	0.04	173
	2017-08-07	0.002							14	275	0.37	5.9	0.03	186
	2017-08-08													
	2017-08-14	0.020							26	313	0.20	10.3	0.14	101
	2017-08-21	0.002							16	19	0.41	6.2	0.03	163
	2017-08-28	0.010							18	242	0.40	6.7	0.03	158
	2017-09-03	0.023							19	275	0.45	9.4	0.10	168
	2017-09-11	0.008							17	255	0.34	7.9	0.06	160
	2017-09-18	0.005							16	197	0.40	6.5	0.05	170
	2017-09-25	0.006							17	212	0.47	7.9	0.07	170
	2017-10-02	0.016							21	270	0.56	13.1	0.13	224
	2017-10-09	0.002							19	250	0.49	8.2	0.05	204
	2017-12-03	0.001							19	232	0.47	6.1	0.03	179
	2018-06-13	0.005							16.5	166	0.25	6.03	0.11	130
ST-17 Lake	6019-07-16	0.02	15	-	171	36.4	42.5	241	176	576	0.33	6.31	0.14	946
ST-17 Lake	6019-10-60	0.014	15.3	14	210	39.1	58.7	318	147	685	0.42	6.86	0.33	885

Indicate values = 1/2 of detection limit

Pit	Date	Aluminium	Arsenic	Barium	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	mg/L	mg/L	mg/L
	CCME Guidelines	***0.10***	***0.0050***	***--***	***0.000040***	***0.0010***	***0.0020***	***0.30***	***0.0010***	***--***	***0.000026***	***0.073***	***0.0250***	***0.001***
	2015-05-28		0.522				0.0014		0.0002				0.019	
	2015-06-01		0.051				0.0022		0.0057				0.021	
	2015-07-23		0.004				0.0012		0.0002				0.033	
	2015-08-04		0.048				0.0003		0.0002				0.023	
	2015-09-08		0.024				0.0006		0.0002				0.031	
	2015-10-05	0.034	0.035	0.017	0.00001	0.0003	0.0006	0.050	0.0002	0.109	0.000005	0.195	0.043	0.001
	2015-11-02	0.050	0.055	0.016	0.00045	0.0029	0.0003	0.040	0.0002	0.118	0.000190	0.162	0.045	0.002
	2016-06-07	0.794	0.000	0.009	0.00012	0.0003	0.0008	1.710	0.0002	0.076	0.000005	0.038	0.011	0.0005
	2016-06-20	0.625	0.013	0.014	0.00039	0.0059	0.0120	1.600	0.0002	0.117	0.000005	0.130	0.020	0.0005
	2016-07-18	0.148	0.010	0.013	0.00035	0.0021	0.0010	0.320	0.0002	0.093	0.000005	0.112	0.018	0.0005
	2016-08-03	0.332	0.019	0.015	0.00031	0.0053	0.0011	0.920	0.0002	0.131	0.000050	0.128	0.028	0.00005
	2016-09-06	0.034	0.015	0.018	0.00024	0.0007	0.0008	0.040	0.0038	0.135	0.000005	0.137	0.027	0.001
	2016-10-03	0.064	0.008	0.015	0.00018	0.0003	0.0007	0.150	0.0002	0.148	0.000005	0.113	0.037	0.001
	2016-11-08	6.530	0.060	0.056	0.00090	0.2155	0.0118	22.500	0.0082	0.837	0.000050	0.162	0.127	0.004
	2016-11-30													
	2017-04-04	4.440	0.002	0.058	0.00049	0.008	0.0083	9.070	0.0002	0.283	0.00009	0.214	0.022	0.002
	2017-06-04													
	2017-06-12	0.134	0.024	0.006	0.00019	0.001	0.0006	0.420	0.0165	0.071	0.00001	0.059	0.029	0.001
	2017-07-10	0.108	0.023	0.010	0.00009	0.002	0.0003	0.300	0.0002	0.142	0.00001	0.043	0.027	0.001
	2017-08-01	0.333	0.011	0.014	0.00001	0.001	0.0008	0.600	0.0005	0.118	0.00001	0.037	0.027	0.001
	2017-08-07	0.143	0.026	0.015	0.00003	0.007	0.0003	0.190	0.0002	0.125	0.00001	0.038	0.026	0.0003
	2017-08-08													
	2017-08-14	1.220	0.010	0.032	0.00001	0.001	0.0025	2.010	0.0002	0.312	0.00002	0.039	0.011	0.001
	2017-08-21	0.123	0.027	0.019	0.00001	0.005	0.0009	0.240	0.0056	0.131	0.00026	0.042	0.033	0.001
	2017-08-28	0.045	0.029	0.026	0.00001	0.008	0.0003	0.140	0.0021	0.128	0.00001	0.043	0.030	0.001
	2017-09-03	0.157	0.027	0.018	0.00009	0.002	0.0010	0.330	0.0006	0.122	0.00001	0.049	0.039	0.001
	2017-09-11	0.064	0.017	0.018	0.00001	0.0003	0.0005	0.080	0.0002	0.121	0.00002	0.046	0.029	0.001
	2017-09-18	0.034	0.008	0.015	0.00013	0.0003	0.0003	0.240	0.0002	0.113	0.00001	0.046	0.026	0.001
	2017-09-25	0.019	0.018	0.014	0.00001	0.001	0.0003	0.040	0.0002	0.121	0.00001	0.046	0.026	0.001
	2017-10-02	0.627	0.040	0.016	0.00019	0.009	0.0013	1.690	0.0002	0.140	0.00001	0.081	0.588	0.002
	2017-10-09	0.013	0.023	0.015	0.00006	0.0003	0.0016	0.080	0.0002	0.124	0.00004	0.064	0.038	0.001
	2017-12-03	0.003	0.036	0.018	0.00010	0.0003	0.0005	0.040	0.0002	0.128	0.00002	0.037	0.044	0.001
	2018-06-13	0.321	0.00025	0.0099	0.00003	0.0003	0.0019	0.77	0.0016	0.1261	0.000005	0.0231	0.0242	0.0005
ST-17 Lake	6019-07-16	0.038	0.0261	0.023	0.00001	0.001	0.0204	0.11	0.00015	0.8285	0.000005	0.1372	0.0608	0.00025
ST-17 Lake	6019-10-60	0.108	0.4753	0.0229	0.00019	0.0015	0.0331	0.53	0.00015	0.8009	0.000005	0.1427	0.0585	0.0065

Indicate values = 1/2 of detection limit

Pit	Date	Silver	Thallium	Zinc	Dissolved Aluminum	Dissolved Silver	Dissolved Arsenic	Dissolved Barium	Dissolved Cadmium	Dissolved Copper	Dissolved Chromium	Dissolved Iron	Dissolved Manganese	Dissolved Mercury
	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	***0.00025***	***0.0008***	***0.03***	***0.1000***	***0.00025***	***0.0050***	***--***	***0.00004***	***0.0020***	***0.0010***	***0.30***	***--***	***0.000026***
	2015-05-28			0.006	0.003	0.00005	0.032	0.005	0.00001	0.0003		0.0050	0.043	0.000005
	2015-06-01			0.004										
	2015-07-23			0.001	0.003	0.00005	0.009	0.014	0.00001	0.001		0.010	0.098	0.000005
	2015-08-04			0.001										
	2015-09-08			0.001										
	2015-10-05	0.00005	0.0025	0.001										
	2015-11-02	0.00005	0.0025	0.002										
	2016-06-07	0.00005	0.0010	0.001										
	2016-06-20	0.00005	0.0010	0.001										
	2016-07-18	0.00005	0.0004	0.001										
	2016-08-03	0.00005	0.0004	0.001	0.003	0.00005	0.017	0.013	0.000	0.001		0.005	0.105	0.000005
	2016-09-06	0.00005	0.0004	0.001	0.003	0.00005	0.00025	0.018	0.000	0.001		0.005	0.128	0.000005
	2016-10-03	0.00005	0.0004	0.001	0.014	0.00005	0.008	0.016	0.000	0.001		0.005	0.142	0.000005
	2016-11-08	0.00005	0.0004	0.028	0.011	0.00005	0.031	0.037	0.001	0.003		0.010	0.174	0.000060
	2016-11-30													
	2017-04-04	0.00005	0.0004	0.016	0.029	0.00005	0.0005	0.038	0.00044	0.00320	0.0009	0.140	0.093	0.00009
	2017-06-04													
	2017-06-12	0.00005	0.0004	0.001	0.003	0.00005	0.0146	0.004	0.00001	0.00025	0.0013	0.010	0.071	0.00003
	2017-07-10	0.00005	0.0004	0.001	0.003	0.00005	0.0403	0.009	0.00007	0.00920	0.0015	0.005	0.136	0.00001
	2017-08-01	0.00005	0.0004	0.001	0.016	0.00015	0.0115	0.013	0.00001	0.00050	0.0009	0.005	0.118	0.00001
	2017-08-07	0.00025	0.0004	0.001	0.023	0.0007	0.0267	0.015	0.00003	0.00025	0.00030	0.005	0.109	0.00001
	2017-08-08													
	2017-08-14	0.00005	0.0004	0.001	0.038	0.00005	0.0024	0.025	0.00001	0.00160	0.00030	0.010	0.285	0.00001
	2017-08-21	0.00005	0.0004	0.004	0.011	0.00005	0.0268	0.017	0.00001	0.00080	0.0041	0.005	0.132	0.00011
	2017-08-28	0.00005	0.0004	0.003	0.002	0.00005	0.0281	0.022	0.00001	0.00050	0.00030	0.005	0.109	0.00001
	2017-09-03	0.00005	0.0004	0.008	0.003	0.00005	0.0238	0.015	0.00009	0.00080	0.00030	0.020	0.117	0.00002
	2017-09-11	0.00005	0.0004	0.001	0.011	0.00005	0.0178	0.015	0.00001	0.00360	0.00030	0.005	0.119	0.00001
	2017-09-18	0.00005	0.0004	0.001	0.003	0.00005	0.0077	0.014	0.00015	0.00025	0.00030	0.005	0.113	0.00001
	2017-09-25	0.00005	0.0004	0.001	0.111	0.00005	0.0120	0.014	0.00001	0.00025	0.00030	0.005	0.121	0.00001
	2017-10-02	0.00005	0.0004	0.001	0.003	0.00005	0.0343	0.013	0.00023	0.00025	0.0013	0.005	0.119	0.00001
	2017-10-09	0.00005	0.0004	0.001	0.003	0.00005	0.0181	0.013	0.00001	0.00160	0.00025	0.070	0.120	0.00001
	2017-12-03	0.00005	0.0004	0.001	0.024	0.00005	0.0394	0.013	0.00011	0.00025	0.00030	0.005	0.121	0.00002
	2018-06-13	0.00005	0.0004	0.0005	0.023	0.00005	0.00025	0.0093	0.00005	0.0014	0.0003	0.01	0.125	0.000005
ST-17 Lake	6019-07-16	0.00005	0.0001	0.0005	0.011	0.00005	0.0255	0.0238	0.00001	0.0202	0.0003	0.005	0.8366	0.000005
ST-17 Lake	6019-10-60	0.00005	0.0001	0.0005	0.0025	0.00005	0.5187	0.0308	0.00021	0.0295	0.0003	0.12	0.9267	0.000005

Indicate values = 1/2 of detection limit

Pit	Date	Dissolved Molybdenum	Dissolved Nickel	Dissolved Lead	Dissolved Selenium	Dissolved Strontium	Dissolved Thallium	Dissolved Zinc	Acidity	Acidity	Ferrous Iron Fe2+	Dissovled Ferrous Fe2+	Ferric Iron Fe3+	Dissolved Ferric Iron Fe3+
	Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/kg	mg/L CaCO3/L	mg/L	mg/L	mg/L	mg/L
	CCME Guidelines	***0.073***	***0.025***	***0.0010***	***0.001***	--	***0.0008***	***0.030***	--	--	--	--	--	--
	2015-05-28	0.036	0.014	0.0002	0.001		0.0025	0.0005						
	2015-06-01													
	2015-07-23	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	0.121	0.024	0.00015	0.001		0.0004	0.001						
	2016-09-06	0.130	0.026	0.00015	0.001		0.0004	0.001						
	2016-10-03	0.113	0.033	0.00015	0.002		0.0004	0.001						
	2016-11-08	0.163	0.047	0.00015	0.004		0.0004	0.006						
	2016-11-30													
	2017-04-04	0.231	0.015	0.0002	0.0020		0.0004	0.0005						
	2017-06-04													
	2017-06-12	0.050	0.029	0.0060	0.0005		0.0004	0.0005						
	2017-07-10	0.043	0.026	0.0002	0.0005		0.0004	0.0005						
	2017-08-01	0.035	0.026	0.0002	0.0005		0.0004	0.0005		3.000	0.010		0.090	
	2017-08-07	0.034	0.024	0.0003	0.0003		0.0004	0.0003		3.000	0.010	0.010	0.920	0.090
	2017-08-08													
	2017-08-14	0.039	0.009	0.0002	0.0010		0.0004	0.0005		3.000	0.350		0.080	
	2017-08-21	0.042	0.033	0.0002	0.0010		0.0004	0.001		3.000	0.030		0.210	
	2017-08-28	0.047	0.024	0.0050	0.0010		0.0004	0.0005		4.000	0.080		0.060	
	2017-09-03	0.053	0.038	0.0002	0.0005		0.0004	0.001		3.000	0.030		0.300	
	2017-09-11	0.044	0.029	0.0002	0.0005		0.0004	0.0005		3.000	0.010		0.080	
	2017-09-18	0.049	0.026	0.0002	0.0010		0.0004	0.0005		3.000	0.010		0.240	
	2017-09-25	0.046	0.026	0.0002	0.0020		0.0004	0.0005		3.000	0.010		0.040	
	2017-10-02	0.081	0.053	0.0005	0.0010		0.0004	0.0005		4.000	0.350		1.340	
	2017-10-09	0.062	0.035	0.0002	0.0010		0.0004	0.0005		4.000	0.040		0.040	
	2017-12-03	0.034	0.041	0.0002	0.0010		0.0004	0.0005						
	2018-06-13	0.023	0.0222	0.00015	0.001		0.0008	0.001						
ST-17 Lake	6019-07-16	0.1387	0.0605	0.00015	0.0067	0.792	0.0001	0.0005	6		0.005		0.11	
ST-17 Lake	6019-10-60	0.1678	0.0675	0.00015	0.0083	1.01	0.0001	0.0005	16		0.005		0.53	

Indicate values = 1/2 of detection limit

Pit	Date	Total Phosphorus	Dissolved Phosphorus	Dissolved Oxygen
	Units	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	0.050		
	2017-08-07	0.030	0.005	
	2017-08-08			
	2017-08-14	0.040		
	2017-08-21	0.005		
	2017-08-28	0.020		
	2017-09-03	0.025		
	2017-09-11	0.020		
	2017-09-18	0.020		
	2017-09-25	0.005		
	2017-10-02	0.060		10.800
	2017-10-09	0.005		10.700
	2017-12-03			
	2018-06-13			
ST-17 Lake	6019-07-16	0.05		
ST-17 Lake	6019-10-60	0.03		

Indicate values = 1/2 of detection limit

Pit	Date	pH	Conductivity	Turbidity	Alkalinity	Ammoniacal Nitrogen as NH4	Total nitrogen	Un-ionized ammonia, calculated	Ammonia-Nitrogen (NH3-NH4)	Ammonia	Total phosphorus	TDS	TSS	Total Cyanide
	Units	Units	uS/cm	NTU	mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg N/L	mg N/L	mg/L	mg/L	mg/L	mg/L
	CCME Guidelines	***6.5 to 9.0***	***--***	***--***	***--***	***--***	***--***	***0.02***	***1.83***	***0.02***	***--***	***--***	***--***	***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
	2016-08-03	7.45		14.86	42				4.67	0.02		747	14	0.022
	2017-07-17	8.32		0.77	74				3.35	0.08		363	3	0.012
	2017-08-17	8.01		2.85	82				4.05	0.1		388	1	0.007
	2017-09-03	8.08		1.7	74				5.2	0.005		413	0.5	0.013
	2018-07-02	7.67		3.11	55				2.08	0.04		318	4	0.011
ST-19 LAKE	2019-06-17	7.1	1029	9.16	77			0.26	14.3		0.005	550	14	0.266
ST-19 LAKE	2019-07-16	7.79	925	2.44	45			0.1	4.86		0.02	580	5	0.025
ST-19 SUMP	2019-06-17	-	-	-	46	-	-	0.005	0.4		0.005	368	11	0.008
ST-19 SUMP	2019-08-07	7.85	805	15.8	76	-	-	0.13	5.22		0.01	481	17	0.051
ST-19 SUMP	2019-10-20	8	7820	36	57	2.38	1.48	0.06	2.44		0.03	424	44	0.019

Indicate values = 1/2 of detection limit

Pit	Date	CN-WAD	CN Free	Total acidity	Ferric Iron	Ferrous Iron	Dissolved Oxygen	Dissolved organic carbon	Sodium	Potassium	Magnésium	Calcium	Chloride	Hardness
	Units	mg/L	mg/L	mg/kg	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L
	CCME Guidelines	--	--	--	--	--	--	--	--	--	--	--	***120***	--
	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												34.4	432
	2015-07-13												16.7	198
	2015-08-11												14.1	193
	2015-09-14													
	2016-06-13												33.1	130
	2016-07-17		0.043										29.3	267
	2016-08-03	0.007											29.1	422
	2017-07-17	0.01	0.0025										28	185
	2017-08-17	0.006	0.0025										28	217
	2017-09-03	0.012	0.0025										30.1	173
	2018-07-02	0.011	0.0025										16.7	193
ST-19 LAKE	2019-06-17	0.159	0.1	8	0.39	0.06	-	7.6	51.5	24.6	28.9	64.8	35.8	280
ST-19 LAKE	2019-07-16	0.023	0.019	7	0.06	0.005	8.4	1.8	36.2	17.3	35.3	70.4	26.6	320
ST-19 SUMP	2019-06-17	0.006	0.009	9	0.43	0.03		6.1	18.8	16.4	18	60.8	33.3	226
ST-19 SUMP	2019-08-07	0.028	0.018	8	0.3	0.12		2.7	30.5	19.6	29.9	64.1	30.4	283
ST-19 SUMP	2019-10-20	0.013	0.014	5	1.01	0.45		1.1	38.3	13.6	34	60	24.6	289

Indicate values = 1/2 of detection limit

Pit	Date	Fluoride	Nitrate	Nitrite	Sulphate	Aluminium	Arsenic	Barium	Cadmium	Chromium	Copper	Iron	Lead	Manganese
	Units	mg/L	mg N/L	mgN/L	mg/L	mg/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***	***0.0010***	***--***
	2013-01-16						0.0179				0.0059		0.00015	
	2013-02-06						0.0367				0.0143		0.00015	
	2013-03-06						0.0107				0.0044		0.0097	
	2013-04-03						0.0011				0.0073		0.00015	
	2013-05-07						0.0191				0.0026		0.00015	
	2013-07-08						0.0245				0.0012		0.0006	
	2013-08-14						0.0493				0.0015		0.0006	
	2013-09-09						0.0083				0.00025		0.00015	
	2013-10-07						0.0139				0.00025		0.00015	
	2014-11-21	0.29	42.3	0.36	339									
	2015-07-13	0.24	11.8	0.3	154		0.0172				0.00025		0.00015	
	2015-08-11	0.29	9.13	0.09	117		0.0138				0.00025		0.00015	
	2015-09-14						0.00025				0.00025		0.00015	
	2016-06-13	0.38	9.79	0.15	77.4	0.296	0.00025	0.008	0.00001	0.0064	0.0022	0.82	0.00015	0.0474
	2016-07-17	0.69	1.28	0.02	229	0.084	0.0053	0.0078	0.00041	0.0003	0.0015	0.24	0.00015	0.0744
	2016-08-03	0.45	1.96	0.28	429	0.136	0.00025	0.0173	0.0003	0.0013	0.0019	3.55	0.00015	0.6503
	2017-07-17	0.41	0.69	0.19	110	0.019	0.00025	0.0141	0.00003	0.0003	0.0015	0.03	0.00015	0.1198
	2017-08-17	0.38	10.3	0.31	137	0.016	0.00025	0.0136	0.00001	0.0003	0.00025	0.005	0.00015	0.0852
	2017-09-03	0.37	11.7	0.56	140	0.02	0.00025	0.0143	0.00004	0.0003	0.0005	0.05	0.0266	0.0593
	2018-07-02	0.29	6.88	0.12	133	0.035	0.0015	0.0097	0.00005	0.0007	0.0008	0.07	0.00015	0.1209
ST-19 LAKE	2019-06-17	0.53	22.7	0.57	270	0.062	0.0031	0.0142	0.00001	0.0023	0.0021	0.45	0.00015	0.192
ST-19 LAKE	2019-07-16	0.4	17.5	0.53	263	0.033	0.00025	0.0167	0.00001	0.0016	0.0008	0.06	0.00015	0.1295
ST-19 SUMP	2019-06-17	0.18	2.65	0.09	178	0.264	0.0039	0.0174	0.00001	0.0024	0.003	0.46	0.00015	0.1023
ST-19 SUMP	2019-08-07	0.4	13.5	0.21	240	0.152	0.0058	0.0205	0.00001	0.0022	0.0035	0.42	0.00015	0.0493
ST-19 SUMP	2019-10-20	0.43	8.9	0.54	244	1.04	0.003	0.0088	0.00004	0.022	0.0011	1.46	0.0003	0.0675

Indicate values = 1/2 of detection limit

Pit	Date	Mercury	Molybdenum	Nickel	Selenium	Strontium	Silver	Thallium	Zinc	Dissolved Aluminum	Dissolved Silver	Dissolved Arsenic	Dissolved Barium	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	mg/L	mg/L
	CCME Guidelines	***0.000026***	***0.073***	***0.0250***	***0.001***	***--***	***0.00025***	***0.0008***	***0.03***	***0.1000***	***0.00025***	***0.0050***	***--***	***0.00004***
	2013-01-16			0.0043					0.0005					
	2013-02-06			0.0032					0.116					
	2013-03-06			0.0045					0.008					
	2013-04-03			0.004					0.001					
	2013-05-07			0.0024					0.011					
	2013-07-08			0.0063					0.0005					
	2013-08-14			0.0094					0.0005					
	2013-09-09			0.0011					0.004					
	2013-10-07			0.00025					0.001					
	2014-11-21									0.026	0.00005	0.0203	0.0291	0.00093
	2015-07-13			0.025					0.0005	0.003	0.00005	0.0182	0.0124	0.00001
	2015-08-11			0.0402					0.0005	0.003	0.00005	0.0138	0.0098	0.00001
	2015-09-14			0.1968					0.201					
	2016-06-13	0.00012	0.0121	0.0072	0.0005		0.00005	0.0010	0.004					
	2016-07-17	0.00007	0.0906	0.0179	0.002		0.00005	0.0004	0.0005					
	2016-08-03	0.00005	0.0966	0.0945	0.003		0.00005	0.0004	0.007	0.003	0.00005	0.00025	0.0173	0.00024
	2017-07-17	0.00001	0.0267	0.0244	0.001		0.00005	0.0004	0.001	0.003	0.00005	0.00025	0.0086	0.00001
	2017-08-17	0.00005	0.0315	0.0199	0.003		0.00005	0.0004	0.0005	0.008	0.00005	0.00025	0.0093	0.00001
	2017-09-03	0.00006	0.028	0.0115	0.001		0.00005	0.0004	0.0005	0.003	0.00005	0.00025	0.0124	0.00007
	2018-07-02	0.000005	0.0202	0.0182	0.0005		0.00005	0.0004	0.001	0.016	0.00005	0.0015	0.0107	0.00006
ST-19 LAKE	2019-06-17	0.00011	0.0642	0.0404	0.00025	0.511	0.00005	0.0001	0.0005	0.00025	0.00005	0.002	0.0126	0.00001
ST-19 LAKE	2019-07-16	0.000005	0.0398	0.0206	0.0005	0.505	0.00005	0.0001	0.0005	0.018	0.00005	0.00025	0.0147	0.00001
ST-19 SUMP	2019-06-17	0.000005	0.0267	0.0102	0.00025	0.389	0.00005	0.0001	0.0005	0.00025	0.00005	0.0033	0.0142	0.00001
ST-19 SUMP	2019-08-07	0.000005	0.0342	0.0154	0.0016	0.559	0.00005	0.0001	0.005	0.00025	0.00005	0.0046	0.0132	0.00001
ST-19 SUMP	2019-10-20	0.000005	0.0405	0.0243	0.0009	0.476	0.00005	0.0001	0.0005	0.0025	0.00005	0.002	0.011	0.00001

Indicate values = 1/2 of detection limit

Pit	Date	Dissolved Chromium	Dissolved Copper	Dissolved Iron	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenum	Dissolved Nickel	Dissolved Lead	Dissolved Strontium	Dissolved Selenium	Dissolved Thallium	Dissolved Zinc
	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**
	CCME Guidelines	***--***	***0.0020***	***0.30***	***--***	***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		0.002	0.005	0.1502	0.000050	0.3088	0.0539	0.00015		0.005	0.0025	0.005
	2015-07-13		0.00025	0.005	0.0788	0.000020	0.1074	0.0243	0.00015		0.002	0.0025	0.0005
	2015-08-11		0.00025	0.005	0.1054	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		0.001	0.02	0.5854	0.000050	0.0867	0.0072	0.00015		0.002	0.0004	0.004
	2017-07-17		0.00025	0.005	0.1051	0.000020	0.0268	0.0251	0.00015		0.001	0.0004	0.0005
	2017-08-17		0.0006	0.005	0.0639	0.000050	0.0296	0.0166	0.00015		0.003	0.0004	0.0005
	2017-09-03		0.00025	0.005	0.0515	0.000060	0.0274	0.0108	0.00015		0.001	0.0004	0.0005
	2018-07-02		0.0007	0.005	0.1187	0.000005	0.0202	0.0187	0.00015		0.001	0.0004	0.0005
ST-19 LAKE	2019-06-17	0.0003	0.0022	0.08	0.1835	0.000005	0.0654		0.00015	0.504	0.00025	0.0001	0.0005
ST-19 LAKE	2019-07-16	0.0003	0.0008	0.005	0.117	0.000005	0.0387		0.00015	0.49	0.00025	0.0001	0.0005
ST-19 SUMP	2019-06-17	0.0003	0.0022	0.005	0.0886	0.000005	0.0272		0.00015	0.38	0.00025	0.0001	0.0005
ST-19 SUMP	2019-08-07	0.0003	0.0033	0.02	0.0433	0.000005	0.0327		0.00015	0.527	0.00025	0.0001	0.0005
ST-19 SUMP	2019-10-20	0.0003	0.0008	0.05	0.0464	0.000005	0.0339		0.00015	0.45	0.001	0.0001	0.0005

Indicate values = 1/2 of detection limit

Date	pH	Turbidity	Conductivity	Total Alkalinity	Aluminium	Antimony	Arsenic	Un-ionized Ammonia, calculated	Total nitrogen	Ammonia-Nitrogen (NH3-NH4)	Barium	Beryllium	Bicarbonate Alkalinity	Boron	Cadmium
Units	Units	NTU		mg $CaCO_3$/L	mg/L	mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg $CaCO_3$/L	mg/L	mg/L
CCME Guidelines	*6.5 to 9.0*	*--*	*--*	*--*	*0.1000*	*--*	*0.0050*	*0.0200*	*--*	*1.83*	*--*	*--*	*--*	*1.50*	*0.000040*
09-août-15			217	75	0.011	0.0018	0.0061			0.57	0.0166	0.00025	75	0.11	0.00001
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
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
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
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
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
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
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
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
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
18-sept-18				68	0.128	0.00002	0.0054			0.2	0.0361	0.00025	63	0.06	0.00006
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
18-sept-18				68	0.128	0.00002	0.0054			0.2	0.0361	0.0005	63	0.06	0.00006
31-juil-19				61	0.588	0.004	0.0191	0.32	17.6	10.5	0.0383	0.00025	61	0.03	0.00024

Indicate values = 1/2 of detection limit

Date	Calcium	Carbonate Alkalinity	DOC	TOC	Chloride	Chromium	Cobalt	Copper	Cyanate	Total Cyanide	CN-Free	CN-WAD	Hardness	Tin	Iron
Units	mg/L	mg $CaCO_3$/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
CCME Guidelines	--	--	--	--	*120*	*0.0010*	--	*0.0020*	--	*0.005*	--	--	--	--	*0.30*
09-août-15	23.6	1	0.3	2.1	13.7	0.0025		0.0007		0.0025			104	0.0005	0.07
24-juil-16	48	1	0.1	1.6	25.9	0.0049		0.0034	6.16	0.01	0.006		190	0.0005	2.33
09-août-16	41.2	1	0.1	0.7	24.9	0.0072		0.0018	4.47	0.0025	0.0025		154	0.0005	0.63
14-sept-16	42.7	1	0.1	1.8	22.7	0.0003		0.0016	0.01	0.0005	0.0025		165	0.0005	0.16
10-oct-16	47.8	1	0.1	1.3	24.8	0.0013		0.0016	1.1	0.003	0.0025		183	0.0005	0.27
20-août-17	43.9	2	3.1	3.1	21.9	0.0023		0.0011	0.005	0.0005	0.0025		175	0.0005	0.16
28-août-17	45.5	2	0.2	0.2	22.7	0.0014		0.0006	0.005	0.0005	0.0025		182	0.0005	0.68
03-sept-17	34	2	3	3.7	21.7	0.0021		0.0008	0.005	0.003	0.0025		135	0.0005	0.67
05-oct-17	51	2	6.2	6.2	34.7	0.0086		0.002	0.005	0.019	0.0025		197	0.0005	1.67
27-août-18	25.6	1	4.3		14.7	0.002		0.001	0.0005	0.001	0.0025		100	0.0005	0.12
18-sept-18	32.1	1	3.4	3.2	14.1	0.0011		0.0015	0.0005	0.001	0.0025		129	0.0005	0.18
27-août-18	25.6	2	4.3		14.7	0.002		0.001	0.001	0.001	0.005		100	0.001	0.12
18-sept-18	32.1	2	3.4	3.2	14.1	0.0011		0.0015	0.001	0.001	0.005		129	0.001	0.18
31-juil-19	127	1	8.6	6.7	80	0.0094	0.0284	0.5609	23.6	0.152		0.147	405	0.0005	1.03

Indicate values = 1/2 of detection limit

Date	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/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	**--**	**--**	**--**	**--**	***0.000026***	***0.073***	***0.016***	***0.2000***	***2.94***	***0.060***	**--**	***0.0010***	**--**	***0.001***	**--**
09-août-15	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	0.0025	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	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	0.0025	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	0.0025	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	0.0025	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	0.0025	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	0.0009	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	0.006	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	0.0025	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	0.0025	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	0.005	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	0.005	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
31-juil-19	0.013	20	21.1	0.0509	0.00002	0.1281		0.0232	1.9	0.02	0.05	0.00015	35.9	0.0052	

Indicate values = 1/2 of detection limit

Date	Reactive Silica	Sodium	TDS	Strontium	Sulphate	Thallium	Thiocyanate	Titanium	Uranium	Vanadium	Zinc	TKN (Kjeldahl)	Fluoride	Total Phosphorus	C_{10}-C_{50}
Units	**mg/kg**	**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**	
CCME Guidelines	--	--	--	--	--	***0.0008***	--	--	***0.015***	--	***0.03***	--	***0.12***	***0.0040***	--
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
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
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	
31-juil-19	12.7	149	803	0.62	469	0.0001	21.4	0.01	0.013	0.002	0.003		0.54	0.06	

Indicate values = 1/2 of detection limit

Date	Dissolved Aluminum	Dissolved Arsenic	Dissolved Antimony	Dissolved Barium	Dissolved Boron	Dissolved Beryllium	Dissolved Cadmium	Dissolved Chromium	Dissolved Copper	Dissolved Iron	Dissolved Lithium	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenum	Dissolved Nickel
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**
CCME Guidelines	***0.1000***	***0.0050***	***--***	***--***	***1.50***	***--***	***0.00004***	***0.0010***	***0.0020***	***0.30***	***--***	***--***	***0.000026***	***0.073***	***0.025***
09-août-15	0.003	0.00025	0.002	0.0163	0.12	0.00025	0.00001	0.0003	0.00025	0.01	0.0025	0.0058	0.00006	0.0148	0.0097
24-juil-16	0.003	0.00025	0.0015	0.0453	0.09	0.00025	0.00006	0.0029	0.0007	0.005	0.0025	0.1336	0.00036	0.0219	0.0085
09-août-16	0.003	0.00025	0.0016	0.0534	0.005	0.00025	0.00003	0.0023	0.0007	0.005	0.0025	0.15	0.00006	0.0237	0.0096
14-sept-16	0.003	0.00025	0.0013	0.0397	0.005	0.00025	0.00001	0.0003	0.0005	0.005	0.0025	0.1046	0.00001	0.0236	0.0129
10-oct-16	0.003	0.00025	0.0016	0.0422	0.09	0.00025	0.00001	0.0021	0.00025	0.005	0.0025	0.1105	0.000005	0.0214	0.0098
20-août-17	0.003	0.0016	0.0004	0.0434	0.03	0.00025	0.00001	0.0003	0.0011	0.01	0.0025	0.0308	0.000005	0.0197	0.0114
28-août-17	0.003	0.00025	0.0008	0.0482	0.1	0.00025	0.00001	0.0003	0.0005	0.005	0.0025	0.0197	0.00001	0.0195	0.0125
03-sept-17	0.003	0.00025	0.0009	0.053	0.09	0.00025	0.00001	0.0003	0.00025	0.005	0.0025	0.0561	0.00005	0.0181	0.0115
05-oct-17	0.003	0.00025	0.0008	0.0461	0.04	0.00025	0.00001	0.0003	0.0015	0.03	0.0025	0.1822	0.00008	0.0275	0.0149
27-août-18	0.0025	0.00025	0.0004	0.024	0.06	0.0008	0.0001	0.003	0.0007	0.005	0.0025	0.0086	0.000005	0.0124	0.0097
18-sept-18	0.054	0.0053	0.00005	0.0312	0.07	0.00025	0.00001	0.0003	0.001	0.005	0.0025	0.00025	0.000005	0.0123	0.0107
27-août-18	0.005	0.0005	0.0004	0.024	0.06	0.0008	0.0001	0.003	0.0007	0.01	0.005	0.0086	0.00001	0.0124	0.0097
18-sept-18	0.054	0.0053	0.0001	0.0312	0.07	0.0005	0.00002	0.0006	0.001	0.01	0.005	0.0005	0.00001	0.0123	0.0107
31-juil-19	0.024	0.0146	0.0032	0.0303	0.005	0.00025	0.00001	0.0003	0.3543	0.005	0.0025	0.0309	0.000005	0.1025	0.015

Indicate values = 1/2 of detection limit

Date	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
CCME Guidelines	*0.0010*	*0.001*	*--*	*--*	*--*	*0.0008*	*0.0150*	*--*	*0.030*	*0.00025*	*0.00025*
09-août-15	0.00015	0.001	0.193	0.0005	0.01	0.0025	0.003	0.00025	0.0005		
24-juil-16	0.0011	0.0005	0.299	0.0005	0.03	0.0004	0.008	0.00025	0.001		
09-août-16	0.00015	0.0005	0.285	0.0005	0.04	0.0004	0.009	0.00025	0.0005		
14-sept-16	0.00015	0.0005	0.249	0.0005	0.02	0.0004	0.008	0.00025	0.0005		
10-oct-16	0.00015	0.0005	0.293	0.0005	0.03	0.0004	0.008	0.00025	0.0005		
20-août-17	0.00015	0.001	0.271	0.0005	0.04	0.0004	0.012	0.00025	0.001		
28-août-17	0.00015	0.0005	0.284	0.0005	0.05	0.0004	0.011	0.00025	0.002		
03-sept-17	0.0207	0.0005	0.351	0.0005	0.03	0.0004	0.011	0.00025	0.0005		
05-oct-17	0.00015	0.002	0.387	0.0005	0.07	0.0004	0.013	0.00025	0.0005		
27-août-18	0.00015	0.0006	0.202	0.001	0.02	0.0001	0.006	0.00025	0.0005		
18-sept-18	0.00015	0.0008	0.189	0.0005	0.005	0.0001	0.008	0.00025	0.0005		
27-août-18	0.0003	0.0006	0.202	0.001	0.02	0.0002	0.006	0.0005	0.001		
18-sept-18	0.0003	0.0008	0.189	0.001	0.01	0.0002	0.008	0.0005	0.001		
31-juil-19	0.00015	0.0015	0.514		0.005		0.011	0.00025	0.0005	0.0023	0.002

Indicate values = 1/2 of detection limit

Date	pH	Turbidity	Conductivity	Total Alkalinity	Ammonia-Nitrogen (NH3-NH4)	Ammonia	Un-ionized Ammonia, calculated	TDS	TSS	Chloride	Hardness	Fluoride	Nitrate	Nitrite
Units	Units	NTU		mg $CaCO_3$/L	mg N/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mgN/L	mgN/L
CCME Guidelines	*6.5 to 9.0*	*--*	*--*	*--*	*1.83*	*0.016*	*0.020*	*--*	*--*	*120*	*--*	*0.12*	*2.94*	*0.060*
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	0.91	16.4	0.39
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	0.96	5.3	0.13
07-juil-15	7.23	106.5		71	0.41	0.005		144		13.8	72	0.29	1.67	0.04
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	0.48	3.33	0.28
05-oct-15	7.99	12.06		53	1.4	0.020		282	7	17.9	159	0.42	3.89	0.25
07-juin-16	7.75	70.8		23	0.28	0.005		83	36	3.8	50	0.12	0.9	0.02
18-juil-16	8.15	7.04		52	0.03	0.005		277	10	15.1	145	0.41	4.43	0.03
08-août-16	7.28	9.81		53	0.06	0.005		281	6	15.7	134	0.4	5	0.02
11-oct-16	7.74	7.42		60	0.03	0.005		312	21	18.8	179	0.44	4.54	0.02
17-juil-17	7.48	7.72		85	0.76	0.020		369	6	11.1	202	0.22	2.35	0.14
16-août-17	8.13	11.9		91	1.22	0.030		443	8	12.9	262	0.17	17	0.12
03-sept-17	8.16	7.44		81	1.5	0.005		458	1	14.1	214	0.16	20.3	0.13
27-août-18	7.32	9.77		55	0.11	0.005		284	6	9.1	161	0.22	5.58	0.03
24-sept-18	7.51	4.44		43	0.11	0.005		262	8	8.7	182	0.24	8.05	0.02
03-juin-19	7.79	30.3	1500		0.21		0.005	75	22	0.5		0.08	0.79	0.02
09-juin-19	7.8	6.14	18100											
26-juin-19	9.72	6.16	517		0.07		0.005	307	4	7.3		0.2	6.17	0.02
29-juil-19	7.97	2.37	475		0.005		0.005	266	3	7.6		0.19	5.88	0.09
12-août-19	-	-	-		2.05			251	2	4.7		0.19	2.31	0.02

Indicate values = 1/2 of detection limit

Date	Sulphate	Total Cyanide	CN-Free	CN-WAD	Aluminium	Arsenic	Barium	Cadmium
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
CCME Guidelines	*--*	*0.005*	*--*	*--*	*0.10*	*0.0050*	*--*	*0.000040*
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	50.9					0.0045		
10-août-14						0.0075		
08-sept-14	70.6					0.0059		
07-juil-15	21.3					0.00025		
04-août-15						0.00025		
09-sept-15	98.6					0.00025		
05-oct-15	117	0.008			0.305	0.0039	0.0276	0.00001
07-juin-16	25	0.0025	0.0025	0.0025	1.26	0.00025	0.0121	0.00001
18-juil-16	97.8	0.0025	0.0025	0.0025	0.114	0.001	0.0241	0.00008
08-août-16	100	0.0025	0.0025	0.0025	0.084	0.00025	0.021	0.00001
11-oct-16	114	0.001	0.0025	0.0005	0.091	0.00025	0.0249	0.00007
17-juil-17	112	0.0005	0.0025	0.001	0.096	0.00025	0.0308	0.00001
16-août-17	156	0.001	0.0025	0.001	0.134	0.0076	0.0449	0.00001
03-sept-17	174	0.004	0.0025	0.003	0.107	0.00025	0.0479	0.00004
27-août-18	130	0.0005	0.0025	0.0005	0.043	0.00025	0.024	0.00001
24-sept-18	153	0.001	0.0025	0.0005	0.052	0.001	0.0276	0.00001
03-juin-19	29.6	0.0005		0.003	0.663	0.0024	0.008	0.00001
09-juin-19								
26-juin-19	118	0.0005		0.0005	0.018	0.00025	0.0287	0.00001
29-juil-19	145	0.002		0.0005	0.028	0.001	0.024	0.00001
12-août-19	108	0.001		0.0005	0.089	0.0036	0.0197	0.00001

Indicate values = 1/2 of detection limit

Date	Chromium	Copper	Iron	Lead	Manganese	Mercury	Molybdenu m	Nickel	Selenium	Silver	Thallium	Zinc	Dissolved Aluminum	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
CCME Guidelines	*0.0010*	*0.0020*	*0.30*	*0.0010*	*--*	*0.000026*	*0.073*	*0.2000*	*0.001*	*0.00025*	*0.0008*	*0.03*	*0.1000*	*0.00025*
16-janv-13		0.0005		0.0003				0.0085				0.0005		
06-févr-13		0.0092		0.00015				0.0048				0.058		
06-mars-13		0.00025		0.0057				0.0032				0.004		
07-mai-13		0.0048		0.0032				0.0135				0.0005		
11-juin-13		0.015		0.00015				0.432				0.0005		
08-juil-13		0.0077		0.00065				0.041				0.0055		
13-août-13		0.00025		0.0033				0.0556				0.008		
09-sept-13		0.0041		0.00015				0.0898				0.01		
07-oct-13		0.00025		0.00015				0.0692				0.003		
11-mars-14		0.0005		0.0006				0.0018				0.001		
03-juin-14		0.0022		0.00015				0.0137				0.001		
01-juil-14		0.0005		0.00015				0.0109				0.0005	0.016	0.0001
10-août-14		0.0022		0.0009				0.036				0.003		
08-sept-14		0.002		0.0003				0.0277				0.009	0.046	0.0001
07-juil-15		0.0037		0.00015				0.0263				0.0005	0.003	0.00005
04-août-15		0.00025		0.001				0.0209				0.0005		
09-sept-15		0.0023		0.00015				0.0423				0.0005	0.003	0.00005
05-oct-15	0.0003	0.0026	0.69	0.00015	0.2682	0.000005	0.0138	0.0629	0.001	0.00005	0.0025	0.0005	0.003	0.00005
07-juin-16	0.0101	0.0025	2.17	0.00015	0.1095	0.000005	0.0026	0.0113	0.0005	0.00005	0.001	0.007	0.003	0.00005
18-juil-16	0.0003	0.0047	0.16	0.00015	0.0894	0.000005	0.0081	0.0424	0.001	0.00005	0.0004	0.0005	0.003	0.00005
08-août-16	0.0003	0.0027	0.18	0.00015	0.0502	0.000005	0.008	0.039	0.001	0.00005	0.0004	0.0005	0.003	0.00005
11-oct-16	0.0018	0.0021	0.15	0.00015	0.0241	0.000005	0.0083	0.0673	0.0005	0.00005	0.0004	0.003	0.003	0.00005
17-juil-17	0.0003	0.0024	0.21	0.00015	0.1028	0.000005	0.0069	0.0538	0.0005	0.00005	0.0004	0.005	0.013	0.00005
16-août-17	0.0003	0.0016	0.2	0.00015	0.1231	0.000005	0.0069	0.0995	0.002	0.00005	0.0004	0.0005	0.003	0.00005
03-sept-17	0.0003	0.0021	0.21	0.00015	0.0716	0.00004	0.006	0.0737	0.002	0.00005	0.0004	0.001	0.003	0.00005
27-août-18	0.0025	0.0013	0.07	0.00015	0.1359	0.000005	0.0054	0.0902	0.0009	0.00005	0.0001	0.0005	0.0025	0.00005
24-sept-18	0.0013	0.0016	0.11	0.00015	0.0971	0.000005	0.0047	0.1036	0.00025	0.00005	0.0001	0.0005	0.064	0.00005
03-juin-19	0.0073	0.0023	1.12	0.00015	0.0697	0.000005	0.0043	0.0105	0.00025	0.00005	0.0001	0.003	0.00025	0.00005
09-juin-19														
26-juin-19	0.0009	0.0007	0.1	0.00015	0.0603	0.000005	0.0053	0.0624	0.00025	0.00005	0.0001	0.0005	0.00025	0.00005
29-juil-19	0.0009	0.0015	0.05	0.00015	0.0455	0.000005	0.0058	0.0498	0.00025	0.00005	0.0001	0.0005	0.00025	0.00005
12-août-19	0.0023	0.003	0.15	0.00015	0.0359	0.000005	0.0038	0.0125	0.0014	0.00005	0.0001	0.0005	0.00025	0.00005

Indicate values = 1/2 of detection limit

Date	Dissolved Arsenic	Dissolved Barium	Dissolved Cadmium	Dissolved Chromium	Dissolved Copper	Dissolved Iron	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**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**	**mg/L**
CCME Guidelines	***0.0050***	***--***	***0.00004***	***--***	***0.0020***	***0.30***	***--***	***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	0.0013	0.0163	0.00001		0.00025	0.005	0.0115	0.0001	0.0191	0.0043	0.00015	0.001	0.0025	0.0005
10-août-14														
08-sept-14	0.0059	0.0387	0.00001		0.0013	0.005	0.1072	0.00005	0.0166	0.0253	0.00015	0.001	0.0025	0.0005
07-juil-15	0.00025	0.0104	0.00001		0.00025	0.005	0.1258	0.00002	0.0062	0.0145	0.00015	0.0005	0.0025	0.0005
04-août-15														
09-sept-15	0.00025	0.0198	0.00002		0.001	0.005	0.2043	0.000005	0.0116	0.0319	0.00015	0.002	0.0025	0.0005
05-oct-15	0.00025	0.0216	0.00001		0.0026	0.005	0.2026	0.000005	0.012	0.0515	0.0003	0.002	0.0025	0.0005
07-juin-16	0.00025	0.0012	0.00001		0.0005	0.005	0.0839	0.00001	0.0022	0.0045	0.00015	0.0005	0.001	0.0005
18-juil-16	0.00025	0.0214	0.00002		0.0009	0.005	0.0635	0.000005	0.0085	0.0405	0.00015	0.001	0.0004	0.0005
08-août-16	0.00025	0.0185	0.00001		0.0019	0.005	0.0266	0.000005	0.0073	0.0332	0.00015	0.001	0.0004	0.0005
11-oct-16	0.00025	0.0235	0.00001		0.00025	0.005	0.0178	0.000005	0.0077	0.0626	0.00015	0.0005	0.0004	0.0005
17-juil-17	0.00025	0.0303	0.00001		0.0005	0.005	0.095	0.00001	0.0079	0.0569	0.00015	0.0005	0.0004	0.004
16-août-17	0.00025	0.0378	0.00001		0.0009	0.005	0.0859	0.000005	0.0066	0.0831	0.00015	0.002	0.0004	0.0005
03-sept-17	0.00025	0.0454	0.00001		0.0012	0.005	0.0716	0.00003	0.0064	0.0706	0.00015	0.002	0.0004	0.001
27-août-18	0.00025	0.024	0.00011		0.0011	0.005	0.1245	0.000005	0.0059	0.0888	0.00015	0.0005	0.0001	0.0005
24-sept-18	0.0008	0.035	0.00001		0.0018	0.005	0.1244	0.000005	0.0065	0.1311	0.0012	0.0045	0.0001	0.0005
03-juin-19	0.0005	0.0037	0.00001	0.0003	0.00025	0.005	0.0501	0.000005	0.0046	0.0033	0.00015	0.00025	0.0001	0.0005
09-juin-19														
26-juin-19	0.00025	0.0237	0.00001	0.0003	0.00025	0.005	0.0499	0.000005	0.0044	0.0639	0.00015	0.00025	0.0001	0.003
29-juil-19	0.0009	0.026	0.00001	0.0003	0.0005	0.005	0.0311	0.000005	0.0053	0.0456	0.00015	0.0006	0.0001	0.0005
12-août-19	0.0028	0.014	0.00001	0.0003	0.0018	0.005	0.0225	0.000005	0.0026	0.0094	0.00015	0.00025	0.0001	0.0005

Indicate values = 1/2 of detection limit

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 (SO2-4)	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	0.00002	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						

Vault Pit Sump
ST-23

Date	YEAR	pH	Turbidity	Conductivity	Alkalinity	Bicarbonate	Bicarbonate alkalinity	Carbonate	Carbonate alkalinity	Total nitrogen	Un-Ionized Ammonia, calculated	Ammonia-nitrogen	Ammonia NH3	TKN	Ortho-Phosphate
			NTU		mg CaCO3/L	mg CaCO3/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg N/L	mg N/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		
2014-08-06	2014	7.73	18		127							26.7	0.33		
2015-06-02	2015	6.93	523		85							9.73	0.14		
2015-07-23	2015	7.28	44		167							35.5	0.5		
2016-06-20	2016	8.28	22.8	645	88							4.06	0.13		
2016-08-09	2016	7.3	9.83	805	84							6.6	0.13		
2016-09-05	2016	7.82	9.96	1022	91							6.94	0.14		
2016-11-15	2016	7.64	5.7	675	116							2.57	0.05		
2017-04-04	2017	8.21	5.12	682	122		122		1			2.31	0.06	2.46	0.01
2017-06-11	2017	6.64	23.6	591	96		96		1			3.49	0.07	3.7	0.01
2017-07-17	2017	8.11	42.7	669	115		115		1			3.61	0.09	4.6	0.005
2017-08-16	2017	7.31	19.1	714	114		114		1			3.64	0.11	3.74	0.01
2017-09-03	2017	8.21	63.7	794	109		109		1			6.2	0.07	5.82	0.11
2017-11-13	2017	7.82	6.29	1051	161		161		1			3.75	0.1	3.09	0.01
2018-06-12	2018	7.26	30	484	100		100		1			4.56	0.08	5.75	0.05
2018-07-04	2018	7.34	8.92	640	101		101		1			2.86	0.07	3.07	0.01
2018-08-08	2018	7.76	1.89	465	74		74		1			2.57	0.05	3.27	0.01
2018-09-25	2018	7.41	13.8	853	104		104		1			2.55	0.06	3.27	0.01
2018-11-04	2018	7.81	5.65	1129	156		156		1			3.13	0.09	4.11	0.01
2019-07-08	2019	8.02	3.78	427	-	-		-		-	-	-			-
2019-07-23	2019	8.06	0.96	670	57	57		1		0.97	0.03	1.03			0.005
2019-08-07	2019	-	-	-	75	75		1		0.95	0.01	0.58			0.005
2019-09-09	2019	7.92	0.69	444	57	57		1		1.96	0.05	1.93			0.005

Indicate values = 1/2 of detection limit

Vault Pit Sump
ST-23

Date	Phosphorus	TOC	DOC	DO	Reactive Silica	Reactive Silica	TDS (dissolved solids)	TSS	Chloride	Calcium	Potassium	Magnesium	Sodium	Fluoride	Hardness
	mg/L	mg/L	mg/L	mg/L	mg/kg	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg CaCO3/L
2013-10-27															
2014-05-19							175								
2014-08-06							736		30.9					0.26	378
2015-06-02							337								
2015-07-23							799		33.2					0.25	340
2016-06-20							425	24	44.8						250
2016-08-09							522	6	8.6					0.18	315
2016-09-05							723	6	19.5					0.19	504
2016-11-15							446	16	44.4					0.2	260
2017-04-04	0.03		5.6			13.5	404	6	69.5	61.3	2.09	15.6	16.6	0.24	217
2017-06-11	0.02	8.8	5			4.93	358	22	31.5	69.2	5.79	18.4	20.2	0.18	248
2017-07-17	0.17	7	7			6.11	432	55	26.1	72.3	10.7	20.6	12.9	0.2	265
2017-08-16	0.02	7.6	8.3			6.11	453	8	24.5	81	9.65	23.4	13.6	0.16	298
2017-09-03	0.06	7	7			7.36	467	85	25.8	67.8	7.04	19.6	10.5	0.13	250
2017-11-13	0.03	5.6	1			13.3	670	9	36.1	134	4.34	30.8	16.2	0.21	461
2018-06-12	0.03	7.4	7.4			7.15	283	24	19.4	35.2	11.9	12.4	11.4	0.2	138
2018-07-04	0.01	4.2	2.9			4.83	373	2	27.6	71.2	7.72	20.9	14.9	0.19	263
2018-08-08	0.01	4.4	2.8			2.08	271	1	11.1	48.6	5.58	13.4	8.71		176
2018-09-25	0.02	4.7	3.6			3.81	436	8	24.7	93.6	7.56	24	14.2	0.2	332
2018-11-04	0.005	8.2	8.2			8.59	488	4	43.6	152	5.91	35.6	19.8	0.22	525
2019-07-08	-	-	-	-	-		-	-	-	-	-	-	-	-	-
2019-07-23	0.005	2.4	2.3	9.4	5.68		391	1	15.5	70.9	10.7	24.4	11	0.16	277
2019-08-07	0.01	2.7	3.3	-	8.61		255	20	11	47.3	4.83	12.4	5.53	0.2	168
2019-09-09	0.07	2.8	4.1	-	5.14		291	0.5	6.2	42	6.16	10.3	5.21	0.16	147

Indicate values = 1/2 (

Vault Pit Sump
ST-23

Date	Nitrate (NO3)	Nitrite (NO2)	Sulphate (SO2-4)	Ferric Iron	Ferrous Iron	CN Total	CN Free	CN WAD	Total Ag	Total Al	Total Sb	Total As	Total Boron	Total Ba	Total Be
	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
2013-10-27															
2014-05-19												0.0023			
2014-08-06	46.4	1.5	148									0.0395			
2015-06-02												0.00025			
2015-07-23	45.9	2.05	124									0.00025			
2016-06-20	12.8	0.24	97.9			0.044				0.547		0.0056		0.0201	
2016-08-09	24.1	0.31	161			0.137				0.038		0.00025		0.042	
2016-09-05	41.6	0.48	159			0.083	0.019			0.088		0.00025		0.0472	
2016-11-15	0.91	0.05	158			0.046	0.014			0.181		0.0042		0.018	
2017-04-04	1.48	0.01	69.4			0.008	0.006			0.091	0.00005	0.0068	0.005	0.036	0.00025
2017-06-11	4.31	0.11	94.3			0.062	0.036			0.605	0.0049	0.0066	0.01	0.0208	0.00025
2017-07-17	0.82	0.29	125			0.061	0.012			1.15	0.0055	0.00025	0.005	0.0232	0.00025
2017-08-16	8.86	0.23	60.5			0.067	0.028			0.16	0.0074	0.0116	0.005	0.0346	0.00025
2017-09-03	8.67	0.2	190			0.113	0.022			0.936	0.0047	0.00025	0.01	0.0319	0.00025
2017-11-13	1.21	0.03	339			0.021	0.0008			0.133	0.0027	0.0143	0.04	0.061	0.00025
2018-06-12	6.34	0.23	74.4			0.105	0.044			0.414	0.414	0.00025	0.005	0.0198	0.00025
2018-07-04	4.29	0.09	144			0.057				0.091	0.0069	0.0045	0.005	0.0247	0.00025
2018-08-08	5.61	0.08	101			0.034				0.048	0.0064	0.00025	0.005	0.0224	0.00025
2018-09-25	5.86	0.09	242			0.021	0.01			0.202	0.0131	0.0023	0.02	0.028	0.00025
2018-11-04	2.64	0.06	356			0.028				0.083	0.0078	0.0064	0.06	0.0505	0.00025
2019-07-08			-	-	-	-	-	-	-	-	-	-	-	-	-
2019-07-23	11.1	0.07	193	0.04	0.005	0.008	0.004	0.006	0.00005	0.013	0.0053	0.0047	0.005	0.0307	0.00025
2019-08-07	3.51	0.03	114	0.27	0.02	0.001	0.0005	0.0005	0.00005	0.116	0.0025	0.0061	0.005	0.0218	0.00025
2019-09-09	7.74	0.02	93.6	0.13	0.005	0.008	0.004	0.004	0.00005	0.028	0.0042	0.0041	0.005	0.0356	0.00025

Indicate values = 1/2 c

Vault Pit Sump
ST-23

Date	Total Cd	Total Cu	Total Cr	Total Fe	Total Li	Total Mn	Total Hg	Total Mo	Total Ni	Total Pb	Total Se	Total Sn	Total Sr	Total Ti	Total Tl
	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															
2014-05-19		0.002							0.0035	0.0003					
2014-08-06		0.0229							0.049	0.0378					
2015-06-02		0.0102							0.021	0.046					
2015-07-23		0.0054							0.0244	0.00015					
2016-06-20	0.00023	0.0012	0.0008	1.3		0.0489	0.000005	0.0838	0.0041	0.00015	0.003				0.001
2016-08-09	0.00022	0.0124	0.003	0.38		0.1769	0.00005	0.0635	0.0093	0.00015	0.003				0.0004
2016-09-05	0.0002	0.0012	0.0003	0.35		0.1145	0.000005	0.0964	0.00025	0.00015	0.009				0.0004
2016-11-15	0.00008	0.00025	0.0007	0.57		0.243	0.000005	0.0222	0.0135	0.00015	0.001				0.0004
2017-04-04	0.00001	0.00025	0.0003	0.31	0.006	0.2339	0.00003	0.0106	0.0018	0.00015	0.001	0.0005	0.48	0.06	0.0004
2017-06-11	0.0001	0.00025	0.0028	1.24	0.0025	0.2472	0.00003	0.0419	0.0098	0.00015	0.002	0.001	0.56	0.04	0.0004
2017-07-17	0.00001	0.00025	0.0017	2.37	0.0025	0.2094	0.000005	0.0474	0.0115	0.002	0.001	0.0005	0.52	0.08	0.0004
2017-08-16	0.00001	0.0017	0.0031	0.26	0.0025	0.2239	0.000005	0.0504	0.0079	0.00015	0.002	0.0005	0.646	0.08	0.0004
2017-09-03	0.00005	0.0022	0.002	2.33	0.006	0.2149	0.00001	0.0477	0.0107	0.00015	0.003	0.0005	0.642	0.08	0.0004
2017-11-13	0.00005	0.0007	0.0006	0.46	0.026	0.7399	0.000005	0.023	0.0184	0.00015	0.002	0.0005	1.06	0.14	0.0004
2018-06-12	0.00005	0.0023	0.0003	0.78	0.0025	0.0479	0.000005	0.052	0.0053	0.00015	0.0005	0.008	0.463	0.04	0.0004
2018-07-04	0.00028	0.0007	0.0009	0.2	0.0025	0.159	0.000005	0.0536	0.0065	0.00015	0.002	0.0005	0.68	0.07	0.0004
2018-08-08	0.00012	0.0014	0.0003	0.08	0.0025	0.0762	0.000005	0.0503	0.0043	0.00015	0.0016	0.0005	0.39	0.05	0.0001
2018-09-25	0.00001	0.0009	0.0008	0.44	0.0025	0.0856	0.000005	0.0981	0.0063	0.0015	0.00025	0.0005	0.797	0.005	0.0001
2018-11-04	0.00001	0.0007	0.0003	0.18	0.008	0.454	0.000005	0.0435	0.0083	0.0041	0.0009	0.0005	1.19	0.005	0.0001
2019-07-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019-07-23	0.00001	0.0022	0.0003	0.04	0.0025	0.041	0.000005	0.0709	0.0036	0.00015	0.00025	0.0005	0.557	0.005	0.0001
2019-08-07	0.00001	0.0025	0.0011	0.29	0.0025	0.0746	0.000005	0.043	0.0048	0.0006	0.00025	0.0005	0.399	0.005	0.0001
2019-09-09	0.00002	0.0034	0.0017	0.13	0.0025	0.064	0.000005	0.0312	0.0025	0.00015	0.0022	0.0005	0.314	0.005	0.0001

Indicate values = 1/2 c

Vault Pit Sump
ST-23

Date	Total U	Total V	Total Zn	Dissolved Al	Dissolved Ag	Dissolved Sb	Dissolved As	Dissolved B	Dissolved Ba	Dissolved Be	Dissolved Cd	Dissolved Cu	Dissolved Cr	Dissolved Fe	Dissolved Li
	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															
2014-05-19			0.002												
2014-08-06			0.026	0.003			0.0127		0.0588		0.0003	0.0116		0.22	
2015-06-02			0.028												
2015-07-23			0.0005	0.003			0.00025		0.0703		0.00001	0.001		0.59	
2016-06-20			0.0005	0.037			0.0058		0.0198		0.00015	0.001		0.01	
2016-08-09			0.0005	0.003			0.00025		0.0394		0.00022	0.0075		0.07	
2016-09-05			0.001	0.003			0.00025		0.0452		0.00007	0.0006		0.03	
2016-11-15			0.001	0.003			0.0027		0.0178		0.00008	0.00025		0.03	
2017-04-04	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	0.0025
2017-06-11	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	0.0025
2017-07-17	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	0.0025
2017-08-16	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	0.0025
2017-09-03	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	0.005
2017-11-13	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	0.007
2018-06-12	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	0.0025
2018-07-04	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	0.0025
2018-08-08	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	0.0025
2018-09-25	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	0.005
2018-11-04	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	0.007
2019-07-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019-07-23	0.029	0.00025	0.003	0.00025	0.00005	0.0052	0.0044	0.005	0.0287	0.00025	0.00001	0.0023	0.0003	0.005	0.0025
2019-08-07	0.009	0.00025	0.003	0.00025	0.00005	0.0024	0.0045	0.005	0.0216	0.00025	0.00001	0.0016	0.0003	0.005	0.0025
2019-09-09	0.013	0.00025	0.004	0.00025	0.00005	0.0037	0.0029	0.005	0.0248	0.00025	0.00001	0.0031	0.0003	0.005	0.0025

Indicate values = 1/2 c

Vault Pit Sump
ST-23

Date	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
2013-10-27														
2014-05-19														
2014-08-06	0.1328	0.0001	0.1089	0.0254	0.00015	0.007				0.0025			0.002	0.00005
2015-06-02														
2015-07-23	0.0863	0.000005	0.1111	0.0218	0.00015	0.004				0.0025			0.0005	0.00005
2016-06-20	0.0373	0.000005	0.0874	0.0031	0.00015	0.003				0.001			0.0005	
2016-08-09	0.1704	0.00005	0.0641	0.0093	0.00015	0.003				0.0004			0.001	0.00005
2016-09-05	0.1145	0.000005	0.0911	0.00025	0.00015	0.009				0.0004			0.0005	0.0003
2016-11-15	0.237	0.00001	0.0208	0.0135	0.00015	0.0005				0.0004			0.001	0.00005
2017-04-04	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	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	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	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	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	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	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	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	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	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	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	
2019-07-08	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019-07-23	0.0376	0.000005	0.0683	0.004	0.00015	0.00025	0.0005	0.528	0.005	0.0001	0.028	0.00025	0.002	0.00005
2019-08-07	0.0653	0.000005	0.0402	0.0042	0.00015	0.00025	0.0005	0.387	0.005	0.0001	0.009	0.00025	0.001	0.00005
2019-09-09	0.0606	0.000005	0.0316	0.0026	0.00015	0.00025	0.0005	0.311	0.005	0.0001	0.013	0.00025	0.0005	0.00005

Indicate values = 1/2 c

Vault Attenuation Pond
ST-25 (a)

Date	Parametre	pH	Conductivity	Turbidity	Alkalinity	Total Ammonia (NH3)	Ammonia nitrogen (NH3-NH4)	Un-Ionized Ammonia, calculated	Total Cyanide (CNt)	Dissolved Solids (TDS)	TSS	Nitrite	Nitrate
	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
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
2015-07-25		7.68	233		41	0.04				155		0.21	6.16
2015-08-04		6.93	278	10.01	47	0.06	4.11		0.014	168		0.19	6.51
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
2016-07-18		7.36	102.3	28.9	41	0.01	0.01		0.0025	171	0.5	0.09	3.57
2016-08-08		7.45	182	4.17	39	0.03	2.51		0.027	252	4	0.18	6.72
2016-09-05		7.8	241	1.65	32	0.005	0.29		0.034	172	2	0.03	4.46
2016-10-10		7.19	443	2.71	48	0.005	1.14		0.0005	247	0.5	0.03	0.96
2016-10-30		7.7	596	3.27	102	0.03	1.97		0.003	377	3	0.04	0.18
2017-06-11		6.82	241	32.8	53	0.005	1.9		0.005	142	28	0.07	2.7
2017-07-17		8.16	251	7.51	54	0.02	1.55		0.004	156	6	0.06	0.3
2017-08-16		8	348	3.86	58	0.03	1.77		0.004	215	1	0.08	5.68
2017-09-03		8.32	398	21.4	52	0.03	2.2		0.006	237	86	0.06	5.38
2018-06-12		6.97	251	19.8	34	0.01	1.28		0.0005	109	28	0.04	1.9
2018-07-04		6.84	377	5.55	31	0.005	0.87		0.006	211	5	0.01	1.96
2018-08-08		7.59	341	3.64	46	0.005	0.32		0.001	210	9	0.01	2.81
2018-09-25		7.55	339	1.52	32	0.005	1.04		0.0005	193	1	0.04	4.08
2019-06-09		7.69	167	12.2	19		0.33	0.005	0.0005	79	6		
2019-07-24		7.5	237	1.7	21		0.31	0.005	0.001	145	2		
2019-07-29		7.7	252	192	-		-	-	-	-	-		
2019-08-06		7.49	256	4.9	77		0.46	0.005	0.0005	150	5		
2019-09-09		7.51	260	2.94	26		0.68	0.005	0.0005	185	0.5		

Indicate values = 1/2 of detection limit

Vault Attenuation Pond
ST-25 (a)

Date	Chloride	Fluoride	Sulphate	Hardness	Arsenic (As)	Aluminium (Al)	Barium (Ba)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Manganese (Mn)	Mercury (Hg)	Molybdenum (Mo)
	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			
2015-07-08	4.3	0.06	13.6	48	0.00025	0.023	0.0106	0.00001	0.0003	0.0017	0.11	0.00015	0.0283	0.000005	0.0045
2015-07-25	8.3	0.11		80	0.00025	0.031	0.0175	0.00001	0.0016	0.0026	0.22	0.00015	0.03	0.000005	0.0179
2015-08-04	7.8	0.09	0.6	82	0.00025					0.0034		0.0018			
2015-09-14					0.00025					0.0079		0.00015			
2016-06-07	4.7	0.06	20.7	39	0.00025	0.94	0.0213	0.00003	0.0003	0.0026	1.71	0.00015	0.0935	0.000005	0.0044
2016-07-18	10.8	0.11	53.1	91	0.00025	0.07	0.022	0.00003	0.0003	0.002	0.33	0.00015	0.037	0.01	0.011
2016-08-08	12	0.13	96.5	134	0.00025	0.101	0.0297	0.00004	0.0003	0.0076	0.44	0.00015	0.1155	0.00005	0.0276
2016-09-05	7.3	0.11	55.8	108	0.00025	0.003	0.024	0.00001	0.0003	0.0017	0.12	0.00015	0.0283	0.000005	0.0106
2016-10-10	10.7	0.17	16.9	141	0.0023	0.051	0.0392	0.00001	0.0003	0.0008	0.86	0.00015	0.3089	0.000005	0.0036
2016-10-30	12.9	0.24	149	227	0.00025	0.003	0.0286	0.00007	0.0019	0.00025	0.16	0.00015	0.5612	0.00005	0.0103
2017-06-11	10	0.12	26.4	86	0.0006	0.916	0.0145	0.00003	0.0021	0.0032	1.69	0.00015	0.0919	0.000005	0.019
2017-07-17	7.2		44.1	85	0.00025	0.135	0.0162	0.00001	0.0003	0.0024	0.27	0.00015	0.0443	0.000005	0.0108
2017-08-16	10.6	0.11	206	129	0.0149	0.083	0.0251	0.00001	0.0036	0.0029	0.07	0.00015	0.0558	0.000005	0.0211
2017-09-03	11.5	0.07	77.2	170	0.00025	1.4	0.0381	0.00001	0.0026	0.0062	1.91	0.00015	0.0845	0.00002	0.0178
2018-06-12	5.9	0.1	12.8	88	0.00025	0.712	0.0208	0.00001	0.003	0.0087	0.93	0.00015	0.1769	0.000005	0.0042
2018-07-04	7.6	0.16	105	118	0.00025	0.189	0.0226	0.00017	0.0003	0.0094	0.57	0.0003	0.2326	0.000005	0.0038
2018-08-08	8.5	0.2	91.5	94	0.00025	0.091	0.0196	0.00002	0.0003	0.0045	0.4	0.0003	0.0657	0.000005	0.0042
2018-09-25	6.2	0.13	89.1	109	0.0007	0.025	0.0315	0.00005	0.0003	0.0038	0.1	0.0003	0.0395	0.000005	0.0124
2019-06-09	1.8	0.11	36.1	61	0.0014	0.361	0.0145	0.0001	0.0011	0.0055	0.5	0.00015	0.1192	0.000005	0.0027
2019-07-24	7.4	0.07	63.8	86	0.0014	0.0025	0.0095	0.00001	0.0003	0.005	0.27	0.00015	0.0886	0.000005	0.0029
2019-07-29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019-08-06	7.3	0.2	71.3	104	0.0021	0.238	0.0115	0.00011	0.001	0.0142	0.38	0.00015	0.1324	0.000005	0.0038
2019-09-09	7.7	0.17	62.3	83	0.0019	0.027	0.0319	0.00014	0.0012	0.0044	0.34	0.00015	0.063	0.000005	0.0037

Indicate values =

Vault Attenuation Pond
ST-25 (a)

Date	Nickel (Ni)	Selenium (Se)	Silver (Ag)	Thallium (Tl)	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)
	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	0.0031				0.0005										
2015-07-08	0.0027	0.0005		0.0025	0.0005	0.023	0.00005	0.00025	0.0104	0.00001	0.0017	0.01	0.0198	0.000005	0.0046
2015-07-25	0.0041	0.0005		0.0025	0.0005										
2015-08-04	0.004				0.0005	0.006		0.00025	0.0215	0.00008	0.0028	0.01	0.0306	0.000005	0.0199
2015-09-14	0.0042				0.007										
2016-06-07	0.0035	0.0005	0.00005	0.001	0.003										
2016-07-18	0.003	0.0005	0.00005	0.0004	0.011										
2016-08-08	0.0093	0.0005	0.00005	0.0004	0.005										
2016-09-05	0.00025	0.0005	0.0004	0.0004	0.0005										
2016-10-10	0.0045	0.001	0.00005	0.0004	0.007										
2016-10-30	0.0128	0.0005	0.00005	0.0004	0.0005	0.003	0.00005	0.00025	0.0258	0.00009	0.00025	0.01	0.5129	0.00005	0.0098
2017-06-11	0.008	0.0005	0.00005	0.0004	0.002										
2017-07-17	0.0039	0.0005	0.00005	0.0004	0.001										
2017-08-16	0.0036	0.002	0.00005	0.0004	0.0005										
2017-09-03	0.0053	0.0005	0.00005	0.0004	0.003										
2018-06-12	0.0153	0.0005	0.00005	0.0004	0.011										
2018-07-04	0.0186	0.0005	0.00005	0.0004	0.017										
2018-08-08	0.007	0.00025	0.00005	0.0001	0.0005										
2018-09-25	0.008	0.0007	0.00005	0.0001	0.006										
2019-06-09	0.0078	0.00025	0.00005	0.0001	0.004										
2019-07-24	0.0082	0.0008	0.00005	0.0001	0.004										
2019-07-29	-	-	-	-	-										
2019-08-06	0.0157	0.0016	0.0007	0.0001	0.011										
2019-09-09	0.0054	0.0014	0.00005	0.0001	0.009										

Indicate values =

Vault Attenuation Pond
ST-25 (a)

Date	diss. Nickel (Ni)	diss. Lead (Pb)	diss. Selenium (Se)	diss. Thallium (Tl)	diss. Zinc (Zn)	Antimony (Sb)	Beryllium (Be)	Boron (B)	Tin (Sn)	Lithium (Li)	Strontium (Sr)	Titanium (Ti)	Uranium (U)	Vanadium (V)
	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														
2015-07-08	0.0026	0.00015	0.0005	0.0025	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	0.0041	0.0018	0.0005	0.0025	0.053									
2015-09-14														
2016-06-07														
2016-07-18														
2016-08-08														
2016-09-05														
2016-10-10														
2016-10-30	0.0119	0.00015	0.0005	0.0004	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														
2019-06-09														
2019-07-24														
2019-07-29														
2019-08-06														
2019-09-09														

Indicate values =

Date	Parameter	Conductivity	Dissolved oxygene	pH	Temperature	Alkalinity	Aluminum	Arsenic	Chloride	Sulphate	Nitrate + nitrite
	Unit	µs/cm			°C	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L
2016-07-19		34		7.58	13.25	14	0.015	0.00025			
2016-08-22		48.7		7.62	16.1	14	0.009	0.002			
2016-09-27		102		7.42		14	0.024	0.00025			
2017-07-23		59.1	9.56	7.39	10.95	42	0.008	0.00025			
2017-08-28		56.7	10.27	6.55	11.2	16	0.003	0.00025			
2018-02-05		34.5	14.76	7.16	0.19	10	0.003	0.00025			
2018-05-13						9	0.032	0.001			
2018-08-06		31.4	11.83	7.67	9.8	15	0.0025	0.00025			
2018-09-11		38.9	11.7	7.2	8.5	9	0.0025	0.00025			
2018-11-18						11	0.0025	0.00025			
2019-01-07				-		29	0.027		0.9	7.9	0.04
2019-03-18				-		39	0.031		1.5	12.4	0.06
2019-11-18				8.33		22	0.023		0.8	7.6	0.05
2019-11-25				7.83		23	0.02		0.8	9.7	0.06
2019-12-23				7.45		28	0.039		0.8	7.1	0.04
2019-12-28				7.46		30	0.023		0.9	6	0.02

Indicate values = 1/2 of detection limit

Date	Total phosphorus	Un-Ionized Ammonia, calculated	Ammonia nitrogen (NH3-NH4)	Cadmium	Copper	Cyanide	Hardness	Iron	TSS	Mercury (max allowance of 10µg/L)	Molybdenum	Ammonia (NH3)	Nickel
	mg/L	mg/L	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg N/L	mg/L
2016-07-19			0.01	0.00001	0.0007	0.0025	15	0.02	2	0.000005	0.00025	0.005	0.00025
2016-08-22			0.02	0.00001	0.0013	0.0025	21	0.02	6	0.000005	0.00025	0.005	0.0005
2016-09-27			0.07	0.00002	0.0007	0.0005	21	0.02	3	0.000005	0.0006	0.005	0.0007
2017-07-23			0.04	0.00001	0.0011	0.0005	18	0.02	1	0.000005	0.00025	0.005	0.0005
2017-08-28			0.005	0.00001	0.0006	0.002	23	0.005	0.5	0.000025	0.001	0.005	0.00025
2018-02-05			0.03	0.00001	0.00025	0.0005	12	0.005	1	0.000005	0.00025	0.005	0.00025
2018-05-13			0.04	0.00002	0.00025	0.0005	8	0.01	1	0.000005	0.0005	0.005	0.00025
2018-08-06			0.005	0.00001	0.00025	0.005	6	0.01	1	0.000005	0.0005	0.005	0.00025
2018-09-11			0.005	0.00001	0.00025	0.0005	7	0.01	1	0.000005	0.0005	0.005	0.00025
2018-11-18			0.05	0.00001	0.00025	0.0005	8	0.01	1	0.000005	0.0005	0.005	0.00025
2019-01-07	0.01	0.005	0.005	0.00001			27	0.02		0.000005	0.00025		
2019-03-18	0.005	0.005	0.005	0.00001			36	0.04		0.000005	0.00025		
2019-11-18	0.005	0.005	0.13	0.00001			28	0.02		0.000005	0.00025		
2019-11-25	0.01	0.005	0.005	0.00001			29	0.07		0.000005	0.00025		
2019-12-23	0.005	0.005	0.01	0.00001			30	0.02		0.000005	0.00025		
2019-12-28	0.005	0.005	0.01	0.00001			35	0.02		0.000005	0.00025		

Indicate values = 1/2

Date	Nitrate	Lead	Radium 226	Selenium	Zinc	Chromium	Cobalt	Iron	Manganese	Thallium	Uranium	Algal growth 72 h inhibition test - IC25	Ceriodaphnia 7 d mortality test - LC25	Ceriodaphnia 7 d mortality test - LC50	Fathead minnow 7 d growth test - IC25	Fathead minnow 7 d mortality test - LC50
	mg N/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	%	%	%	%	%
2016-07-19	0.12	0.00015	0.001	0.0005	0.0005											
2016-08-22	0.18	0.00015		0.0005	0.0005											
2016-09-27	0.17	0.00015		0.0005	0.001											
2017-07-23	0.12	0.0018		0.0005	0.0005											
2017-08-28	0.29	0.00015		0.0005	0.0005											
2018-02-05	0.03	0.00015		0.0005	0.0005											
2018-05-13	0.01	0.00015		0.0005	0.002											
2018-08-06	0.02	0.00015		0.0006	0.0005											
2018-09-11	0.02	0.00015		0.00025	0.0005											
2018-11-18	0.01	0.00015		0.00025	0.0005											
2019-01-07				0.00025		0.0006	0.00025	0.02	0.00025	0.0001	0.0005	-	-	-	-	-
2019-03-18				0.00025		0.0003	0.00025	0.04	0.0009	0.0001	0.0005	>90.91	>100	>100	>100	>100
2019-11-18				0.00025		0.0006	0.00025	0.02	0.0007	0.0001	0.0005	-	-	-	-	-
2019-11-25				0.00025		0.0003	0.00025	0.07	0.00025	0.0001	0.0005	> 90.91	> 100	> 100	> 100	> 100
2019-12-23				0.00025		0.0007	0.00025	0.02	0.001	0.0001	0.0005	-	-	-	-	-
2019-12-28				0.00025		0.0024	0.00025	0.02	0.00025	0.0001	0.0005	-	-	-	-	-

Indicate values = 1/2

Date	Concentration of effluent causing biomass inhibition in 25% of Lemna	Concentration of effluent causing frond number inhibition in 25% of Lemna
	%	%
2016-07-19		
2016-08-22		
2016-09-27		
2017-07-23		
2017-08-28		
2018-02-05		
2018-05-13		
2018-08-06		
2018-09-11		
2018-11-18		
2019-01-07	-	-
2019-03-18	>97.0	>97.0
2019-11-18	-	-
2019-11-25	88.3	82.2
2019-12-23	-	-
2019-12-28	-	-

Indicate values = 1/2

Date	**Year**	pH	Turb	CN WAD	Alkalinity	DO	Conductivity	Un-Ionized Ammonia, calculated	Sulphate	Total Aluminum (Al)	Silver (Ag)	Total Arsenic (As)	Ammonia nitrogen	Total Barium (Ba)	Total Cadmium (Ca)
			NTU	ppm	mg CaCO3/L	mg/L	uS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg N/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
2018-08-21	2018			0.043	91					0.188	0.00005	0.0006	6.42	0.0833	0.00006
2018-09-17	2018	7.66	8.51	0.014	86					0.208	0.00005	0.0037	2.98	0.0582	0.00001
2018-07-16	2018	8		0.003	64					0.064	0.00005	0.0034	1.7	0.0512	0.00001
2018-08-21	2018			0.008	85					0.112	0.00005	0.00025	2.84	0.128	0.00004
2018-09-17	2018	7.67	2.59	0.032	83					0.085	0.00005	0.0024	5.3	0.0777	0.00005
2019-06-17	2019	6.75	32.7	-	-	-	2.33	-	-	-	-	-	-	-	-
2019-07-08	2019	6.91	13.3	0.001	25	-	264	0.02	60.7	0.351	0.00005	0.0022	2.07	0.0197	0.00011
2019-09-09	2019	-	-	0.002	43	-	-	0.04	75.4	0.064	0.00005	0.003	2.07	0.0216	0.00001
2019-09-15	2019	7.90	2.28	0.003	48	10.38	314.9	0.04	70.4	0.065	0.00005	0.003	2.13	0.0327	0.00005
2019-06-09	2019	7.68	23.2	0.02	71	-	195	0.03	22	0.515	0.00005	0.0034	1.97	0.0223	0.00005
2019-09-09	2019	7.95	2.51	-	-	-	327	-	-	-	-	-	-	-	-
2019-09-15	2019	7.69	8.43	0.001	45	11.04	195.4	0.01	64.3	0.124	0.00005	0.0033	0.52	0.0292	0.00001

Indicate values = 1/2 of detection limit

Phaser Pit
St-41/ST-42

Date	Year	Chloride	Total Chromium (Cr)	Total Copper (Cu)	Hardness	Total Iron (Fe)	Fluoride	Total Manganese	Total Mercury	Total Molybdenum	Ammonia (NH3)	Total Nickel	Nitrate (NO3)	Nitrite (NO2)	Total Lead
		mg/L	mg/L	mg/L	mg CaCO3/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg N/L	mg/L	mg N/L	mg N/L	mg/L
2018-07-16	2018	15.9	0.0003	0.0227	198	0.69	0.19	0.143	0.000005	0.0432	0.53	0.0104	45	1.04	0.00015
2018-08-21	2018	9	0.0021	0.0047	275	0.49	0.22	0.0784	0.000005	0.0304	0.17	0.005	24.5	0.14	0.00015
2018-09-17	2018	5.4	0.0009	0.0055	197	0.39	0.16	0.0384	0.000005	0.0145	0.03	0.0023	9.04	0.03	0.0012
2018-07-16	2018	3.3	0.0003	0.0093	165	0.09	0.14	0.2332	0.000005	0.0078	0.04	0.0124	2.87	0.05	0.00015
2018-08-21	2018	6.5	0.0011	0.0071	384	0.14	0.19	0.5182	0.000005	0.0108	0.05	0.0226	6.1	0.15	0.00015
2018-09-17	2018	7.2	0.0003	0.0108	279	0.21	0.16	0.3217	0.000005	0.0077	0.04	0.0147	7.46	0.14	0.0046
2019-06-17	2019	-	-	-	-	-	-	-	-	-		-			-
2019-07-08	2019	3.2	0.0003	0.0093	91	0.6	0.11	0.1454	0.000005	0.0082		0.0121	3.26	0.04	0.0004
2019-09-09	2019	3.2	0.0018	0.0057	106	0.14	0.15	0.0923	0.000005	0.0191		0.0063	4.69	0.03	0.00015
2019-09-15	2019	3.8	0.0003	0.0059	131	0.15	0.14	0.1093	0.000005	0.0136		0.0068	4.38	0.04	0.00015
2019-06-09	2019	2.3	0.0012	0.0067	58	0.59	0.09	0.0581	0.000005	0.0079		0.0031	2.12	0.05	0.00015
2019-09-09	2019	-	-	-	-	-	-	-	-	-		-			-
2019-09-15	2019	2.8	0.0008	0.0095	115	0.19	0.14	0.1024	0.000005	0.0078		0.0065	1.95	0.02	0.00015

Indicate values = 1/2 of detection limit

Phaser Pit
St-41/ST-42

Date	Year	Total Selenium	Sulphate (SO2-4)	Total Thallium	TDS	TSS	Total Cyanide CNt	CN Free	Total Zinc	Dissolved Aluminum	Dissolved Silver	Dissolved Arsenic	Dissolved Barium	Dissolved Cadmium	Dissolved Chromium
		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
2018-07-16	2018	0.002	64.8	0.0001	530	13	0.506	0.0025	0.007	0.003	0.00005	0.00025	0.1377	0.0002	0.0003
2018-08-21	2018	0.0018	109	0.0003	322	6	0.045		0.001	0.0025	0.00005	0.00025	0.0733	0.00004	0.0024
2018-09-17	2018	0.0009	77.2	0.0001	260	2	0.019	0.014	0.002	0.087	0.00005	0.0025	0.0471	0.00002	0.0003
2018-07-16	2018	0.0005	103	0.0001	233	0.5	0.003	0.164	0.007	0.003	0.00005	0.0028	0.0549	0.00001	0.0003
2018-08-21	2018	0.0024	239	0.0001	347	4	0.009	0.009	0.011	0.0025	0.00005	0.00025	0.097	0.00004	0.0023
2018-09-17	2018	0.00025	193	0.0001	371	5	0.068	0.036	0.01	0.09	0.00005	0.0022	0.0763	0.00001	0.0003
2019-06-17	2019	-		-	-	-	-	-	-	-	-	-	-	-	-
2019-07-08	2019	0.00025		0.0001	174	10	0.001	0.001	0.005	0.039	0.00005	0.0013	0.0195	0.00002	0.0003
2019-09-09	2019	0.0005		0.0001	226	0.5	0.002	0.002	0.009	0.0025	0.00005	0.0018	0.0174	0.00001	0.0003
2019-09-15	2019	0.0008		0.0001	206	2	0.003	0.002	0.0005	0.0152	0.00005	0.002	0.0241	0.00001	0.0003
2019-06-09	2019	0.0016		0.0001	93	12	0.02	0.02	0.0005	0.054	0.00005	0.003	0.0172	0.00001	0.0003
2019-09-09	2019	-		-	-	-	-	-	-	-	-	-	-	-	-
2019-09-15	2019	0.00025		0.0001	172	8	0.001	0.002	0.0005	0.0133	0.00005	0.0026	0.0232	0.00001	0.0003

Indicate values = 1/2 of detection limit

Phaser Pit
St-41/ST-42

Date	Year	Dissolved Copper	Dissolved Iron	Dissolved Manganese	Dissolved Mercury	Dissolved Molybdenum	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
2018-07-16	2018	0.0208	0.21	0.1477	0.000005	0.0423	0.0105	0.00015	0.0005	0.0001	0.004
2018-08-21	2018	0.0045	0.005	0.0618	0.000005	0.0266	0.0041	0.00015	0.0011	0.0001	0.0005
2018-09-17	2018	0.0053	0.005	0.0277	0.000005	0.0112	0.0014	0.00015	0.00025	0.0001	0.0005
2018-07-16	2018	0.007	0.005	0.2135	0.000005	0.0082	0.0119	0.00015	0.0005	0.0001	0.005
2018-08-21	2018	0.0062	0.005	0.4195	0.000005	0.0108	0.0171	0.00015	0.00025	0.0001	0.007
2018-09-17	2018	0.0091	0.03	0.2887	0.000005	0.0077	0.0134	0.0009	0.0008	0.0001	0.005
2019-06-17	2019	-	-	-	-	-	-	-	-	-	-
2019-07-08	2019	0.0023	0.04	0.1353	0.000005	0.0078	0.0088	0.00015	0.00025	0.0001	0.0005
2019-09-09	2019	0.0051	0.005	0.0888	0.000005	0.02	0.0056	0.00015	0.00025	0.0001	0.0005
2019-09-15	2019	0.0039	0.005	0.0797	0.000005	0.0113	0.005	0.00015	0.0012	0.0001	0.0005
2019-06-09	2019	0.0045	0.02	0.0429	0.000005	0.0081	0.0019	0.00015	0.00025	0.0001	0.0005
2019-09-09	2019	-	-	-	-	-	-	-	-	-	-
2019-09-15	2019	0.0068	0.005	0.0726	0.000005	0.0061	0.005	0.00015	0.00025	0.0001	0.0005

Indicate values = 1/2 of detection limit

INPUT TO WATER QUALITY FORECAST MODEL

	From Model		From This File	*Index Column* 30	
	Parameters	**Units**	**Parameters**	**Values**	
	Alkalinity	mg $CaCO_3$/L	Alkalinity	58	
	Hardness	mg $CaCO_3$/L	Hardness	1167	
	Total dissolved solids	mg/L	Total dissolved solids	See table below	4403
	Total Aluminium (Al)	mg/L	Aluminium (Al)	2.2485	
	Total Silver (Ag)	mg/L	Silver (Ag)	0.0388	
	Total Arsenic (As)	mg/L	Arsenic (As)	0.0250	
	Total Barium (Ba)	mg/L	Barium (Ba)	0.0908	
	Total Cadmium (Cd)	mg/L	Cadmium (Cd)	0.0004	
	Total Chromium (Cr)	mg/L	Chromium (Cr)	0.0045	
	Total Copper (Cu)	mg/L	Copper (Cu)	0.1606	
	Total Iron (Fe)	mg/L	Iron (Fe)	6.5325	
	Total Manganese (Mn)	mg/L	Manganese (Mn)	0.0863	
	Total Mercury (Hg)	mg/L	Mercury (Hg)	0.0000	
	Total Molybdenum (Mo)	mg/L	Molybdenum (Mo)	0.9405	
	Total Nickel (Ni)	mg/L	Nickel (Ni)	0.0256	
	Total Lead (Pb)	mg/L	Lead (Pb)	0.0157	
	Total Selenium (Se)	mg/L	Selenium (Se)	0.1311	
	Total Strontium (Sr)	mg/L	Strontium (Sr)	2.3500	
	Total Thallium (Ti)	mg/L	Thallium (Tl)	0.0000	
	Total Uranium (U)	mg/L	Uranium (U)	0.0078	
	Total Zinc (Zn)	mg/L	Zinc (Zn)	0.0193	
	Chloride	mg/L	Chloride (Cl)	See table below	515
	Fluoride (F)	mg/L	Fluoride (F)	0.68	
	Sulphate (SO4)	mg SO4/L	Sulfate (SO_4)	See table below	2525
	Total Cyanide (CNt)	mg/L	Total Cyanide (CNt)	6	
	Total Ammonia ($NH_3 + NH_4$)	mg N/L	Ammonia (NH3-NH4)	See table below	85
	Nitrate (NO_3)	mg N/L	Nitrate (NO_3)	9	
not required	Dissolved Aluminium (Al)	mg/L	Dissolved Aluminium (Al)	0.091	
not required	Dissolved Silver (Ag)	mg/L	Dissolved Silver (Ag)	0.009	
not required	Dissolved Arsenic (As)	mg/L	Dissolved Arsenic (As)	0.024	
not required	Dissolved Barium (Ba)	mg/L	Dissolved Barium (Ba)	0.082	
not required	Dissolved Cadmium (Cd)	mg/L	Dissolved Cadmium (Cd)	0.000	
not required	Dissolved Chromium (Cr)	mg/L	Dissolved Chromium (Cr)	0.000	
	Dissolved Copper (Cu)	mg/L	Dissolved Copper (Cu)	0.113	For comparison of model year over year
not required	Dissolved Iron (Fe)	mg/L	Dissolved Iron (Fe)	2.144	
not required	Dissolved Manganese (Mn)	mg/L	Dissolved Manganese (Mn)	0.017	
not required	Dissolved Mercury (Hg)	mg/L	Dissolved Mercury (Hg)	0.000	
not required	Dissolved Molybdenum (Mo)	mg/L	Dissolved Molybdenum (Mo)	0.922	
not required	Dissolved Nickel (Ni)	mg/L	Dissolved Nickel (Ni)	0.014	
not required	Dissolved Lead (Pb)	mg/L	Dissolved Lead (Pb)	0.001	
not required	Dissolved Selenium (Se)	mg/L	Dissolved Selenium (Se)	0.145	
not required	Dissolved Strontium (Sr)	mg/L	Dissolved Strontium (Sr)	2.245	
not required	Dissolved Thallium (Ti)	mg/L	Dissolved thallium (Tl)	0.000	
not required	Dissolved Uranium (U)	mg/L	Dissolved Uranium (U)	0.006	
not required	Dissolved Zinc (Zn)	mg/L	Dissolved Zinc	0.006	

MILL EFFLUENT (ADDITIONAL TESTS)

In red, values that are significantly higher than previous data

Rev. 01a (no change to input to model, added new data for information)

1	2	3	4	5	6	7	8	9	10	11
SAMPLING DATE		**10 October 2012**	**11 October 2012**	**29 January 2014**	**26 October 2014**	**22 January 2015**	**9 April 2015**	**13 July 2015**	**15 October 2015**	**Moyenne 2015**
LAB CERTIFICATE		**Certificat V-22715 (Multi-Lab)**	**Certificat V-22716 (Multi-Lab)**	**Certificat V-32370 (Multi-Lab)**	**Certificat V-39451 (Multi-Lab)**	**CA12492-JAN15 (SGS)**	**CA12202-APR15**	**CA15171-JUL15**	**Certifcate CA15241-OCT15 (SGS)**	
SAMPLE NAME		**Mill Tailing**	**Mill Tailing Composite**	**Final tailings**	**Final Tailings - Water portion**	**Final Tailings - Liquid portion**	**Final Tailings - Liquid portion**	**Final Tailings - Liquid portion**	**Final Tailings - Liquid portion**	**Final Tailings - Liquid portion**
Alkalinity	**mg $CaCO_3$/L**	86	88	91	257	80	105	69	45	**74.750**
Aluminium (Al)	**mg/L**	0.037	0.108	0.22	0.049	0.9	0.34	0.845	0.429	**0.629**
Dissolved Aluminium (Al)	**mg/L**	0.01	0.02	0.16	0.386	0.08	0.08	0.26	0.043	**0.116**
Antimony (Sb)	**mg/L**	0.0027	0.0023	0.01	0.001	0.178	0.0363	0.0387	0.0023	**0.064**
Dissolved Antimony (Sb)	**mg/L**	<0.005	<0.005	0.003	0.0086	0.163	0.0325	0.0367	0.0001	**0.058**
Silver (Ag)	**mg/L**	0.0082	0.009	0.005	< 0.0001	0.00117	0.0163	0.00201	0.00262	**0.006**
Dissolved Silver (Ag)	**mg/L**	0.008	0.007	0.002	< 0.0001	0.00109	0.108	0.00182	0.00161	**0.028**
Arsenic (As)	**mg/L**	0.0098	0.0114	0.025	0.0084	0.0208	0.0152	0.0539	0.0550	**0.036**
Dissolved Arsenic (As)	**mg/L**	0.009	0.011	0.022	0.073	0.0184	0.0147	0.0525	0.0493	**0.034**
Barium (Ba)	**mg/L**	0.15	0.142	0.17	0.3805	0.177	0.152	0.0987	0.0910	**0.130**
Dissolved Barium (Ba)	**mg/L**	0.146	0.138	0.14	0.1018	0.172	0.143	0.0931	0.0900	**0.125**
Beryllium (Be)	**mg/L**	<0.005	<0.0005	0.001	< 0.0005	0.000014	0.000009	0.000009	0.000044	**0.000**
Dissolved Beryllium (Be)	**mg/L**	<0.005	<0.005	0.001	< 0.0005	0.0000035	0.0000035	0.0000035	0.000012	**0.000**
Bismuth (Bi)	**mg/L**									
Boron (B)	**mg/L**	0.43	0.47	0.39	0.65	0.197	0.156	0.142	0.196	**0.173**
Dissolved Boron (B)	**mg/L**	0.42	0.43	0.37	0.29	0.195	0.17	0.14	0.202	**0.177**
Cadmium (Cd)	**mg/L**	0.0003	0.00027	0.005	0.00105	0.000273	0.00711	0.0000015	0.000482	**0.002**
Dissolved Cadmium (Cd)	**mg/L**	<0.005	<0.005	0.0005	0.02071	0.000276	0.00714	0.0000015	0.000459	**0.002**
Calcium (Ca)	**mg/L**									
Chloride (Cl)	**mg/L**	1288	1375	2129	2199	400	930	570	1200	**775**
Chromium (Cr)	**mg/L**	0.0031	0.0039	0.005	0.0094	0.0012	0.00069	0.00265	0.00253	**0.002**
Dissolved Chromium (Cr)	**mg/L**	0.005	0.005	0.0025	0.0046	0.00025	0.00026	0.00153	0.00009	**0.001**
Cobalt (Co)	**mg/L**									
Copper (Cu)	**mg/L**	10.08	9.02	25	7.942	0.0394	28.5	0.0237	15.5	**11.0**
Dissolved Copper (Cu)	**mg/L**	9.53	7.07	7.8	6.795	0.0145	36.7	0.0172	5.28	**10.5**
Cyanide WAD	**mg/L**			0.898	72.96	0.07	57.3	7.59	3.73	**17.173**
Total Cyanide (CNt)	**mg/L**	4.7	10.13	18.8	111	4.39	51.9	0.08	16.3	**18.168**
Hardness	**mg $CaCO_3$/L**	2211	2223	1500	4079	1820	1410	1500	2030	**1690.000**
Tin (Sn)	**mg/L**	<0.001	<0.001	0.025	< 0.001	0.00006	0.000005	0.00013	0.00001	**0.0001**
Dissolved Tin (Sn)	**mg/L**	<0.005	<0.005	0.025	< 0.001	0.00007	0.000005	0.00002	0.000005	**0.0000**
Iron (Fe)	**mg/L**	1.8	2.2	6.7	55.8	2.09	13.3	3.93	4.43	**5.938**
Dissolved Iron (Fe)	**mg/L**	0.83	0.83	0.8	0.14	1.08	11.7	2.78	1.74	**4.325**
Fluoride (F)	**mg/L**	0.35	0.27	0.41	0.65	0.59	0.58	0.62	0.39	**0.545**
Lithium (Li)	**mg/L**	<0.005	<0.005	0.05	0.013	0.0067	0.000662	0.00936	0.00228	**0.005**
Dissolved Lithium (Li)	**mg/L**	<0.01	<0.01	0.05	< 0.005	0.00633	0.00056	0.00629	0.00209	**0.004**
Magnesium	**mg/L**									
Manganese (Mn)	**mg/L**	0.0378	0.0361	0.005	12.21	0.0261	0.0105	0.0222	0.0260	**0.021**
Dissolved Manganese (Mn)	**mg/L**	0.03	0.035	0.0015	0.0013	0.00884	0.0041	0.004	0.0116	**0.007**

1	2	12	13	14	15	16	17	18	19	20	21
SAMPLING DATE		**14 January 2016**	**10 April 2016**	**9 July 2016**	**11 October 2016**	**Moyenne 2016**	**2015 v 2016**	**19-Jan-17**	**10-Apr-17**	**13-Jul-17**	**11-Sep-17**
LAB CERTIFICATE		**CA-15223**	**CA14226**	**CA15232**	**CA15363**			**CA-154230-JAN17**	**CA15173-APR17**	**CA14368-JUL17**	**CA14195-NOV17**
SAMPLE NAME		**Tailings-Liquid and Solid**	**Tailings-Liquid and Solid**	**Tailings-Liquid and Solid**	**Tailings-Liquid and Solid**	**Tailings-Liquid and Solid**		**Tailings Liquid**	**Tailings Liquid**	**Tailings Liquid**	**Tailings Liquid**
Alkalinity	**mg $CaCO_3$/L**	61	57	79	68	**66**	-11%	65	139	102	69
Aluminium (Al)	**mg/L**	0.329	0.222	0.184	0.570	**0.326**	-48%	0.090	0.320	0.162	5.590
Dissolved Aluminium (Al)	**mg/L**	0.137	0.086	0.011	0.240	**0.119**	2%	0.050	0.180	0.065	0.424
Antimony (Sb)	**mg/L**	0.0124	0.0097	0.0297	0.0233	**0.019**	-71%	0.015	0.015	0.030	0.030
Dissolved Antimony (Sb)	**mg/L**	0.0111	0.0077	0.0323	0.0227	**0.018**	-68%	0.013	0.015	0.027	0.028
Silver (Ag)	**mg/L**	0.00119	0.000091	0.0167	0.000680	**0.005**	-16%	0.005	0.072	0.00048	0.00011
Dissolved Silver (Ag)	**mg/L**	0.00110	0.000168	0.0166	0.000746	**0.005**	-83%	0.005	0.073	0.00045	0.00003
Arsenic (As)	**mg/L**	0.0322	0.0127	0.0150	0.0435	**0.026**	-29%	0.019	0.035	0.0082	0.0114
Dissolved Arsenic (As)	**mg/L**	0.0320	0.0119	0.0150	0.0449	**0.026**	-23%	0.016	0.032	0.0065	0.0073
Barium (Ba)	**mg/L**	0.142	0.135	0.143	0.0916	**0.128**	-1%	0.125	0.132	0.085	0.167
Dissolved Barium (Ba)	**mg/L**	0.137	0.130	0.134	0.0879	**0.122**	-2%	0.113	0.130	0.083	0.137
Beryllium (Be)	**mg/L**	0.000009	0.000009	0.000007	0.000015	**0.000010**	-47%	0.000035	0.000035	0.000010	0.000175
Dissolved Beryllium (Be)	**mg/L**	0.0000035	0.0000035	0.0000035	0.0000035	**0.000004**	-38%	0.000035	0.000035	0.000004	0.000012
Bismuth (Bi)	**mg/L**										
Boron (B)	**mg/L**	0.167	0.143	0.193	0.157	**0.165**	-4%	0.390	0.120	0.164	0.223
Dissolved Boron (B)	**mg/L**	0.166	0.146	0.170	0.154	**0.159**	-10%	0.360	0.110	0.148	0.210
Cadmium (Cd)	**mg/L**	0.000203	0.000115	0.000493	0.000416	**0.0003**	-84%	0.0004	0.0275	0.0006	0.0004
Dissolved Cadmium (Cd)	**mg/L**	0.000222	0.000110	0.000480	0.000431	**0.0003**	-84%	0.0005	0.0282	0.0005	0.0003
Calcium (Ca)	**mg/L**										
Chloride (Cl)	**mg/L**	800	470	440	520	**558**	-28%	760	860	330	570
Chromium (Cr)	**mg/L**	0.00052	0.00079	0.00031	0.00111	**0.001**	-61%	0.0004	0.0007	0.0006	0.0337
Dissolved Chromium (Cr)	**mg/L**	0.000015	0.00013	0.000015	0.00009	**0.0001**	-79%	0.0002	0.0002	0.0001	0.0018
Cobalt (Co)	**mg/L**										
Copper (Cu)	**mg/L**	0.0389	0.0576	14.1	0.0799	**3.6**	-68%	0.288	20.200	0.098	0.503
Dissolved Copper (Cu)	**mg/L**	0.00915	0.00547	12.9	0.0468	**3.2**	-69%	0.187	19.500	0.089	0.055
Cyanide WAD	**mg/L**	0.03	0.02	7.07	0.02	**1.785**	-90%	0.020	50.000	0.005	0.250
Total Cyanide (CNt)	**mg/L**	18.3	8.75	7.13	2.92	**9.275**	-49%	7.090	73.000	0.050	1.580
Hardness	**mg $CaCO_3$/L**	1550	1020	1600	1080	**1313**	-22%	1890	1310	1810	1140
Tin (Sn)	**mg/L**	0.0001	0.0000	0.0004	0.0002	**0.0002**	239%				
Dissolved Tin (Sn)	**mg/L**	0.0000	0.0000	0.0004	0.0001	**0.0001**	340%				
Iron (Fe)	**mg/L**	5.62	3.28	0.309	1.88	**2.772**	-53%	5.770	9.500	0.262	12.200
Dissolved Iron (Fe)	**mg/L**	4.87	2.98	0.017	1.19	**2.264**	-48%	3.410	8.300	0.032	0.889
Fluoride (F)	**mg/L**	0.51	0.51	0.74	0.82	**0.645**	18%	0.430	0.360	0.030	0.520
Lithium (Li)	**mg/L**	0.00281	0.00212	0.00429	0.0025	**0.003**	-38%	0.005	0.001	0.004	0.078
Dissolved Lithium (Li)	**mg/L**	0.00253	0.00190	0.00409	0.0024	**0.003**	-28%	0.004	0.001	0.004	0.078
Magnesium	**mg/L**										
Manganese (Mn)	**mg/L**	0.00793	0.00730	0.0263	0.0114	**0.013**	-38%	0.013	0.004	0.043	0.149
Dissolved Manganese (Mn)	**mg/L**	0.00217	0.00446	0.0221	0.00193	**0.008**	7%	0.012	0.001	0.038	0.018

Mercury (Hg)	**mg/L**	0.00072	0.00136	0.00005	0.00206	0.000005	0.000005	0.000005	0.00005	**0.000**	0.000005	0.000005	0.000005	0.000005	**0.000005**	-69%	0.000005	0.000030	0.000005	0.000010
Dissolved Mercury (Hg)	**mg/L**	0.0008	0.0011	0.00005	0.0023	0.000005	0.000005	0.000005	0.00005	**0.000**	0.000005	0.000005	0.000005	0.000005	**0.000005**	-69%	0.000005	0.000040	0.000005	0.000005
Molybdenum (Mo)	**mg/L**	0.3551	0.3339	0.81	0.0114	0.555	0.667	1.07	1.15	**0.861**	0.992	0.602	1.21	1.06	**0.966**	12%	1.360	0.838	1.500	0.935
Dissolved Molybdenum (Mo)	**mg/L**	0.355	0.333	0.75	0.6517	0.54	0.682	1.06	1.14	**0.856**	1.02	0.563	1.15	1.04	**0.943**	10%	1.220	0.824	1.400	0.900
Ammonia (NH_3) (ionized)	**mg N/L**	0.12	0.16	11.8	11.3															
Ammonia (NH3-NH4)	**mg N/L**			71.5	16.7	90.6	52.9	325	40.7	**127.300**	110	66.9	113	130	**105**	-18%	77	48	95	98
Nickel (Ni)	**mg/L**	0.5993	0.4559	0.06	3.56	0.0046	1.58	0.01	0.0994	**0.423**	0.0117	0.0206	0.0583	0.0053	**0.024**	-94%	0.024	3.760	0.081	0.063
Dissolved Nickel (Ni)	**mg/L**	0.033	0.023	0.005	0.8618	0.0037	1.73	0.0068	0.0894	**0.457**	0.0115	0.0178	0.0538	0.0018	**0.021**	-95%	0.015	3.620	0.075	0.015
Nitrate (NO_3)	**mg N/L**	13.2	10.8	31.6	27.9	10.8	12.1	18	22.8	**15.925**	18.3	11.7	12.6	10.6	**13.3**	-16%	14.7	13.5	10.6	11.9
Nitrite (NO2)	**mg N/L**			0.69	0.23	0.38	0.37	0.46	0.42	**0.408**	0.48	0.15	0.15	0.45	**0.308**	-25%	0.760	0.810	0.360	0.480
Lead (Pb)	**mg/L**	<0.0003	<0.0003	0.005	0.0157	0.00361	0.00212	0.0053	0.00663	**0.004**	0.00213	0.00118	0.00317	0.00260	**0.002**	-49%	0.001	0.008	0.001	0.040
Dissolved Lead (Pb)	**mg/L**	<0.005	<0.005	0.0005	< 0.0003	0.00053	0.00005	0.00027	0.00061	**0.000**	0.00024	0.00013	0.00119	0.00011	**0.0004**	14%	0.0001	0.007	0.0004	0.0042
Potassium (K)	**mg/L**																			
Selenium (Se)	**mg/L**	0.023	0.025	0.19	0.154	0.105	0.082	0.0682	0.269	**0.131**	0.200	0.142	0.181	0.142	**0.166**	27%	0.061	0.040	0.101	0.101
Dissolved Selenium (Se)	**mg/L**	0.023	0.025	0.17	0.158	0.101	0.084	0.068	0.285	**0.135**	0.206	0.141	0.175	0.154	**0.169**	26%	0.058	0.037	0.080	0.094
Silica (Si)	**mg/L**																			
Sodium (Na)	**mg/L**																			
Strontium (Sr)	**mg/L**	1.77	1.77	2.5	6.06	2.68	2.08	1.82	1.98	**2.140**	2.94	1.85	1.79	1.94	**2.130**	0%	2.650	3.130	2.490	2.830
Dissolved Strontium (Sr)	**mg/L**	1.7	1.9	2.3	2.1	2.55	2.05	1.76	2.01	**2.093**	2.84	1.75	1.68	1.91	**2.045**	-2%	2.540	3.070	2.340	2.660
Sulfate (SO_4)	**mg SO_4/L**	2459	2683	2565	2400	1800	1500	2600	2500	**2100.000**	2600	2000	2300	2500	**2350**	12%	2500	2800	2600	3000
Thallium (Tl)	**mg/L**	<0.005	<0.005	0.005	< 0.005	0.000027	0.0000025	0.000404	0.000023	**0.000**	0.000027	0.000010	0.000045	0.000023	**0.00003**	-77%	0.00031	0.00003	0.00003	0.00007
Dissolved thallium (Tl)	**mg/L**	<0.01	<0.01	0.005	< 0.005	0.000019	0.0000025	0.000181	0.0000025	**0.000**	0.0000025	0.000006	0.000041	0.000019	**0.00002**	-67%	0.00009	0.00003	0.00002	0.00002
Tellurium (Te)																				
Titanium (Ti)	**mg/L**	1.1	1.1	0.025	1	0.00808	0.00136	0.0162	0.00897	**0.009**	0.00349	0.00292	0.0116	0.00483	**0.006**	-34%	0.0014	0.0015	0.0017	0.1270
Dissolved titanium (Ti)	**mg/L**	1	1.1	0.025	0.5	0.00051	0.000025	0.01001	0.00082	**0.003**	0.00048	0.00024	0.00049	0.00065	**0.000**	-84%	0.0007	0.0005	0.0008	0.0034
Uranium (U)	**mg/L**	0.016	0.016	0.01	0.014	0.0389	0.0209	0.0022	0.00374	**0.016**	0.00762	0.0266	0.0158	0.000409	**0.013**	-23%	0.038	0.003	0.021	0.013
Dissolved Uranium (U)	**mg/L**	0.016	0.016	0.003	< 0.001	0.0386	0.0201	0.00202	0.00368	**0.016**	0.00731	0.0260	0.0149	0.000336	**0.012**	-25%	0.036	0.003	0.021	0.011
Vanadium (V)	**mg/L**	<0.0005	<0.0005	0.005	0.0006	0.00158	0.00054	0.00536	0.00048	**0.002**	0.00090	0.00057	0.00085	0.00404	**0.002**	-20%	0.002	0.002	0.001	0.011
Dissolved Vanadium	**mg/L**	<0.005	<0.005	0.005	< 0.0005	0.00063	0.0004	0.00474	0.00005	**0.001**	0.00062	0.00035	0.00057	0.00360	**0.001**	-12%	0.002	0.002	0.000	0.001
Zinc (Zn)	**mg/L**	<0.001	<0.001	0.01	0.028	0.005	0.564	0.004	0.001	**0.144**	0.007	0.001	0.002	0.001	**0.003**	-98%	0.010	0.950	0.007	0.021
Dissolved Zinc	**mg/L**	<0.005	<0.005	0.0025	0.03	0.003	0.549	0.001	0.001	**0.139**	0.001	0.001	0.002	0.001	**0.001**	-99%	0.010	0.940	0.006	0.003
Total dissolved solids	**mg/L**					4000	3950	5040	5250	**4560**	5550	3970	4140	4730	**4598**	0	4860	5150	4580	5330

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

Dissolved Cu / Total Cu	%	95%	78%	31%	86%	37%	129%	73%	34%	95%	24%	9%	91%	59%	91%	102%	65%	97%	91%	11%
Dissolved Fe / Total Fe	%	46%	38%	12%	0%	52%	88%	71%	39%	73%	87%	91%	6%	63%	82%	89%	59%	87%	12%	7%

													< Meadowbank || Amaruq > Email AEM 2020-02-27				vvvvv	vvvvv	VVVVV					
22	23	24	25	Feb-18	Jun-18	Jul-18	Oct-18	30	31	32	33	Apr-19	Jul-19	Oct-19	Nov-19	Dec-19								34
Moyenne 2017	Std Dev	2016 v 2017		Feb-08-18	Jun-21-18	Jul-18-18	Oct-19-18	Moyenne 2018	Std Dev	2017 x 2018		2 April 2019	9 July 2019	19 October 2019	5 November 2019	4 December 2019	Moyenne 2019	Moyenne 2019	Moyenne 2019	Std Dev	2018 x 2019	2018 x 2019		
Values Higher in 2017			Average 2016 and 2017	CA-14099-FEB18	CA-14708 JUN18	CA-15198 JUL18	CA-14454 OCT18				Average 2016, 2017, 2018						Vault/Portage	Whale tail					Average 2016, 2017, 2018, 2019	CCME Guidelines
Tailings Liquid			Similar Ore	Tailings Liquid	Tailings Liquid	Tailings Liquid	Tailings Liquid	Tailings Liquid			Similar Ore	Tailings Liquid	Tailings Liquid	Tailings Liquid	Tailings Liquid	Tailings Liquid	Tailings Liquid	Tailings Liquid	Tailings Liquid			Similar Ore	Similar Ore	mg/L
94	34	42%	80	60	63	52	94	58.333	5.686	-38%	69.17	81.00	93.00	79.00	93.00	59.00	87.00	77.00	81.00	13.928	39%	49%	81.06	n/a
1.541	2.701	372%	0.933	8.350	0.361	0.162	0.121	2.249	4.671	46%	1.59	0.09	0.70	176.00	139.00	13.60	0.39	109.53	65.88	84.828	2830%	-82%	0.79	0.1
0.180	0.173	52%	0.149	0.085	0.083	0.156	0.041	0.091	0.042	-49%	0.12	0.04	0.16	0.39	0.66	0.03	0.10	0.36	0.25	0.269	178%	8%	0.11	0.1
0.023	0.009	20%	0.021	0.031	0.018	0.012	0.026	0.022	0.010	-3%	0.02	0.01	0.00	0.0045	0.00	0.01	0.01	0.01	0.01	0.004	-70%	-76%	0.01	n/a
0.021	0.008	13%	0.020	0.023	0.021	0.010	0.026	0.020	0.007	-5%	0.02	0.00	0.00	0.02	0.01	0.02	0.00	0.02	0.01	0.007	-40%	-77%	0.01	n/a
0.019	0.035	315%	0.012	0.000	0.008	0.146	0.001	0.039	0.082	100%	0.03	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.006	-85%	-70%	0.02	0.0001
0.020	0.036	325%	0.012	0.000	0.002	0.034	0.001	0.009	0.019	-54%	0.01	0.01	0.04	0.00025	0.00	0.00	0.02	0.00	0.01	0.016	5%	155%	0.02	0.0001
0.018	0.012	-29%	0.022	0.017	0.012	0.055	0.017	0.025	0.023	36%	0.02	0.03	0.04	12.40	13.10	1.52	0.03	9.01	5.42	6.725	21571%	37%	0.03	0.005
0.015	0.012	-40%	0.021	0.009	0.018	0.052	0.018	0.024	0.023	56%	0.02	0.03	0.04	1.92	1.10	0.57	0.03	1.20	0.73	0.799	2927%	30%	0.03	0.005
0.127	0.034	-1%	0.128	0.143	0.065	0.094	0.062	0.091	0.040	-29%	0.11	0.09	0.06	0.89	0.76	0.19	0.08	0.61	0.40	0.395	340%	-16%	0.09	n/a
0.116	0.024	-5%	0.119	0.117	0.067	0.088	0.055	0.082	0.025	-29%	0.10	0.08	0.06	0.11	0.12	0.12	0.07	0.11	0.10	0.025	17%	-14%	0.08	n/a
0.000064	0.000075	538%	0.000037	0.000187	0.000011	0.000004	0.000004	0.000	0.000	-20%	0.00	0.000004	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.002	3566%	-57%	0.00	n/a
0.000021	0.000016	511%	0.000012	0.000004	0.000004	0.000004	0.000004	0.000	0.000	-84%	0.00	0.000004	0.00	0.000004	0.00	0.00	0.00	0.00	0.00	0.000	283%	93%	0.00	n/a
								#DIV/0!																
0.224	0.118	36%	0.195	0.116	0.135	0.306	0.115	0.168	0.105	-25%	0.18	0.27	0.41	0.14	0.14	0.18	0.34	0.15	0.23	0.114	36%	102%	0.29	1.5
0.207	0.110	30%	0.183	0.081	0.122	0.295	0.195	0.173	0.114	-16%	0.18	0.26	0.41	0.11	0.10	0.16	0.34	0.12	0.21	0.130	21%	94%	0.28	1.5
0.0072	0.0135	2257%	0.0038	0.0006	0.0004	0.0003	0.0004	0.0004	0.000	-94%	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.0022	0.003	410%	-62%	0.00	0.00004
0.0074	0.0139	2278%	0.0039	0.0003	0.0004	0.0003	0.0003	0.000	0.000	-96%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000	-59%	-64%	0.00	0.00004
								#DIV/0!																n/a
630	233	13%	594	450	630	500	480	515.000	92.916	-18%	554.38	880.00	440.00	820.00	850.00	630.00	660.00	766.67	724.00	186.360	41%	28%	624.79	120
0.009	0.0166	1197%	0.005	0.016	0.001	0.000	0.001	0.005	0.009	-49%	0.00	0.00	0.00	6.07	4.01	0.41	0.00	3.50	2.098	2.787	46045%	-54%	0.00	0.001
0.0006	0.0009	400%	0.0004	0.0004	0.0001	0.0002	0.0000	0.000	0.000	-72%	0.00	0.00004	0.06	0.01	0.02	0.00	0.03	0.01	0.02	0.024	10808%	18377%	0.02	0.001
								#DIV/0!																n/a
5.3	9.953	48%	4.4	0.0844	0.0879	0.2550	0.2150	0.161	0.098	-97%	2.29	1.35	6.50	17.90	8.62	0.93	3.93	9.15	7.06	6.901	4296%	2344%	3.38	0.002
5.0	9.695	53%	4.1	0.0101	0.0564	0.2070	0.1800	0.113	0.103	-98%	2.11	0.10	23.20	7.75	2.67	0.49	11.65	3.64	6.84	9.639	5934%	10174%	8.47	0.002
12.569	24.954	604%	7.177	0.140	0.070	0.010	0.030	0.063	0.065	-100%	3.62	0.91	0.5	5.97	17.10		0.71	11.54	6.12	7.731	9692%	1028%	1.68	n/a
20.430	35.177	120%	14.853	8.620	16.300	0.080	0.050	6.263	8.114	-69%	10.56	5.66	17.80	8.29	26.30	0.75	11.73	11.78	11.76	10.227	88%	87%	11.34	0.005
1538	369	17%	1425	1650	1080	879	1060	1167.250	399.946	-24%	1296.13	1819.00	794.00	2090.00	1930.00	953.00	1306.50	1657.67	1517.20	598.107	30%	12%	1303.04	n/a
#DIV/0!	#DIV/0!	#DIV/0!	0.0002	0.0002	0.0038	0.0048	0.0002	0.002	0.002	#DIV/0!	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.002	8%	67%	0.00	n/a
#DIV/0!	#DIV/0!	#DIV/0!	0.0001	0.0001	0.0056	0.0033	0.0001	0.002	0.003	#DIV/0!	0.00	0.00	0.00	0.00	0.00003	0.00003	0.00	0.00	0.00	0.002	-24%	44%	0.00	n/a
6.933	5.170	150%	4.853	19.400	6.460	0.050	0.220	6.533	9.857	-6%	5.69	1.81	9.34	592.00	563.00	50.20	5.58	401.73	243.27	305.836	3624%	-15%	5.61	0.3
3.158	3.716	39%	2.711	2.860	5.670	0.036	0.011	2.144	2.817	-32%	2.43	0.96	2.31	1.16	3.21	0.12	1.63	1.50	1.55	1.212	-28%	-24%	1.90	0.3
0.335	0.214	-48%	0.490	0.550	0.640	0.920	0.610	0.680	0.193	103%	0.59	0.52	0.61	0.29	0.25	0.35	0.57	0.30	0.404	0.155	-41%	-17%	0.57	0.12
0.022	0.038	649%	0.012	0.008	0.004	0.004	0.009	0.006	0.002	-72%	0.01	0.01	0.00	0.16	0.08	0.02	0.00	0.09	0.05	0.068	780%	-34%	0.01	n/a
0.022	0.038	693%	0.012	0.002	0.003	0.004	0.006	0.004	0.001	-82%	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.002	25%	-2%	0.01	n/a
								#DIV/0!																
0.052	0.067	295%	0.033	0.263	0.033	0.018	0.032	0.086	0.138	65%	0.06	0.02	0.02	14.90	12.90	1.30	0.02	9.70	5.83	7.420	6652%	-74%	0.03	n/a
0.017	0.016	127%	0.013	0.011	0.014	0.017	0.028	0.017	0.003	0%	0.01	0.02	0.01	0.03	0.11	0.03	0.01	0.06	0.04	0.039	129%	-22%	0.01	n/a

0.000013	0.000012	150%	0.000009	0.000005	0.000005	0.000005	0.000005	0.000	0.000	-60%	0.00	0.00	0.00	0.000005	0.000005	0.000005	0.00	0.00	0.00	0.000	120%	300%	0.00	0.000026
0.000014	0.000018	175%	0.000009	0.000005	0.000005	0.000005	0.000005	0.000	0.000	-64%	0.00	0.00	0.000005	0.000005	0.000005	0.000005	0.00	0.00	0.00	0.000	60%	150%	0.00	0.000026
1.158	0.321	20%	1.062	0.902	1.000	0.890	0.970	0.941	0.060	-19%	1.00	0.59	0.55	0.16	0.07	0.05	0.57	0.10	0.29	0.264	-69%	-39%	0.72	0.073
1.086	0.271	15%	1.015	0.861	0.952	0.866	1.010	0.922	0.051	-15%	0.97	0.52	0.57	0.20	0.07	0.05	0.55	0.11	0.28	0.248	-70%	-41%	0.69	0.073
								#DIV/0!																0.86
79	23	-24%	92	85	100	74	79	84.550	12.980	6%	88.39	86.60	40.50	101.00	53.90	68.80	63.55	74.57	70.16	24.328	-17%	-25%	71.83	1.83
0.982	1.852	3996%	0.503	0.066	0.008	0.003		0.026	0.035	-97%	0.26	0.16	5.16	11.10	11.40	0.49	2.66	7.66	5.663	5.471	21992%	10281%	1.86	0.025
0.931	1.793	4287%	0.476	0.036	0.003	0.003		0.014	0.019	-98%	0.25	0.10	5.28	7.72	10.50	0.18	2.69	6.13	4.75	4.603	33621%	18964%	1.87	0.025
12.7	1.8	-5%	13.0	9.2	11.5	9.9	5.3	8.978	1.168	-29%	10.98	9.86	10.20	15.10	11.70	11.80	10.03	12.87	11.73	2.074	31%	12%	10.35	2.94
0.603	0.217	96%	0.455	0.380	0.480	0.310	0.510	0.420	0.085	-30%	0.44	0.40	0.15	0.44	0.34	0.38	0.28	0.39	0.34	0.113	-19%	-35%	0.33	0.06
0.012	0.019	443%	0.007	0.058	0.002	0.000	0.002	0.016	0.033	27%	0.01	0.00	0.01	1.51	0.90	0.13	0.00	0.85	0.51	0.673	3152%	-69%	0.01	0.001
0.0029	0.0033	597%	0.0017	0.0018	0.0001	0.0001	0.0002	0.001	0.001	-81%	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.002	288%	23%	0.00	0.001
								#DIV/0!																
0.076	0.031	-55%	0.121	0.094	0.189	0.193	0.049	0.131	0.056	73%	0.13	0.01	0.01	0.24	0.15	0.04	0.01	0.14	0.089	0.104	-32%	-95%	0.05	0.001
0.067	0.025	-60%	0.118	0.094	0.243	0.189	0.054	0.145	0.075	115%	0.13	0.01	0.01	0.28	0.17	0.04	0.01	0.16	0.10	0.121	-31%	-95%	0.05	0.001
								#DIV/0!																
								#DIV/0!																
2.775	0.274	30%	2.453	3.240	2.580	1.410	2.170	2.350	0.927	-15%	2.40	3.48	0.67	1.43	1.46	1.26	2.08	1.38	1.66	1.066	-29%	-12%	2.18	n/a
2.653	0.308	30%	2.349	3.060	2.400	1.340	2.180	2.245	0.868	-15%	2.30	3.29	0.68	1.28	1.36	1.20	1.98	1.28	1.56	1.003	-30%	-12%	2.09	n/a
2725	222	16%	2538	2500	2700	2300	2600	2525.000	200.000	-7%	2531.25	2000.00	920.00	2100.00	970.00	1300.00	1460.00	1456.67	1458.00	560.910	-42%	-42%	1817.08	n/a
0.00011	0.00014	313%	0.00007	0.00003	0.00004	0.00004	0.00009	0.000	0.000	-55%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.001	2155%	-84%	0.00	0.0008
0.00004	0.00003	128%	0.00003	0.00003	0.00003	0.00004	0.00008	0.000	0.000	15%	0.00	0.00003	0.00003	0.00003	0.00	0.00003	0.00	0.00	0.00	0.000	-50%	-44%	0.00	0.0008
								#DIV/0!																
0.033	0.0627	476%	0.019	0.126	0.006	0.001	0.002	0.034	0.071	2%	0.03	0.00	0.01	9.02	7.63	0.75	0.01	5.80	3.48	4.457	10254%	-81%	0.01	n/a
0.001	0.0014	188%	0.001	0.005	0.001	0.001	0.001	0.002	0.003	35%	0.00	0.00	0.00	0.02	0.04	0.00	0.00	0.02	0.01	0.016	563%	-38%	0.00	n/a
0.019	0.015	49%	0.016	0.012	0.010	0.001	0.009	0.008	0.006	-59%	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.002	-1%	0%	0.01	0.015
0.018	0.014	47%	0.015	0.011	0.003	0.001	0.008	0.006	0.006	-68%	0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.003	-19%	31%	0.01	0.015
0.004	0.004	144%	0.003	0.012	0.001	0.001	0.001	0.004	0.007	-9%	0.00	0.00	0.00	0.45	0.32	0.03	0.00	0.27	0.16	0.211	4454%	-83%	0.00	n/a
0.001	0.001	8%	0.001	0.001	0.001	0.001	0.000	0.001	0.000	-58%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.001	80%	-69%	0.00	n/a
0.247	0.469	8882%	0.125	0.054	0.004	0.001	0.018	0.019	0.030	-92%	0.07	0.001	0.00	0.43	0.35	0.04	0.00	0.27	0.16	0.207	753%	-90%	0.03	0.03
0.240	0.467	19080%	0.121	0.019	0.001	0.001	0.001	0.006	0.010	-98%	0.06	0.001	0.001	0.001	0.001	0.00	0.00	0.00	0.00	0.000	-78%	-82%	0.02	0.03
4980	330	8%	4789	4750	4891	3490	4480	4402.750	771.393	-12%	4595.75	4390.00	2190.00	4210.00	2930.00	3240.00	3290.00	3460.00	3392.00	914.669	-23%	-25%	3725.25	n/a

94%	97%	111%	93%	12%	64%	81%	84%	71%	106%	101%	92%	7%	357%	43%	31%	53%			97%	140%	138%		250%
46%	72%	26%	56%	15%	88%	72%	5%	33%	29%	556%	43%	53%	25%	0%	1%	0%			1%	0%	-1%		34%

Results before cyanide destruction

2013-11-11	2013-11-11
Certificat V-31299 (Multi-Lab)	**Certificat V-31300 (Multi-Lab)**
1.29	1.21
0.0001	<0.0001
0.5847	0.0183
0.2303	0.2129
0.0895	0.0812
<0.0005	<0.0005
<0.0005	<0.0005
0.52	0.44
0.01278	0.00956
710	640
2247	2047
0.0007	<0.0006
0.5794	0.4891
9.189	5.002
176	159
181	165
<0.001	<0.001
8.4	4.9
0.36	0.36
0.63	0.93
0.0051	0.0038

	Date	Limits			
		MMER	**Water Licence**	**CCME**	**Solubility at 10°C**
Cyanide	2010-01-01	1	0.5		
	2019-01-01	1	0.5		
Copper	2010-01-01	0.3	0.1	0.002	
	2019-01-01	0.3	0.1	0.002	
Iron	2010-01-01			0.3	
	2019-01-01			0.3	
Total Ammonia Nitrogen	2010-01-01		16.0	0.86	
	2019-01-01		16.0	0.86	
Nitrate	2010-01-01		20.0	2.9	
	2019-01-01		20.0	2.9	
Chloride	2010-01-01		1000.0	120.0	
	2019-01-01		1000.0	120.0	
Sulfate	2010-01-01				1800
	2019-01-01				1800
Hardness	2010-01-01				
	2019-01-01				
Selenium	2010-01-01			0.001	
	2019-01-01			0.001	

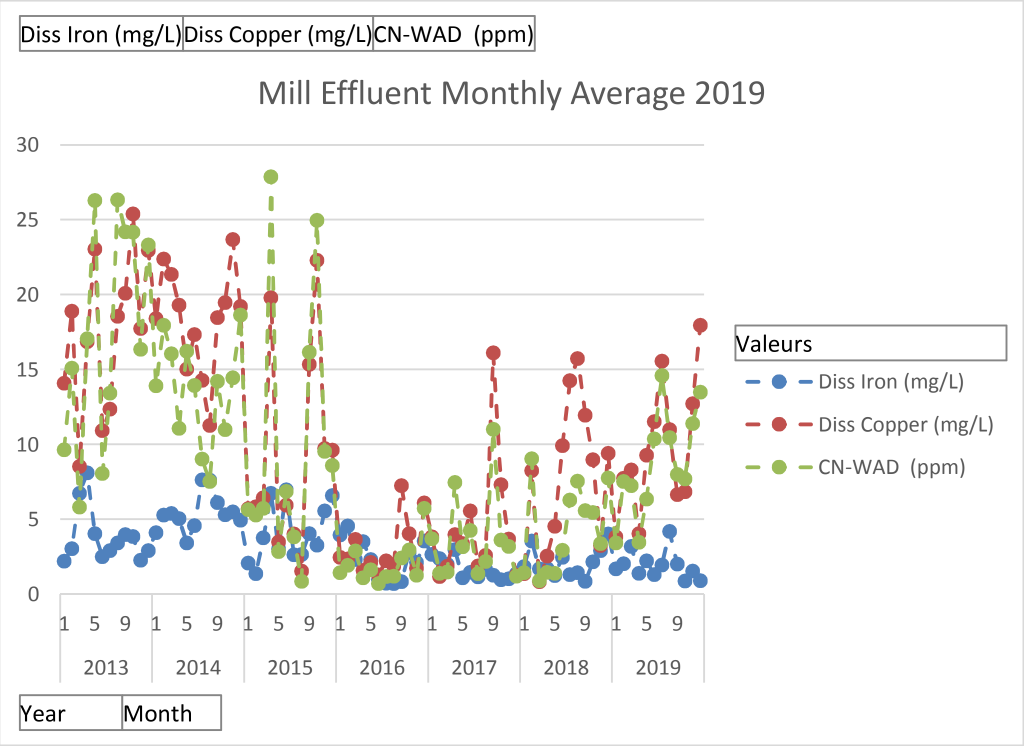
0.00063	0.00052	
0.6445	0.4291	
6.695	3.491	
0.0005	0.0007	
114	103	
0.048	0.037	
4.3	4.0	
877	809	
1341	1403	Stable year over year
<0.0005	<0.0005	
0.95	0.85	
<0.001	<0.001	
<0.0005	<0.0005	
0.266	0.116	
dans le rapport?	informations	

Étiquettes de lignes	Diss Iron (mg/L)	Diss Copper (mg/L)	CN-WAD (ppm)
2013	**3.83**	**17.45**	**17.51**
1	2.21	14.09	9.65
2	3.03	18.90	15.10
3	6.72	8.53	5.82
4	8.09	16.86	17.06
5	4.04	23.04	26.28
6	2.51	10.91	8.06
7	2.90	12.36	13.41
8	3.41	18.55	26.33
9	3.97	20.08	24.19
10	3.84	25.38	24.16
11	2.27	17.73	16.35
12	2.91	22.95	23.32
2014	**5.44**	**18.24**	**13.31**
1	4.11	18.41	13.91
2	5.27	22.37	17.96
3	5.39	21.35	16.05
4	5.04	19.29	11.07
5	3.42	15.02	16.22
6	4.57	17.34	13.94
7	7.63	14.27	9.01
8	7.61	11.25	7.51
9	6.11	18.47	14.20
10	5.30	19.48	10.99
11	5.50	23.67	14.45
12	4.93	19.22	18.64
2015	**3.97**	**9.12**	**9.88**
1	2.08	5.70	5.64
2	1.37	5.83	5.28
3	3.76	6.44	5.72
4	6.72	19.78	27.86
5	3.01	3.49	2.84
6	6.96	5.93	6.87
7	2.63	4.01	3.82
8	2.65	1.54	0.86
9	4.05	15.35	16.15
10	3.26	22.28	24.97
11	5.56	9.72	9.53
12	6.59	9.61	8.58
2016	**2.35**	**3.06**	**2.04**
1	3.94	2.46	1.42
2	4.56	2.34	1.92
3	2.30	3.65	2.89
4	3.51	1.59	1.09
5	2.32	2.11	1.61
6	0.97	1.28	0.71
7	0.73	2.23	1.18
8	0.71	1.89	1.20
9	0.84	7.23	2.42
10	2.77	4.04	2.94
11	2.12	1.73	1.26
12	3.55	6.09	5.73
2017	**1.65**	**4.38**	**3.65**
1	2.64	3.83	3.70
2	2.37	1.18	1.39
3	1.99	1.85	1.47
4	2.97	3.98	7.46
5	1.08	3.37	3.16
6	1.46	5.55	4.26
7	1.15	1.88	1.37
8	1.65	2.58	2.17
9	1.25	16.12	11.01
10	0.96	7.30	3.60
11	1.03	3.68	3.18
12	1.36	1.27	1.20
2018	**2.09**	**7.58**	**4.40**
1	1.84	1.36	1.42
2	3.54	8.25	9.03
3	1.69	0.83	0.89
4	1.71	2.54	1.46
5	1.23	4.53	1.38
6	2.45	9.91	2.92
7	1.31	14.26	6.27
8	1.42	15.73	7.53
9	0.85	11.95	5.57
10	2.16	8.97	5.44
11	2.90	3.24	3.38
12	4.02	9.41	7.76
2019	**1.94**	**9.63**	**8.67**
1	1.68	3.83	3.43
2	2.03	7.73	7.51
3	3.18	8.30	7.25
4	1.38	4.04	3.47
5	2.23	9.28	6.34
6	1.30	11.52	10.37
7	1.94	15.56	14.59
8	4.18	10.99	10.45
9	2.01	6.64	7.98
10	0.88	6.85	7.68
11	1.55	12.71	11.39
12	0.90	17.95	13.48
Total général	**3.01**	**9.84**	**8.44**

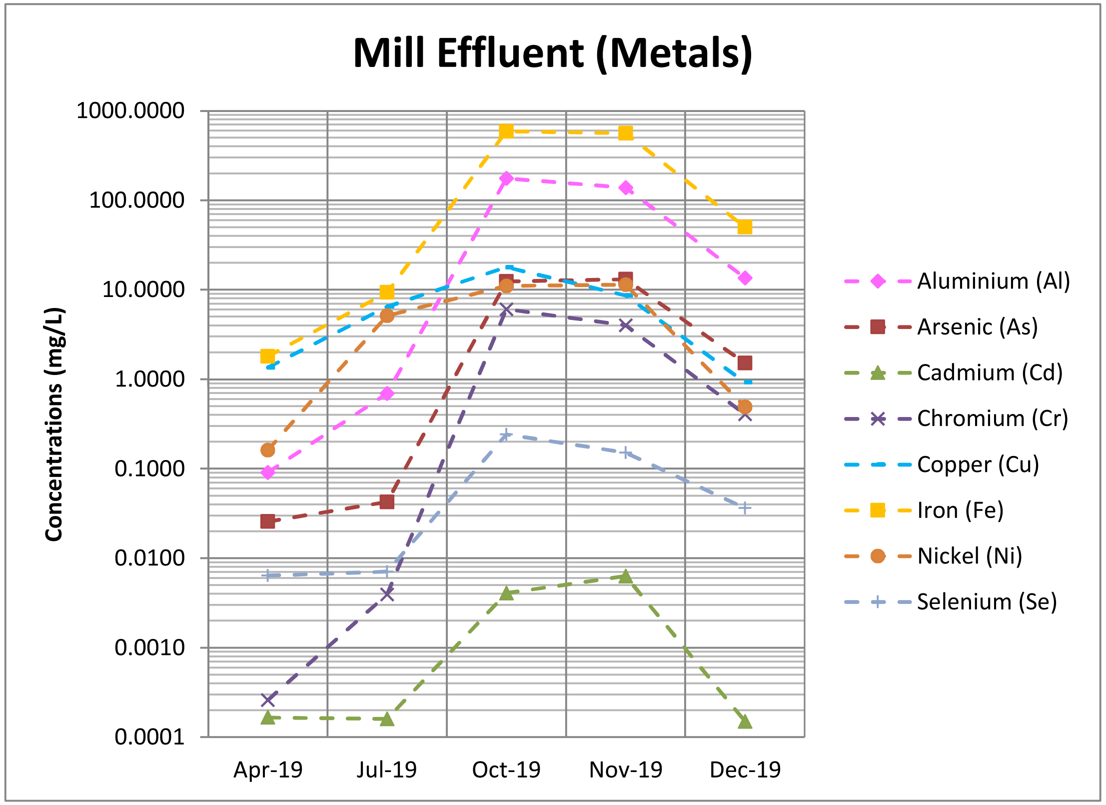
SUMMARY TABLE- MILL EFFLUENT - ALL DATA					
	Au (g/t)	Au (mg/L)	Iron (mg/L)	Copper (mg/L)	CN-WAD (ppm)
Maximum	3.19	1.22	48.04	62.36	157.00
Minimum	0.05	0.00	0.00	0.00	0.00
Average	0.21	0.02	3.01	9.84	8.44
Mediane	0.21	0.02	2.14	3.78	1.85

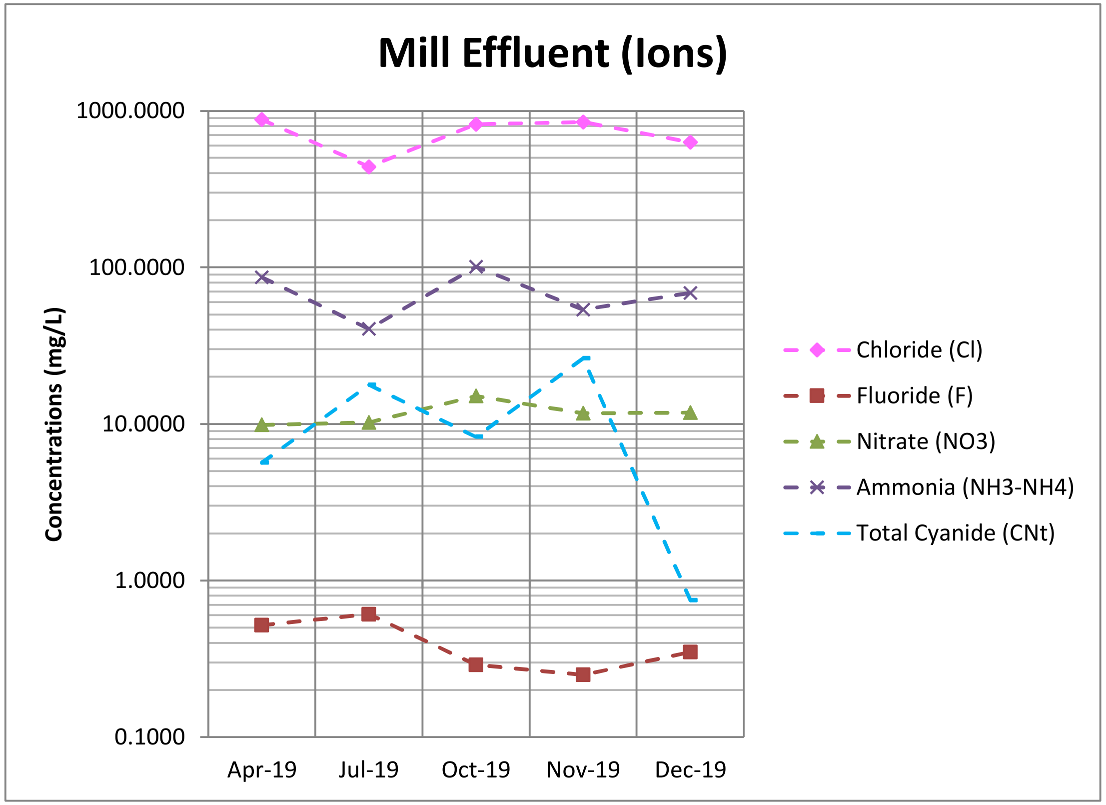
Year	Avg CNWad Removed (mg-N/L)	Avg NH3 formed (mg-N/L)	Mediane NH3 formed (mg-N/L)	Avg SO4 formed (mg/L)	Mediane SO4 formed (mg/L)
2013	83	31		1122	1152
2014	79	30		1064	
2015	122	46		1645	
2016	108	41		1452	
2017	104	39		1403	
2018	79	30		1068	
2019	72	27		969	
All data	92	35	36	1244	1274

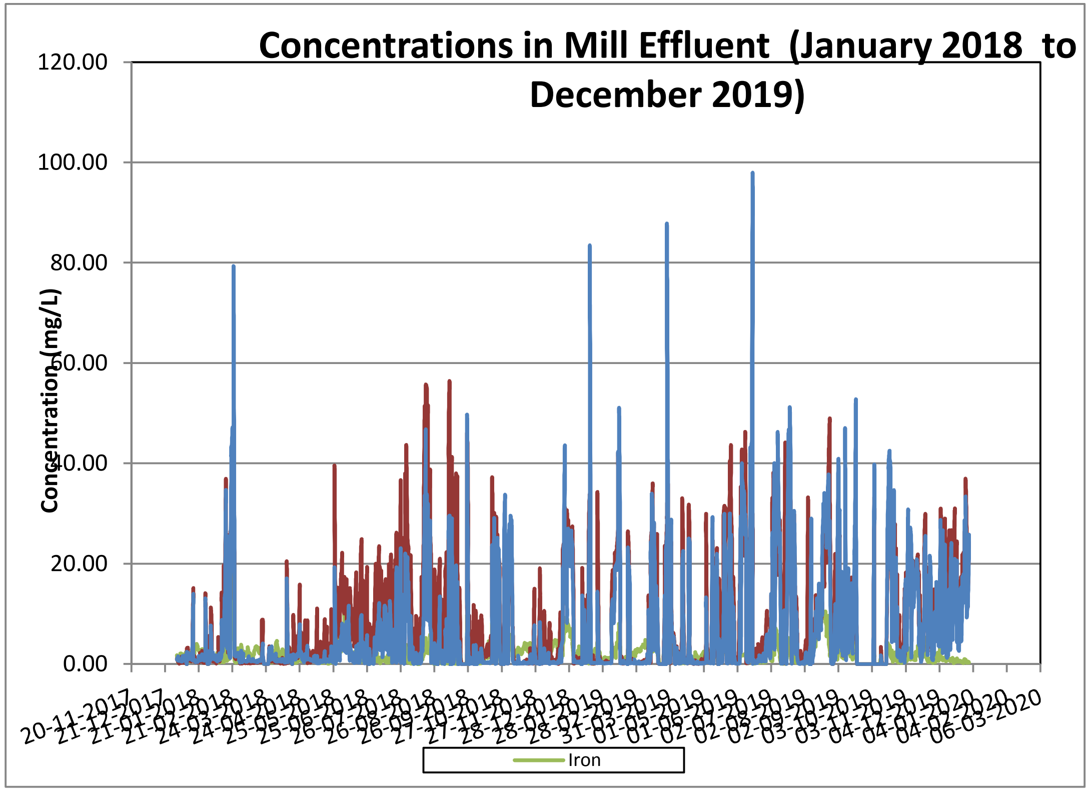
Mill Effluent



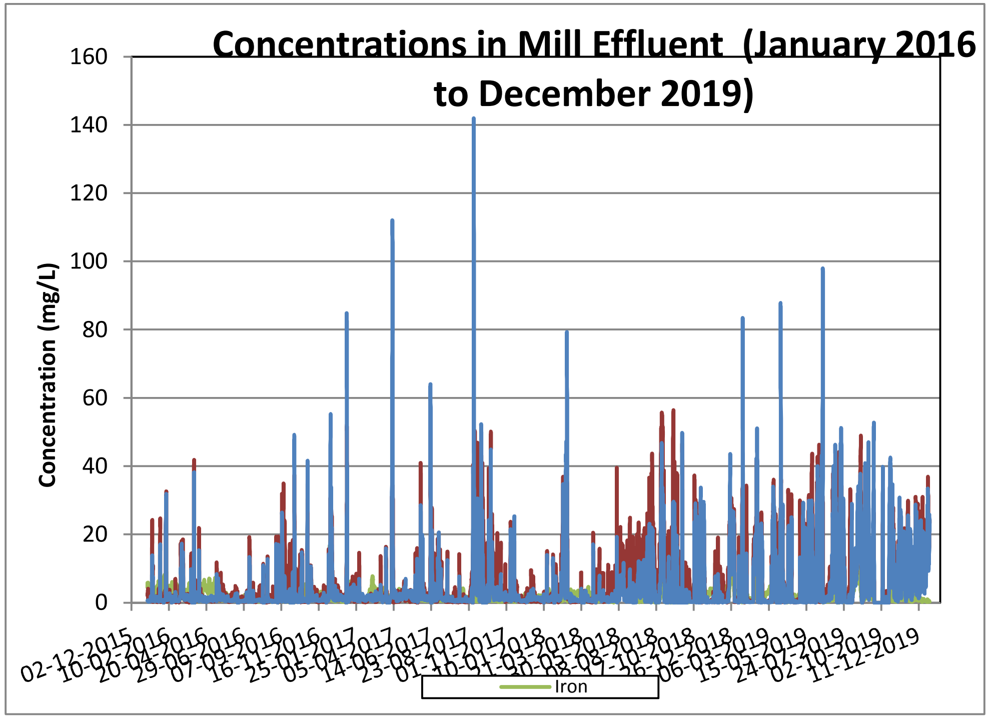
Mill Effluent



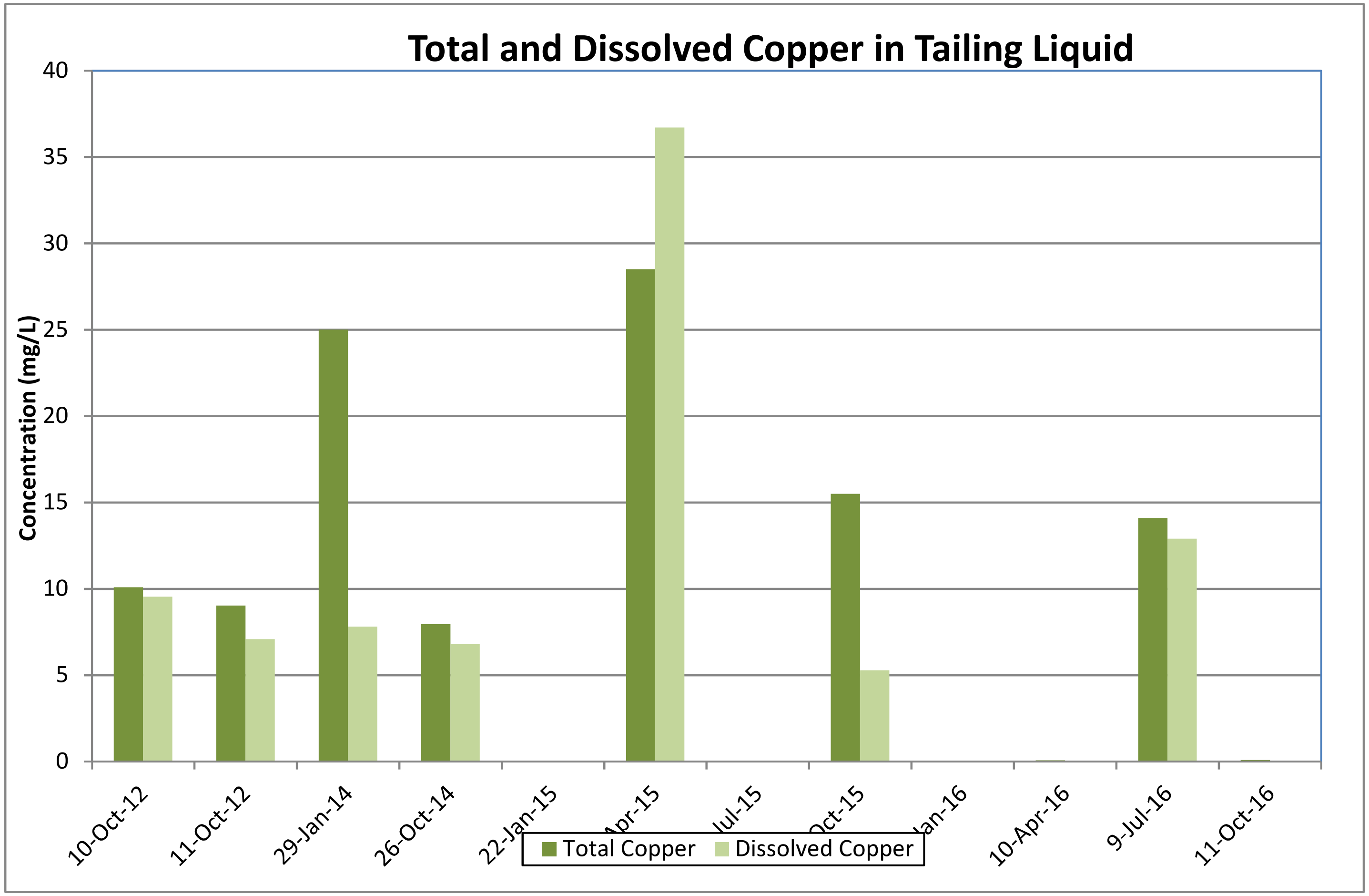

Mill Effluent (Ions)
Concentrations (mg/L)
1000.0000
100.0000
10.0000
1.0000
0.1000
Apr-19
Jul-19
Oct-19
Nov-19
Dec-19
Chloride (Cl)
Fluoride (F)
Nitrate (NO3)
Ammonia (NH3-NH4)
Total Cyanide (CNt)



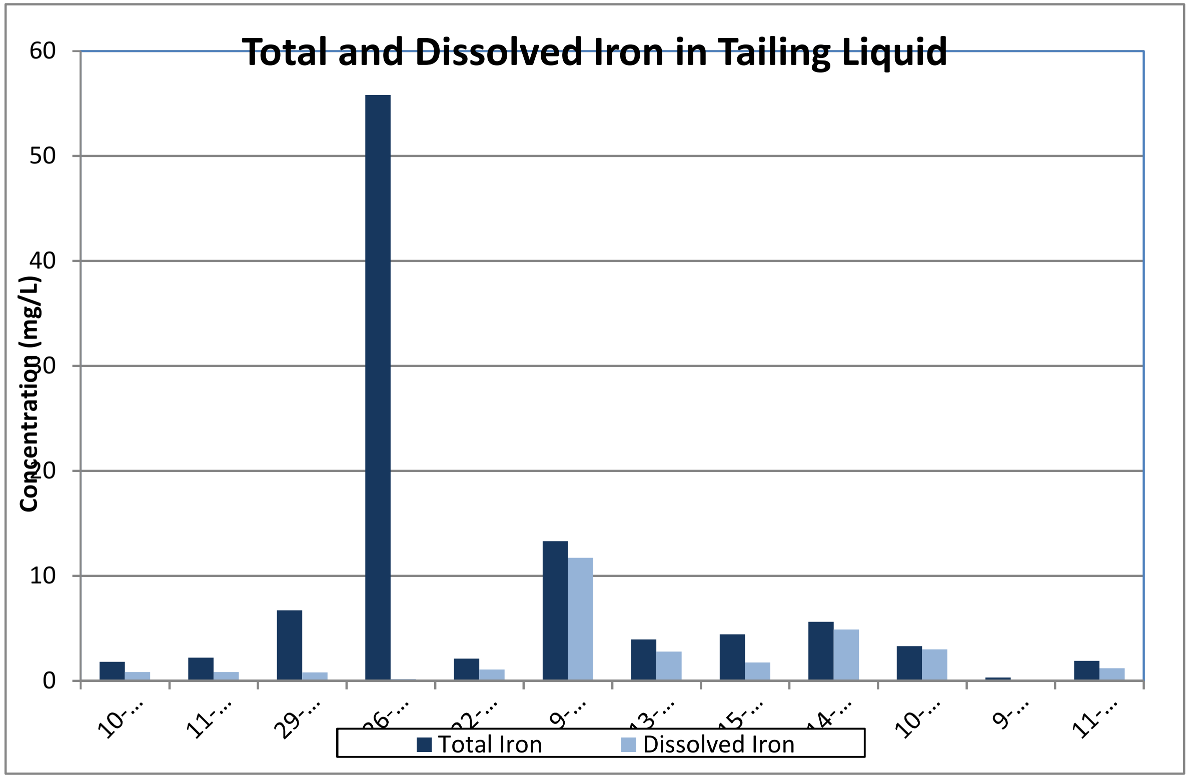
Concentrations in Mill Effluent (January 2018 to December 2019)
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Concentration (mg/L)
20-11-2017
21-12-2017
21-01-2018
21-02-2018
24-03-2018
24-04-2018
25-05-2018
25-06-2018
26-07-2018
26-08-2018
26-09-2018
27-10-2018
27-11-2018
28-12-2018
28-01-2019
28-02-2019
31-03-2019
01-05-2019
01-06-2019
02-07-2019
02-08-2019
02-09-2019
03-10-2019
03-11-2019
04-12-2019
04-01-2020
04-02-2020
06-03-2020
Iron



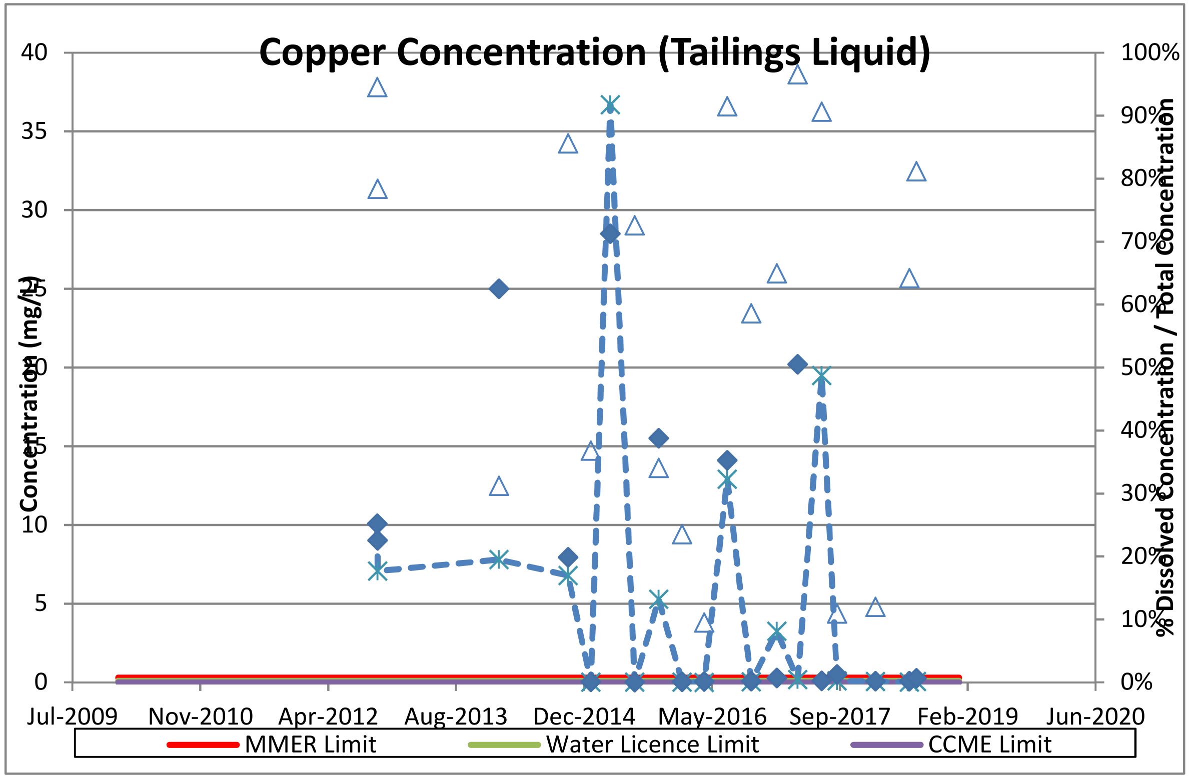
Concentrations in Mill Effluent (January 2016 to December 2019)
Concentration (mg/L)
160
140
120
100
80
60
40
20
0
02-12-2015
10-02-2016
20-04-2016
29-06-2016
07-09-2016
16-11-2016
25-01-2017
05-04-2017
14-06-2017
23-08-2017
01-11-2017
10-01-2018
20-03-2018
29-05-2018
07-08-2018
16-10-2018
25-12-2018
06-03-2019
15-05-2019
24-07-2019
02-10-2019
11-12-2019
Iron



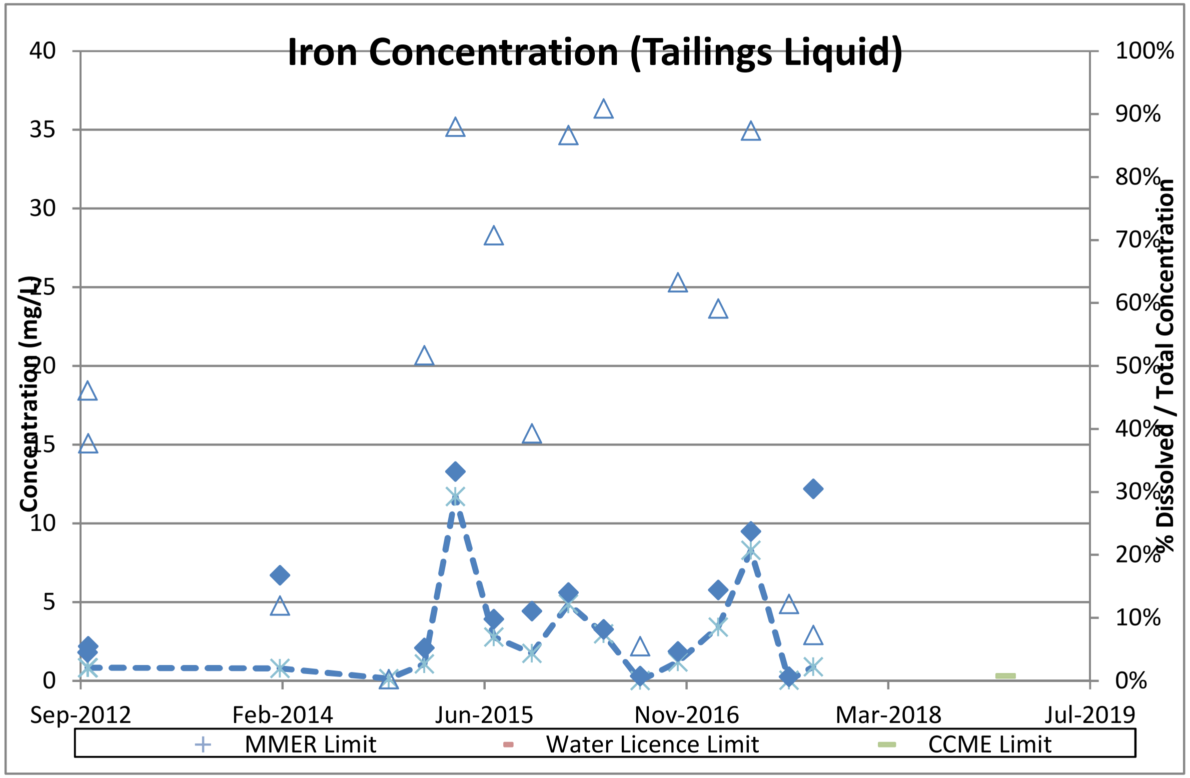
Total and Dissolved Copper in Tailing Liquid
Concentration (mg/L)
40
35
30
25
20
15
10
5
0
10-Oct-12
11-Oct-12
29-Jan-14
26-Oct-14
22-Jan-15
10-Apr-16
9-Jul-16
11-Oct-16
Total Copper
Dissolved Copper

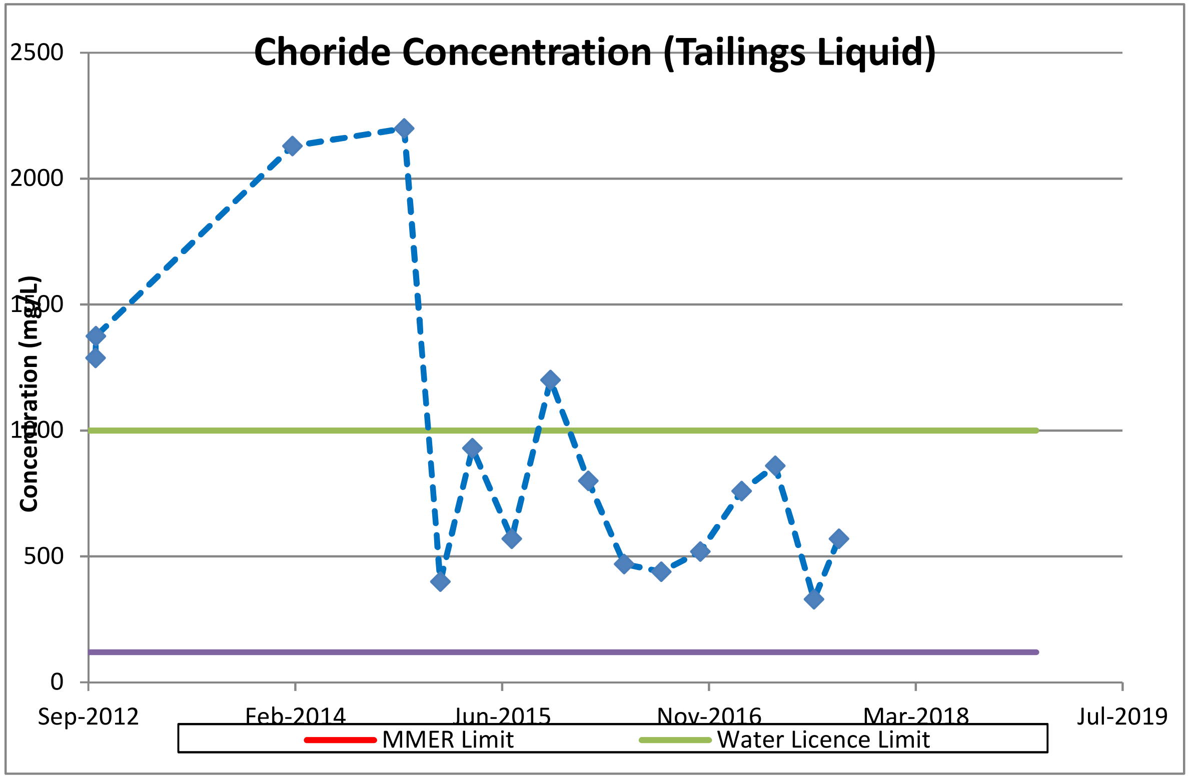


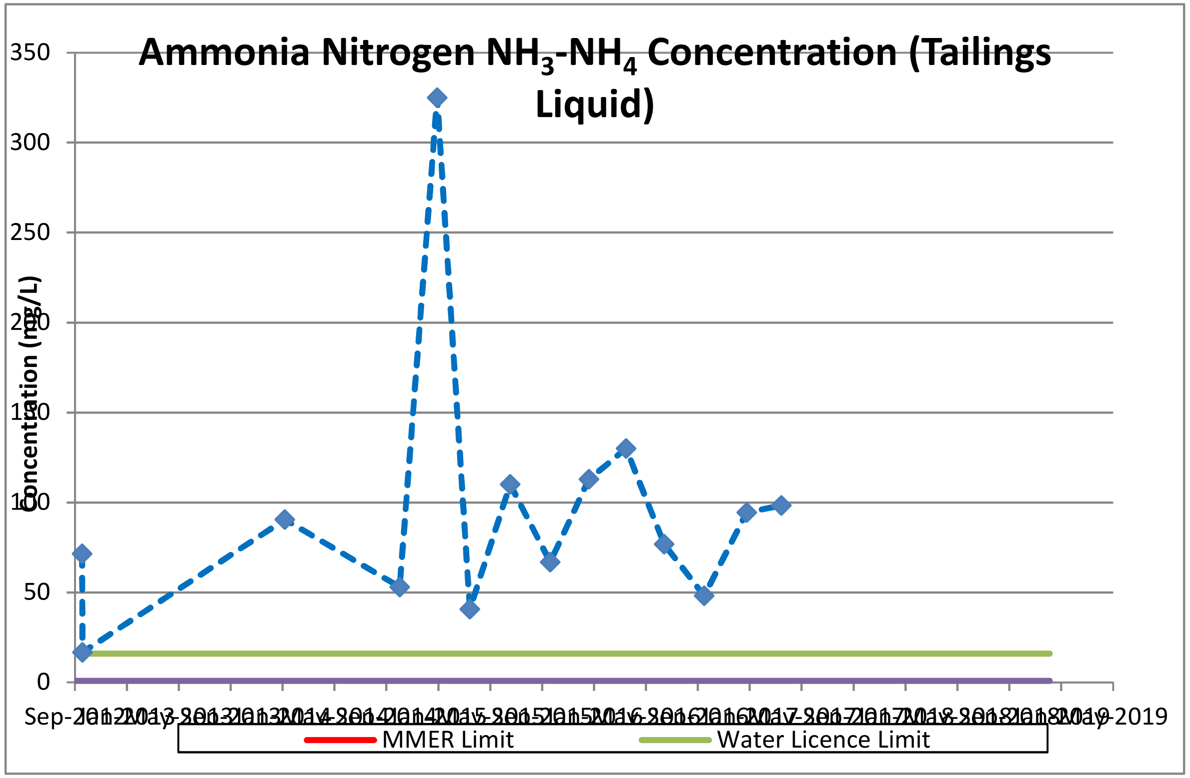
Total and Dissolved Iron in Tailing Liquid
Concentration (mg/L)
60
50
40
30
20
10
0
10-…
11-…
29-…
26-…
22-…
9-…
13-…
15-…
14-…
10-…
9-…
11-…
Total Iron
Dissolved Iron

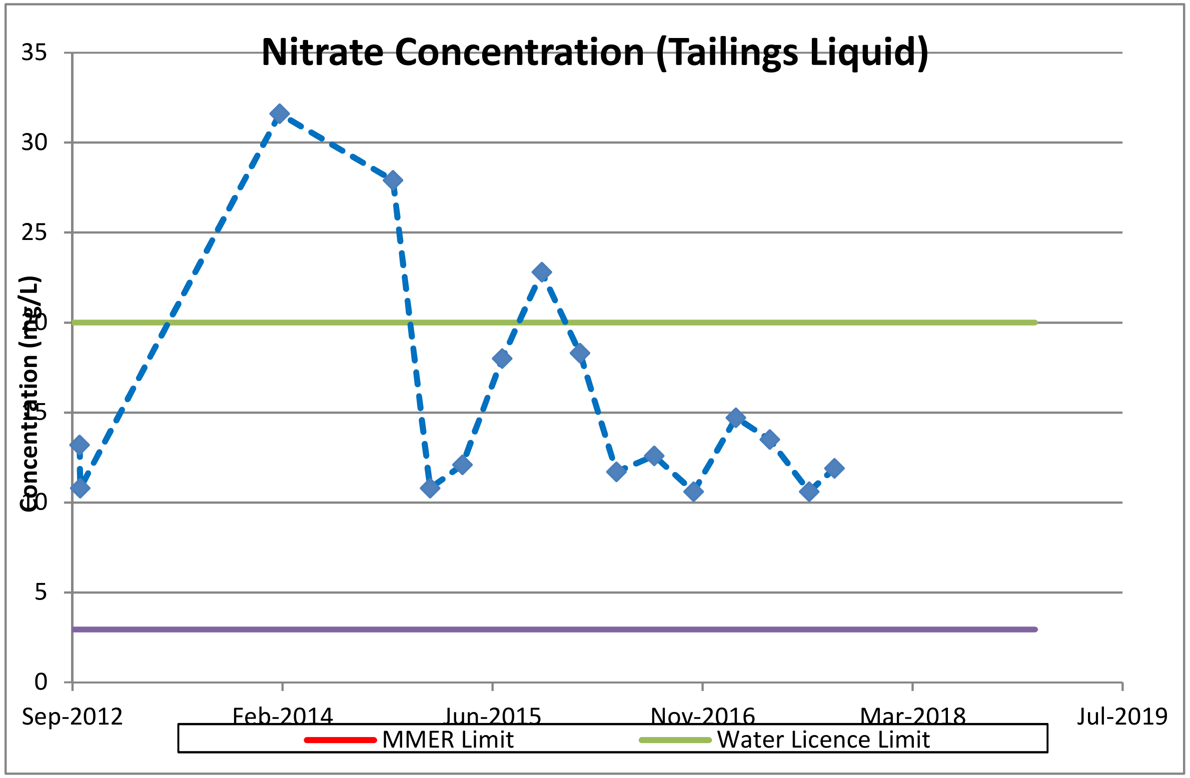


Copper Concentration (Tailings Liquid)
Concentration (mg/L)
% Dissolved Concentration / Total Concentration
40
35
30
25
20
15
10
5
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Jul-2009
Nov-2010
Apr-2012
Aug-2013
Dec-2014
May-2016
Sep-2017
Feb-2019
Jun-2020
MMER Limit
Water Licence Limit
CCME Limit

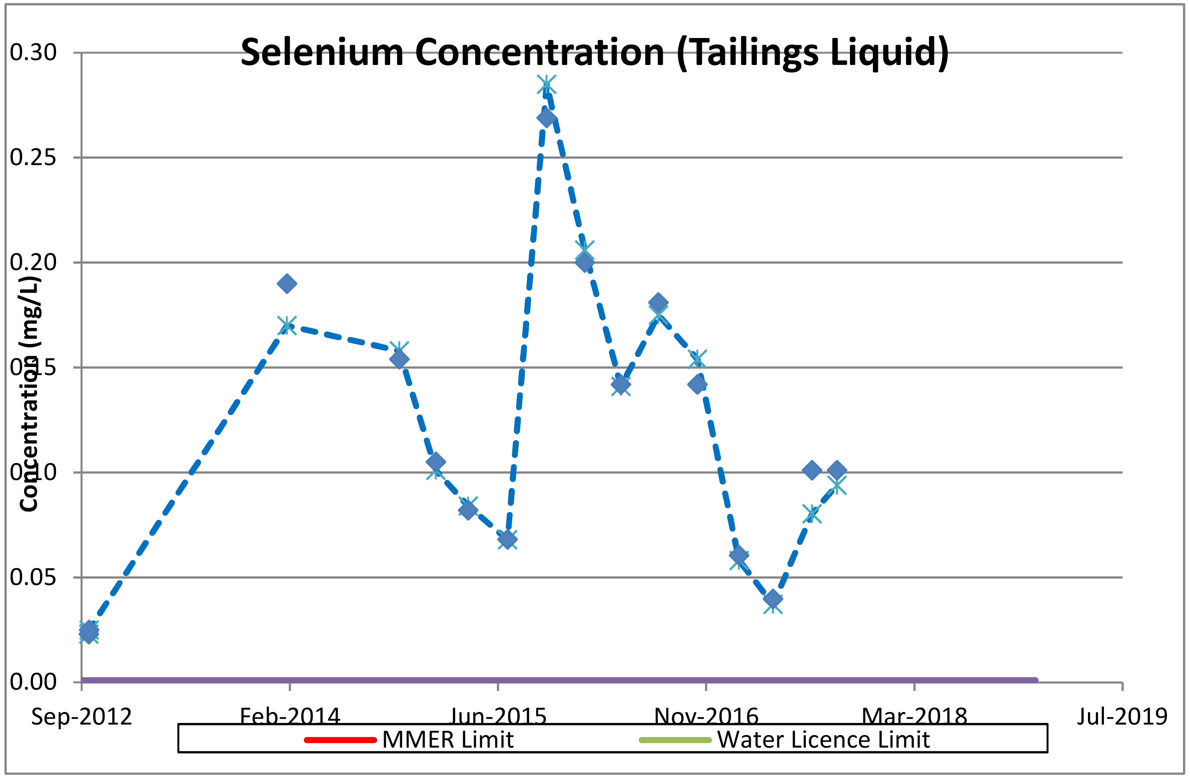

Iron Concentration (Tailings Liquid)
Concentration (mg/L)
% Dissolved / Total Concentration
40
35
30
25
20
15
10
5
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Sep-2012
Feb-2014
Jun-2015
Nov-2016
Mar-2018
Jul-2019
MMER Limit
Water Licence Limit
CCME Limit


Choride Concentration (Tailings Liquid)
Concentration (mg/L)
2500
2000
1500
1000
500
0
Sep-2012
Feb-2014
Jun-2015
Nov-2016
Mar-2018
Jul-2019
MMER Limit
Water Licence Limit

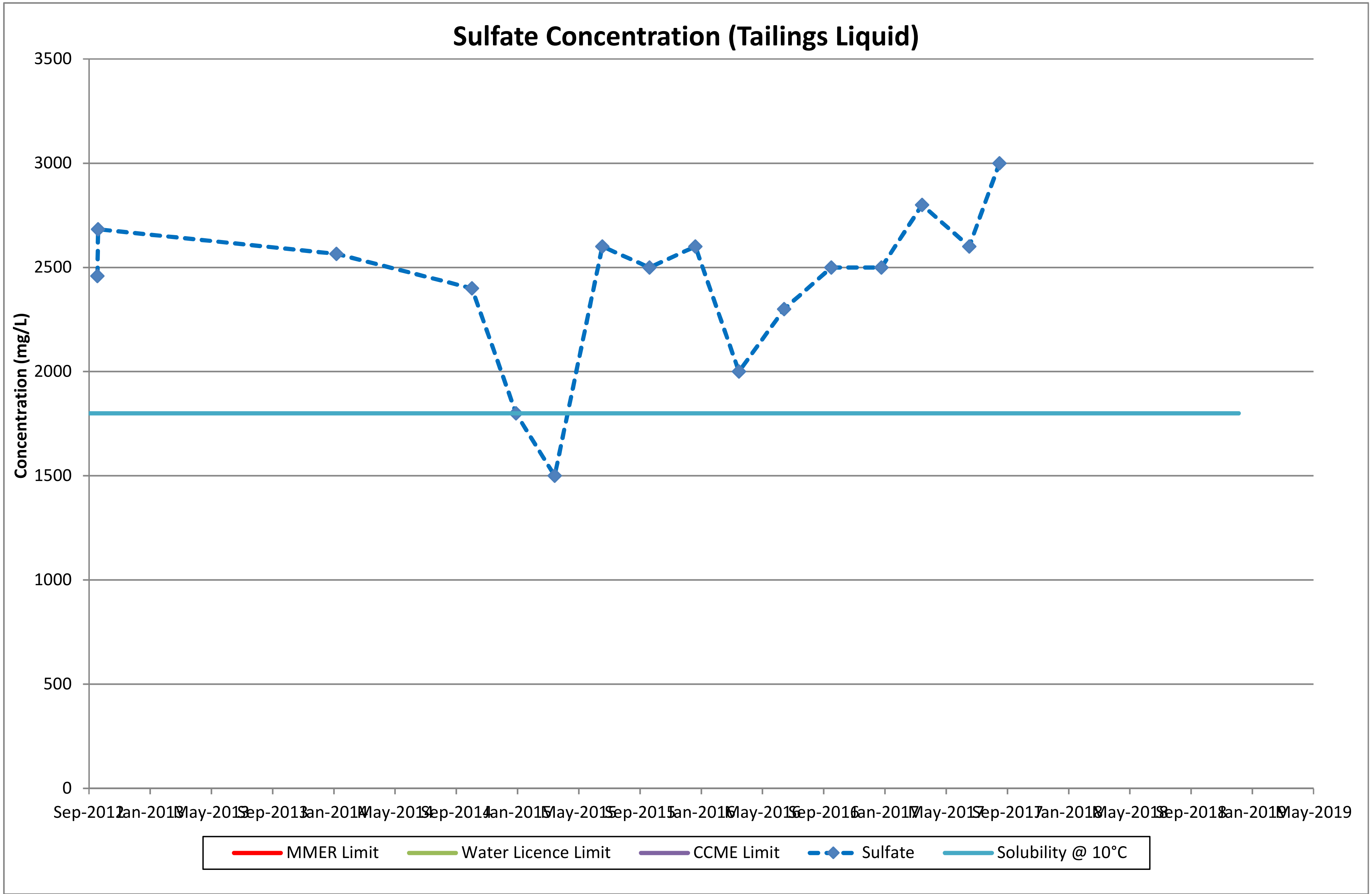

Ammonia Nitrogen NH3-NH4 Concentration (Tailings Liquid)
Concentration (mg/L)
350
300
250
200
150
100
50
0
Sep-2019
MMER Limit
Water Licence Limit



Nitrate Concentration (Tailings Liquid)
Concentration (mg/L)
35
30
25
20
15
10
5
0
Sep-2012
Feb-2014
Jun-2015
Nov-2016
Mar-2018
Jul-2019
MMER Limit
Water Licence Limit



Selenium Concentration (Tailings Liquid)
Concentration (mg/L)
0.30
0.25
0.20
0.15
0.10
0.05
0.00
Sep-2012
Feb-2014
Jun-2015
Nov-2016
Mar-2018
Jul-2019
MMER Limit
Water Licence Limit



Sulfate Concentration (Tailings Liquid)
Concentration (mg/L)
3500
3000
2500
2000
1500
1000
500
0
Sep-2012
Jan-2013
May-2013
Sep-2013
Jan-2014
May-2014
Sep-2014
Jan-2015
May-2015
Sep-2015
Jan-2016
May-2016
Sep-2016
Jan-2017
May-2017
Sep-2017
Jan-2018
May-2018
Sep-2018
Jan-2019
May-2019
MMER Limit
Water Licence Limit
CCME Limit
Sulfate
Solubility @ 10°C

2020-03-17

77	Alkalinity
1657.67	Hardness
see table below	Total dissolved solids
109.53	Total Aluminium (Al)
0.0018233	Total Silver (Ag)
9.006666667	Total Arsenic (As)
0.614666667	Total Barium (Ba)
0.003506667	Total Cadmium (Cd)
3.496	Total Chromium (Cr)
9.148666667	Total Copper (Cu)
401.7333333	Total Iron (Fe)
9.7	Total Manganese (Mn)
0.000005	Total Mercury (Hg)
0.0972	Total Molybdenum (Mo)
7.664	Total Nickel (Ni)
0.846	Total Lead (Pb)
0.143166667	Total Selenium (Se)
1.383333333	Total Strontium (Sr)
0.001827	Total Thallium (Tl)
0.007613333	Total Uranium (U)
0.272333333	Total Zinc (Zn)
see table below	Chloride
0.296666667	Fluoride (F)
see table below	Sulphate (SO4)
11.78	Total Cyanide (CNt)
see table below	Total Ammonia (NH3 + NH4)
12.86666667	Nitrate (NO3)
0.357333333	Dissolved Aluminium (Al)
0.000416667	Dissolved Silver (Ag)
1.196	Dissolved Arsenic (As)
0.112333333	Dissolved Barium (Ba)
0.000138333	Dissolved Cadmium (Cd)
0.00916	Dissolved Chromium (Cr)
3.637333333	Dissolved Copper (Cu)
1.496666667	Dissolved Iron (Fe)
0.0574	Dissolved Manganese (Mn)
0.000005	Dissolved Mercury (Hg)
0.1053	Dissolved Molybdenum (Mo)
6.132333333	Dissolved Nickel (Ni)
0.003103333	Dissolved Lead (Pb)
0.162766667	Dissolved Selenium (Se)
1.28	Dissolved Strontium (Sr)
0.001827	Dissolved Thallium (Ti)
0.002693333	Dissolved Uranium (U)
0.001333333	Dissolved Zinc (Zn)

Metals	Concentra
	Total
Total Aluminium (Al)	109.530
Total Silver (Ag)	0.002
Total Arsenic (As)	9.007
Total Barium (Ba)	0.615
Total Cadmium (Cd)	0.004
Total Chromium (Cr)	3.496
Total Copper (Cu)	9.149
Total Iron (Fe)	401.733
Total Manganese (Mn)	9.700
Total Mercury (Hg)	0.000
Total Molybdenum (Mo)	0.097
Total Nickel (Ni)	7.664
Total Lead (Pb)	0.846
Total Selenium (Se)	0.143
Total Strontium (Sr)	1.383
Total Thallium (Tl)	0.002
Total Uranium (U)	0.008
Total Zinc (Zn)	0.272

ıtion mg/L	Correction process		
Dissolved	Dissolved (%)	Potential of Precipitation (%)	Correction (*100=%)
0.357	0.326	99.674	-0.990
0.000	22.852	77.148	-0.900
1.196	13.279	86.721	-0.900
0.112	18.275	81.725	-0.900
0.000	3.945	96.055	-0.900
0.009	0.262	99.738	-0.900
3.637	39.758	60.242	-0.600
1.497	0.373	99.627	-0.900
0.057	0.592	99.408	-0.900
0.000	100.000	0.000	0.000
0.105	108.333	-8.333	0.000
6.132	80.015	19.985	-0.200
0.003	0.367	99.633	-0.900
0.163	113.690	-13.690	0.000
1.280	92.530	7.470	-0.100
0.002	100.000	0.000	0.000
0.003	35.377	64.623	-0.600
0.001	0.490	99.510	-0.900

Initial Total concentration (mg/L)	Corrected value (mg/L)
109.530	1.095
0.002	0.000
9.007	0.901
0.615	0.061
0.004	0.000
3.496	0.350
9.149	3.659
401.733	40.173
9.700	0.970
0.000	0.000
0.097	0.097
7.664	6.131
0.846	0.085
0.143	0.143
1.383	1.245
0.002	0.002
0.008	0.003
0.272	0.027

APPENDIX D – 2019 FRESHET ACTION PLAN

AGNICO EAGLE

Meadowbank Gold Mine

Freshet Action And Incident Response Plan

March 2020

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

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.

AGNICO EAGLE
MEADOWBANK

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
08	Agnico	Internal	March 2020	All	Comprehensive update from 2019 Plan

Prepared By: Meadowbank Environment

Approved by: 

Robin Allard, General Supervisor Environment

TABLE OF CONTENTS

1 INTRODUCTION 8

2 AREAS OF CONCERN 10

2.1 Mining Pits and Pit Walls 10

2.1.1 *Goose Pit* 10

2.1.2 *Portage Pit* 10

2.1.3 *Vault & Phase Pits* 11

2.2 Waste Rock Storage Area 12

2.2.1 *Portage RSF* 12

2.2.2 *Vault RSF* 12

2.3 North Cell Tailings Storage Facility 13

2.3.1 *Diversion Ditches* 13

2.3.1.1 AWAR culvert – discharge to Third Portage Lake 14

2.3.1.2 West Diversion Ditch Elbow 15

2.3.1.3 Northwest Corner of North Cell TSF 16

2.3.1.4 Waste Extension Pool (WEP) sumps 17

2.3.1.5 East Diversion ditch outlet to NP-2 Lake 18

2.3.1.6 North Portion of NAG Waste Rock Expansion 19

2.3.1.7 NP-2 Outlet,Vault Road Culvert and NP1 19

2.4 Saddle Dams 22

2.4.1 *Saddle Dam 1* 22

2.4.2 *Saddle Dam 2* 22

2.4.3 *Saddle Dam 3* 23

2.4.4 *Saddle Dam 4-5* 23

2.5 Vault Road Culvert 23
2.6 Stormwater Management Pond 23
2.7 FUEL TANK FARMS 24
2.7.1 *Meadowbank Tank Farm* 24
2.7.2 *Baker Lake Tank Farms* 25
2.8 AWAR Culverts on the Baker Lake Portion 25
3 INCIDENT RESPONSE 26
3.1 ST-16 SEEPAGE 26
3.2 Mill Seepage 28
3.3 Central Dike ST-S-5 29
4 SNOW MANAGEMENT 30

LIST OF FIGURES

Figure 2-1: View of Portage Pit E area with the associated sumps and trenches 11

Figure 2-2: View of Vault area and the associated management ponds 12

Figure 2-3: Location of the areas of interest for the 2017 Freshet Action Plan 14

Figure 2-4: West diversion ditches area of interest 14

Figure 2-5: North Cell West Diversion ditch interception sump 16

Figure 2-6. View of the northwest corner of the ditches 17

Figure 2-7. WEP1 and WEP2 sumps locations 18

Figure 2-8: View of the East Diversion ditch outlet into NP-2 Lake 19

Figure 2-9: View of the diversion ditches at the Vault road area 20

Figure 2-10: Turbidity barriers at inlet of NP1 installed in July 2016 21

Figure 2-11: Turbidity barriers at the inlet of Dogleg Lake 22

Figure 2-13: Portage Pit area with the Stormwater Management Pond 24

Figure 3-1. View of the RSF seepage observed at the ST-16 station. 27

Figure 3-2. View of the mill seepage area and initial retention berm construction 28

Figure 3-3. View of the mill seepage area and interception trench design 29

List of Appendix

Appendix 1 - 2019 Freshet Action Plan Procedure

Appendix 2 - 2019 Monitoring Location for the Freshet Action Plan

Appendix 3 – 2019 Snow management

List of Schedule

Schedule 1 – ST-16 Seepage monitoring program

Schedule 2 – Mill Seepage monitoring program

Schedule 3 – Central Dike Seepage monitoring program

1 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 offsite 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 Eagle 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 2020 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:

- IPD pits, Vault Pit and pit walls;
- Area around the Portage Waste Rock Storage Facility (RSF) including the northern portions of the NAG waste rock extension, which include the collection ponds known as WEP 1 and WEP 2;
- Vault Waste Rock Storage Facility;
- North and South Cell TSF surrounding areas:
    - East and West diversion ditches;
    - Northwest corner of the North Cell TSF;
    - Saddle Dam 1 corner;
    - Saddle Dam 2 sump;
    - Saddle Dam 3 sump;
    - Saddle Dam 4-5 downstream;

- Vault Road culverts;
- Stormwater Management Pond;
- Fuel Tank Farms;
- 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

2.1 IPD Pits, Vault Pit and Pit Walls

All ramps, and ditches must be cleared of all ice and snow before May in order to access the shoreline of the filling pits. All pumps must be checked and serviced to be in working order prior to May. In addition, a check must be completed confirming that all piping systems starting from the different pits 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 2015. Tailings deposition began in July 2019. Between 2015 and 2019, Goose Pit was being passively reflooded. Due to the increased inflows from tailing deposition, water transfers from Goose Pit towards either Pit E or Pit A are expected to be needed on an annual basis, as part of the deposition plan.

2.1.2 *Pit E*

Mining in Pit E was completed in 2019. The pit is now part of the in-pit deposition plan. The plan uses the Pit E pushback ramp, and, as a result, the pond and ditch system presented in Figure 2-1 will be required. 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. In addition, the Pit E main ramp and pushback ramp require proper trenching and snow clearing to ensure safe operations of the tailing deposition and mill reclaim systems.

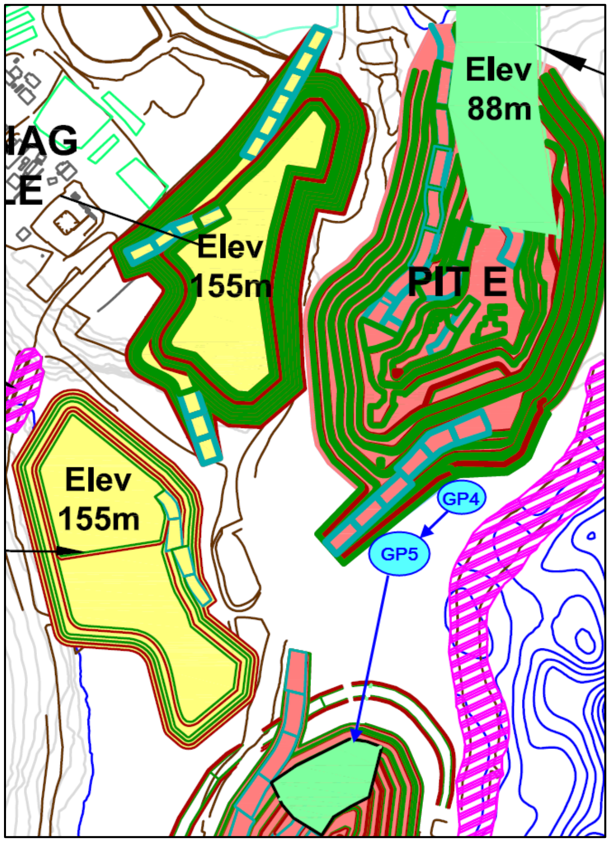


Figure 2-1: View of Portage Pit E area with the associated sumps and trenches

2.1.3 *Pit A*

Mining in Pit A was completed in 2018. The pit is now part of the in-pit deposition plan. The Pit A ramp and North Ramp require proper trenching and snow clearing to ensure safe operations of the tailing deposition and mill reclaim systems.

2.1.4 *Vault & Phase Pits*

Between 2014 (completion of Vault Lake dewatering) and 2019 Vault Lake was being used as an Attenuation pond. The light blue surfaces in Figure 2-2 represent four isolated ponds that formed 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 flowing into the active mining areas were pumped to the Attenuation pond. Vault Pit mining activities were completed in 2019.

Between 2016 and 2019, the Phaser Lake was being used as an attenuation pond for the Phaser and BBPhaser Pits. In 2018, Phaser Pit mining activities were completed, while BBPhaser was completed in 2019.

As a result of all mining activity of Vault area being completed, passive pit reflooding has begun, with natural runoff being the only inflow. No further discharge to Wally Lake is expected. Safe accesses need to be maintained for sampling purposes.

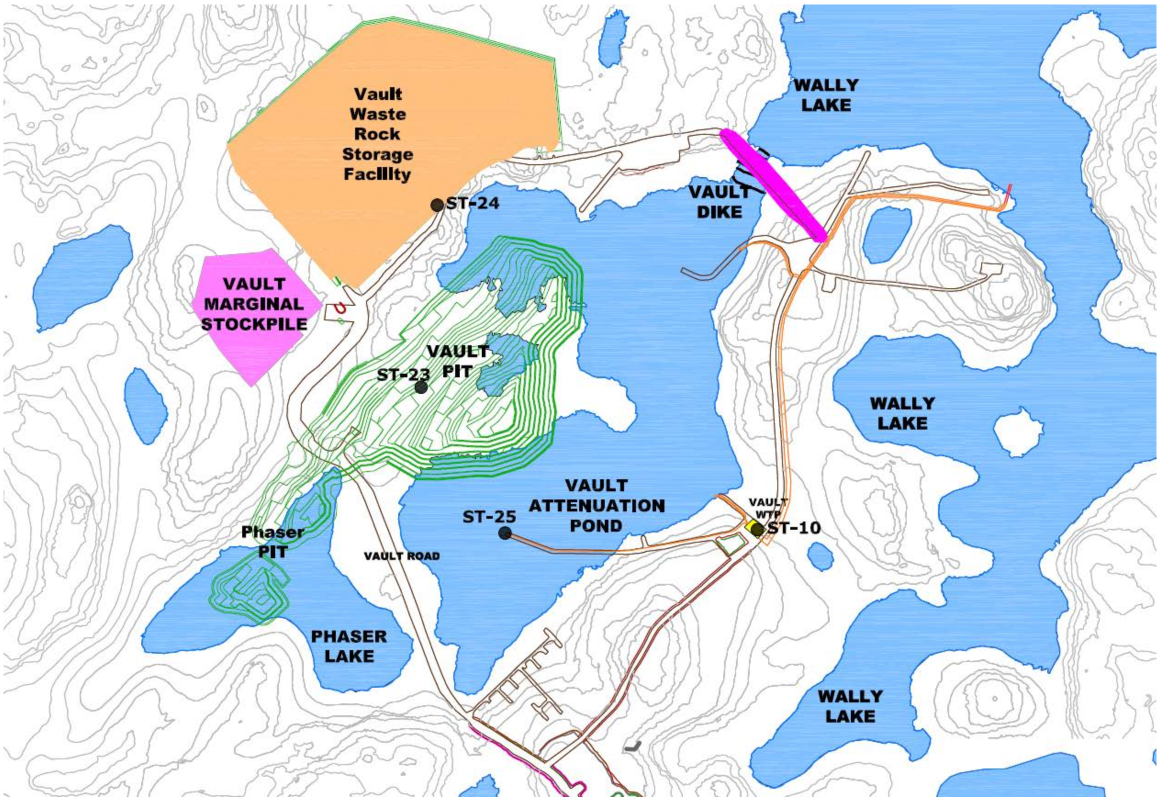


Figure 2-2: View of Vault area and the associated management ponds

2.2 Waste Rock Storage Area

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 the waste rock stored in the RSF is primarily NAG.

2.3 North and South Cell Tailings Storage Facility

Water management around both the North and South 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 NAG waste rock expansion; and
2. 7. Vault road culvert – NP-2 Lake exit to NP-1 Lake.

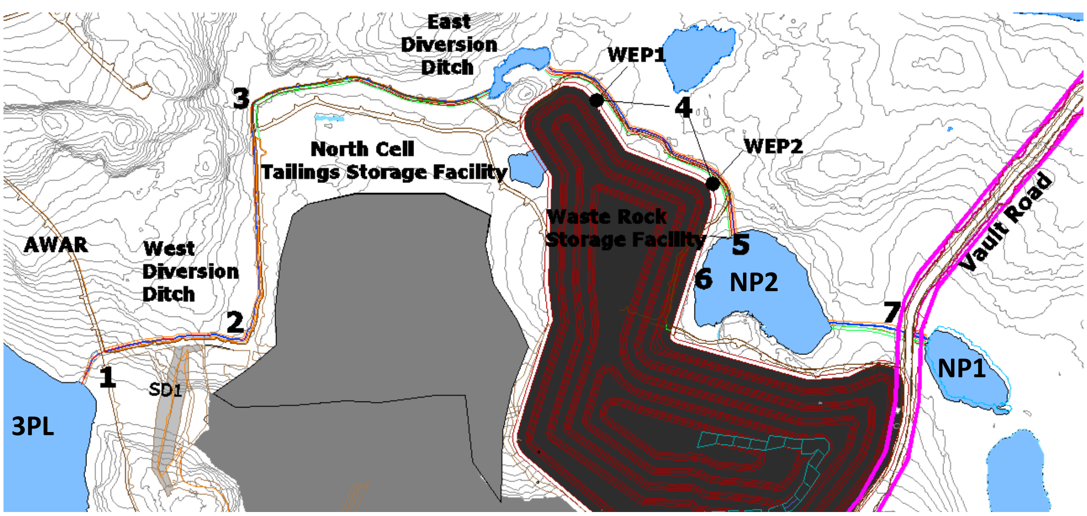


Figure 2-3: Location of the areas of interest for the 2017 Freshet Action Plan

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 are 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.

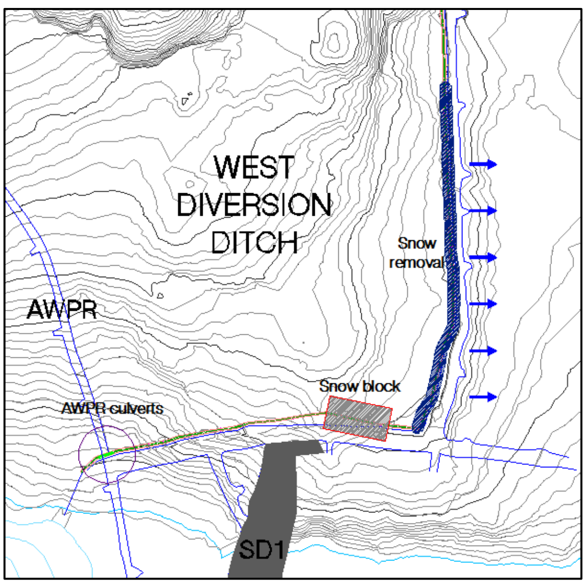


Figure 2-4: West diversion ditches area of interest

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 2020, 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 2020, it is planned to let natural overflow to Third Portage Lake, if results are compliant. If needed, the water would be pumped back to the North Cell TSF to avoid any non-compliance. A pump will be installed preventively and ready to operate.

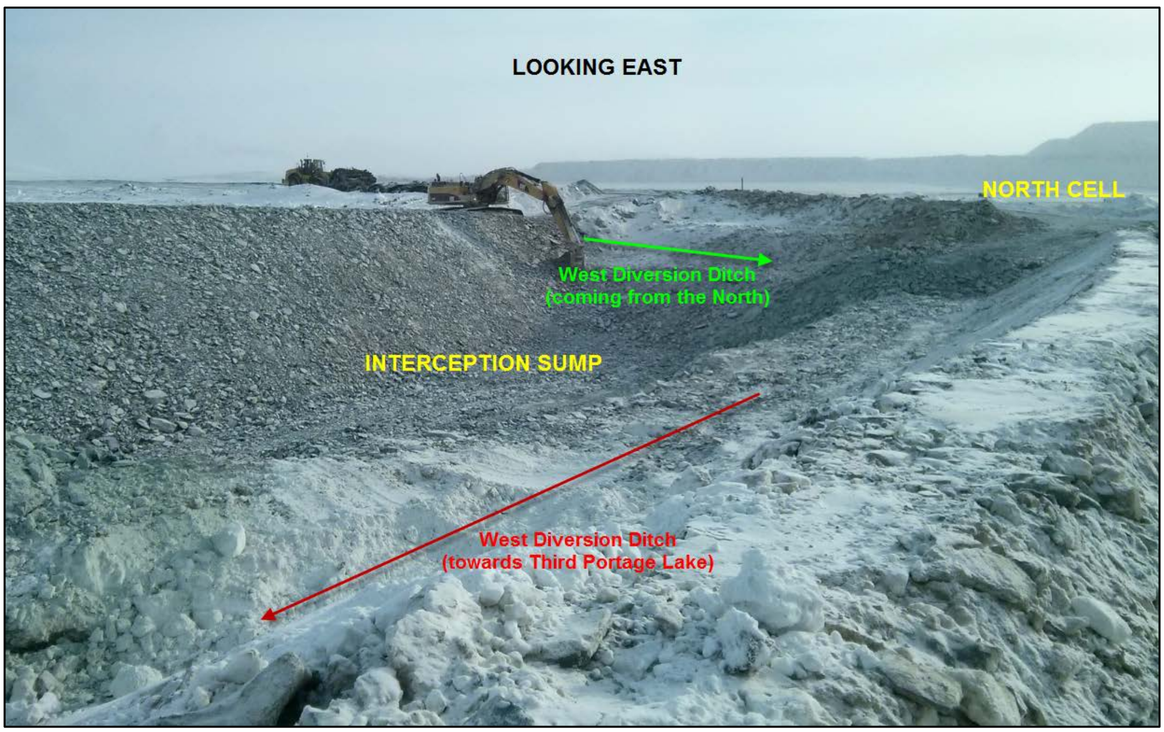


Figure 2-5: North Cell West Diversion ditch interception sump

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, returning for punctual deposition in the summers of 2018 and 2019. 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 2020, Agnico will continue to monitor and conduct visual inspections of this area in May until freshet is complete and after rain events.

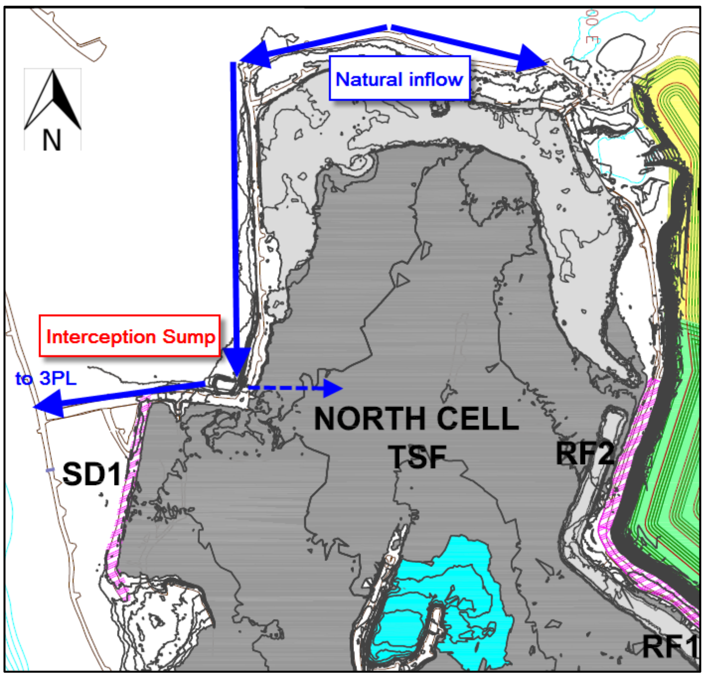


Figure 2-6. View of the northwest corner of the ditches

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 NAG 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 were replaced in 2016 with the WEP collection system. 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.

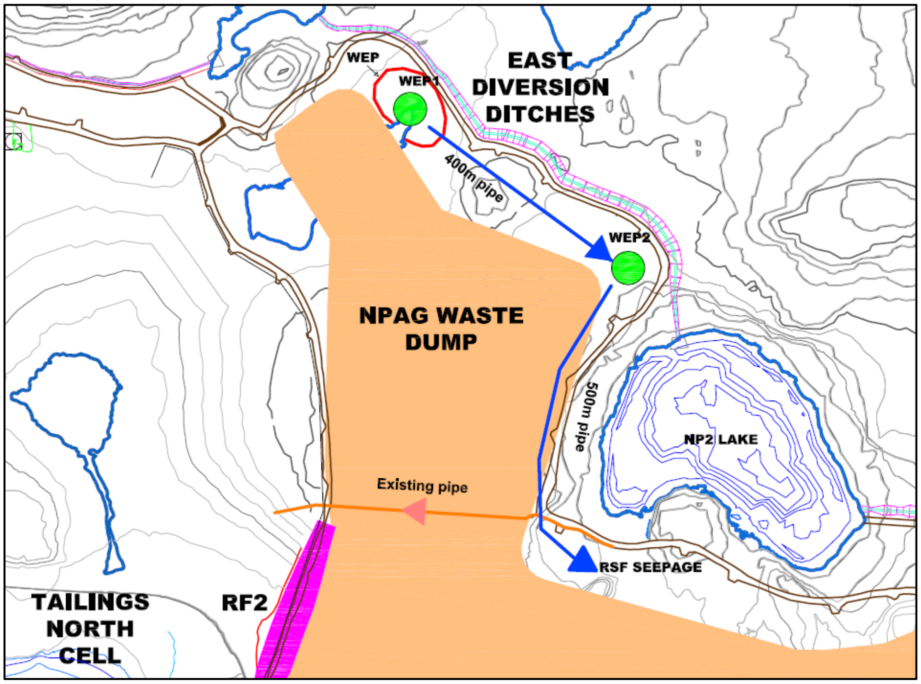


Figure 2-7. WEP1 and WEP2 sumps locations

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).

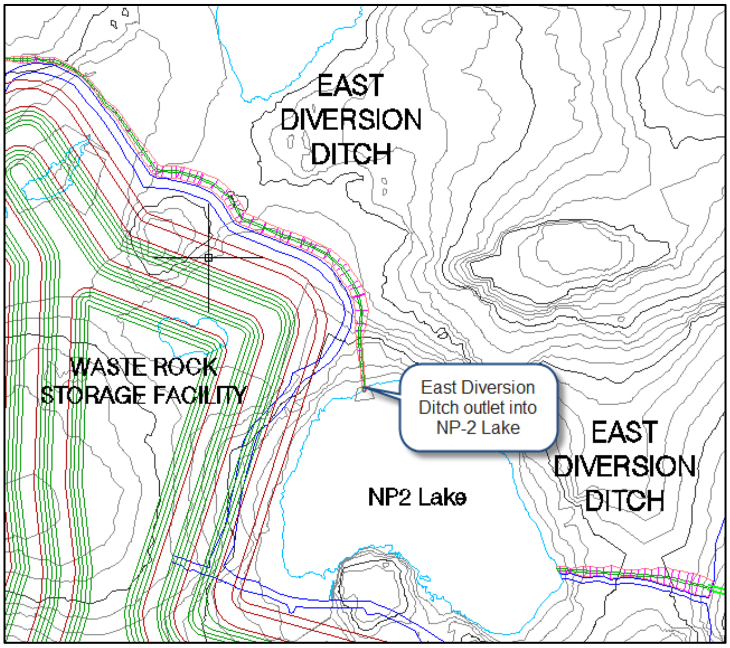


Figure 2-8: View of the East Diversion ditch outlet into NP-2 Lake

2.3.1.6 North Portion of NAG Waste Rock Expansion

The northwestern area of the RSF, which consists entirely of NAG 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 recent years, 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 2020. 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 Dogleg (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 – NAG 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, ensuring no large accumulations of stored snow in this area, to minimize runoff. The additional turbidity barriers (4) were removed from NP-1 in the fall of 2015. Another barrier was put in place in May 2016 on the ice to ensure protection during melting conditions and again in 2017. These barriers are stored on site for rapid deployment in case they are needed in the future. This barrier is left on location over winter and will already be in place at the start of freshet. Barrier inspections will occur throughout freshet to ensure proper functionality.

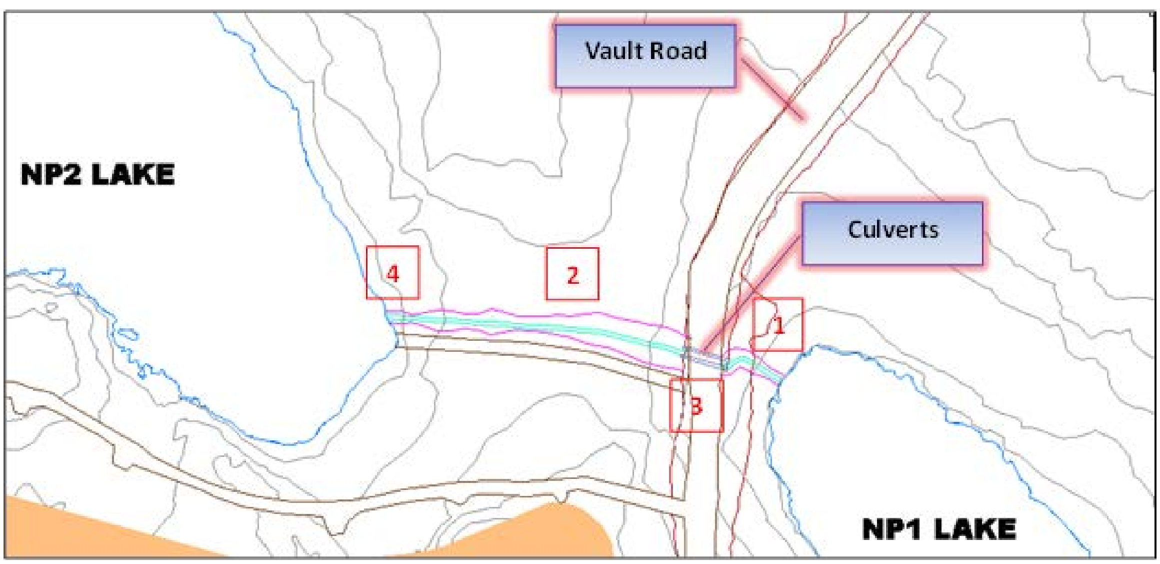


Figure 2-9: View of the diversion ditches at the Vault road area

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. The downstream area of the SD3 embankment will 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 was pooling are sometimes present during the freshet period and will be pumped into the South Cell TSF footprint on their upstream side.

2.4 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.

2.5 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 an active tailing storage facility. 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.

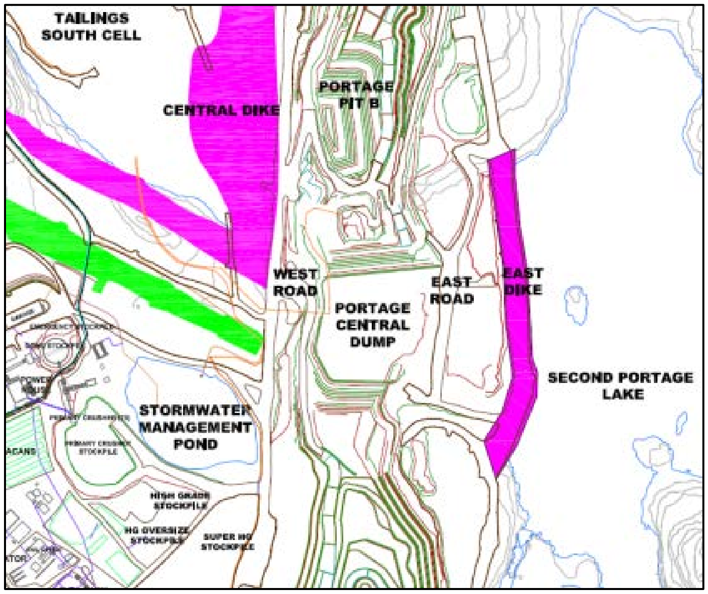


Figure 2-12: Portage Pit area with the Stormwater Management Pond

2.6 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 sent 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.

2.7 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.

3 INCIDENT RESPONSE

3.1 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 reclaiming 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 2019 pumped volumes are reported in the Agnico 2019 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. The KIA requested that Agnico continue monitoring until there is a 5 year period of non-detect cyanide results. Since 2014, the monitoring has indicated no CN levels in NP-2, NP-1 and further downstream lakes, Dogleg and Second Portage. Despite 5 consecutive years of acceptable water quality, Agnico will continue monitoring water quality of NP2 in 2020.

A discussion and analysis of the 2019 monitoring results can be found in the Agnico 2019 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 are all 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.

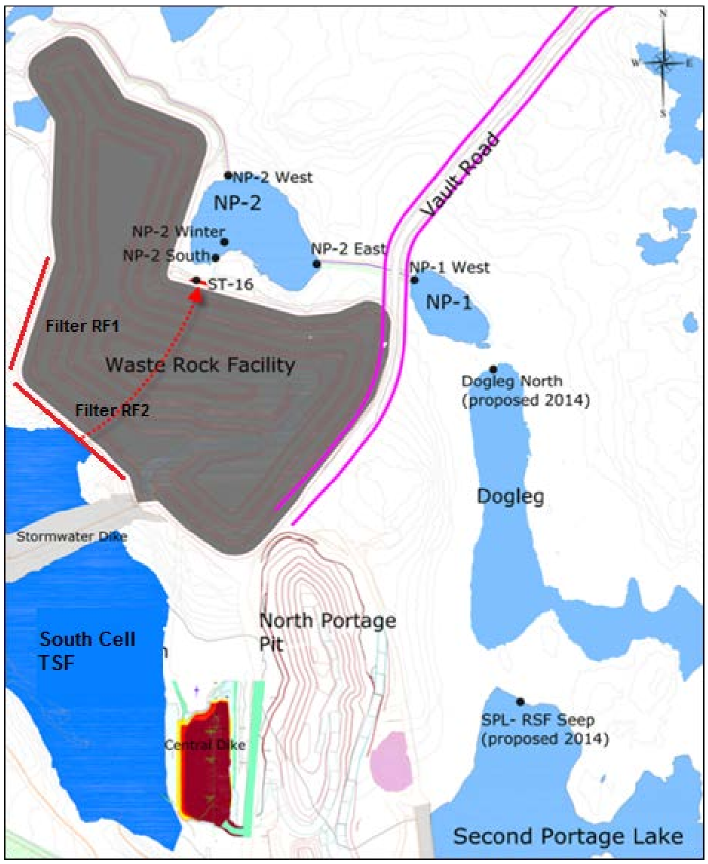


Figure 3-1. View of the RSF seepage observed at the ST-16 station.

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.

3.2 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 were completed in 2014 thus stopping the source of the seep. Agnico hired 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).

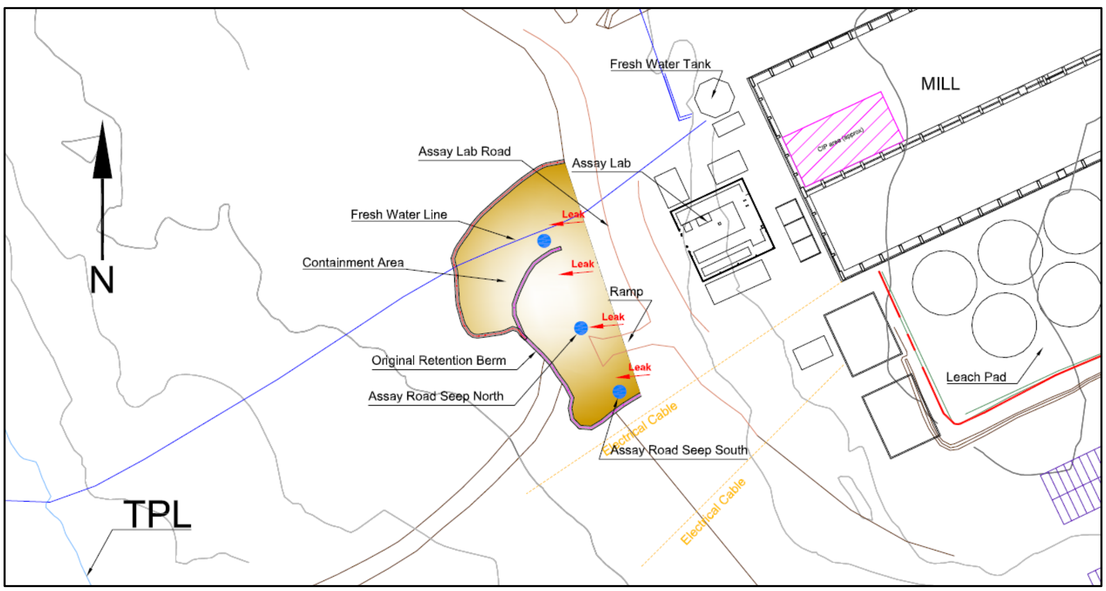


Figure 3-2. View of the mill seepage area and initial retention berm construction

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 2019 pumped volumes are reported in the Agnico 2019 Annual Report within the Water Management Report and Plan.

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. 2019 pumped volumes from interception/collection trenches are reported in the Agnico 2019 Annual Report. More details are provided in Section 8.5.8.1.6 of the 2019 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. A discussion of the monitoring results for 2019 is included in Agnico's 2019 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 2020.

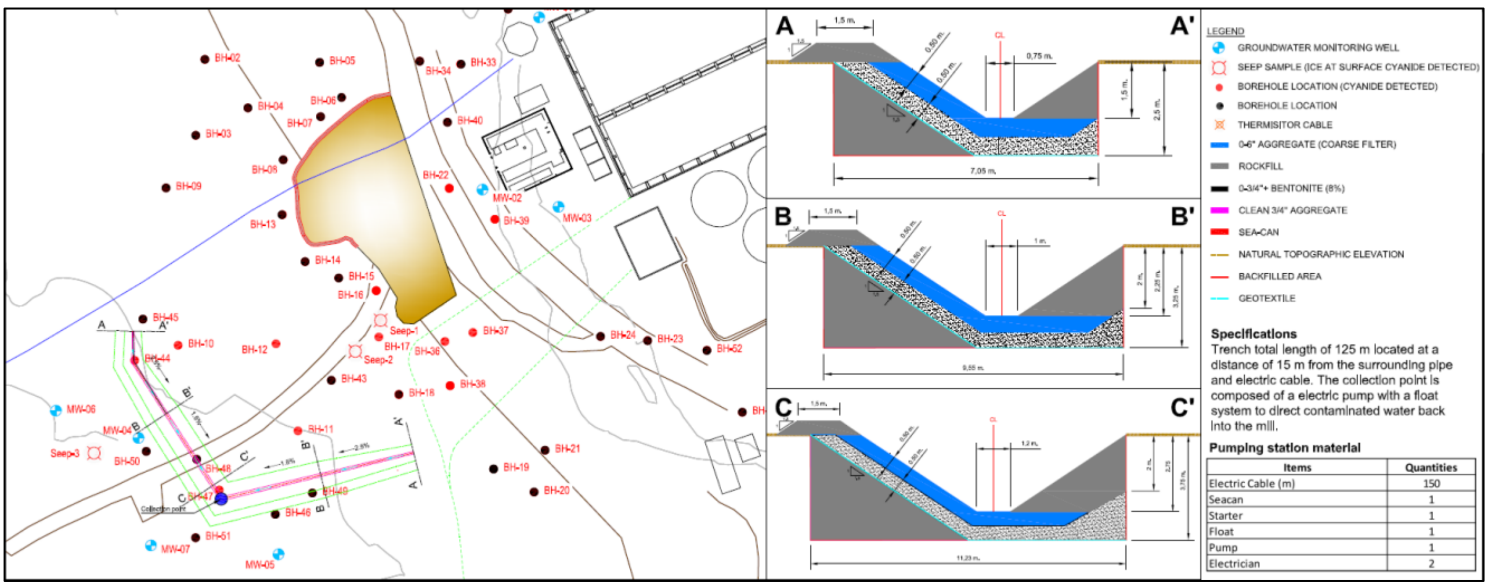


Figure 3-3. **View of the mill seepage area and interception trench design**

3.3 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 2019. 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 engineering as well as weekly by environment. Environment department will also conduct monthly sample as per the Water License.

4 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	Responsibilities	Dates
2.1	**IPD Pits, Vault Pit and Pit Walls**			
2.1	IPD Pits, Vault Pit and Pit Walls – General	1) Clean all ice, mud and snow on all ramps, etc.	Mine Operations/E&I	Before May
2.1.1	**Goose Pit**			
2.1.1	Goose Pit	1) Ensure pipes and pumps are serviced and ready to operate. 2) Give guidance as to when and where (Pit E or Pit A) water is to be pumped.	E&I Engineering	Early May Early May
2.1.2	**Pit E**			
2.1.2	Pit E	1) Runoff water accumulated in ponds GP-4 and GP-5 will be pumped into Goose pit or Pit E;	E&I	During Freshet Early May
2.1.2	**Pit A**			
2.1.2	Pit A	1) Ensure pipes and pumps are serviced and ready to operate.	E&I	Early May

2.1.3 Vault Pit Area			
2.1.3 Vault & Phaser Pits	1) 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
2.2 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 AND SOUTH CELL TAILINGS STORAGE FACILITY**			
2.3.1	**Diversion Ditch**			
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	Before May 20
		2) If needed, steam to free any ice blockage.	Engineering to coordinate with E&I	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	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

	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	TSS result dependent
	7) Have turbidity and silt barriers in place at TPL (2) and maintain.	Env. Department	May - before freshet starts and until water freezes
	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
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	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	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	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
	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	TSS result dependent
	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
2.3.1.6 North portion of NAG Waste Rock Expansion	1) Daily inspection - keep record	Env. Department	May until runoff complete
	2) Sample for ST-S-XX when water observed; sample upstream (background) in diversion ditch for same parameters and compare results (rush analysis). If results indicate potential for impact, i.e. 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 Outlet 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	Early May
		2) If needed, steam culvert to free any ice/snow blockage.	Engineering to coordinate with E&I	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
		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

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	May 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) Prepare pumping system	E&I	Early May
		2) Weekly Inspection - keep record.	Engineering	May and until water freezes
		3) Start pumping to TSF when water observed. Keep volume pumped out.	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	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-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	1) Prepare pumping system	E&I	Early May
		2) Monthly Inspection - keep record.	Engineering	May until water freezes
		3) Start pumping to TSF when water observed. Keep volume pumped out.	Engineering and E&I	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 and Engineering	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	As required during summer
		2) Sample water in accordance with Water License to ensure compliance with limits prior to release.	Env. Department	As required during summer
		3) Provide notice to Inspector 10 days prior to pumping.	Env. Department	As required during summer

	4) Advise Energy and Infrastructure Dept if pumping can begin based on sample results.	Env. Department	As required during summer
	5) Pump to tundra/ground or Stormwater Mgmt Pond (note pumping to Stormwater Mgmt 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	Following ENV. Authorization
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	As required during summer
	2) Sample water in accordance with Water License to ensure compliance with limits prior to release.	Env. Department	As required during summer
	3) Provide notice to Inspector 10 days prior to pumping.	Env. Department	As required during summer
	4) Advise Energy and Infrastructure Dept if pumping can begin based on sample results.	Env. Department	As required during summer

		5) Once approval given by Env Dept, E&I Dept can pump to tundra but must avoid erosion during pumping, i.e., 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	Following ENV. Authorization
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
		2) Notify E&I Dept if severe erosion/scouring observed - for repair action.	Env. Department	May - until freeze
		3) Install turbidity barriers if required.	Env. Department	May - until freeze

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	Early May
		3) Daily inspection - keep record.	Env. Dept, Engineering and E&I	May - as soon as freshet starts until freeze
		4) Notify Eng. Dept and E&I when water present and pumping can start. **Water level to be maintained, as a minimum, below the till plug elevation. Water should not pond against the Till plug for extended time periods - i.e. < 2 - 3 hours. For emergencies the water truck can be requested. Start pumping.**	Env. Department	May/early June - as soon as free water present and ice has melted until freeze
		5) 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

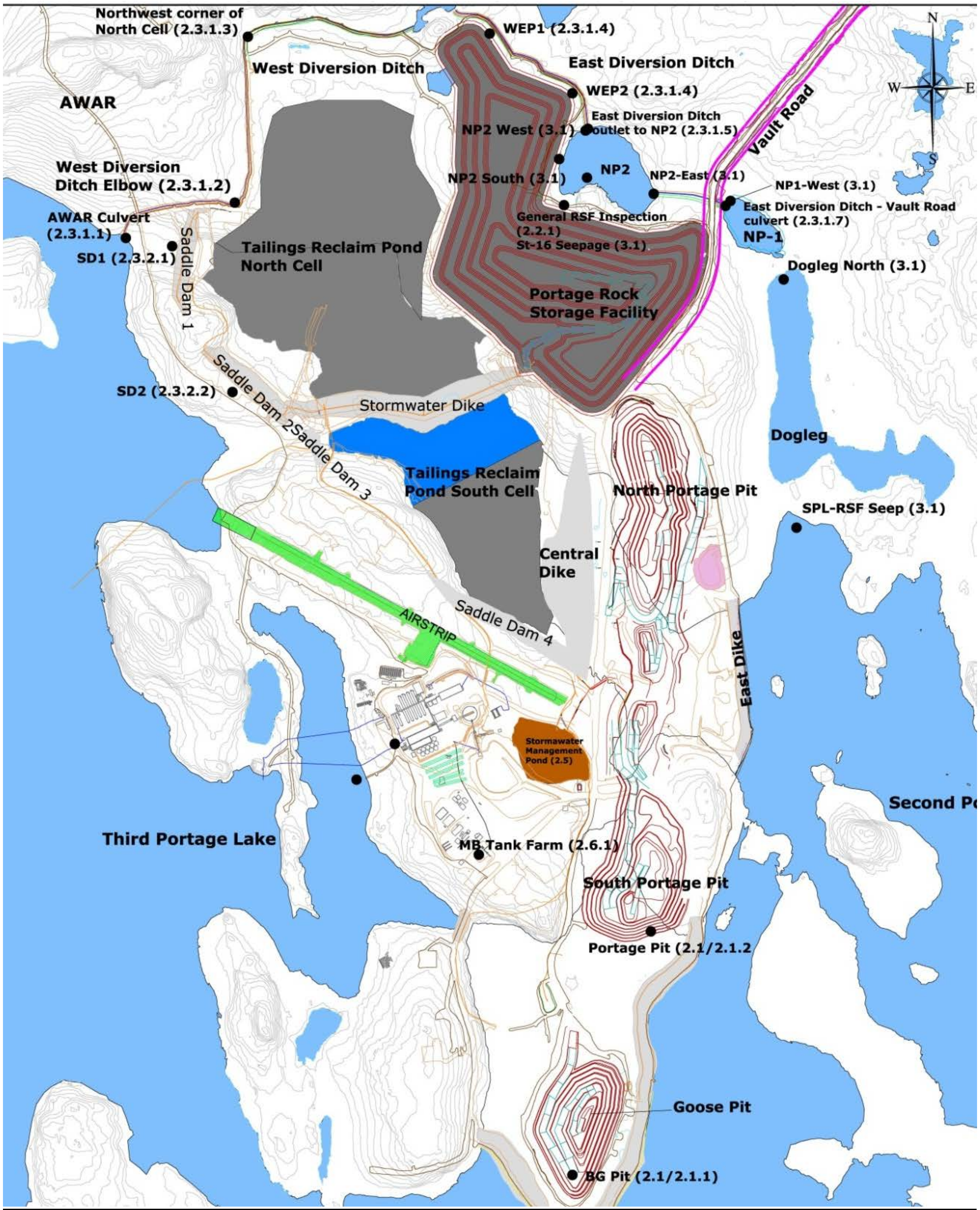
		6) Thermistor Monitoring.	Env. Department	Ongoing throughout the year
		7) Submit progress/update report to regulators.	Env. Department	Annual Report
3.2	**Mill Seepage**			
3.2	Mill Seepage	1) Pump water from the trench to the mill - volumes documented.	Eng and E&I	Start May/early June when water present until freeze
		2) Daily inspection of pumping, collection systems, bermed areas and perimeter area – keep record. **For emergencies the water truck can be requested.**	Env. Department	Start May/early June when water present until freeze
3.3	**Central Dike Seepage**			

3.3	Central Dike Seepage	1) Pump water to the South Cell TSF - volumes documented.	E&I and Engineering	All year round
		2) Daily inspection of pumping, collection systems, bermed areas and perimeter area – keep record.	E&I	All year round

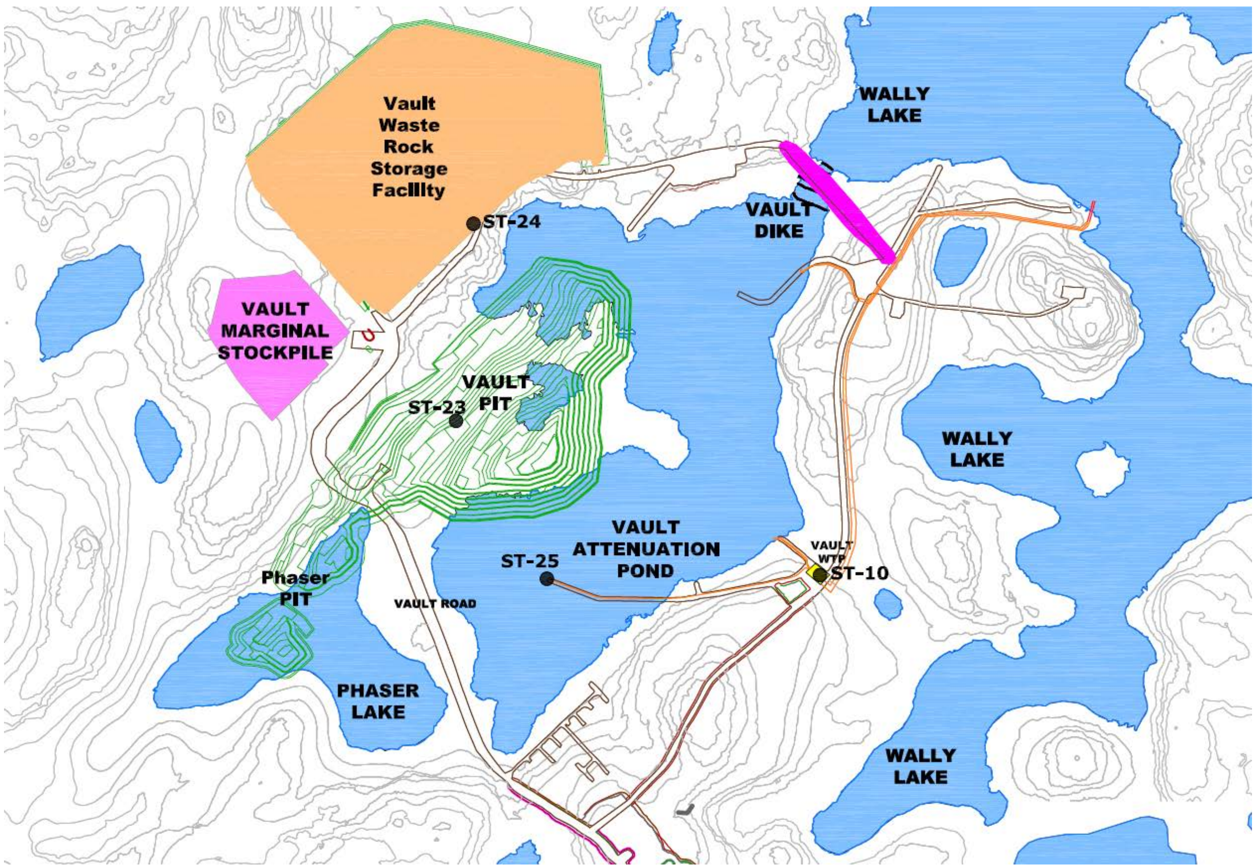
APPENDIX 2

2020 Monitoring Locations and Areas of Concern for the Freshet Action and Incident Response Plan

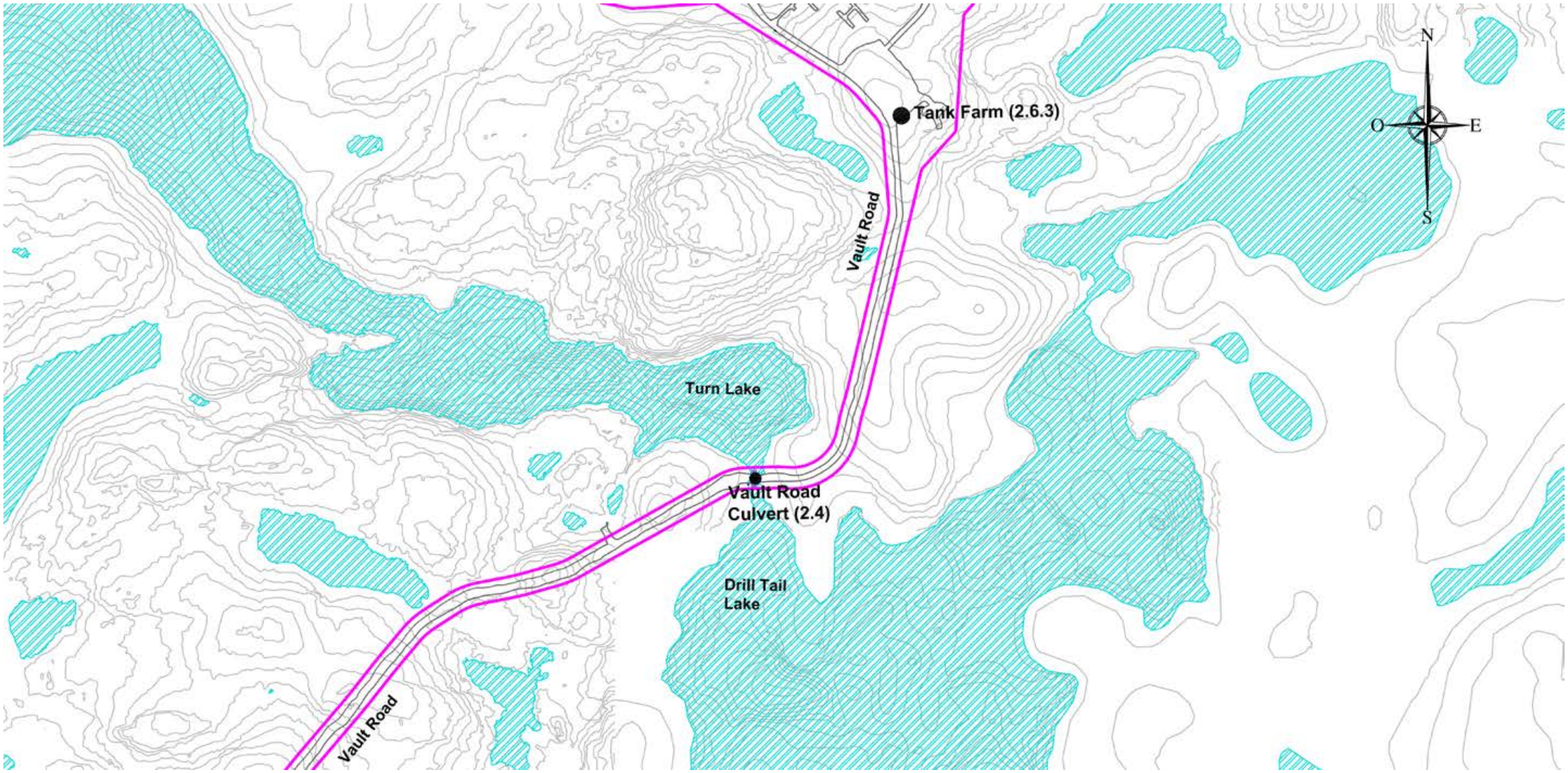
Meadowbank Areas of Concern and Monitoring Locations



Vault areas of concern

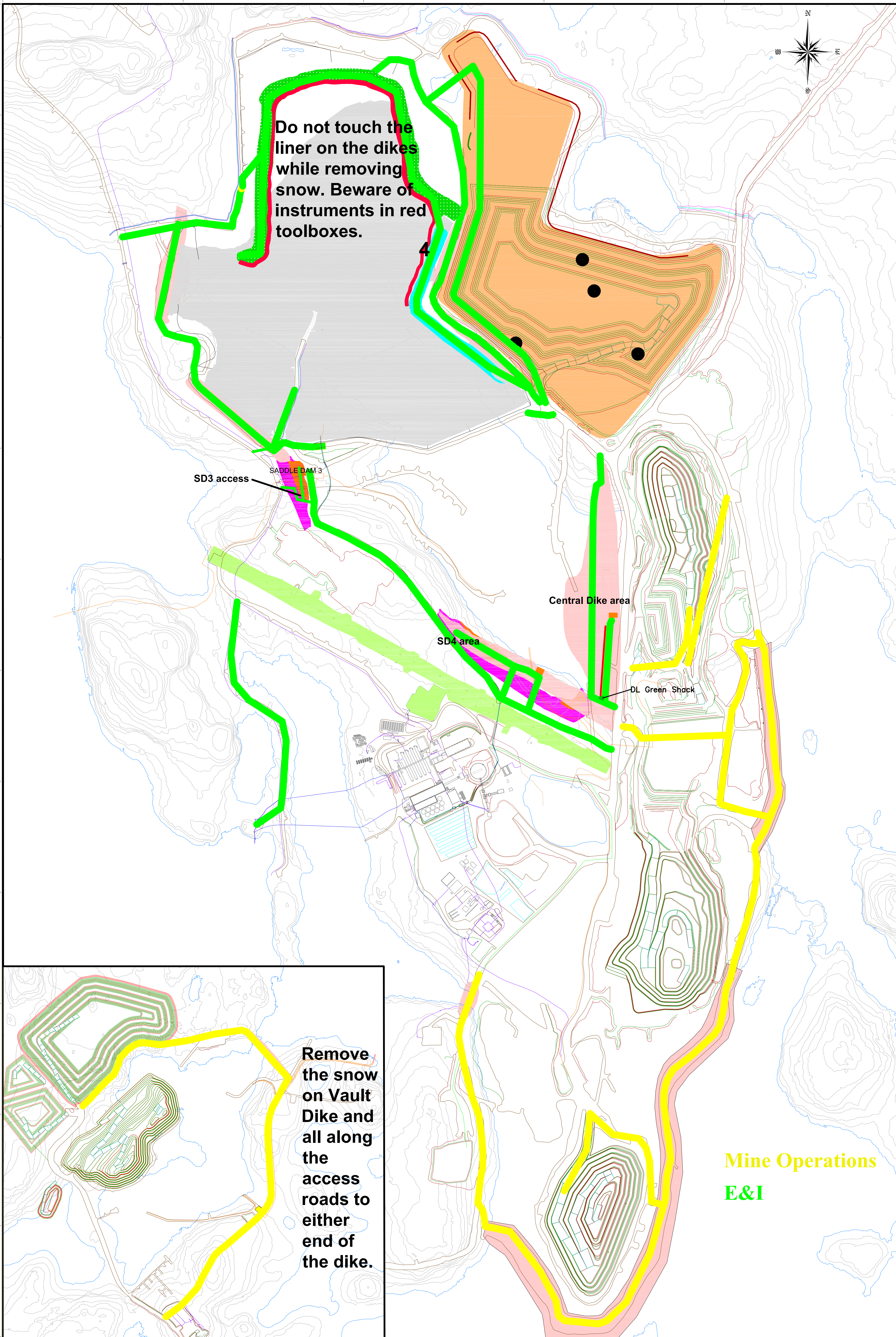


Vault Road areas of concern



APPENDIX 3

2019 Snow management



REV	DESCRIPTION	DATE	BY

REVISIONS

AGNICO EAGLE
MEADOWBANK

DRAWN BY | DATE
CHECKED BY
APPROVED BY
PROJECT NO.
DATE

TITLE
AGNICO–EAGLE – MEADOWBANK DIVISION

2019 Snow Removal Map

SCALE N.T.S. | FILE .DWG
DRAWING NO. | REVISION | SHEET 1 / 1

\\cambfs01\GROUPS\Engineering\05-Geotechnic\05-WaterManagement\Snow Removal\Snow Plowing Map for 2019_UPDATE.dwg, 13 Nov 2019

APPENDIX E – AMMONIA MANAGEMENT PLAN

MEADOWBANK COMPLEX

AMMONIA MANAGEMENT PLAN

APRIL 2020

VERSION 2

EXECUTIVE SUMMARY

In accordance with the Type A Water Lciense, Agnico is comleting Ammonia Management at the Meadwobank and Whale Tail Projects, which includes all mine pit sumps, storage pond, tailings storage facility, seeps, etc. Furthermore, Agnico has implemented a comprehensive, regular inspection program related to explosives management within the mine pits, conducts 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 Agnico has not exceeded any ammonia discharge criteria (Water License or MDMER) to date.

This Ammonia Management Plan (AMP) is a companion document to the Spill Contingency Plan, the Water Management Plan and the Water Quality and Flow Monitoring Plan and has been updated to provide guidance for monitoring ammonia levels at the Meadowbank and Whale Tail mine sites, as part of the conditions applying to waste disposal and management listed in the water license.

AGNICO EAGLE
MEADOWBANK

DOCUMENT CONTROL

Revision				Pages Revised	Remarks
#	**Prep.**	**Rev.**	**Date**		
00	SNC		February 2013	All	
01	Agnico	1	March 2016	13	Table 1 update
				16	Add section 6
				Appendix 1	Add Memorandum to address comments made during water license renewal process
WT	Agnico	WT	June 2016		Included Whale Tail Pit operations in the updated plan
02	Agnico	1	April 2020	All	Comphrensive review of the plan + incorporates WT

Prepared By: Environmental Department

Approved by: ______________________

Robin Allard
General Supervisor Environment

TABLE OF CONTENTS

1 INTRODUCTION 7

2 EXPLOSIVE MANAGEMENT AND BLASTING PRACTICES 9

2.1 Site description 9
2.1.1 Explosive Storage 9
2.1.2 Roads 9
2.1.3 Pits 10
2.2 AMMONIA PATHWAYS 10
2.3 EXPLOSIVES AND BLASTING 10
2.3.1 Explosive Products 11
2.3.2 Procedures and Practices 11

3 MONITORING 13

4 MILL EFFLUENT 14

4.1 SITE DESCRIPTION 14
4.2 AMMONIA PATHWAY 14
4.3 MONITORING 14

5 WATER MANAGEMENT 16

6 REPORTING 17

7 INSPECTION 18

8 REVIEW OF AMMONIA MANAGEMENT PLAN 19

9 REFERENCES 20

List of Appendix

APPENDIX 1 **ENVIRONMENT FIELD STATIONS – MINE SITE VIEW**

APPENDIX 2 **SPILL CONTROL AND LOADING PROCEDURE PLAN**

APPENDIX 3 **DYNO NOBEL EMERGENCY RESPONSE PLAN – MAGAZINE, PLANT AND WORK SITE**

APPENDIX 4 **MSDS FOR BULK EMULATION AND PRESPLIT**

APPENDIX 5 **EMULSION PLAN / BLAST AREA INSPECTION SHEET**

ACRONYMNS

AGNICO	AGNICO EAGLE MINES LIMITED
AMP	AMMONIA MANAGEMENT PLAN
AN	AMMONIUM NITRATE
ANFO	AMMONIUM NITRATE – FUEL OIL
AWAR	ALL-WEATHER ACCESS ROAD
CCME	CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT
CIRNAC	CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA
CNO-	CYANATE
CREMP	CORE RECEIVING ENVIRONMENTAL MONITORING PROGRAM
KIVIA	KIVALLIQ INUIT ASSOCIATION
MDMER	METAL AND DIAMOND MINING EFFLUENT REGULATIONS
NIRB	NUNAVUT IMPACT REVIEW BOARD
NWB	NUNAVUT WATER BOARD
TSF	TAILINGS STORAGE FACILITY
WMP	WATER MANAGEMENT PLAN
WRSF	WASTE ROCK STORAGE FACILITY
WTHR	WHALE TAIL HAUL ROAD

1 INTRODUCTION

The Meadowbank Mine Water Management Plan (WMP) was first prepared in 2009 (Doc. 833). This version was subsequently updated, support document (Doc. 500), in preparation for the Type-A Water License Application for the Meadowbank Mine. The WMP was then updated in 2011 (Doc. 1270). In 2015 WMP update, a technical note was added as an appendix, which was the first iteration of the Ammonia Management Plan (AMP) for the Meadwobank Mine. As an extension of the Meadowbank Mine, the 2016 update of the AMP includes measures to manage and monitor ammonia at the Whale Tail satellite open pit operations. Other facilities that are part of the Meadowbank Project are the Baker Lake facility, the All-weather Access Road (AWAR) between Baker Lake and the Meadowbank Mine, the Meadowbank Mine Camp, the Meadowbank Tailings Storage Facility, the 8 km Vault haul road and the 64.1 kilometre Whale Tail Haul Road (WTHR) between the Whale Tail open pit and the Meadowbank Mine site.

The Ammonia Management Plan (AMP) was updated in March 2016 in response to concerns raised during the Water License renewal process (January, 2015 - NWB Technical Meetings – Baker Lake) and was re-issued as part of the management plans update process. These concerns from interveners centred on ammonia loading resulting from mine infrastructure in particular from cyanidation in the Tailings Storage Facility (TSF), the use and management of exposives and the management of treated sewage. In addition, there was a request for loading calculations of ammonia to the receiving environment. These comments are addressed in the Ammonia Management Plan Version 2 March 2016 and specifically in the SNC 2016 Technical Memorandum – WGFU, which was appended to the revised plan. It should be noted that there is no further planned discharge of mine contact water into Third Portage Lake from the Portage Attenuation Pond. The onsite Core Receiving Environmental Monitoring Program (CREMP) takes into account the overall ammonia levels in Third Portage Lake and to date Agnico has not reached any level of concern (no trigger levels have been reached for ammonia).

As an extension of the the Meadowbank Mine operations, ammonia management at Whale Tail Pit follow the same practices as outlined in this approved plan and similarly conduct routine monitoring in the receiving environment at the Whale Tail Pit site under the CREMP.

This Ammonia Management Plan (AMP) is a companion document to the Spill Contingency Plan, the Water Management Plan and the Water Quality and Flow Monitoring Plan and has been updated to provide guidance for monitoring ammonia levels at the Meadowbank and Whale Tail mine sites, as part of the conditions applying to waste disposal and management listed in the water license. This includes monitoring for ammonia in all mine pit sumps,attenuation ponds, tailings storage facility, seeps, etc. in accordance with the Type A Water License. Furthermore, Agnico will implement a comprehensive, regular inspection program related to explosives management within the mine open 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 analytical results such that mitigation measures can be implemented when increasing trends of ammonia are noted. It is important to note that Agnico has not exceeded any ammonia discharge criteria (Water License or MDMER) to date.

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 have CCME guideline to ensure the Protection of Aquatic Life.

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 has a discharge criteria threshold specified in the conditions applying to waste disposal and management in the Meadowbank and Whale Tail water licenses. 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 Project sites. The monitoring results can be used to review and adjust blasting practices or water management if ammonia levels need to be reduced.

2 EXPLOSIVE MANAGEMENT AND BLASTING PRACTICES

2.1 SITE DESCRIPTION

2.1.1 Explosive Storage

The primary storage area of explosive products is located at the Meadowbank mine site emulsion plant area which is located approximately 4 kms from the main Meadowbank Mine site. 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. Explosive requirement for the Whale Tail Project will continue to be located at the Meadwobank mine site.

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

The emulsion plant area is located north of the Meadowbank mill, pits and camp site and approximately 76 km from Whale Tail pit operations.. The storage area is accessible from the 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.

The use of explosives at the Meadowbank mine for operations at Vault Pit, Goose Pit, Portage Pit and Phaser Pits ceased when mining was completed in Q4 2019. The existing emulsion plant at Meadowbank supply explosives to the Whale Tail open pit. Similar to the previous Meadowbank operations, the emulsion will be trucked to Whale Tail Pit for blast purposes. The current plan for emulsion delivery at Whale Tail Pit is to directly deliver to the open pit operations. However emulsion will be stored in a remote emulsion storage buildling located along the road to the west of the pit where the the Whale Tail Pit explosives magazines are stored. In the case of road closures, inclement weather or other operational constraints, the remote emulsion storage will supply emulsion to the Whale tail Pit operations. Please refer to Appendix 1 for the Whale Tail Pit site layout, location of the remote emulsion storage and for drawings of the storage building.

2.1.2 Roads

The 110 km AWAR between the Meadowbank mine site and Baker Lake will continue to be used to transport explosive products from the Baker Lake site facilities to the emulsion plant area located 4 km north of the Meadowbank mine site.

Agnico Eagle will continue to enforce restricted access from km 85 north to the Meadowbank Mine and will enforce the same restrictions along the Whale Tail Pit Haul road (refer to the Whale Tail Pit Haul Road Management Plan). In preparation for blasting operations, explosive products are transported from the emulsion plant area to the appropriate blasting locations via Meadowbank local site roads and haul roads. Explosives are delivered from the Meadowbank emulsion plant to

Whale Tail open pit using the Whale Tail Pit haul road (WTHR) between Meadowbank and the Whale Tail Pit site.

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/WTHR are referenced in the Spill Contingency Plan.

2.1.3 Pits

The development sequence of the mine site is provided in the Meadowbank Mine Waste Rock and Tailings Management Plan and the Whale Tail Waste Rock Management Plan. Explosives are used for the excavation of waste rock and mining of the ore at the Portage, Goose and Vault pits at Meadowbank before depletion, and at the Whale Tail open pit.

2.2 AMMONIA PATHWAYS

Emulsion not fully detonated in pit blasting operations provide several pathways for ammonia residuals remaining within open pits. Water from drainage runoff is the primary mechanism of mobilization for ammonia residuals remaining within open pits. This water, being at Meadowbank or Whale Tail, is collected at pit sumps and then is pumped to the associated Attenuation Ponds.

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 different attenuation ponds. Residuals from the ore may be carried in the tailings to the Tailings Storage Facility. All of these pathways (mine sumps, attenuation ponds, TSF) are monitored in accordance with the Water License.

At the active Whale Tail operations, if blasting residues on waste rock are mobilized, they will collect in the Waste Rock Storage Facility (WRSF) pond, which is downslope of the WRSF. For ore stored within the dewatered portion of Whale Lake, drainage would flow to the attenuation pond. The locations of the WSRF and the storage ponds are shown in the figure for Whale Tail site in Appendix 1.

2.3 EXPLOSIVES AND BLASTING

Based on experience at Meadowbak and 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 and Whale Tail sites. 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. 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. If needed, Meadowbank uses emulsion as the primary bulk explosive for its blasting operations. Emulsion continue to be the primary explosive used at Whale Tail Pit.

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; and
- 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 and Whale Tail staff for signs of incomplete detonation.

3 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.

4 MILL EFFLUENT

4.1 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) / In-pit disposal 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.

4.2 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/ in-pit 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.

Annual Water Quality Forecasting 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 Pit once flooding activities has started. This modeling has been updated for the Whale Tail Pit operations to include predictions for Portage and Goose Pit end pit water quality, and will be updated according to the Type A water license requirements.

4.3 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/ in-pit reclaim water at station ST-21.

In the Water Quality Forecasting, a maximum ammonia concentration in the TSF reclaim water is evaluated in order to meet the Type A water license criteria which for benchmarking are compared to CCME guidelines for the Protection of Aquatic Life in the Portage and Goose Pits once in-pit disposal and 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.

5 WATER MANAGEMENT

For details on the site wide water management, pleaser refer to the Meadowbank Mine Water Management Report and Plan and the Whale Tail Pit Water Management Plan.

In addition to controlling contact water through design, the Meadowbank Water Quality and Flow Monitoring Plan and Type A water license requires monitoring stations that are used for the monitoring of ammonia loadings around the mine site and waste rock storage areas from explosive residuals, as well as ammonia concentration found in the Tailings Storage Facility reclaim pond. These monitoring requirements ensure contact water that may contain elevated ammonia, nitrates or nitrites are managed, treated if necessary and do not impact the receiving environment. Monitoring at Whale Tail site is presented in the Whale Tail Water Quality and Flow Monitoring Plan and in the Type A water license.

In addition to the monitoring listed in the Water Quality and Flow Monitoring Plan, the following actions are undertaken at Meadowbank and Whale Tail Pit as part of the AMP:

- If runoff or seepage is detected at the rock storage facility, water samples collected at the Portage or Vault or Whale Tail Waste Rock Storage Facility during late operations, it 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 Meadowbank and Whale Tail sumps or WRSF pond to the attenuation ponds are recorded on a monthly basis.
- The records of water volumes pumped from the Whale Tail Attenuation Pond to Mammoth Lake or other future and approved destinations will be recorded on a monthly basis.

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.

The WRSF pond at Whale Tail will collect all drainage from the WRSF. Any drainage from the ore storage area will collect in the Whale Tail Attenuation Pond. The open pit, water storage ponds and the Attenuation Pond at Whale Tail Pit are shown in Appendix 1.

6 REPORTING

Reporting of ammonia concentrations at the Type A sampling stations listed is included as part of the requirement of the water license. The reporting frequency is prescribed by the NIRB, KivIA and NWB and included, but may not be limited to:

- Brief monthly reports of the compiled water quality monitoring results, sent to the Nunavut Water Board (NWB), the Crown-Indigenous Relations and Northern Affairs (CIRNAC), Water License Inspector and to the Kivalliq Inuit Association (KivIA); and

- An annual report submitted to the NWB, KivIA, CIRNAC, Nunavut Impact Review Board (NIRB), 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 the Type A water lciense 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, Agnico will notify the Nunavut Water Board and KivIA 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.

7 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.

8 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.

9 REFERENCES

Agnico (2016), Meadowbank water quality and flow monitoring plan. March 2016.

Agnico (2016), Whale Tail water quality and flow monitoring plan. March 2019.

Agnico (2016), Whale Tail Pit Project FEIS and Type A application documents. Volume 8 – Monitoring and Mitigation and Management Plans. June 2016.

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

Golder (2009). Updated Water Management Plan. Agnico-Eagle Mines. July 2009

Golder (2011), Updated Water Management Plan, Agnico-Eagle Mines, July 2011

NWB (Nunavut Water Board License) (2019). Water License No: 2AM-MEA1526. Agnico- Eagle Mines Ltd. March 2019.

NWB (Nunavut Water Board License) (2018). Water License No: 2AM-WTP1826. Agnico- Eagle Mines Ltd. May 2018.

SLI (2012). Water Management Plan 2012. Agnico-Eagle Mines. Document No. 610756- 0000-40ER-0001, Rev. 02. March 2013.

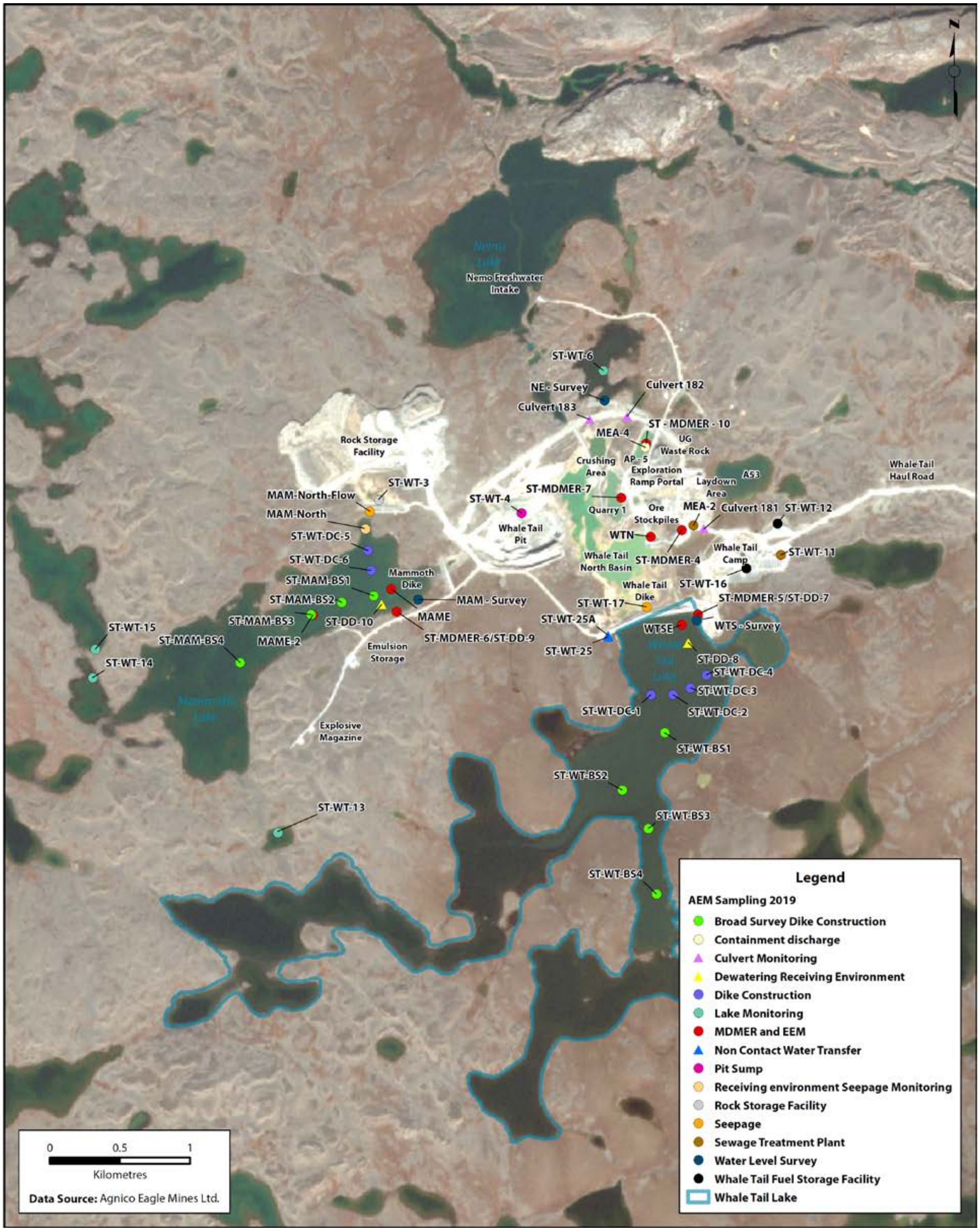
SLI (2012). Water Quality Forecasting for the Portage Area 2012-2025. Agnico-Eagle Mines. Document No. 610756-0000-40ER-0002, Rev. 01. March 2013

APPENDIX 1

ENVIRONMENT FIELD STATIONS – MINE SITE VIEW

Meadowbank Mine Site Layout Area

Whale Tail Mine Site Layout Area



APPENDIX 2

SPILL CONTROL AND LOADING PROCEDURE PLAN

Dyno Spill Control and Loading Procedure Plan

1) All trucks are washed inside shop to contain any residue that may have contacted trucks. The water from the washing of the trucks and or the shop floors themselves is then picked up by the AEM e vacuum and disposed of in the onsite Stormwater Management Pond.

2) A.N. Prill is brought to the Emulsion Plant site in 20 ft Seacans and is stored in the Seacans on the A.N. Pad for the site till it is needed. It is then taken out of the Seacan /s and brought into the Plant for use. Sometimes enough product for the next batch is stored outside to speed up Batching time when it is necessary. A.N. Prill is not left outside if weather looks like it is going to be damp or raining to prevent the leaching of Prill through the Tote bags and on to the ground surface.

3) Any A.N. spills that occur are promptly cleaned up and disposed of in 1 of 2 ways:
    i. Any contaminated prill is put into containment barrels or buckets inside Plant, depending on amount, and put into the next Ansol batch to be made.
    ii. Any contaminated Prill is put in Barrels or Buckets (depending on amount) and then transferred from barrels to buckets for the Emulsion Truck Operators to take to the Blast Pattern and placed into the boreholes after they have been loaded (disposal via blast).

   Any spills that are too difficult (some of our drummed Products) to take care of in this manner are placed in Metal Drums or HAZMAT bins etc. with absorbing materials, sealed and sent to AEM HAZMAT AREA (for shipment south).

4) Emulsion waste (with contaminants) is also either contained in drums or bins until it can be transferred into buckets and taken to Blast patterns and placed into boreholes for disposal (disposal via blasting).
   Any non contaminated Emulsion is put back through the system and on to Trucks.
   When Trucks need to be de-contaminated or process lines of trucks or plant need to be cleaned out, the excess water is strained through a Sack (this allows the water to go through, but contains the Emulsion) to minimize nitrites in our plant sump containment.

5) When an Emulsion Truck has completed loading on a blast pattern the remaining emulsion is flushed out of the loading hose by running water through the hose (water holding tank on trucks) until water discharges out the end of the hose into the borehole.
   This does not completely remove all of the Emulsion out of the Hose; there is still a residue amount left in the hose. Thus, when the Truck operator starts up on the next blast pattern, the hose is put into the borehole and the Operator primes the hose and all the residue Emulsion is contained in borehole and disposed of when hole/s are blasted.

APPENDIX 3

DYNO NOBEL EMERGENCY RESPONSE PLAN – MAGAZINE, PLANT AND WORK SITE

DYNO
Dyno Nobel
Groundbreaking Performance

EMERGENCY RESPONSE PLAN
QAAQTUQ
Agnico Eagle Meadowbank (Baker Lake) Nunavut

For Dyno Nobel Canada Inc.

Magazine, Plant and Work Sites

This Emergency Response Plan (ERP) addresses incidents and potential incidents involving the manufacturing, handling and storage of explosives and related products in Dyno Nobel Canada Inc.' magazines, plants and worksites. This ERP has been developed for Dyno Nobel Canada Inc. and all of it's wholly-owned subsidiaries (DNX Drilling). Actions detailed within this plan are compulsory, under the approval and authorization of DNCI's Regional Operations Managers.

"This document, as presented on Dyno Nobel's database, is a controlled document and represents the version currently in effect. All printed copies are uncontrolled documents and may not be current".

Note: Information provided within this document may be privileged and is not intended for general distribution.

Original Date of Publication: 15 October 2003, as amended site specific, December 19, 2011

Publication/ Amendment Date	Changes To Prior Edition	Pg.
15 Oct 03	**New document**	All
26 Apr 04	**Amendment # 1**	
	Renumbering of Appendices 6 – 13	App. 7 – 14
	Miscellaneous Typos & Amendment Dates	All
17 March 08	**Amendment #2**	
	Updated Contact information	
	Addition of definitions	
	Included Calling and responding emergency procedures	
	Addition Duties of Key personnel	
	Addition of response to Natural disasters	
	Addition of visitor and contractors access control -	
	Replaced the Appendices and renumbering	
	Included a Emergency Report form	
	Addition of Nitric acid, Aluminum and Diethylene glycol and CFE	
	Addition of alternate methods of communication	
	Addition of Reportable Substance list	
	Miscellaneous Typos & Amendment Dates	All
August 18, 2010	**Amendment #3**	
	Updated Scope and ERP Outline	
	Added Sign-off sheet for Annual Fire Department Review	
	Added Appendix for Employee Training sign-off	
	Updated Reporting Incidents Flowchart	
	Updated procedure for Raw Material Truck Spills	
	Updated Bomb Threat Checklist	
September 29, 2011	Amendment #4	
	Updated contacts and phone numbers	
November 15, 2011	Amendment #5	
	Amended Appendix 8	
	Addition of Appendix 10	

Table of Contents

Section	Topic	Pg.
1.0	Scope	4
2.0	Related Documents	4
3.0	ERP Outline	4
4.0	Preparation and Planning	6
5.0	Training	7
6.0	Emergency Procedures and Lines of Authority	8
6.1	Duties Of Key Personnel	8
Table 6-1	Flow Chart	9
6.2	Fire & Explosives	13
Table 6-2	Fire Fighting Information	15
Table 6-3	Control Measures	16
Table 6-4	Evacuation Distances	17
6.3	Environmental Releases	18
Table 6-5	Environmental Release Procedures	20
6.4	Security	21
6.5	Bomb Threat	21
Table 6-6	Bomb Threat – Conversation Guidelines	21
6.6	Lines of Authority	22
7.0	Notification and Reporting	23
Table 7-1	Reportable Substances Quantity List	25
8.0	Decontamination	27
9.0	Work Site Closure / Shut Down	27
10.0	Response to Natural Disaster Preventive Measures	28
11.0	Work Site Start Up	29

Work Site Phone Numbers and Magazine / Plant Details

Appendix 1 DNCI Emergency report form
Appendix 2 DNCI Corporate Contacts
Appendix 3 ERA Contact List
Appendix 4 Management and Site Contact list
Appendix 5 Site Specific Information
Appendix 6 Bomb Threat Checklist

Appendix 7 New/Transferred Employee or Annual Refresher Form
Appendix 8 Annual Fire Department Review Form / Debrief Form
Appendix 9 TDG Regualtion Class Quantity Emission Limit

1.0 SCOPE

This document provides a Work Site Emergency Response Plan covering fire/explosion, spills, security breach, bomb threat, evacuation and prescribed actions that employees must take to ensure employee and public safety in the event of an emergency. The general reference to DNCI's "Work Sites" throughout this document includes magazines, plants and miscellaneous work locations.

The Emergency Response Plan appearing on Dyno Nobel Canada Inc.' database is a controlled document. Uncontrolled copies of this ERP are provided to customers and associates who own the land on which DNCI's worksite is located, plus applicable municipal and regulatory authorities. As well, uncontrolled copies are issued to all Company employees and are placed in all central offices and Company delivery vehicles.

2.0 RELATED DOCUMENTS

The following documents also relate to emergency situations that can arise and should be held at each Work Site:

- Federal, Provincial and Municipal regulations, standards and guidelines
- Corporate Policies plus MSA Standards & Procedures
- Standard Operating Procedures (SOP's)
- Dyno Nobel General and Specialized Work Rules
- Material Safety Data Sheets
- Prime Contractor's / Customer's ERP
- Transportation ERAP #2-1037
- Crisis Communication Plan

3.0 ERP OUTLINE

3.1 The following materials are covered by this ERP:

Fuel Oil
ATF Hydraulic Fluid
Ammonium Nitrate Prills and Solution
Sodium Nitrite
Sodium Thiocyanate
ANFO
Emulsion

Packaged Explosives
Detonators
Acetic acid
Diethylene glycol
Aluminum
Enviro CFE

3.2 The following situations are addressed in this ERP:

- Fire / Explosion
- Storage Tank Failure
- Spills from Product Delivery Trucks
- Spills from Raw Material Delivery Trucks
- Process Spills
- Shut down due to weather, floods, lightning, fires, explosions and other threats to the security and operation of DNCI's facilities, equipment and material.
- Bomb Threats
- Quantities of spills and reportable to Dyno Nobel and authorities

3.3 This ERP covers:

Preparation	Reporting
Training	Waste Disposal Permits
Lines of Authority	Containment
Notification	Inspection
Decontamination	Maintenance

3.4 The following definitions apply to this plan:

<u>DNCI Corporate contact :</u> A DNCI corporate employee who is assigned to receive Emergency Calls at all times from the answering service.

<u>ER Advisor:</u> Emergency Response Advisor (ERA), who will normally be the applicable General Manager, Area Manager, or Technical Advisor who will liaise with First Responders.

<u>OSC:</u> (DNCI) On Scene Coordinator, the Senior DNCI employee at an incident site who manages and controls DNCI resources in support of First Responders and incident recovery.

ERT: Emergency Response Team, DNCI personnel dispatched to an incident site to assist First Responders and conduct incident recovery under the direction of the OSC.

4.0 PREPARATION AND PLANNING

4.1 In order to provide competent emergency response at Dyno Nobel Canada Inc.' magazines, plants and worksites, first responders (local fire departments and mine rescue personnel) must be thoroughly briefed on an annual basis of the potential hazards involved in a Dyno Nobel Canada Inc. worksite fire. To this end, Work Site Supervisors must take fire department plus mine safety and security representatives on an annual magazine / plant tour to view:

Explosives Storage Areas	Evacuation (Meeting) Area
Bulk Emulsion Equipment	Communications Equipment
ANFO Blending Area	Facility Layout
Fire Fighting Equipment Sites	(Waste) Burn Facilities

A record of each explosives worksite tour and the names of the first responder representatives attending are to be documented and kept on file.

Annual Fire Department Review Form (Appendix 9)

4.2 All DNCI employees shall review this ERP on an annual basis and participate in ERP drills / exercises when scheduled.

4.3 All worksite accidents involving fire, explosion, reportable spills/emissions, breaches of security and bomb threats are to be reported to applicable authorities and senior management. As per incident reporting procedure

4. 4 Spill procedures for each of the materials listed in section 3.1 are outlined in Table 6-3. All procedures specify: Method of Cleanup, Method of Disposal and Protective Clothing. Based on the procedures presented in Table 6-3, worksite supervisors must ensure that adequate clean-up equipment and materials are readily available and in good condition.

4.5 Worksite information for each of DNCI's facilities is contained in the attached appendices. The ERP is revised whenever significant changes are made.

4.6 Current Material Safety Data Sheets (MSDS) are to be kept at each Work Site for all hazardous materials that are stored and handled at the Work Site. Copies of current product MSDS' are also made available to customers and landowners. Obsolete MSDS' will be replaced as new ones are issued.

4.7 Each Work Site will hold and maintain in good repair, appropriate fire fighting and spill control equipment for potential emergencies. Fire extinguishers, hoses and other fire fighting equipment are to be visually inspected on a monthly basis to ensure Magazine, Plant, Work Site and delivery vehicle readiness.

5.0 TRAINING

5.1 All employees will complete training on the contents of this Plan during their "new hire" orientation and review the plan annually.

5.2 A trained person is considered to have reviewed all related documents (Section 2.0), to have been instructed on the use of related equipment and procedures, and to have discussed with their Supervisor or trainer, questions and issues of concern.

5.3 Training records, including certificates for training completed, are to be kept onsite in the Employee's Training Record.

5.4 The Magazine, Plant or Work Site Supervisor/Manager will certify their employees as having received training by signing the training form. In signing the training form, the Supervisor / Manager will have satisfied themselves that trained employees are able to:

- Recognize fire and explosive hazards for the materials and processes to which they are exposed /involved with;
- Competently use Fire Fighting / Fire Protection Equipment (Note: employees should receive refresher training in the use of fire extinguishers at least every three years)
- Competently use applicable personal protective equipment (PPE) when handling hazardous substances;
- Recognize and be familiar with substances which become hazardous wastes when spilled; and

- Follow SOP's and use established work practices to minimize the potential for fires, explosions, environmental releases and other accidents.
- Worksite Managers / Supervisors will ensure that all contractors receive a worksite orientation before commencing work or being left unaccompanied in the worksite. Following the orientation process, the contractors will be required to sign off on the Contractor Checklist acknowledging training in the applicable areas including the site emergency response plan.
- All Plant & Magazine sites will have in place, a continuous (24 hour) access control system to control the entrance, presence and exit of visitor and contractors and their equipment and materials
- Employees must be trained on Reportable Quantities to the Government in the unlikely event of a spill.
- All employees are aware of evacuation routes, muster point location, and all-clear notice procedure.
- New/Transferred employee or Annual Refresher sign-off form located in Appendix 8

6.0 EMERGENCY PROCEDURES AND LINES OF AUTHORITY

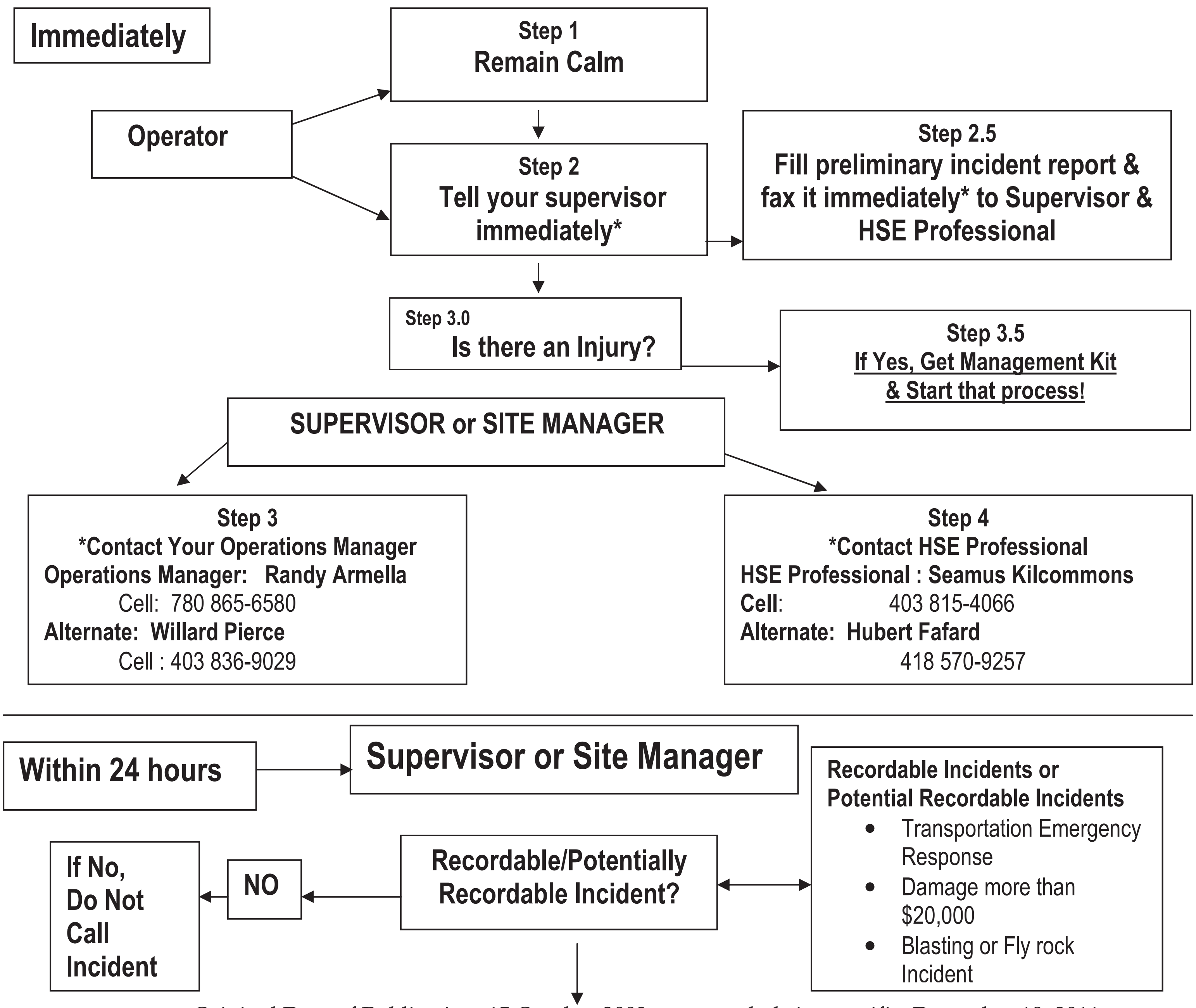
6.1 GENERAL

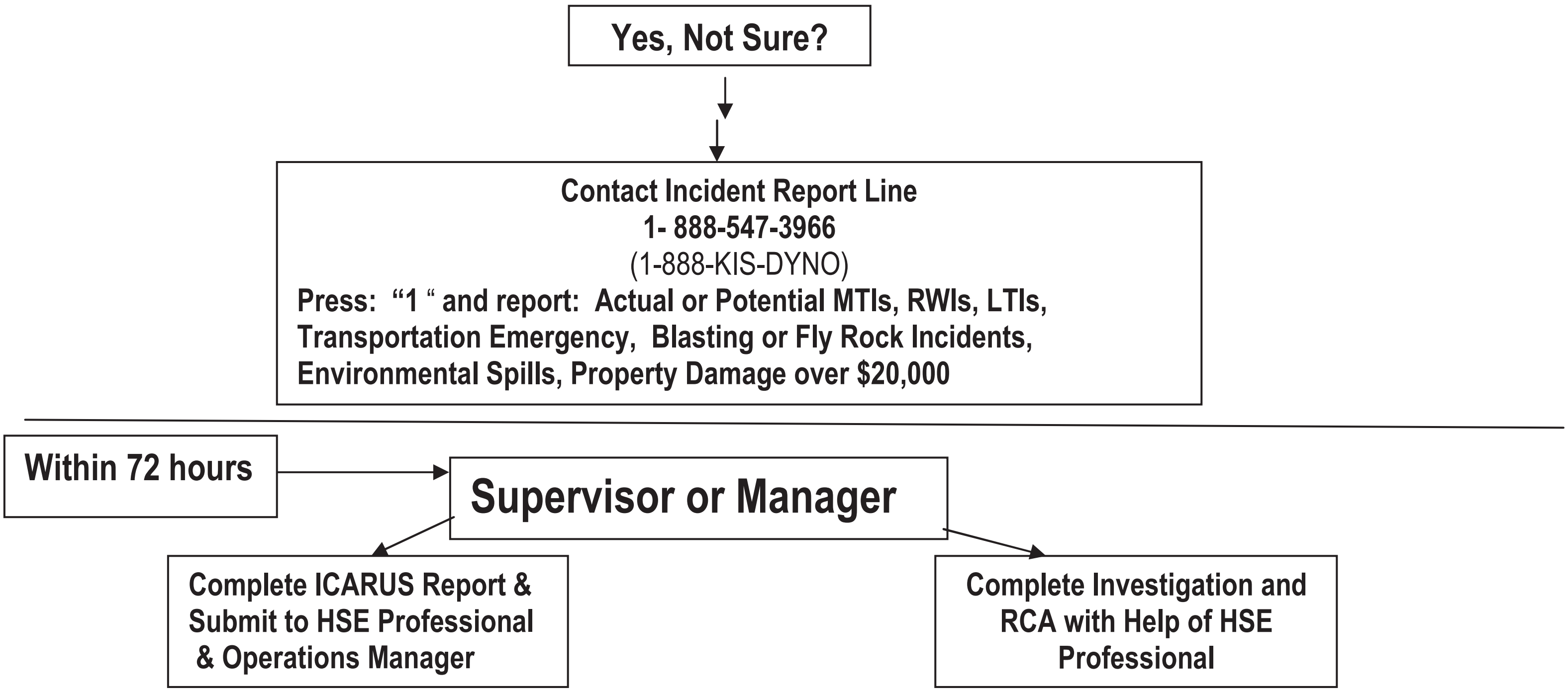
Reporting Incidents Flow Chart (continued on next page)

Table 6-1
Emergency Response Flow Chart

Reporting Incidents

Property Loss/Fly Rock/Environmental Spill/Injury





SITE SUPERVISOR/DELAGATE
EXPERIENCING EMERGENCY / POTENTIAL EMERGENCY

- **CALL FOR EMERGENCY ASSISTANCE**
  In the event of an emergency, accidental release or imminent accidental release involving explosives, eliminate potential sources of detonation where possible (eg. turn off the ignition of a vehicle), call **911** (or the local police number) for immediate assistance, **call the site Supervisor/ Area Manager** and initiate the site's Emergency Response Plan. If normal phone systems are down other methods of communication can include two way radios, satellite phones, pager, e mail and vehicle satellite tracking systems.

- **WARN PUBLIC WITHIN EVACUATION DISTANCES IF RISK OF DETONATION**
  Should there be explosive detonations, or the risk of detonations due to the presence of fire or other detonating factors, advise the First Responders (or anyone within the immediate vicinity if First Responders are not at the scene) of the risk and applicable safety distances per Table 6-4, page 17 (liaise with Emergency Response Advisor (ERA) if time permits). Help organize perimeter guards to prevent people from entering the evacuation zone.
  Note: See ERP, page 17 Table 6-4 for Evacuation Procedures.

- **ASSIST LOCAL AUTHORITIES**
  Assist First Responders and Local Authorities in eliminating the emergency situation, and liaise with DNCI's On-Call Employee / ERA until relieved by the Company's Emergency Response Team (ERT).

TO RESPOND TO AN EMERGENCY CALL

DNCI Corporate contact instructions:

Upon receiving a call for emergency response assistance, keep a log of all subsequent communications and actions, and do the following:

1. Immediately obtain the name and callback number of the caller, in case the telephone line is lost.

2. Obtain information as fully and accurately as possible following the emergency report form (see appendix 1).

3. Call an ER Advisor for the applicable Region (see appendix 2) and report the emergency situation. In turn, the ER Advisor will phone the emergency scene caller, establish ongoing contact, assess the emergency, determine what Company resources and/or contracted emergency response services are required and organize an Emergency Response Team – ERT to proceed to the emergency scene if required.

4. Assist the Emergency Response Advisor (ERA).

5. Liaise with Company Executive / Senior Managers.

Emergency Response Advisor (ERA) instructions:

1.Call the Branch/Plant Supervisor nearest the emergency scene plus provincial & federal authorities (see applicable appendix to Annex D) to advise them of the situation and the need for an emergency response.

2. Designate, assemble and dispatch an Emergency Response Team (ERT), made up of Groups 1 & 2 personnel (see ERAP pg. 16 and Annex D) under the leadership of an On Scene Coordinator (OSC), if required.

3. Authorize the dispatching of additional resources, communications, transportation and contracted services as necessary.

4. Contact and instruct the designated Emergency Response Team (ERT) to proceed to the emergency scene with the required vehicles and equipment.

5. Liaise with the Person in Charge of the Emergency) and/or Local Authorities to obtain a situation update.

6.Advise Local Authorities as appropriate, regarding the properties, hazards and handling procedures for the explosives involved in the emergency. In particular, advise the Local Authorities of appropriate evacuation distances per Table 6-4 pg. 17.

7. Continue to consult with the Local Authorities as appropriate, plus the Company's On-Scene Coordinator (OSC), to stabilize and eliminate the emergency.

8. Refer to **Regional Manager** *Tom Medak or Cory Redwood .(see appendix2))* for any media requests in accordance to the Crisis Communication Plan (CCP). Media contacts shall be through Regional Manager designated for the area.

9. Contact the explosives supplier and / or transporter (if other than DNCI) to advise them of the emergency and to request their assistance if/as required.

ON-SCENE CO-ORDINATOR (OSC)

- The On-Scene Coordinator (OSC) is the Company's representative and local authority in charge of all company actions and resources at the emergency scene. Once the OSC arrives at the emergency scene, the ERA will transfer communication with First Responders/Local Authorities to the OSC. In turn, the OSC will liaise with the ER Advisor as required. Throughout the Company's emergency response, the OSC will ensure that First Responders and Company personnel (employees and contractors) observe all safety and regulatory standards and procedures.
- The OSC may revise / adjust the composition of the Emergency Response Team (ERT) and supporting resources as required. The OSC may, in consultation with the ER Advisor, contract commercial services to assist in addressing and resolving the emergency situation.

- The OSC will oversee the Company's local involvement with emergency services, government (municipal & provincial) and public interests until the emergency is fully resolved. Post-emergency activities (clean-up, restoration, etc.) under the direction of the Environment Manager may be delegated to an appropriate Branch, Plant or Area Manager. **EMERGENCY RESPONSE TEAM (ERT)**

- Selected emergency response personnel will take their direction to assemble and proceed to the emergency scene from the ERA or their representative. Team members will immediately report to the On-Scene-Coordinator.

- The primary role of the ERT is to provide a competent and trained / certified workforce plus specialized equipment and material to assist First Responders / Local Authorities in the stabilizing and elimination of an 'explosives emergency', and to retrieve / recover, repackage and remove to safe and secure storage, non-detonated explosives.

- While at the emergency scene, ERT members will take their direction from the Company's OSC and remain available until released by the OSC.

NOTE:

ONLY INDIVIDUALS WHO HAVE RECEIVED TRAINING AS REQUIRED UNDER THE TRANSPORTATION OF DANGEROUS GOODS (CLEAR LANGUAGE) REGULATIONS, OR WHO ARE WORKING UNDER THE DIRECT AND CONTINUOUS SUPERVISION OF AN EMPLOYEE WHO HAS BEEN TRAINED FOR CLASS 1 DANGEROUS GOODS UNDER TDG, MAY PARTICIPATE IN SITE CLEAN-UP ACTIVITIES SUCH AS PICKING UP, REPACKAGING AND TRANSPORTING EXPLOSIVE MATERIAL.

6.1.1 In any emergency the Work Site Supervisor/Manager or their delegate must take certain actions, including the following:

- Call local fire/emergency authorities (at mine sites, also call Mine Fire, Safety and Security if different and give relevant information).
- Account for all employees and visitors. Arrange for Rescue of anyone who may be trapped, without endangering oneself or others.
- Notify Dyno Nobel Canada Inc. ERA's so that necessary arrangements can be made for technical / administrative support, including accident reporting and investigation plus continued/alternate production. The following information should be provided and refer to appendix 1:

What Occurred	Time of Occurrence
Action Taken	People Contacted
Status of Situation	Anticipated Follow-up

6.2 FIRE & EXPLOSIVES

6.2.1. There are three categories of fire that may involve explosives:

I. Fires Directly Involving Class 1 Explosives and Blasting Agents

- **DO NOT FIGHT THE FIRE.** Instruct all fire fighters on the scene not to fight fire with explosives.

- Shut off power at main breakers if possible. At mine sites, call Mine Security or Fire/Rescue. At all other DNCI locations call local Fire/Rescue personnel.
- Evacuate all personnel from the Work Site to the safe meeting place as outlined in the Work Site Appendix.
- Set up a communications base at the meeting place and guard
- against anyone entering the area.

II. <u>Fires Involving Components For Manufacture of Blasting Agents</u>

Bulk blasting agents may be in the form of emulsion or ANFO. ANFO is a mixture of prilled ammonium nitrate and fuel oil.

Under conditions of large mass, intense heat, confined dust / vapor buildup, and the right mixture combination of the basic ingredients, emulsion and ANFO will explode. The probability of explosion with ammonium nitrate (AN) alone is very small, but increases when under intense heat and confinement. Table 6-1 includes recommended fire fighting procedures for each of these substances.

III. <u>Fires Involving Dyno Nobel Canada Inc. Trucks</u>

In cases where the Dyno Nobel Canada Inc. delivery trucks are in a building that is on fire, if there is no explosives and safe to do so, may be moved provided access to the truck and exit from the building is not barred by flames or smoke, with available fire extinguishers with caution only if the fire is small and not in the storage compartment.

Fires on re-pump or other bulk explosive delivery vehicles shall not be fought if the fire involves the explosives compartment. Fire fighting measures should be taken immediately to prevent any fire such as a tire, electrical or cab fire from reaching the explosives compartment.

Fires on other transport vehicles may be fought with caution. Fires that cannot be controlled sufficiently to avoid involvement of the vehicle's fuel compartment shall be left and personnel evacuated to a safe distance.

6.2.2. When a fire is small and does not involve any explosive agents, it may be fought with plant extinguishing equipment. If the fire is widespread and intense, all personnel, including visitors and contractors should be evacuated to the meeting area outside the main gate.

Table 6 - 2
FIRE FIGHTING INFORMATION

MATERIAL	RECOMMENDED FIRE-FIGHTING METHODS	SPECIAL CONSIDERATION
Ammonium Nitrate Prill – Odorless white to light tan crystaline solid	Use flooding amounts of water in early stages of fire. Keep upwind. AN is an oxidizing agent which supports combustion and is an explosive hazard if heated under confinement that allows high-pressure buildup. Ensure good ventilation and remove combustible materials if it can be safely done. Evacuate to designated area if fire cannot be controlled.	Toxic oxides of nitrogen are given off during combustion. Fire fighters require self-contained positive pressure breathing apparatus. Avoid contaminating with organic materials. Many powdered metals such as Al, Sb, Si, Cd, Cr, Co, Cu, Fe, Pb, Mg, Mn, Ni, Sn, Zn and brass react violently and explosively with fused AN below 200˚C Sensitivity to detonation increases when heated.
Ammonium Nitrate Solution- Colorless/Odourless Liquid – white paste like solid when cooled	Use flooding amounts of water in early stages of fire. Cool containing vellels with with flooding quantities of water until after fire is out	Material will not burn, but thermal decomposition may result in flammable/toxic gases being formed. These products are nitrogen oxides and ammonia. (NO,NO_2 NH_3). Product may form explosive mixtures when contaminated and comes in contact with organic materials. Explosive when exposed to heat or flame under confinement. Avoid temperatures over 210°C (410°F) A self contained breathing apparatus should be used to avoid inhalation of toxic fumes
Acetic Acid – Colourless liquid with a pungent odour	Use dry chemicals, CO_2, Alcohol foam or water spray	Isolate and restrict area access, stay upwind. Water run-off and vapour cloud may be corrosive.
Sodium Thiocyanate – White solid - odourless	Use extinguishing media most appropriate for the surrounding fire	Wear self contained breathing apparatus – MSHA/NIOSH approved or equivalent, and full protective gear. During a fire, irritating or highly toxic gases may be generated by thermal decomposition or combustion.
Sodium Nitrite – Oxydizing agent - white to light yellow crystals- faint odour	Flammability class – not regulated. Flood with water only – Isolate materials not involved in the fire and cool containers with flooding quantities of water until well after the fire is out.	Self contained apparatus should be worn in a fire involving Sodium Nitite.Thermal decomposition will cause reddish brown nitrogen oxides to be released.
Fuel Oil (No. 2 diesel) Dyed or pale yellow liquid with petroleum odor; and/or ATF Fluid	Use water spray to cool fire-exposed surfaces and to protect personnel. Shut off fuel from fire. Use foam, dry chemical or water spray to extinguish fire. Avoid spraying water directly into storage container due to danger of boil-over.	Avoid strong oxidizing agents.

Explosive emulsions, ANFO, packaged explosives and firing devices.	**Fire involving explosive materials must never be fought. Evacuate the incident scene. Do not confine (ventilate to prevent / reduce pressure build-up if safe to do so).**	Explosion hazard.
Enviro CFE	Dry chemical, foam, water spray (fog). Use water spray to cool exposed surfaces and containers	OIL FLOATS ON WATER. Do not use direct or heavy water stream to fight fire. Use organic vapour respirator or self-contained breathing apparatus to fight fire.

Table 6 - 3
CONTROL MEASURES FOR FIRE

MATERIAL	RECOMMENDED FIRE-FIGHTING METHODS	SPECIAL CONSIDERATION
Acetic acid	Small fire: type ABC dry chemical or CO_2 fire extinguisher. Large fire: water fog or foam.	May react violently with oxidizers and nitric acid. May react with aluminum powder and give off highly flammable hydrogen gas.
Aluminum	Small fire: type D fire extinguisher, dry sand. **Never use water**.	May react with oxidizers (nitrate and perchlorate) and acids. Avoid contact with water. Highly flammable hydrogen gas may be released.
Diethylene glycol	Small fire: type ABC dry chemical or CO_2 fire extinguisher. Large fire: water fog.	Keep away from oxidizers (nitrates and perchlorate). Explosion hazard if heated under confinement.

EVACUATION PROCEDURES

Advise the first emergency responders at the scene (police or fire) of the need to evacuate using the guidance in the Emergency Response Plan. Employees at the scene should assist local emergency services to the best of their ability to accomplish this. For incidents within a worksite such as a mine, quarry or construction operation, in most cases access is radio controlled. The quickest way of alerting people, therefore, is by site radio. Clearly state your location, situation and call for assistance in evacuating the area.

DO NOT FIGHT EXPLOSIVES FIRES. EVACUATE THE AREA AND LET THE FIRE BURN ITSELF OUT.

THE MINIMUM EVACUATION DISTANCE IS AS OUTLINED IN TABLE 6-4 (Pg. 17) FOR ALL DIRECTIONS (which is based on a higher traffic / risk / population density within the area, without benefit of protective features such as berms and hills. (**Transport Canada requires 1,600 meters for situations that involve high-risk surroundings**) upon determining actual quantity of explosives refer to Table 6-4 as per ERD quantity of distances.

Table 6 - 4
EVACUATION DISTANCES
Based On Amount of Explosives Present

Explosive Quantity		Metric Distance		English Distance
250 kg		70 Meters		230 Feet
500 kg		100 Meters		320 Feet
1,000 kg		150 Meters		500 Feet
2,000 kg		240 Meters		800 Feet
5,000 kg		400 Meters		1,300 Feet
7,000 kg		450 Meters		1,450 Feet
10,000 kg		480 Meters		1,550 Feet
20,000 kg		700 Meters		2,300 Feet
40,000 kg		800 Meters		2,640 Feet
60,000 kg		870 Meters		2,860 Feet
80,000 kg		960 Meters		3,150 Feet
100,000 kg		1040 Meters		3,420 Feet
120,000 kg		1100 Meters		3,610 Feet
>120,000 kg		1600 Meters		5,250 Feet

6.3 ENVIRONMENTAL RELEASES

6.3.1 Procedure For Fuel Oil Storage Tank Failure

- Assess the magnitude of the leak.
- If the leak is slow and the source can be determined, take the appropriate action to prevent further leakage.
- Transfer fuel from storage tank into drums if necessary.
- Collect spilled material, including contaminated soil, with absorbent pads or inert solid absorbent and store in drums labeled for disposal.
- If the leak is large and further leakage cannot be prevented, allow the dyke to fill. Transfer to drums, label for reuse or disposal, and store.
- Inspect empty tank to identify failure/cause of leak and repair tank.

6.3.2 Procedure For Raw Material Truck Spills

- Identify the material involved, assess the magnitude of the spill or leak and assist the driver to take appropriate action to stop the leak, taking care to prevent run off and/or entry into any water course or drainage system near the spill site.
- For AN prill, shovel spilled material into drums, label for reuse or disposal, and store. Use a non-sparking shovel to transfer spilled material into lined drums.
- For spilled fuel, contain by dyking with earth. Collect spilled fuel with absorbent pads or solid inert absorbent, transfer into drums, label and store for disposal.
- Remove contaminated soil for disposal in conformance with Environment Canada standards.

6.3.3 Procedure For Process Spills

- Identify the material involved and assess the magnitude of the spill or leak, taking care to prevent run off and/or entry into any watercourse or drainage system near the spill site.
- For AN prill, shovel spilled material into drums, label for reuse or disposal, and store.
- For spilled fuel, contain by dyking with earth. Collect with absorbent pads or solid inert absorbent, transfer into drums, label, and store for disposal.
- In the case of leaking bags of ANFO, sweep or shovel the spilled material into a clean drum or other suitable container, label for reuse or disposal, and store.
- Remove contaminated soil for disposal in conformance with Environment Canada standards.

- Have any process equipment (pumps, process lines, parts, gauges, etc.) involved in a leak or spill inspected and repaired or replaced. Re-inspect and test if necessary after repair is affected.

6.3.4 **<u>Procedure For Emulsion Tank Failure</u>**

- Assess the magnitude of the leak.
- If the leak is slow and the source can be determined, take the appropriate action to prevent further leakage.
- Transfer remaining emulsion from leaking storage tank into another storage tank, a tanker trailer if available, or into drums as necessary.
- Collect spilled material using double diaphragm pump(s) and store in labeled drums for reuse or disposal at the mine.
- If the leak is large and further leakage cannot be prevented, allow the room to fill. Transfer to drums, label for reuse or disposal, and store.
- Inspect empty tank to identify failure/cause of leak and repair or replace the tank

6.3.5 **<u>Procedure For Fire</u>**

- In the event of a raw material or product fire, take care to protect all persons from exposure to smoke and gaseous emissions from the fire.
- Potential toxic gaseous emissions from fires involving explosive materials include:

  Oxides of Nitrogen
  Carbon Monoxide
  Cyanide Gas

- All fires must be reported to local authorities and Mine Site Security as soon as possible.
- Self contained breathing apparatus is required for fighting a fire in the plant.
- Follow procedures outlined above for any spills and leaks resulting from fire when it is safe to do so

Table 6 – 5
ENVIRONMENTAL RELEASE PROCEDURES

MATERIAL	SPILL AND LEAK PROCEDURES	WASTE DISPOSAL
Ammonium Nitrate Prill (odorless white to light tan crystalline solid)	Remove source of heat and ignition. Sweep or shovel spill into a clean, non-combustible container. Wash remaining trace residues with water. Wear rubber gloves and safety glasses to minimize contact with skin and eyes.	Re-use if possible or give it to a farmer as a fertilizer. If not possible, dispose of as-is in approved. Remove as much as possible the spilled material as a solid.
Ammonium Nitrate Solution- Colorless/Odourless Liquid – white paste like solid when cooled	Small spill - Dike and contain spilled material. Ensure spilled material does not enter sewers, wells or water courses. Allow to solidify. Use appropriate tools to place in container for disposal. Larger spill - Dike and contain spilled material. Ensure spilled material does not enter sewers, wells or water courses. Notify downstream water users. Allow to solidify. Use appropriate tools to place in container for disposal.	Call for assistance for disposal. Ensure disposal complies with regulatory requirements and regulations.
Fuel Oil (dyed or pale yellow liquid with petroleum odor)	Eliminate any source of ignition. Prevent spills from entering watercourses or drainage systems. Contain with sand or earth. Recover with pump or inert absorbent material into clean container. Wear safety glasses and rubber gloves to prevent contact with the eyes and skin.	Dispose of recovered material in approved landfill or other waste disposal facility.
ANFO (Ammonium Nitrate Fuel Oil)	This material is an explosive. Remove all sources of heat and ignition. Transfer into clean plastic container with a plastic shovel. Label drums. Wear rubber gloves.	Recycle product, if possible. If not practical, explode it inside a borehole or burn it in an authorized burning ground.
Emulsion	This product is a blasting agent. Remove all sources of heat and ignition. Prevent spills from entering watercourses or drainage systems. If large amount of emulsion is involved, contain spill with earth or sand found locally. Recover spilled material with a diaphragm pump. Use of a diaphragm pump also requires an air compressor. Limitation of the pump suction is approximately 2.5 meters, pump discharge is approximately 8 meters. Use a screening device on pump suction hose. Out of area spills will require taking two pumps and extra hose. Transfer the product into a tanker trailer or clean 200 liter drums. If small amount of emulsion is involved, transfer material into a clean plastic container with a plastic shovel. Label tanker trailer or drums. Wear rubber gloves and rubber boots.	Recycle product, if possible. If not practical, explode it inside a borehole or if large amount is involved, demulsify it with liquid detergent.

Enviro CFE	Eliminate any source of ignition. Prevent spills from entering watercourses or drainage systems. Contain with sand or earth. Recover with pump or inert absorbent material into clean container. Wear safety glasses and rubber gloves to prevent contact with the eyes and skin.	Dispose of recovered material in approved landfill or other waste disposal facility.
Sodium Thiocyanate – White solid - odourless	Ensure adequate ventilation whe handling Sodium Thiocyanate. Keep containers closed when not in use. Wear appropriate PPE – eye protection, gloves and appropriate clothing to prevent skin exposure.	Vacuum or sweep up material and place into a suitable disposal container. Avoid run off into storm sewers and ditches which lead to waterways. Not regulated as a hazardous material. Chemical waste generators must consult appropriate hazardous waste regulations to ensure complete and accurate classification.
Sodium Nitrite – Oxydizing agent - white to light yellow crystals- faint odour	In the event of a spill or leak, contact the vendor (403-263-8660) for advice. Wear respirator, protective clothing and gloves. Vacuuming is the recommended method to clean up spills. Do **not** sweep or use compressed air for clean up. Recover spilled material on non-combustible material, such as vermiculite. Use non-sparking tools and place in covered containers for disposal. Any recovered material mau be used for it's intended purpose , depending on contamination.	Dispose of the waste material at an approved hazardous waste treatment/disposal facility.
Acetic Acid – Colourless liquid with a pungent odour	Wear appropriate PPE – evacuate downind areas as required to prevent exposure and to allow fumes and vapours to dissipate. Prevent entry into sewers or streams. Dike if needed. Eliminate all sources of ignition. Neutralize the residue with sodium carbonate or crushed limestone. Absorb win an inert dry material and place in an appropriate container for disposal. Flush area with water to remove trace residue.	Waste disposal must be done in accordance with provincial and federal regulations. Empty containers must be recycled or disposed of through an approved waste management facility.

6.4 SECURITY

6.4.1. In the event of a breach of security at a Dyno Nobel Canada Inc. Work Site, a call is to be made to the RCMP / local Police Department at the discretion of the Supervisor/Manager, or their delegate. In the case of a breach of security, Dyno Nobel Canada Inc.' HSE, Regulatory Affairs and Executive / Senior Management shall also be informed immediately and provided with the same information as outlined in Section 6.1

6.4.2. Any person(s) apprehended during the course of a serious security breach shall be detained until the Police arrive (note: employees are not to put themselves at undue risk by attempting to apprehend or restrain a potentially violent person).

6.5 BOMB THREAT

6.5.1. The safety of employees and the public is of primary concern. A person receiving a bomb threat over the telephone should attempt to remain calm and keep the caller talking by asking the questions listed in Table 6-6 (ERP pg. 20). Recording (writing) as much information about the caller and their comments is also very important for future reference. If possible, alert a co-worker to the situation while talking to the caller.

6.5.2. The police / mine security should be advised of the bomb threat as soon as possible. Unless there is good reason to the contrary, all personnel should evacuate the Work Site and await the arrival of the police / first responders at the designated meeting area. Suspicious objects should be reported but not tampered with and other people should be prevented from entering the Work Site until the local authority has authorized a return to the Work Site. Employees should be prepared to assist local authorities in their search / inspection of the Work Site as necessary.

Table 6 - 6

CONVERSATION GUIDELINES IN THE EVENT OF RECEIVING A BOMB THREAT

See Appendix 7

6.6 LINES OF AUTHORITY

6.6.1 Based upon the information available at the time of the incident, the Work Site Supervisor/Manager, in consultation with others (such as DNCI Senior Management, Mine/local authorities and/or Dyno Nobel advisors), will evaluate the incident and proceed with appropriate steps to implement this ERP. A decision on when to return to the scene of a serious incident will be made in like fashion, subject to approval by public authorities overseeing the incident.

6.6.2 The Work Site Supervisor/Manager will have overall responsibility for the implementation of this ERP and the supervision of all Company activities. Public authorities and the site owner have ultimate authority regarding the resumption of normal production activities.

7.0 NOTIFICATION AND REPORTING

7.1 Any incident that activates this ERP shall be documented on the DYNO Incident (Cintellate) Report. The Corporate Emergency Response Advisor must also be notified and in turn will advise the:

HSE Manager — Vice President Operations
Area Manager

It is the responsibility of the HSE Manager or his delegate to report the incident to DYNO's HSE Management Team. A major incident involving a fire with emissions and/or a hazardous material spill shall be reported to a provincial Environment Officer under the direction of the Environmental Manager. Major incidents shall also be reported to the Chief Inspector, Explosives Branch, Natural Resources Canada; a Provincial/Territorial Safety Officer; and as applicable, an Emergency Measures Official.

Any incident which involves a spill at a Mine Site shall be immediately reported to the Mine Site Environmental Representative, and followed up with a copy of the incident report when complete.

7.2 Spills and Releases – Reportable and Significant Classifications

1) Determine if the spill/release is reportable

All environmental incidents are to be input into Cintellate. Reportable spills/releases are not only input into Cintellate, but the investigation and corrective action sections of Cintellate must be completed. To assist in determining if a spill/release is reportable, a listing of common materials with assigned reportable quantities is referenced (see Appendix 5, Reportable Substance List). The reportable quantities utilize the most stringent "reportable quantity" in Canada. Even if the spill/released material is recovered, the media impacted by the spill/release may be reportable to authorities (e.g., a portion of a spill reaching a source of drinking water or wetland). In addition, a spill/release is reportable if the amount equals or exceeds the Dyno Nobel Default Threshold.

2) Determine if the spill/release is significant

- Significant spills/releases are disclosed in the company's annual report. Significant spills/releases trigger time-critical internal actions as required by the company's procedures (crisis communication, internal investigation, etc)

The following table is provided to assist in making these determinations:

Reporting of Environmental Spills

Is the spill reportable?

- Yes if above a Reportable Quantity
- Yes if oil sheen is visible or sludge/emulsion is deposited beneath water surface
- Yes if water quality standards are exceeded
- Yes if from a UST exceeding 25 gallons or result in a sheen

Is the spill significant?

- Yes if authorities implement a national contingency plan
- Yes if "sensitive" environmental features have been impacted
- Yes if neighbors are evacuated
- Yes if authorities and/or neighbors file complaints and/or demand response activities
- Yes if financial impact is >US$100K
- Yes if media coverage is adverse.

7.3 Internal investigation reports will include:

- Name, work address, and phone number of the investigating (reporting) individual
- Identification and quantity of the released substance
- Time, duration, and location of the release
- Nature and quantity of injuries, property damage, production loss, administrative penalty and/or legal liability
- Precautions taken during the incident
- Relevant environmental conditions
- Corrective actions taken at the time of the incident
- Recommended corrective actions to prevent future occurrence

7.4 Senior Management shall be immediately informed by telephone of any major incident that requires Government notification as per Dyno Nobel's reporting procedures.

7.5 Major incidents involving explosive material shall also be reported to the Chief Inspector, Explosives Branch, and Natural Resources Canada by the applicable Regulatory Affairs Coordinator.

Table 7 – 1
REPORTABLE SUBSTANCE QUANTITY LIST

Material Released	Reportable to Authorities		Dyno Nobel Default Threshold (Proposed)
	If Recovered	If Unrecoverable/ Abandoned / Disposed	
AN Solution	Not Reportable if it can be used as a product	45 Kg (100 lbs) as released oxidizer (not media specific)	225 Kg (500 lbs)
	44 Kg (100 lbs) for ammonia if released into water	45 Kg (100 lbs) for ammonia if released into water	
	Report if released to Drinking Water (DW std at 10mg/L-N)	Report if released to Drinking Water (DW std at 10mg/L-N)	
	Report if released to aquatic ecosystem (NH3 toxic to fish)	Report if released to aquatic ecosystem (NH3 toxic to fish)	
AN Prill	Not Reportable if it can be used as a product	45 Kg (100 lbs) as released oxidizer (not media specific)	225 Kg (500 lbs)
	45 Kg (100 lbs) for ammonia if released into water	45 Kg (100 lbs) for ammonia if released into water	
	Report if released to Drinking Water (DW std at 10mg/L-N)	Report if released to Drinking Water (DW std at 10mg/L-N)	
	Report if released to aquatic ecosystem (NH3 toxic to fish)	Report if released to aquatic ecosystem (NH3 toxic to fish)	
SN Prill	Not Reportable if it can be used as a product	45 Kg (100 lbs) as released oxidizer (not media specific)	225 Kg (500 lbs)
	Report if released to Drinking Water (DW std at 10mg/L-N)	Report if released to Drinking Water (DW std at 10mg/L-N)	
Acetic Acid	453 Kg (1,000 lbs)	454 Kg (1,000 lbs)	225 Kg (500 lbs)
	Report if released to Drinking Water (DW std at 10mg/L-N)	Report if released to Drinking Water (DW std at 10mg/L-N)	
Sodium Nitrite	45 Kg (100 lbs)	45 Kg (100 lbs)	225 Kg (500 lbs)
	Report if released to Drinking Water (DW std at 1mg/L-N)	Report if released to Drinking Water (DW std at 1mg/L-N)	
Fuel Oil	Reportable if sheen on surface of pond, stream, etc. or sludge within such	Reportable if sheen on surface of pond, stream, etc. or sludge within such	225 Kg (500 lbs); 261 L (69 gallons)
	State Regulations - Varies from Any Amount to specific Trigger Amounts	State Regulations - Varies from All Spills to specific Trigger Amounts	
	95 L (25 gallons) from UST	96 L (25 gallons) from UST	
Mineral Oil	Reportable if sheen on surface of pond, stream, etc. or sludge within such	Reportable if sheen on surface of pond, stream, etc. or sludge within such	225 Kg (500 lbs); 261 L (69 gallons)

	State Regulations - Varies from Any Amount to specific Trigger Amounts	State Regulations - Varies from All Spills to specific Trigger Amounts	
	95 L (25 gallons) from UST	96 L (25 gallons) from UST	
Emulsifier Agents	Reportable if sheen on surface of pond, stream, etc. or sludge within such	Reportable if sheen on surface of pond, stream, etc. or sludge within such	225 Kg (500 lbs); 261 L (69 gallons)
	State Regulations - Varies from Any Amount to specific Trigger Amounts	State Regulations - Varies from All Spills to specific Trigger Amounts	
Granular Aluminum	Not Reportable	Not Reportable	225 Kg (500 lbs)
ANFO	Not Reportable if it can be used as a product	45 Kg (100 lbs) as released oxidizer (not media specific)	225 Kg (500 lbs)
	45 Kg (100 lbs) for ammonia if released into water	45 Kg (100 lbs) for ammonia if released into water	
	Report if released to Drinking Water (DW std at 10mg/L-N)	Report if released to Drinking Water (DW std at 10mg/L-N)	
	Report if released to aquatic ecosystem (NH3 toxic to fish)	Report if released to aquatic ecosystem (NH3 toxic to fish)	
	Reportable if sheen on surface of pond, stream, etc.	Reportable if sheen on surface of pond, stream, etc.	
Emulsion	Not Reportable if it can be used as a product	45 Kg (100 lbs) as released oxidizer (not media specific)	225 Kg (500 lbs)
	44 Kg (100 lbs) for ammonia if released into water	45 Kg (100 lbs) for ammonia if released into water	
	Report if released to Drinking Water (DW std at 10mg/L-N)	Report if released to Drinking Water (DW std at 10mg/L-N)	
	Report if released to aquatic ecosystem (NH3 toxic to fish)	Report if released to aquatic ecosystem (NH3 toxic to fish)	
	Reportable if sheen on surface of pond, stream, etc. or sludge within such	Reportable if sheen on surface of pond, stream, etc. or sludge within such	
Ethylene Glycol	2250 Kg (5000 lbs)	2250 Kg (5000 lbs)	225 Kg (500 lbs)
Sodium Thiocyanate	45 Kg (100 lbs)	45 Kg (100 lbs)	225 Kg (500 lbs)
	Report if released to Drinking Water (DW std at 1mg/L-N)	Report if released to Drinking Water (DW std at 1mg/L-N)	

8.0 DECONTAMINATION

8.1 DNCI's Standard Operating Procedures and safety rules establish work practices that minimize employees' direct and indirect contact with hazardous substances.

8.2 Equipment, rubber boots, gloves and clothes that have been contaminated can be washed with soap and water. Wash water should be collected and disposed of in an approved manner with other contaminated material.

9.0 WORKSITE CLOSURE / SHUT DOWN

9.1 **Plant Shutdown** **(use appropriate lock-out/tag-out procedures)**

- In the event that a plant is shut down due to weather, flood, or other adverse situation, the Plant Manager / Supervisor or his delegate will ensure that all non-essential power is shut off. The Plant Manager / Supervisor will secure all valves and flow devices so as to prevent accidental opening.
- The Plant Manager / Supervisor shall determine if any raw material or raw material storage will be contaminated or at risk of fire/explosion, and take steps to move the material or isolate it from the contamination / hazard source.
- If the power and/or gas will create a dangerous situation the Plant Manager / Supervisor will cut the outside supply of power, thereby isolating all plant equipment.
- The Plant Manager /Supervisor will advise local Mine authorities of the plant shutdown and preventative actions taken.
- All sensitive documents must be secured.

9.2 **Magazine Closure** **(use appropriate lock-out/tag-out procedures)**

- In the event that a magazine is closed due to weather, flood, or other adverse situation, the Supervisor/Manager or his delegate will ensure that all non-essential power is shut off. Also, the Supervisor/Manager will ensure that all magazines and compound gates are locked before leaving the site.
- The Supervisor/Manager shall determine if any products or raw materials will be contaminated and take steps to move the material or isolate it from the contamination source.
- If power and/or gas will create a dangerous situation the Supervisor/Manager will cut the outside supply of power, thereby isolating all magazine equipment.

10. RESPONSE TO NATURAL DISASTER

Hurricanes, tornadoes, floods, slides, forest fires, and earthquakes, have the ability to damage or destroy everything in their path. Yet much of the damage or destruction associated with such phenomena is the result of some secondary event, e.g. fallen power lines, ruptured tanks valves, pipes etc. If reasonable warning of an approaching disaster is received, efforts can be made to minimize damage by taking specific preventative measures. These measures are outlined in the following procedures.

1. Consult the Site Supervisor for guidance and proceed according to his direction. **SEE SITE SPECIFIC POTENTIAL HAZARDS APPENDIX 10**
2. If so directed, notify key personnel regarding the action being taken.
3. Collect important files, records and papers for safekeeping.
4. Open main electrical breaker to cut off all power to the site. (The main breaker is marked for easy identification).
5. Secure all buildings and equipment and lock the site gate.
6. Evacuate the site taking mobile equipment to safety.
7. Post Guards on site access routes to monitor the activities of unauthorized personnel.
8. A report of the incident must be submitted to the Area Manager within 24 hours.

10.1 PREVENTIVE MEASURES

10.2 Waste Disposal Permits

If nitrate waste is generated, a disposal permit must be obtained and kept up to date if the product will be disposed of off-site, or in mine tailings. Permits to dispose of other collected waste in the event of spills or leaks (such as described in Section 6.3) must also be obtained in consultation with mine / provincial environmental representatives

10.3 Liquid Containment

All fuel / oil storage tanks must be dyked according to the provisions of Federal and/or Provincial regulations (eg. National Fire Code, Environmental Protection Act), or have a double-walled tank.

A plan must be in place and materials on hand to create a dyke in the event of a large fuel or solution leak or spill or other emergency spill situation.

10.4 Inspection

All site emergency storage areas and equipment must be inspected monthly by qualified personnel, monthly for physical condition and serviceability, and the results recorded according to quality and safety standard operating procedures.

All recommendations/orders made by NRC Explosives Branch inspectors, Fire Marshals and insurance inspectors must be responded to and acted upon accordingly. Copies of their reports are to be forwarded to DNCI's HSE representative for the region.

10.5 **Maintenance**
All preventive and breakdown maintenance must be carried out and recorded in accordance with standard operating procedures.

11.0 WORK SITE START UP (Restoration of Business)

11.1 Before startup, the condition prompting the shutdown / closure must be over / corrected (i.e. flood, fire, explosion or blizzard).

11.2 All decontamination procedures must be followed and the site cleared and cleaned of any environmental waste hazards.

11.3 All repairs to plant equipment involving safety shutdowns and essential operating machinery must be completed.

11.4 All electrical circuits, plumbing and piping must be tested.

11.5 The Work Site Supervisor / Manager will ensure that all lockout and tag-out procedures have been followed and signed off.

11.6 The Work Site Supervisor / Manager will start up the facility by turning on individual switches to the components that have been shutdown.

11.7 Operational checks will be done to ensure that all equipment is functioning at safe working pressures and voltage.

11.8 The Work Site Supervisor / Manager will give the verbal "all clear" before workers will be allowed to return to work.

11.9 The Work Site Supervisor / Manager or one of their delegates will cancel / remove all roadblocks, terminate evacuation activities, and notify employees to return to normal activities.

APPENDIX 1

Basic Investigation Report

(Factual Report not prepared Under Legal Professional Privilege)

Incident Title	
Incident No.	
Incident Date	
Site	
Department / Location	
Report Author	
Report Date	
Investigation Manager	
Investigation Team Members	
Report Distribution	

Who was involved? **name, job, title**
When did it happen? **date & exact time**
Where did it happen? **The exact location**
What was the person doing at the time? **What product or equipment was involved**
What went wrong? **Not your opinion, only factual information. Eg: an operator fell off a ladder, the hose broke; spill / quantity**
What happened? **Describe the sequence and timing of events**
Immediate Control Actions **What first aid treatment was given and or actions taken (valve turned off, electricity isolated) immediately after the incident to make the situation safe**
Interim Control Action **The interim corrective actions to prevent re-occurrence**

5-Why Analysis - Consolidate the information above into a flow chart Double click on chart to enter visio and update as required

Contributing factors **What factors combined to make the situation unsafe – in descending order of importance**		
Root Cause **What were the root causes identified in the 5Why analysis – in descending order of importance**		
Corrective Action	**Who**	Due Date
Comments		

APPENDIX 2

DNCI Corporate contact

Name	Position	Cell number
Benoit Choquette	Environmental Manager - Canada	(514) 246-6285
Seamus Kilcommons	H&S Manager Western Canada	(403) 815-4066
Tim Marles	H&S Advisor Artic	(403) 723-7540
Willard Pierce	Regional Manager West/ Central Canada	(403) 836-9029
Hubert Fafard	H&S Manager Eastern Canada	(418) 570-9257
Greg Brown	Sales Manager Western	(403) 512-5127
Ralph Olson	Operations Manager of Western Canada	(250) 713-8720
Randy Armella	Bulk Operations Manager	(780) 865-6580
Rick Chopp	H&S Manager – Central Canada	(705) 498-2855
Pierre St Georges	Regulatory Affairs Coordinator	(613) 677-1051
Cory Redwood	General Manager Western Canada	(867) 444-8533

APPENDIX 3

DNCI Emergency Response Advisors (ERA) per area

Name	Position	Cell number	Area (West, Central or East)
Tom Medak	Mgr, Bulk operations	(403) 818-4434	West / Arctic
Dennis Wall & Doug Robertson	Meadowbank Operations Supervisors	(867) 793-4610 opt 2 ext 6804 Cell (867) 222-3930	Arctic
Seamus Kilcommons	H&S Manager Western Canda	(403) 815-4066	West
Tim Marles	H&S Advisor Arctic	(403) 723-7540 office	Artic
Tyrone McClean	Operations manager, Manitoba and Saskatchewan	(204) 687-0046	Central
Corey Rachuk	Plant Supervisor – Flin Flon	(204) 687-0028	Central
Joss Forget	Operations Manager Northern Ontario	(705) 471- 8745	East
David Roy	Manager Plant operations	(418) 570-5604	East
Francois Lambert	Operations Manager	(514) 212-3490	East
Daniel Roy	Dyno Consult , Ste-Sophie	(514) 213-5889	East

APPENDIX 4

SITE: QAAQTUQ / Meadowbank Operations

MANAGEMENT AND WORK SITE CONTACT LIST

NAME	TITLE	BUSINESS PHONE	2 WAY RADIO	CELL PHONE
Dennis Wall	Site Supervisor	(867)793-4610 opt#2 ext 6804		(867) 222-3930
Doug Robertson	Site Supervisor	((867)793-4610 opt#2 ext 6804		(867) 222-3930
Tom Medak	Bulk Manager	(403) 236-9160		(403) 818-4434
Tim Marles	H&S Advisor Arctic	403 723-7540		TBA
Seamus Kilcommons	H&S Manager	(403) 236-9160		(403) 815-4066
Benoit Choquette	Environmental Manager	(450) 818-7176		(514) 249-6285
Pierre St George	Regulatory Affairs Coordinator	(613) 632-5844		(613) 677-1051

Agnico-Eagle Mines Ltd. – Meadowbank WORK SITE CONTACT LIST

NAME	TITLE	BUSINESS PHONE	2 WAY RADIO	CELL PHONE
Meadowbank Mine		(867)793-4610		
Julie Belanger	Agnico-Eagle	(867)793-4610 ext 6721		

EXTERNAL CONTACT NUMBERS

ORGANIZATION/CONTACT	LOCATION	PHONE NUMBER
NT Oil & Chemical Spills	Iqaluit, NU	(867) 979-8130
Environment Canada, NT	Yellowknife, NT	(867) 669-4700
NRC / Explosives Branch	Ottawa	(613) 995-5555
RCMP	Baker Lake, NU	(867) 793-1111 or (867)-793-0123
RCMP 'G' Division	Yellowknife, NT	(867)669-5100

APPENDIX 5

Area Office Address:
Agnico-Eagle Mines Ltd. - Meadowbank
PO BOX 540
Baker Lake, Nunavut
X0C 0A0

Type of Facility:
Bulk Explosives Site

Customer/Client Information:
Customer: Agnico-Eagle
Contact:
Title:

Evacuation and Emergency Meeting Place Upon Evacuation:
As identified on site orientation forms (Designated Muster Points)

Emergency Shutdown switch location:

"ONLY A CERTIFIED PERSONELLE ARE TO ACTIVATE THIS SWITCH"

Magazine and Plant Site Address:

Agnico-Eagle Meadowbank Mine

NRC License:

Site Plan and Evacuation Route:
Posted in site offices – site specific orientations required

Site Rescue Plans:
Site Supervisor or designate to conduct review of attendance sheet. If employees, visitors or contractors are unaccounted for, Site Supervisor will advise mine LPO of unaccounted persons and last known location. Site Supervisor shall attend last known location with mine rescue team and jointly determine potential hazards of re-entering area to locate unaccounted for persons. Site Supervisor and Rescue team entering the evacuated area must don all required PPE due to unknown potential dangers that may have come about. Proper fire retardant suits, SCBA and/or other PPE as determine by the site to protect rescuers from becoming overcome by physical, chemical or other hazards. If determined safe to enter site and/ or buildings, a counter clockwise sweep of the area is to be conducted.

Medical Emergencies: In the unlikely event of a medical emergency, the site shall ensure that it is compliant to OH&S Code. As per legislation requirements, the site shall have adequate first aiders and equipment to attend to individuals as required.

All incidents, first aid/ medical treatment/property damage/near miss or other, shall be in compliance with HSE MS Standard 9.2, which meets or exceeds legislative requirments.

Site First Aiders:	LOCATION	PHONE NUMBER
TBA		
Security (Mine Emergency Services –fire, EMS)		

Emergency Equipment On Hand:
Fire Extinguishers, Spill Kits, First Aid Kits, non-sparking shovels as outlined in site plan.

Delivery Vehicles:

Unit #	Vehicle	(EVC/ETP) TC Permit #	Carrying Capacity (80% of Max.)

APPENDIX 6
BOMB THREAT CHECKLIST

Exact time of call:	
Exact words of caller:	
QUESTIONS TO ASK	
1- When is bomb going to explode?	
2- Where is the bomb?	
3- What does it look like?	
4- What kind of bomb is it?	
5-What will cause it to explode?	
6- Did you place the bomb?	
7- Why?	
8- Where are you calling from?	
9- What is your address?	
10- What is your name?	

CALLER'S VOICE (circle)

1-	Calm	Slow	Crying	Slurred
2-	Stutter	Deep	Loud	Broken
3-	Giggling	Accent	Angry	Rapid
4-	Stressed	Nasal	Lisp	Excited
5-	Disguised	Sincere	Squeaky	Normal

If voice is familiar, whom did it sound like?	
Were there any background noises?	
Remarks:	
Person receiving call:	Telephone number call received at:
Date:	Report call immediately to:

APPENDIX 7

Dyno Nobel Inc.
JOB-SPECIFIC ORIENTATION CHECKLIST

(Modify as needed to meet site-specific needs)
Employee Name: Job Title:
Location: Hire Date:

CHECK COMPLETED ITEMS. FOR ALL ITEMS THAT ARE NOT APPLICABLE, ENTER "NA" ON THE LINE RETURN COMPLETED AND SIGNED CHECKLIST TO APPROPRIATE HR REPRESENTATIVE

1. JOB SPECIFIC ORIENTATION TO DNA WORK SITE(S)
a. ____ DN Safety & Quality Policy
b. ____ General Safety Rules
c. ____ Site Specific Safety Rules and Instructions
d. ____ Products and Services
e. ____ Tour of Site
f. ____ Rest Rooms, Lockers, Eating Areas
g. ____ Dress and Uniform Standards
h. ____ Personal Protective Equipment
i. ____ First Aid Procedures
j. ____ How to Report Near-Misses and Accidents
k. ____ Workers' Compensation and Return to Work
l. ____ Smoking Policy and Designated Areas
m. ____ Drug and Alcohol Policy
n. ____ Site Emergency and Evacuation Plans
o. ____ Fire Extinguishers
p. ____ DN Crisis Communication Plan
q. ____ Parking and Traffic Plan
r. ____ Security Issues
s. ____ Electrical Hazards
t. ____ Review Job Description
u. ____ Take 5 Program
v. ____ Site Specific SOPs

2. OCCUPATIONAL HEALTH AND SAFETY ACT - REGULATION (OHSA)

a. ____ Mobile Equipment (Forklifts/Bobcats)
b. ____ Review Site MSDS
c. ____ Confined Spaces
d. ____ Lockout/Tagout
e. ____ DNA Hearing Conservation
f. ____ Bloodborne Pathogens
g. ____ Worker's Rights

3. ENVIRONMENT CANADA
a. ____ Spill/Release Reporting
b. ____ Proper disposal of Waste
c. ____ Waste Minimization/Pollution Prevention
d. ____ Used Oil Management
e. ____ Drum/Container Management

4. TRANSPORTATION CANADA (TDG)
a. ____ Road Test
b. ____ TDG Transportation
c. ____ TDG Hours of Service Policy
d. ____ Pre and Post Inspections

5. NATURAL RESOURCES CANADA, EXPLOSIVES SAFETY AND SECURITY BRANCH
a. ____ Site Security Plans / Key Policy
b. ____ Magazine Rules
c. ____ Inventory Accuracy
d. ____ Guidelines for bulk explosive facilities

6. QUESTIONS AND SUMMARY
_
__
_ Ask employee if there are any questions or areas of employment not clearly understood. Advise employee what's next.
Comments
: ____

___________________________________ ____________ _________________________________ _____________ Employee
Signature Date Trainer/Supervisor Signature Date

Job Specific Orientation Page 1 of 1 Canadian Standard Revised 12/17/09

APPENDIX 8

ANNUAL FIRE DEPARTMENT REVIEW FORM

Information to be released to Emergency Services

From: Local Emergency Services

Subject: Emergency Response Plan for ______________________________.

The following is a copy of the Emergency Response Plan that has been prepared by Dyno Nobel Inc. Has been received from ________________ operations. The ERP has been discussed and being kept on file for future reference. If questions arise, we have been given the contact information for the __________________________ operations staff.

Signed:_______________________________________

Position:_____________________________________

Date:____

EMERGENCY RESPONSE REPORT/DEBRIEF TEMPLATE (found in NEXUS Std 9.1)

Site:.. **Date**: .... **Drill or Actual Event** (circle)

Emergency Call placed with: Mine Emergency ☐ 911 ☐

Supervisor/Manager Advised: ☐

Incident Details:

Sequence of Events

Time	Activity	By

Gaps Identified:

	Details of Gaps Identified	*Action Required
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

A report should be raised in SHAERS/ICARUS listing all gaps identified and action required.

Fax completed form to Health & Safety Advisor for your site

APPENDIX 9
Transportation of Dangerous Goods Regulation
Class Quantity Emission Limit

1	Any quantity that could pose a danger to public safety or 50 kg
2	Any quantity that could pose a danger to public safety or any sustained release of 10 minutes or more
3	200 L
4	25 kg
5.1	50 kg or 50 L
5.2	1 kg or 1 L
6.1	5 kg or 5 L
6.2	Any quantity that could pose a danger to public safety or 1 kg or 1 L
7	Any quantity that could pose a danger to public safety. An emission level greater than the level established in section 20 of the *Packaging and Transport of Nuclear Substances Regulations*
8	5 kg or 5 L
9	25 kg or 25 L

Table identified in Section 8.1(1) of Part 8 of the Transportation of Dangerous Goods Regulation Class Quantity Emission Limit

APPENDIX 10

Emergency Risk Assessment

Site Emergency Response Plan should be based upon a risk assessment of all types of probable emergencies and regulatory impact (as found in NEXUS Std 9.1)

Location Date Analysis Completed Completed by:

Emergency Type	Scenario(s)	Safeguards	Historical Frequency	Future Risk Potential	Loss Severity Rate	Probable Emergency 8+ to be in plan	Regulatory Notifications	Actions / Remarks
Bomb Threat								
Chemical Spill/Release								
Security								
Explosion								
Fire								
Loss/Theft of Explosives								
Equipment								
Process Loss/Interruption								
Catastrophic Injury/Illness								
Trespassing/Vandalism								
Extreme Temperatures								
Earthquake								
Hurricane								
Tornado								
Severe Flooding								
OFF SITE								
Blast Site Incident								
Fire (Forest/Brush)								
Neighboring Facility Incident								
Transportation Vehicle Accident								
Transportation Fire/Explosion Incident								
Transportation Chemical Spill								
Transportation Vehicle Breakdown								

Emergency Assessment Score Information **- Use to evaluate Emergency Type level of risk**

Historical Frequency	Score	Future Risk Potential	Score	Loss Severity Rate	Score	Probability Total A & B (8+) to be in plan
Several Time per Year	5	Several Time per Year	5	Catastrophic	5	
One Time per Year	4	One Time per Year	4	Major/Critical	4	12 or higher
Once Every 3-5 Years	3	Once Every 3-5 Years	3	Serious	3	8-11
Less than Once Every 10 Yrs	2	Less than Once Every 10 Yrs	2	Negligible- No Loss	2	Less and 8
Very Unlikely to Happen Ever	1	Very Unlikely to Happen Ever	1	No Loss Occurrence	1	

APPENDIX 4

MSDS FOR BULK EMULATION AND PRESPLIT

1. MSDS – Dyno Gold Lite Bulk Emulsion

2. MSDS – Detagel Presplit

Material Safety Data Sheet

Dyno Nobel Inc.
2650 Decker Lake Boulevard, Suite 300
Salt Lake City, Utah 84119
Phone: 801-364-4800 Fax: 801-321-6703
E-Mail: dnna.hse@am.dynonobel.com
FOR 24 HOUR EMERGENCY, CALL CHEMTREC (USA) 800-424-9300
CANUTEC (CANADA) 613-996-6666

MSDS # 1052
Date [redacted]

Supercedes
MSDS # 1052 03/21/05
Added Dyno® RG3

SECTION I - PRODUCT IDENTIFICATION

Trade Name(s):
DYNO GOLD® C, DYNOGOLD® C EXTRA
DYNO GOLD® C LITE, DYNO GOLD® C LITE SUPER
DYNO GOLD® CS LITE
DYNO GOLD®, DYNO GOLD® LITE
DYNO GOLD® B, DYNO GOLD® B LITE
HD
1116, 1126P, 1136P, 1146P
IREMEX 362, IREMEX 562, IREMEX 762, IREMEX 764
RJ5
RG1-A
RUG-1 (Canada Only)
DX 5007; DX 5010
DX 5013; DX 5013G; DX 5013 PB
TITAN®XL1000
TITAN® 1000, TITAN® 1000 G, TITAN® PB 1000
DYNO® RG3

Product Class: Bulk Emulsion

Product Appearance & Odor: Translucent to opaque, viscous liquid. May be silvery in color. May have fuel odor.

DOT Hazard Shipping Description:
As Transported:
Oxidizing Liquid, n.o.s. (Ammonium Nitrate) 5.1 UN3139 II
After Blending with Density Control Agent On-site:
Explosive, Blasting, Type E 1.5D UN0332 II

NFPA Hazard Classification: Not Applicable (See Section IV - Special Fire Fighting Procedures)

SECTION II - HAZARDOUS INGREDIENTS

Ingredients:	CAS#	% (Range)	ACGIH TLV-TWA
Ammonium Nitrate	6484-52-2	30-80	No Value Established
Sodium Nitrate[1*]	7631-99-4	0-15	No Value Established
Calcium Nitrate	10124-37-5	0-35	No Value Established
Fuel Oil	68476-34-6	0-10	100 ppm
Mineral Oil	64742-35-4	0-7	5 mg/m^3
Aluminum *	7429-90-5	0-5	10 mg/m^3

[1] Our source of Sodium Nitrate (Chilean) may contain perchlorate ion, which occurs naturally. Although Dyno Nobel does not analyze for the presence of perchlorate anion, based on published studies, the products listed above may contain between 0 and 300 ppm perchlorate.
* The hazardous ingredients marked with an asterisk are not found in the majority of listed products.

Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in deminimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

SECTION III - PHYSICAL DATA

Boiling Point: Not Applicable
Vapor Density: (Air = 1) Not Applicable
Percent Volatile by Volume: <30

Evaporation Rate (Butyl Acetate = 1): <1

Vapor Pressure: Not Applicable
Density: 0.8 - 1.5 g/cc
Solubility in Water: Nitrate salts are completely soluble, but emulsion dissolution is very slow.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not Applicable
Flammable Limits: Not Applicable
Extinguishing Media: (See Special Fire Fighting Procedures Section)
Special Fire Fighting Procedures: Do not attempt to fight fires involving explosive materials or emulsion explosive precursors. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions.
Unusual Fire and Explosion Hazards: May explode or detonate under fire conditions. Burning material may produce toxic vapors.

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure

Eyes: Can cause irritation, redness and tearing.
Skin: Prolonged contact may cause irritation.
Ingestion: Large amounts may be harmful if swallowed.
Inhalation: May cause dizziness, nausea or intestinal upset.
Systemic or Other Effects: *Perchlorate*: Perchlorate can potentially inhibit iodide uptake by the thyroid and result in a decrease in thyroid hormone. The National Academy of Sciences (NAS) has reviewed the toxicity of perchlorate and has concluded that even the most sensitive populations could ingest up to 0.7 microgram perchlorate per kilogram of body weight per day without adversely affecting health. The USEPA must establish a maximum contaminant level (MCL) for perchlorate in drinking water by 2007, and this study by NAS may result in a recommendation of about 20 ppb for the MCL.

Emergency and First Aid Procedures

Eyes: Irrigate with running water for at least fifteen minutes. If irritation persists, seek medical attention.
Skin: Remove contaminated clothing. Wash with soap and water.
Ingestion: Seek medical attention.
Inhalation: Remove to fresh air. If irritation persists, seek medical attention.
Special Considerations: None.

SECTION VI - REACTIVITY DATA

Stability: Stable under normal conditions. May explode when subjected to fire, supersonic shock or high-energy projectile impact, especially when confined or in large quantities.
Conditions to Avoid: Keep away from heat, flame, ignition sources and strong shock.
Materials to Avoid (Incompatibility): Corrosives (strong acids and strong bases or alkalis).
Hazardous Decomposition Products: Nitrogen Oxides (NO_X), Carbon Monoxide (CO)
Hazardous Polymerization: Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Protect from all ignition sources. In case of fire evacuate area not less than 2,500 feet in all directions. Notify authorities in accordance with emergency response procedures. Only personnel trained in emergency response should respond. If no fire danger is present, and product is undamaged and/or uncontaminated, repackage product in original packaging or other clean DOT approved container. Ensure that a complete account of product has been made and is verified. Follow applicable Federal, State and local spill reporting requirements.
Waste Disposal Method: Disposal must comply with Federal, State and local regulations. If product becomes a waste, it is potentially regulated as a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR, part 261. Review disposal requirements with a person knowledgeable with applicable environmental law (RCRA) before disposing of any explosive material.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Not required for normal handling.
Respiratory Protection: None normally required.
Protective Clothing: Gloves and work clothing that reduce skin contact are suggested.
Eye Protection: Safety glasses are recommended.
Other Precautions Required: None.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Store in cool, dry, well-ventilated location. Store in compliance with Federal, State and local regulations. Keep away from heat, flame, ignition sources and strong shock.
Precautions to be taken during use: Avoid breathing the fumes or gases from detonation of explosives. Use accepted safe industry practices when using explosive materials. Unintended detonation of explosives or explosive devices can cause serious injury or death.
Other Precautions: It is recommended that users of explosives material be familiar with the Institute of Makers of Explosives Safety Library publications.

SECTION X - SPECIAL INFORMATION

The reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR 372 may become applicable if the physical state of this product is changed to an aqueous solution. If an aqueous solution of this product is manufactured, processed, or otherwise used, the nitrate compounds category and ammonia listings of the previously referenced regulation should be reviewed.

Material Safety Data Sheet

Disclaimer

Dyno Nobel Inc. and its subsidiaries disclaim any warranties with respect to this product, the safety or suitability thereof, the information contained herein, or the results to be obtained, whether express or implied, INCLUDING WITHOUT LIMITATION, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND/OR OTHER WARRANTY. The information contained herein is provided for reference purposes only and is intended only for persons having relevant technical skills. Because conditions and manner of use are outside of our control, the user is responsible for determining the conditions of safe use of the product. Buyers and users assume all risk, responsibility and liability whatsoever from any and all injuries (including death), losses, or damages to persons or property arising from the use of this product or information. Under no circumstances shall either Dyno Nobel Inc. or any of its subsidiaries be liable for special, consequential or incidental damages or for anticipated loss of profits.

Detagel Presplit

Material Safety Data Sheet

5700 N. Portland, Suite 301 / Oklahoma City, OK 73112 / Phone: (405) 947-0765 / Fax: (405) 947-0768

SECTION 1 - PRODUCT INFORMATION

TRADE NAME:	Presplit
SYNONYM:	NA
CHEMICAL FAMILY:	Watergel Slurry High Explosive
FORMULA:	Mixture
CAS NUMBER:	None
UN/NA NUMBER:	UN0241
DOT HAZARD CLASS:	Explosive, Blasting, Type E, Class 1.1 D

SECTION 2 - HEALTH ALERT

DANGER - If misused or disposed of improperly, material could explode and cause death or serious injury.
DO NOT HANDLE WHEN IN DOUBT!!
See section VIII - Personal Protection
CHEM-TEL, INC. (800) 255-3924.

SECTION 3 - HEALTH HAZARD INFORMATION

EYE: May cause moderate irritation.
SKIN: May cause moderate irritation characterized my redness and/or rash.
INHALATION: Inhalation of decomposed products may irritate the respiratory tract. Prolonged exposure to these fumes may result in respiratory difficulties (shortness of breath, etc.) and possibly more severe toxic effects.
INGESTION: Swallowing large quantities may cause toxicity characterized by dizziness, bluish skin coloration, methemoglobinemia, unconsciousness, abdominal spasms, nausea, and pain.

SECTION 4 - EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush with large amounts of water. Seek medical aid.
SKIN CONTACT :Remove contaminated clothing. Wash skin thoroughly with soap and water.
INHALATION: Remove from exposure. If breathing stops or is difficult, administer artificial respiration or oxygen. Seek medical aid.
INGESTION: Give 8-16 oz. of milk or water. Induce vomiting. Seek medical aid.

SECTION 5 - RECOMMENDED OCCUPATIONAL EXPOSURE LIMIT/ HAZARDOUS INGREDIENTS

EXPOSURE LIMIT (PRODUCT): None required for product. *React to form Hexaminedinitrate

HAZARDOUS INGREDIENTS:	PERCENT	EXPOSURE LIMIT	PPM	MG/M3
Ammonium Nitrate	<65%	NONE		
Sodium Nitrate	<20%	NONE		
Sodium Perchlorate	<7%	NONE		
Nitric Acid*	<5%	ACGIH - TLV	2	5
Hexamine*	<15%	NONE		
Aluminum	<7%	ACGIH - TLV		
Pentaerythritol Tetranitrate	<2%	NONE		

NOTE: All ingredients are present in a gelled slurry matrix and individual hazard may not be present in this formulation.

SECTION 6 - REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY: Heat (confinement); Stacking (burning).
INCOMPATIBILITY: Can react violently or explode, with reducing agents and organic materials. Avoid amines, strong alkalies & acids. ***HAZARDOUS REACTION / DECOMPOSITION PRODUCTS:*** At high temperatures, especially >374 F, may emit severe toxic fumes of nitrogen oxides. ***CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION:*** Not applicable.

SECTION 7 - FIRE AND EXPLOSION HAZARD INFORMATION

FLASH POINT & METHOD: NA ***AUTO IGNITION TEMPERATURE:*** Explodes ***FLAMMABLE LIMITS (% BY VOLUME/AIR): LOWER:*** NA ***UPPER:*** NA ***EXTINGUISHING MEDIA:*** Water ***FIRE-FIGHTING PROCEDURES:*** When explosive is burning, ***EVACUATE AREA.*** Avoid breathing vapor. Don't disturb fire, as dusty cloud containing aluminum may form explosive mixture with air. ***FIRE & EXPLOSION HAZARDS:*** Dangerous when exposed to heat or flame. Can support combustion of other materials involved in a fire and is capable of undergoing detonation if heated to high temperatures, especially under confinement including being piled on itself in a burning fire. When heated to decomposition, highly toxic fumes may be emitted. Do not return to area of explosion until smoke and fumes have dissipated. Dry alkali or amine salts are explosive.

Detagel Presplit

Material Safety Data Sheet

SECTION 7 - FIRE AND EXPLOSION HAZARD INFORMATION (con't.)

Internally, product contains detonating cord, consisting of flexible cord with and explosive core of PETN (pentaerythritol tetranitrate) within a textile casing covered by a seamless polyethylene jacket. This portion, if removed from the cartridge, may explode when subjected to fire or shock. PETN crystals, if separated or spilled, are substantially more sensitive to initiation by impact and friction than other components of the product, and care should be taken to avoid shock, friction, and excessive heat.

SECTION 8 - PERSONAL PROTECTION INFORMATION

EYE PROTECTION: Safety goggles approved for the handling of explosives materials.
SKIN PROTECTION: Neoprene, natural rubber, polyethylene or polyvinyl chloride gloves. Use barrier creams, hand protection and protective clothing. ***RESPIRATORY PROTECTION:*** Not normally required. Mechanical filter or supplied air type respirator as required for concentrations exceeding the occupational exposure limit.
VENTILATION: Maintain adequate ventilation. Use local exhaust if needed.

SECTION 9 - PERSONAL HANDLING INSTRUCTIONS

HANDLING: Explosives should not be abandoned at any location for any reason. Do not handle during electrical storms.
STORAGE: Store in a cool, dry, well-ventilated area remote from operations. Storage area should be of non-combustible construction and in accordance with appropriate BATF regulations. Organic materials, flammable substances and finely divided metals should be stored separately. Flames, smoking and unauthorized personnel are prohibited where this product is used or stored. Protect against physical damage, static electricity and lightning.
WARNING: Use of this product by persons lacking adequate training, experience and supervision may result in death or serious injury. Obey all Federal, State, and local laws / regulations applicable to transportation, storage, handling, and use of explosives.
DISTANCE: Always stay from area of explosion or disposal sites. Stay behind suitable barriers.

SECTION 10 - SPILL & LEAK PROCEDURES

PROCEDURES IF MATERIAL IS RELEASED OR SPILLED (IN ADDITION, SEE SECTION 8): Isolate area. Eliminate ALL sources of ignition. Avoid skin contact. Scrape up. Remove soiled clothing.
WASTE DISPOSAL - USE APPROPRIATE METHOD(S): Disposal of unexploded or deteriorated explosives material can be hazardous. Expert assistance is positively recommended in destroying explosives. Accidents can be prevented by thorough planning and handling in accordance with approved methods. Consult your supervisor, or the nearest SEC Regional Office for assistance. If improperly disposed of, material could explode and cause death or serious injury.

In all cases, follow facility emergency response procedures. Contact Facility Environmental Manager for assistance. Report any discharge of oil or hazardous substance that may enter surface waters to the National Response Center (800) 424 - 8802.

Observe all applicable local, state, and federal environmental spill and water quality regulations.

SECTION 11 - PHYSICAL DATA

BOILING POINT: NA ***BULK DENSITY:*** 1.25 g/cc ***MELTING POINT:*** NA ***%VOLATILE BY VOLUME:*** NA
VAPOR PRESSURE: NA ***EVAPORATION RATE (ETHER=1):*** NA ***SOLUBILITY IN WATER:*** Negligible with short term exposure
APPEARANCE/ ODOR: Odorless ,gray/white gel packaged in polyethylene cartridges ***DECOMPOSITION POINT:*** 200 C

SECTION 12 - COMMENTS

This product is classified as a Class 1.1D High Explosive and must be stored in a high explosive magazine. Storage should be in a well constructed, well ventilated, dry structure located to conform with local, state, and federal regulations. The area surrounding an explosive magazine must be kept clear of combustible materials for a distance of 50 feet. Magazine floors and containers must be properly cleaned. Normal operating conditions are assumed unless otherwise stated. If any given information is not clear or does not apply to your situation, STOP, store the material suitably, and seek correct help from your supervisors, Institute of Makers of Explosives or Slurry Explosive Corporation.

Disposal sites must be clear of people at the time of disposal.

NOTICE: The data and recommendations presented herein are based upon data which are considered to be accurate. However, SEC makes no guarantee or warranty, either expressed or implied, of the accuracy or completeness of these data and recommendations. For more detailed information on the hazards of this product, contact the Regulatory Compliance Department at the address below:

Slurry Explosive Corporation
P. O. Box 348
Columbus, Kansas 66725
(620) 597-2552

Revised 6-2001

APPENDIX 5

EMULSION PLAN / BLAST AREA INSPECTION SHEET

Environmental Inspection Report for the Emulsion Plant Area and the Loading of Blast Holes

Date: **Inspected By:**

Location: Emulsion Plant

Weekly Inspection

In Compliance with	Subject	Conform	Non-conform	N/A	Comments
NWB Part B Item 15	Sign posted to inform of a waste disposal facility				
NWB Part D Item 29 MBK SCP NIRB Condition 26	Are there any visual spills?				
NWB Part F Item 19	All Hazardous Waste disposal is located 30m from the ordinary high water mark.				
NWB Part H Item 3	Resources in place to prevent any chemicals, petroleum products, or unauthorized Wastes from entering a water body.				
NWB Part H Item 4 Ammonia Management Plan	Is secondary containment for chemical storage provided.				
NWB Part I Item 9	Monitoring signs are posted in English, French, and Inuktitut.				
MBK SCP	Spill Kits Present				
NIRB Condition 26	Ensure that spills, if any, are cleaned up immediately and that the site is kept clean of debris, including wind-blown debris.				
NIRB Condition 25	Management and control waste in a manner that reduces or eliminates the attraction to carnivores and/or raptors.				

NIRB Condition 27 Ammonia Management Plan	Ensure the hazardous material are contained using environmentally protective methods based on practical best management practices				
	Are storage containers clearly labelled to identify Hazardous substance?				
Ammonia Management Plan	Are storage containers in good condition? Is there any visible damage or leaks? Can the doors be sealed shut?				
Ammonia Management Plan	Where necessary – Are containers with product stored in an upright position?				
Ammonia Management Plan	Do you see any potential environmental hazards posed by these HAZARDOUS containers/materials?				
BMP	Are there any additional environmental hazards/potential impacts that require attention?				
MINE ACT	Are there any Health and Safety issues that should be addressed to prevent injury to workers?				

Pit Location: **Blast Pattern#**

In Compliance with	Subject	Conform	Non-conform	N/A	Comments
NWB Part D Item 29 MBK SCP NIRB Condition 26	Are there any visual spills, including emulsion?				
Ammonia Management Plan	Is there presence of Emulsion outside of the holes that are being loaded?				
NWB Part F Item 19	All Hazardous Waste disposal is located 30m from the ordinary high water mark.				

NWB Part H Item 3	Resources in place to prevent any chemicals, petroleum products, or unauthorized Wastes from entering a water body.				
NWB Part H Item 4 Ammonia Management Plan	Is secondary containment for chemical storage provided?				
NIRB Condition 27 Ammonia Management Plan	Ensure the hazardous material are contained using environmentally protective methods based on practical best management practices				

Comments/Recommendations:

Environmental Personnel Name:
Signature: ____

Actions Corrected:
____
____
____
____
____

Site Service Supervisor Name: ____

Signature: ____

Picture 1:

Picture 2:

Picture 3: