Appendix 13

Meadowbank Water Management Plan Version 12

AGNICO EAGLE

MEADOWBANK GOLD MINE

2023 WATER MANAGEMENT PLAN

MARCH 2024

VERSION 12

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-MEA1530 issued in May 2020.

The Water Management Plan is updated on a yearly basis as required by the Nunavut Water Board Water License 2AM-MEA1530. This document presents an updated version of the Water Management Plan 2022 and provides a revised site-wide Water Balance. Recommendations obtained during the 2022 Meadowbank Annual Report Review have been included in the 2023 Water Management Plan.

The 2023 Water Management Plan includes the 2023 Water Quality Forecast Update (Appendix C), the 2024 Freshet Action Plan (Appendix D) and the 2024 Ammonia Management Plan (Appendix E). The Freshet Action Plan details the RSF seepage issue at ST-16 and the Assay Road seepage as well as providing revised monitoring.

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 significant updates to this plan are:

- Update of water balance and water quality forecast model as per latest tailings deposition plan (including in-pit deposition)
- Update of quantitative water-related objectives/targets as per the TSM (Towards Sustainable Mining) Water Stewardship Protocol

The water management objectives are to keep the different water types separated to the extent practical; to control and minimize contact water; minimize freshwater usage to the extent practical; meet discharge criteria before any site contact water is released to the downstream environment; achieve a reduction in freshwater intake per tonne mined and ensure no events of non-compliance related to freshwater withdrawal criteria and effluent loading limits. The water balance update is based on these objectives, and quantitative targets have been added to the plan to help Operations track progress of actions taken to achieve these targets and help identify corrective actions to be implemented.

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. Closure related elements remain at a conceptual stage and will be further detailed in the Interim Closure and Reclamation Plan (ICRP) update until their designs are presented in the Final Mine Closure and

Reclamation Plan to be submitted prior to final closure in accordance with the current Type A Water License.

The freshwater reduction per tonne milled objective is achieved by reclaiming contact water from the tailings deposition area while transferring water from the active deposition area to the inactive pit. Pit E was the main area for tailings deposition in 2023 and will continue to be in 2024. A volume of tailings was also deposited in the South Cell in August and September 2023 to improve the landforms for closure purposes. For the remainder of mill operations, reclaim water is planned to be pumped from the in-pit. The current concept for Portage and Goose area flooding at closure is to remove as much water as possible from each pit by using a water treatment plant (WTP) and to reflood the area using a combination of passive and active water inflow (from Third Portage Lake). This is a conservative assumption that will be revised in the Interim Closure and Reclamation Plan (ICRP) and Final Closure and Reclamation Plan (FCRP) as further data become available on the water treatment design for the in-pit water. Different flooding sequence concepts are being looked at for the reflooding of the Portage and Goose Area to ensure the closure objectives will be met. The final elevation of the reflooding will be the elevation of Third Portage Lake which is around 133.6 masl based on available data. The Goose Dike and South Camp Dike will be breached to allow reconnection of the area with Third Portage Lake when the closure objectives for pit flooding will have been achieved. The dikes shall not be breached until the water quality in the re-flooded area meets CCME Water Quality Guidelines for the Protection of Aquatic Life, baseline concentrations, or appropriate site-specific water quality objectives, as per the Water License.

The flooding of the Vault Pit area will involve a combination of passive flooding (runoff) and active flooding at closure using water from Wally Lake. The final elevation of the reflooding will be 139.9 masl for Phaser and Vault Lake. The Vault Dike will be breached to allow reconnection of the area with Wally Lake when the closure objectives for pit flooding will be achieved, as per Portage and Goose Pits. BB Phaser Pit and Phaser Lake will be flooded exclusively from their watershed run off inflows until the target elevation of Wally Lake is reached.

A water quality forecasting model update is included in this report. The report identifies certain contaminants of concern which may require removal by treatment for the pit water quality to meet water quality objectives. Based on the forecasted concentrations at the end of in-pit deposition, the new water treatment plant required at closure should be designed to treat and manage the following parameters of concern for aluminium, arsenic, cadmium, copper, mercury, nickel, total dissolved solids (TDS), total ammonia, pH, total suspended solids (TSS), and potentially low concentration of total cyanide. Treatment options for the pit water are being assessed as per the schedule outlined in the Meadowbank Water Quality Forecasting Update Technical Note rev. 00 (AtkinsRéalis, 2024). An update on the water treatment concept and pit flooding strategy will be provided in the next ICRP update and the final design will be submitted as part of the FCRP.

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 LOM and water mgmt strategies
2	March 2015	ALL	-	Revision for the 2013 Water Management Plan (by Agnico) according to the updated LOM and water mgmt 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 LOM and water mgmt strategies
5	March 2017	ALL	-	Revision of the 2015 Water Management Plan (by Agnico) according to the updated LOM and water mgmt strategies
6	March 2018	ALL	-	Revision of the 2016 Water Management Plan (by Agnico) according to the updated LOM and water mgmt strategies
7	March 2019	ALL	-	Revision of the 2017 Water Management Plan (by Agnico) according to the updated LOM and water mgmt strategies
8	March 2020	ALL	-	Revision of the 2018 Water Management Plan (by Agnico) according to the updated LOM and water mgmt strategies
9	April 2021	ALL	-	Revision of the 2019 Water Management Plan (by Agnico) according to the updated LOM and water mgmt strategies
10	April 2022	ALL	-	Revision of the 2020 Water Management Plan (by Agnico) according to the updated LOM and water mgmt strategies. Addition of quantitative water management targets
11	March 2023	Section 3.1, 3.4, 4	-	Section 3.1 water management targets, Section 3.4 pit flooding profiles, Section 4 water quality forecast update
12	March 2024	ALL	-	Revision of the 2023 Water Management Plan (by Agnico) according to the updated LOM and water mgmt strategies. 2.1.1 Climate: updated maximum wind gust recorded. Table 3.1: Added target 2024 for water objectives. 3.3.6 Goose pit: Updated water management strategy information. 3.3.9. Mill seepage collection system: Added information on Assay Road Seep South.

				Figure 3.2: RSF seepage area: Changed figure. 3.3.12 Central Dike Seepage: Updated information. 3.4.1 Portage and Goose Area Flooding: Updated information. Table 3.2 and 3.3L: Updated according to the Water balance. Section 4 Water quality forecast: Updated information and add note for ongoing work. Appendix A : Added a note on reported values

Approved by: ______________________

Eric Haley – Environment & Critical Infrastructure Superintendent

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Appendix E: 2024 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-MEA1530 issued on May 2020.

This document presents an updated version of the Water Management Plan 2022 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 presented. Closure related elements based on the Meadowbank Interim Closure and Reclamation Plan remain at a conceptual stage 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.

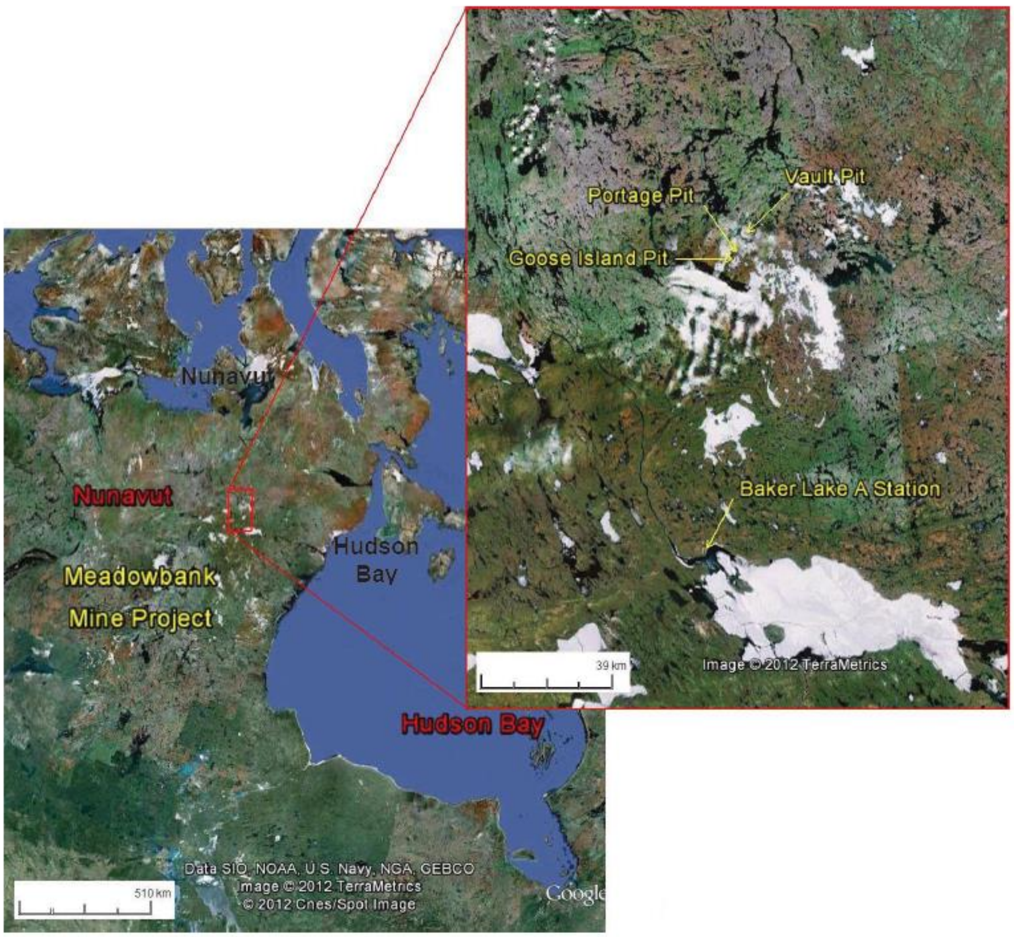
The significant updates to this plan are:

- Update of water balance and water quality forecast model as per latest tailings deposition plan (including in-pit deposition)
- Updates of quantitative water-related objectives/targets as per the TSM (Towards Sustainable Mining) Water Stewardship Protocol

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 117 km/h was recorded on November 22nd, 2023. 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 bright 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.

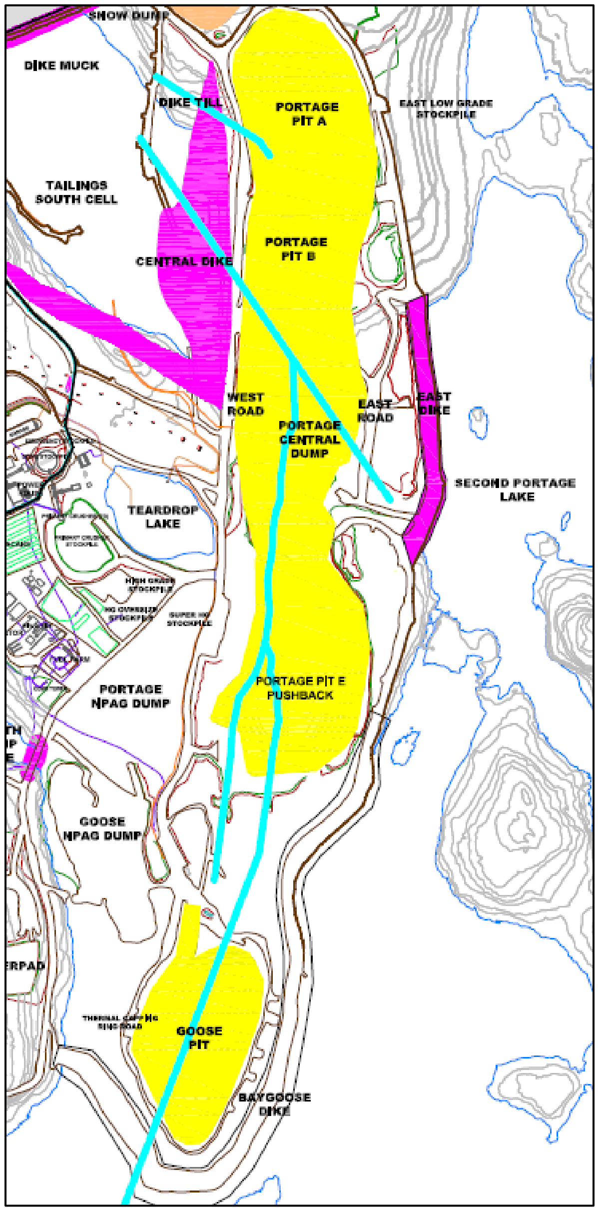


Figure 2.2: Portage Pit area – fault location

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

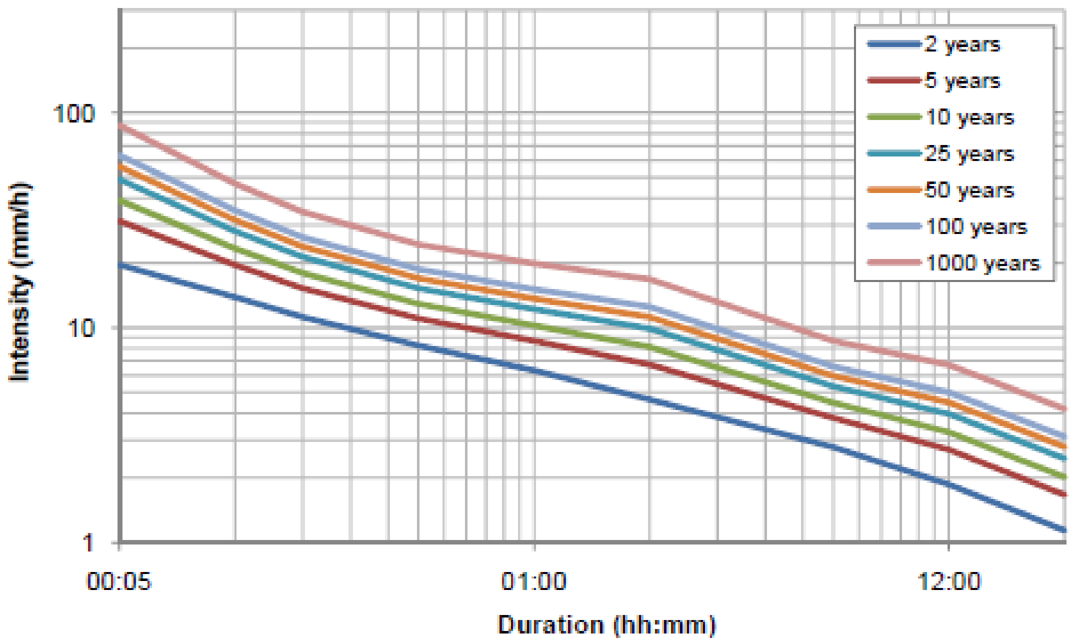
As shown above in Table 2-1, the Baker Lake A meteorological station was used to tabulate the monthly precipitation data. Using this data, SNC-Lavalin completed a Log-Pearson 3 probability distribution to determine the annual precipitation for different return periods. The results of this statistical 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 of 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. Mining of these pits is completed, and no mining activity was done since 2019 at the Meadowbank site.

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 activities in the Portage area ended 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.

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.

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. First, tailings were deposited in Goose pit, between July 2019 and August 2020. Since August 2020, tailings have been deposited in Pit E. An updated Tailings Deposition Plan has been prepared for the 2023 revision of the Water Management Plan. The updated deposition plan is presented in the 2023 version of the Meadowbank Mine Waste Rock and Tailings Management Plan. The latest life of mine exercise presents milling operations until 2026. 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 Meadowbank Waste Rock and Tailings 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 NP2 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, to avoid ponding of water against the structure. One sump was also built in a natural topographic low point at the north area of the cell and upstream of RF2, within the tailings footprint areas.

A volume of tailings was deposited in the South Cell during August and September 2023 to improve the landforms for closure purposes.

2.2.1.2 Stormwater Management Pond

The Stormwater Management Pond (SMP) is a small, shallow, and fishless, water body adjacent to Portage Pit (Figure 2.5). Treated sewage effluent is discharged to this pond as well as water containing hydrocarbon products. The pond also collects freshet flows within its catchment area, including most of the Primary Crusher area.

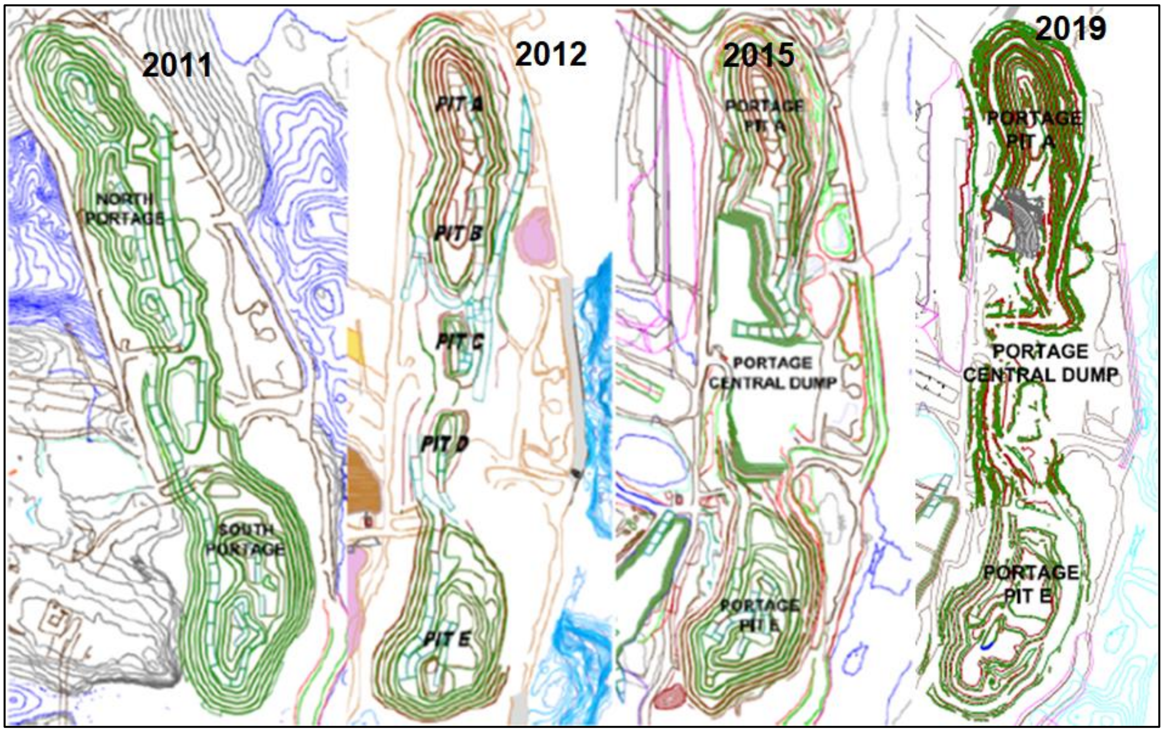


Figure 2.4: Portage Pit terminology

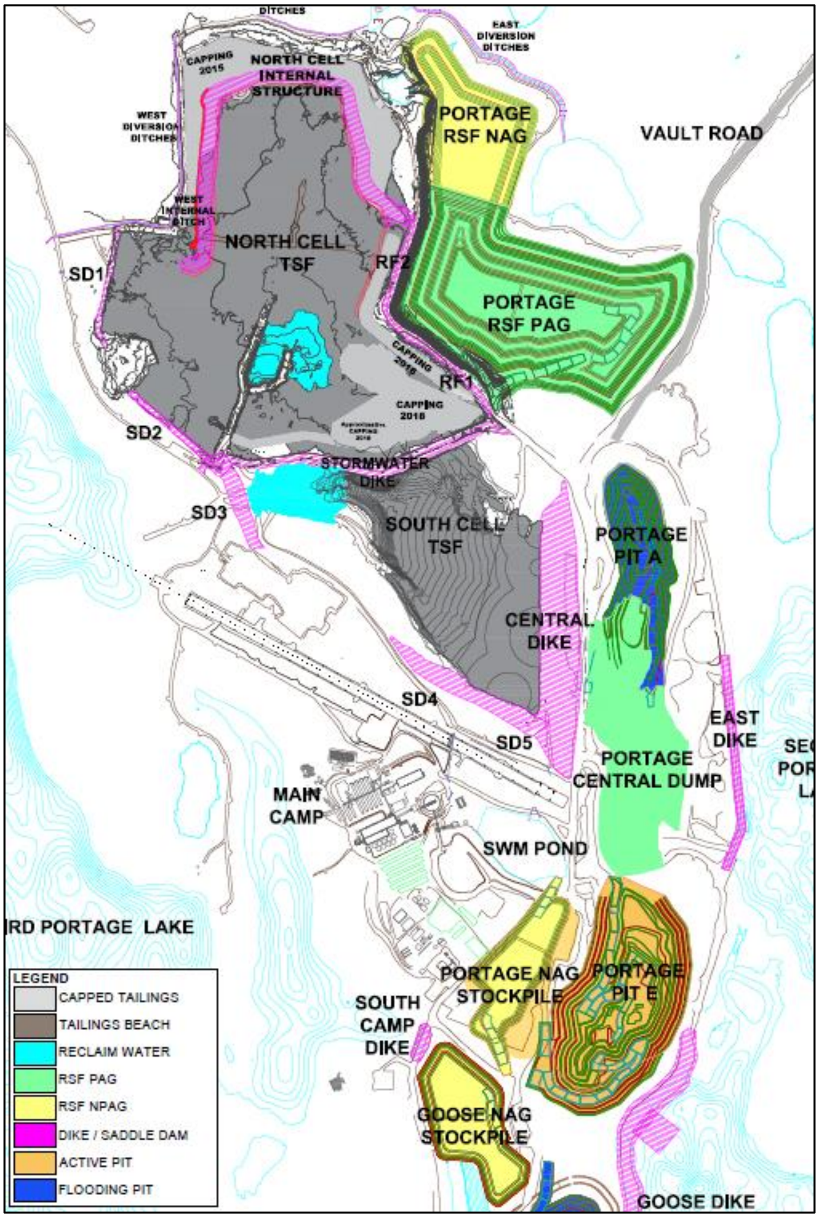


Figure 2.5: Portage Pit area map

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. 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. 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. As mentioned above, from July 5th, 2019, to August 19th, 2020, tailings have also been deposited in the Goose pit. Water is transferred between Goose Pit and Pit A as required.

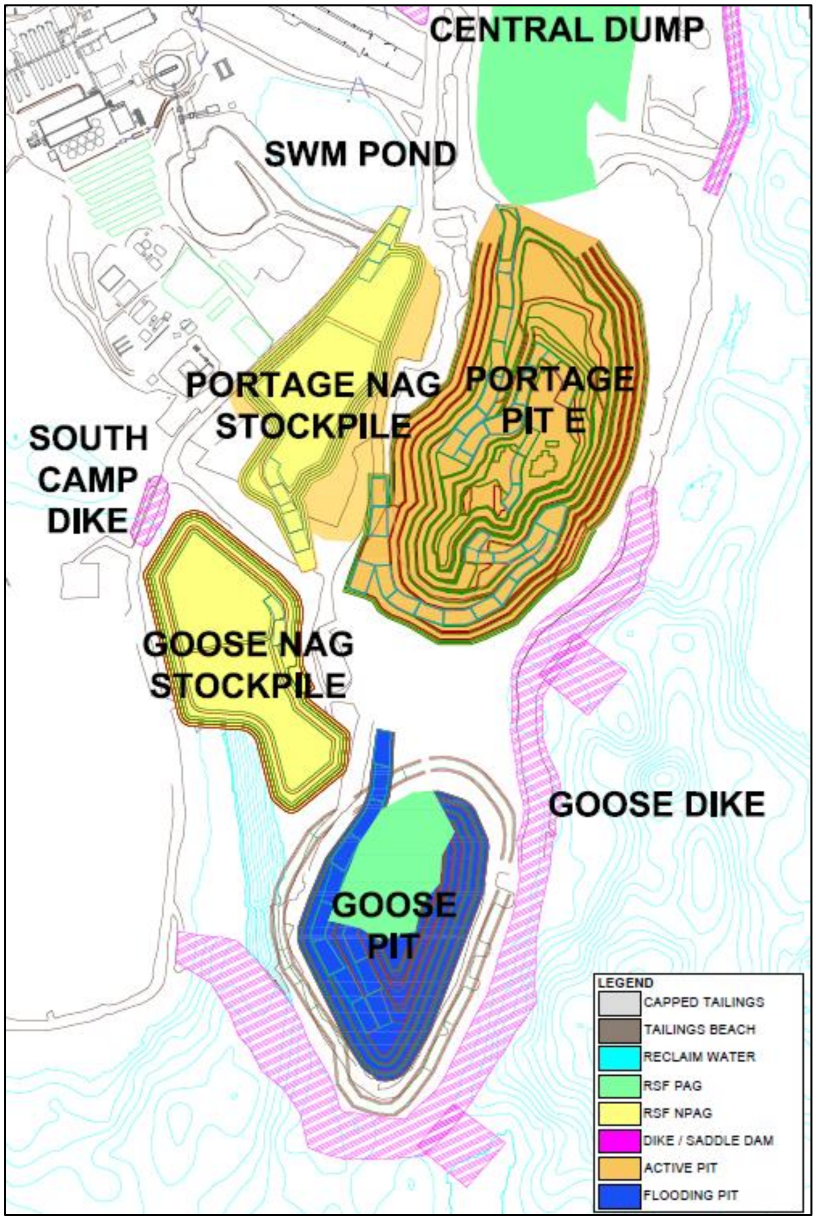


Figure 2.6: Goose Pit area map

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 the 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 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 started in 2014 and completed in March 2019. The dewatering of Phaser Lake occurred during summer 2016 in preparation for mining activity in Phaser Pit 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.

Most 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.

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 meet MDMER and Water license criteria prior to discharging in Wally Lake.

Since mining operations in Vault area are completed, there is no more active water management in that area. Passive reflooding is ongoing until active reflooding will begin during closure. As a result, no further discharges to Wally Lake are planned.

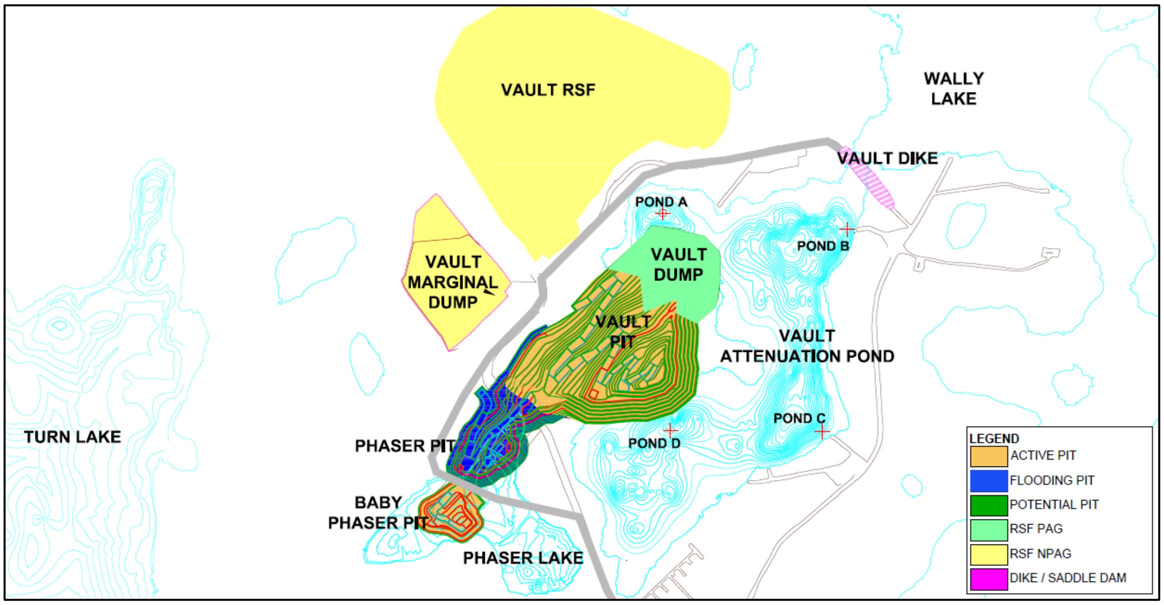


Figure 2.7: Vault Pit area map

2.3 LIFE OF MINE DESCRIPTION

The life-of-mine (LOM) is summarized in Table 3.1 of the 2023 Whale Tail Project Waste Rock Management Plan. The Meadowbank Process Plant will be operational until 2026.

3 WATER MANAGEMENT PLAN AND WATER BALANCE

3.1 WATER MANAGEMENT OBJECTIVES AND TARGETS

The water management objectives for the Meadowbank Site are:

- Keep the different water types (i.e. contact, non-contact, and freshwater) separated to the extent practical
- Control and minimize contact water through diversion and containment.
- Minimize freshwater usage by reclaiming the contact water to the extent practical
- Meet discharge criteria before any site contact water is released to the downstream environment.
- Reduction in freshwater intake per ton mined.
- No events of non-compliance.
    - Regulatory/Water License water quality criteria (effluent loading limits);
    - Regulatory/Water License freshwater withdrawal criteria.

The water management targets are summarized in Table 3-1. These targets are aligned with the water objectives of the Meadowbank Complex and go beyond the Water License limits. These targets strive to minimize risk, conserve freshwater, and minimize water usage. The 2024 targets assume continued improvements in the amount of reclaim water withdrawn from the pits to reuse in the Mill which will also decrease the amount of freshwater used per ton processed and increase the amount of water in recirculation. Targets are set to ensure continuous effort is made to improve water management and to encourage all groups to find and pursue opportunities to reduce freshwater consumption.

Table 3-1: 2024 Targeted water hourly consumption per month – for Mill and Camp usage

WATER OBJECTIVE	TARGET 2023	TARGET 2024
Fresh Water Withdrawn from 3PL (Mill and Camp)	865,000 m^3	900 000 m^3
Contact Water Withdrawn from Pit (reclaim water to Mill)	3,470,000 m^3	3,300,000 m^3
Freshwater per ton processed	0.20 m^3/t	0.20 m^3/t
Water discharge (treated)	0 m^3	0 m^3
Water discharge (fresh) – East Dike to 2PL	70,000 m^3	35,000 m^3
Water in recirculation (water recycled / total water use)	80.0%	80.0%

3.2 WATER MANAGEMENT STRATEGY

To achieve the above water management objectives and targets the following key strategies are implemented in the Water Management Plan.

- Two levels of catchment disturbance have been defined for the area, namely undisturbed and disturbed. Areas that have been disturbed as part of the mine development are considered disturbed catchments, while the areas left unaffected are considered undisturbed catchments.
- For mine water management, runoff from undisturbed areas is considered non-contact water, while runoff from disturbed catchment areas is considered contact water. Surface water that is diverted around the mine facilities, or groundwater that does not emerge into a mine facility, is considered non-contact water. Any non-contact water that mixes with contact water becomes contact water.
- Conveyance and storage of contact water is controlled by channels, piping, and containment structures such as sumps and ponds. Sumps are installed in low points surrounding pits, the WRSF, and the TSF. Contact water is diverted in various sumps and water collection ponds and is conveyed to the TSF or the in-pit area.
- Contact water stored in the in-pit is reclaimed for the milling process.
- East Dike seepage is discharged into Second Portage Lake (when discharge criteria is met) or otherwise sent to the in-pit area.
- The collected water in the Meadowbank area will be treated prior to discharge if the water quality does not meet the discharge criteria established in the Water License 2AM-MEA1530.
- Non-treated effluent from the Vault Attenuation Pond can be discharged in Wally Lake if discharge criteria established in the Water License 2AM-MEA1530 are met.
- Non-contact water is intercepted and directed away from disturbed areas by means of natural catchment boundaries and/or diversion structures or pumping systems and will be allowed to flow or to be discharged to the neighboring waterbodies.
- As per the Water License 2AM-MEA1530, (Part E, Condition 10) Agnico will conduct weekly inspections of all water management structures during periods of flow. This is part of the Freshet Action Plan (Appendix D).

3.3 WATER MANAGEMENT SYSTEM AND WATER BALANCE

The water management system includes the following components below. Additional water management system components can be put in place if required to adapt effectively to the site conditions and meet the water management objectives and targets.

The water management system includes the following components:

- Tailings Storage Facility (North Cell and South Cell) and associated dikes (SD1, SD2, SD3, SD4, SD5, Stormwater Dike, Central Dike, NCIS)
- In-pit tailings disposal area (Portage Pit and Goose Pit)
- Four water retention dikes (East Dike, Bay-Goose Dike, South Camp Dike, Vault Dike)
- Water diversion channel around the North Cell of the TSF (East and West Diversion)
- Seepage Management System (Mill Seepage, Central Dike Seepage, East Dike Seepage)
- Stormwater Management Pond
- Sump for WRSF and TSF contact water management
- Reclaim system to the Process Plant
- Freshwater intake and pump system
- Culverts
- Sewage treatment plant (STP)
- Pipelines and associated pump systems
- Potable WTP

As per the requirements of Water License 2AM-MEA1530 (Part E, condition 7) the Water Management Plan includes a yearly updated Water Balance according to the water management strategy and the applicable LOM.

The Water Balance is presented in Appendix A of this report. 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;
- Reclaimed water volumes;
- Updated tailings deposition plan showing the deposition calendar for In-Pit Tailings Disposal;
- Water treatment and reflooding sequence and volumes updated as per the latest flooding strategy;
- Update to the seepage section.

3.3.1 Fresh Water from Third Portage Lake

Fresh water from Third Portage Lake is pumped from a freshwater barge. The two primary consumers of fresh water are the mill and the camp. The amount pumped from the barge is tracked in the water balance and reported in the Annual Report as per the requirement of the Type A Water License. The freshwater withdrawal limit for Third Portage Lake as per the Type A Water License is 4,935,000 m^3 per year, including use for pit reflooding.

The freshwater consumed at the process plant is used as part of the milling process and is then discharged in the Portage Pit or TSF as slurry with the tailings. Depending on the time of year, 35% – 75% of the total water volume discharged into the pits 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 the TSF or Portage Pit.

3.3.2 Tailings Deposition Strategy and Reclaim Water

The water management objective related to tailings deposition is to minimize the freshwater per tonne processed while maximizing the water in recirculation. This is achieved by reclaiming contact water from the tailings deposition area. More information on the tailings deposition plan can be found in the waste rock and tailings management plan.

For the remainder of mill operations, reclaim water will continue to come from the in-pit disposal pits Pit A and Pit E.

3.3.3 North Cell

Water inflows in the North Cell include runoff, water from tailings deposition, and water transfers from various sumps as needed (Western Interception Sump, WEP, SD1-2, NCIS, ST-16). 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 150.0 masl elevation. Therefore, the pond must respect an elevation of 148.0 masl. This strategy requires transfers from the North Cell to the South Cell generally from May to October. Following landform cover placement over the TSF and until the water quality closure objectives of the TSF are achieved, the runoff water from the North and South Cells will be collected and directed to the pits. Details on the water management for the TSF at closure are available in the Meadowbank Interim Closure and Reclamation Plan and will be further presented in the Final Mine Closure and Reclamation Plan (FCRP).

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. Water from the Western Diversion Ditch is conveyed to the Western Interception Sump. From there, it is pumped into the North Cell or redirected to Third Portage Lake via the West Diversion Ditch if water quality meets the required criteria.

3.3.4 South Cell

The water management strategy is to keep the water level at a minimum.

Water inflows in the South Cell include runoff, water from tailings deposition, and water transfers from the North Cell, and various sumps (SD3-4-5). 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 145.0 masl elevation. Therefore, the pond must respect an elevation of 143.0 masl. Water is transferred from the South Cell to Pit A and water transfers are planned to comply with the freeboard requirement and to minimize water accumulation. Water management strategies within the Water Balance reflect the tailings deposition plan presented in the 2023 Mine Waste and Tailings Management Plan (Agnico, 2024).

Until the closure objectives of the cell are achieved, the strategy is to transfer the water accumulating in the South Cell to the open pits. The water transfers are included in the pit flooding process. Details on the water management for the TSF at closure are available in the Meadowbank Interim Closure and Reclamation Plan and will be further presented in the FCRP.

3.3.5 Portage Pit

The Portage Pit is part of the in-pit tailings disposal facility. The water management strategy is to maximize the reclaim to the mill to maximize tailings storage capacity.

As part of the closure concept and to achieve the closure objectives, Portage Pit water will be treated, discharged in Third Portage Lake and the pit will be reflooded. The pit flooding strategy and sequence will continue to be refined until the FCRP submission based on the Water Quality Forecast completed each year (Appendix C).

The Portage Pit inflow is modelled based on measured onsite data including the Central Dike seepage water, Goose Pit transfer, pit wall inflow, runoff water, groundwater, and a contribution from the East Dike seepage water (which is pumped back to Second Portage Lake when discharge criteria are met).

It is likely that the water inflow is filling up the porosity voids of the Portage Central Dump to some extent (former Pit C and Pit D).

3.3.6 Goose Pit

Goose Pit is part of the in-pit tailings disposal facility. The water management strategy is to transfer water between Goose Pit and Portage Pit to meet requirements for the deposition plan.

As part of the closure concept and to achieve the closure objectives, Goose Pit water will be treated, discharged in Third Portage Lake and the pit will be reflooded. The pit flooding strategy and sequence will continue to be refined until the FCRP submission based on the Water Quality Forecast completed each year (Appendix C).

The Goose Pit inflow is modelled based on measured onsite data including pit wall inflow, runoff water, Pit A transfer and groundwater. It was historically observed that the pit inflow diminishes during the winter due to the freezing of the pit walls.

3.3.7 Vault Pits Area

No active water management is currently occurring in the Vault Area. The current strategy to manage water is to let the area flood passively until the beginning of closure. There is the possibility of discharging water to Wally Lake using the approved discharge, but this is not currently needed as per the water balance.

As part of the closure concept and to achieve the closure objectives, Vault area will be reflooded. The pit flooding strategy and sequence will continue to be refined until the FCRP submission based on the Water Quality Forecast completed each year (Appendix C).

The Vault area natural inflow is modelled based on measured onsite data including pit inflow and runoff water.

3.3.8 Stormwater Management Pond

The Stormwater Management Pond inflow includes treated sewage effluent, runoff, and transfers from trucks containing hydrocarbon contaminated water. The pond water is transferred as required to either the South Cell or the Portage Area.

3.3.9 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 3.1. The source was determined to be a 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 system was implemented which included installation of monitoring wells, a recovery well (MW 203) and a water sampling program. Repairs (sealing) were completed within the mill (containment structures) in 2014 to eliminate the source of contaminants.

On December 15th, 2023, Agnico observed water inflow within the Assay Road Seep South retention berm. An investigation was undertaken to identify potential sources of the water, to date the exact source of the water inflow has not been identified but no water inflow has been observed since December 26th, 2023. The water inflow was contained within the existing water management infrastructure that was built in 2014. Monitoring of the area is still ongoing.

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.

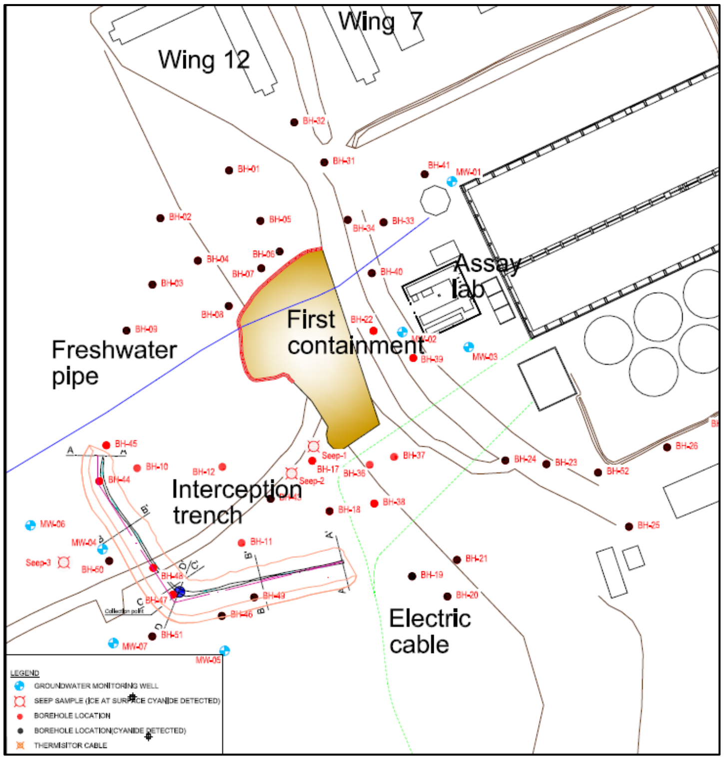


Figure 3.1: Mill seepage area

3.3.10 Portage RSF Water Management

The Portage Rock Storage Facility water management system consists of three sumps located behind the Portage waste dump to collect contact water (WEP-1, WEP-2, and ST-16). The location of these sumps is indicated on Figure 3.2. Water collected from WEP-1 and WEP-2 is pumped to the ST-16 sump and then transferred to either North Cell or pit A.

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 location.

Figure 3.2: RSF seepage area

3.3.11 East Dike Seepage Collection

The East Dike seepage system collects the East Dike seepage from Second Portage Lake (2PL). The seepage is collected in two pumping stations (as illustrated in Figure 3.3) and is discharged, as a combined flow, through a diffuser, to 2PL (in accordance with the Water License and the MDMER criteria). When the discharge does not meet the discharge criteria (mainly because of TSS level), the seepage water is pumped to the Portage Pit area (usually at freshet and after large precipitation events in summer) specifically in the Portage Central Waste Rock area, where the water flows in the rock backfill pores towards Pit B and Pit E.

At closure, this seepage water will be an inflow contributing to the natural pit reflooding process.

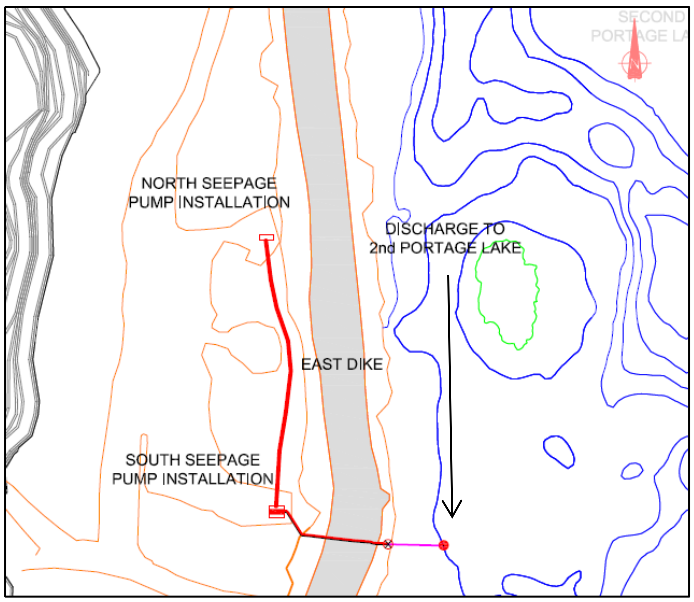


Figure 3.3: East Dike pumping system

3.3.12 Central Dike Seepage

The Central Dike downstream area collects the Central Dike seepage. The source of that seepage includes water from the TSF and a regional component. The water from Central Dike downstream is pumped to either the in-pit area or the TSF (as illustrated in Figure 3.4) as to maintain the downstream seepage collection pond level within the operational levels specified in the OMS Manual.

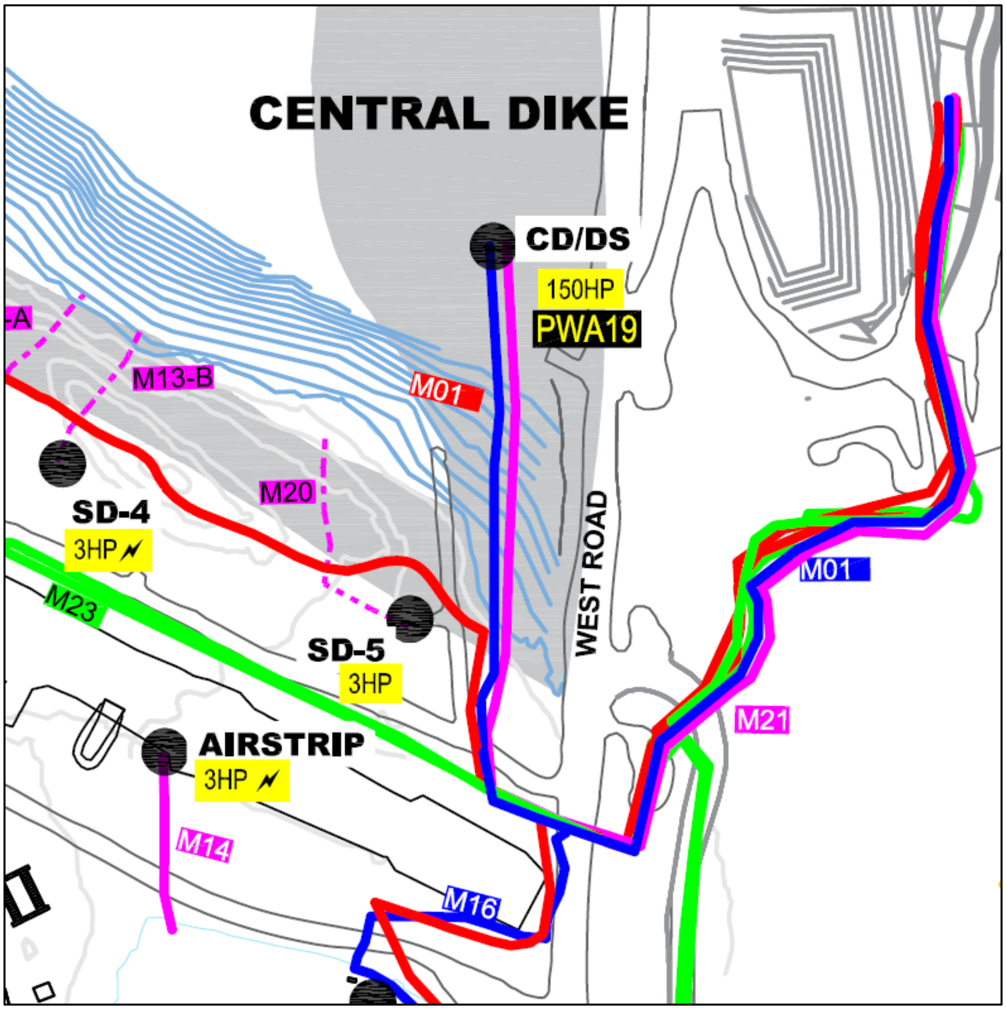


Figure 3.4: Central Dike seepage pumping system

3.4 PIT FLOODING – CLOSURE CONCEPT

This section presents the pit flooding concept for closure. As per the water License requirement, 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-MEA1530 (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-MEA1530. 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-MEA1530.

The reflooding concept for the Vault area includes passive flooding until the beginning of closure and then active flooding using water from Wally Lake.

The reflooding concept of the Portage and Goose area includes management of water from tailings deposition activity, water treatment, passive flooding, water transfers between the pits, and active flooding from Third Portage Lake. More details on the in-pit water treatment strategy and design, including the discharge location and assimilative capability of the receiver is required to advance the Portage Area flooding concept. The assimilative capacity of Third Portage Lake will be assessed with the objective of maintaining baseline or guideline/protective water quality in the lake.

Updates on the pit flooding concept will be provided in the next update of the ICRP and the final in-pit water treatment and pit flooding strategy will be submitted as part of the FCRP.

3.4.1 Portage and Goose Area Flooding

The Portage and Goose area will be connected as one waterbody when the pit water level reaches approximately elevation 131.0 masl). Figure 3.5 shows a concept of the the extent of the flooded area at closure.

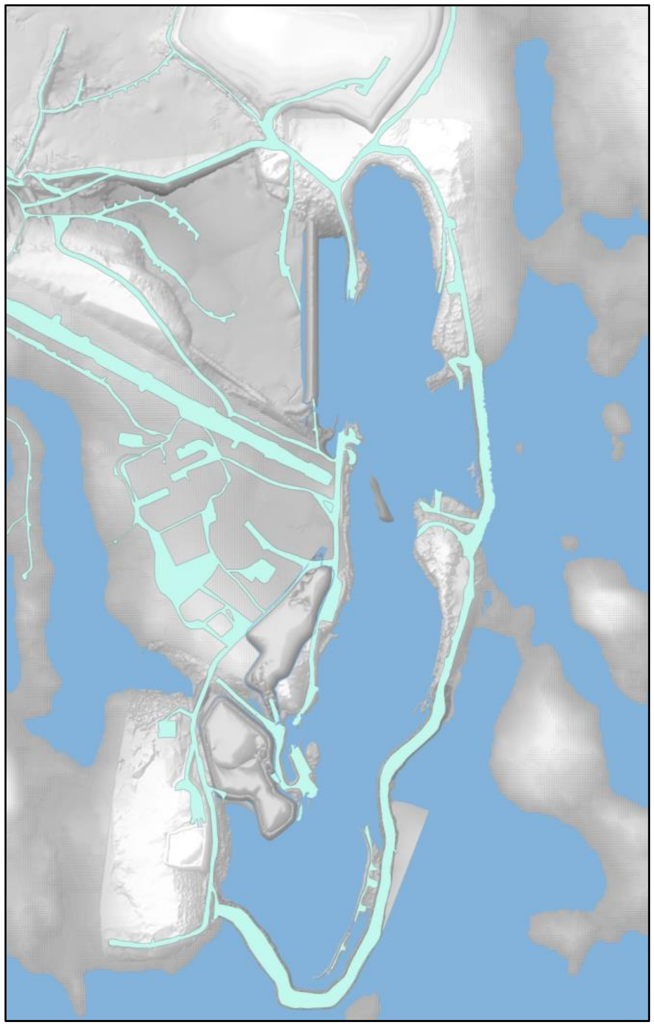


Figure 3.5: Flooded Portage and Goose area at closure

The current concept for Portage and Goose pits flooding at closure is to treat reclaim water from each pit by using a water treatment plant (WTP) and to discharge the treated water in Third Portage Lake. The pits area will then be reflooded using a combination of passive and active water inflow (from Third Portage Lake). This is a conservative assumption that will be revised in the ICRP and FCRP as further data becomes available on the water treatment design for the in-pit water. Different flooding sequence concepts are being looked at for the reflooding of the Portage and Goose Area to ensure the closure objectives will be met. The flooding sequence will be informed by the water treatment strategy that is being established. The location of the discharge, type of treatment, water quality and discharge criteria of the effluent, as well as yearly volume of water to be discharged are being assessed as part of the design of the closure strategy and will impact the pit reflooding strategy. Some of the work associated with the water quality forecast and water treatment plan design is presented in the Meadowbank Water Quality Forecasting Update Technical Note rev. 00 completed by AtkinsRéalis (AtkinsRealis, 2024). An update on the pit flooding concept will be provided in the next ICRP update and the final design will be submitted as part of the FCRP.

Agnico is committed to update the Water Quality Forecast Model using up to date data on a yearly basis and to use this model to inform on the water treatment design and re-flooding sequence.

The final elevation of the reflooding will be the elevation of Third Portage Lake which is around 133.7 masl based on available data. The Bay-Goose Dike and South Camp Dike will be breached to allow reconnection of the area with Third Portage Lake once the closure water quality objectives for pit flooding will have been achieved, as per the condition of the Water License 2AM-MEA1530, part E, item 7. The dikes shall not be breached until the water quality in the re-flooded area meets CCME Water Quality Guidelines for the Protection of Aquatic Life, baseline concentrations, or appropriate site-specific water quality objectives, as per the Water License. It is not planned to breach East Dike and reconnect the area with Second Portage Lake as per the current closure concept, to maintain the water level difference between Second and Third Portage Lake.

Details of the complete mechanical flooding system will be available in the Final Closure and Reclamation Plan and is currently involving syphon systems. Table 3-2 shows the main volumes for the Portage and Goose Area flooding concept.

Pit Flooding Profile – Portage and Goose Area				
Year	Treated Water Volume (m^3)	Natural Inflow Water Volume (m^3)	Active Flooding Water Volume (m^3)	Volume of water in Pit (at end of year)
2027		898 643	0	19 962 196.00
2028	756 019	898 643	0	21 582 111.00
2029	2 999 424	836 407	0	21 032 780.00
2030	2 999 424	836 407	0	20 163 767.00
2031	2 999 424	836 407	0	19 240 753.00
2032	3 007 642	836 407	0	18 336 521.00
2033	2 999 424	836 407	0	17 440 508.00
2034	2 999 424	836 407	0	16 544 494.00
2035	2 999 424	836 407	0	15 648 480.00
2036	3 007 642	836 407	0	14 744 248.00
2037	2 999 424	836 407	0	14 024 171.00
2038	3 167 146	836 407	4 935 000	12 960 435.00
2039	0	836 407	4 935 000	19 980 845.00
2040	0	836 407	2 841 723	27 037 255.00
2041	0	836 407	0	31 982 388.00
2042	0	836 407	0	34 085 799.00
2043	0	836 407	0	36 189 209.00
2044	0	836 407	0	38 292 619.00
Total	**30 934 417**	**15 179 798**	**12 711 723**	**38 292 619.00**

Table 3-2: Portage and Goose Area flooding profile

3.4.2 Vault Area Flooding

The Vault Pit area is composed of many basins in the former lake (Vault Atteunation Pond) and two pits that are all linked together (Vault Pit and Phaser Pit). The flooding of the Vault Pit area will involve a combination of passive flooding (runoff) and active flooding using water from Wally Lake (while respecting the Water License limit). The concept for the reflooding system is currently including a syphon system. Table 3-3 shows the main assumptions and data for the Vault Area flooding concept.

The final elevation of the reflooding will be 139.9 masl for Phaser and Vault Lake. The Vault Dike will be breached to allow reconnection of the area with Wally Lake when the closure water quality objectives for pit flooding will have been achieved, as per the condition of the Water License 2AM-MEA1530, part E, item 7. The dikes shall not be breached until the water quality in the re-flooded area meets CCME Water Quality Guidelines for the Protection of Aquatic Life, baseline concentrations, or appropriate site-specific water quality objectives, as per the Water License.

BB Phaser Pit and Phaser Lake will be flooded exclusively from their watershed run off inflows until the target elevation of Wally is reached.

Table 3-3: Vault Area flooding profile

Pit Flooding Profile – Vault Area (Vault, Phaser, and BB Phaser Pits)				
Year	Treated Water Volume (m³)	Natural Inflow Water Volume (m³)	Active Flooding Water Volume (m³)	Volume of water in Pit (at end of year)
2024	0	542 442	0	1 834 712
2025	0	542 442	314 194	1 989 592
2026	0	542 442	0	2 144 471
2027	0	542 442	0	2 299 351
2028	0	542 442	0	2 454 230
2029	0	542 442	0	2 780 579
2030	0	542 442	0	3 106 928
2031	0	542 442	0	3 433 277
2032	0	542 442	0	3 759 626
2033	0	542 442	0	4 085 975
2034	0	542 442	0	6 590 778
2035	0	542 442	0	10 762 247
2036	0	542 442	0	14 933 717
2037	0	542 442	0	19 105 186
2038	0	542 442	0	23 105 186
2039	0	542 442	0	27 105 186
2040	0	542 442	0	30 438 520
Total	**0**	**9 221 514**	**314 194**	**159 929 561**

4 MEADOWBANK WATER QUALITY FORECASTING UPDATE

An updated water quality forecast report is presented in Appendix C. That update is a continuation of a series of yearly water quality modelling updates, 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 to inform water treatment design and requirements for closure activities. This update builds on the work of previous years as new monitoring data is available. Forecasted model values of the prior years are compared with the actual sample results from the following years for model accuracy purposes.

The latest water quality forecast identified that treatment may be required for aluminium, arsenic, cadmium, copper, mercury, nickel, total dissolved solids (TDS), total ammonia, pH, total suspended solids (TSS), and potentially low concentration of total cyanide as the pit water quality may exceed water quality objectives, 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 afore mentioned parameters may be of concern, treatment options for the pit water are being assessed as per the schedule outlined in the Meadowbank Water Quality Forecasting Update Technical Note rev. 00 (AtkinsRéalis, 2024). Updates on the pit flooding and water treatment strategy will be provided in the next ICRP update and the final design will be submitted as part of the FCRP.

As part of the ongoing work on the water treatment concept, a sampling program was performed in the fall of 2023 to sample pit water from various locations and depths within the pits including near the tailings/water interface. Tailings pore water sampling was also completed. It is planned to continue this sampling program in 2024 so that results can be used in future water quality forecast work.

Agnico is committed to implementing the following strategy related to the water quality forecast:

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, sulphates, total dissolved solids (TDS) and total suspended solids (TSS). 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 is now occurring in the pits, regularly monitor pit water quality (Portage and Goose), when the site can be safely accessed, and analyze for cyanide, total and dissolved metals, ammonia, nitrate, chloride, fluoride, sulphates, total dissolved solids (TDS), and total suspended solids (TSS). 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 pit

seepages. Consider measuring the conductivity of water in the pits at different depths to detect if there is any stratification occurring in the pit lakes.

3. Once Portage and Goose Pits are hydraulically connected, it is recommended to sample the water at different points in the pit area 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.
4. Continue to sample and analyze, as per the Water License requirement, water from the Vault Pit, Vault Attenuation Pond, Phaser Pit, and Phaser Attenuation Pond.
5. Continue bench scale water treatment tests to evaluate the contaminant removal efficiency using treatment approaches such as lime neutralization, coagulation/flocculation with aluminum sulphate or ferric sulphate, and coagulation/flocculation with proprietary coagulants designed for metal removal, as well as alternative treatment options such as biological treatment for ammonia.

Alternatives water quality modelling methodologies are actively being assessed to further refine the understanding and forecasting of water quality on site. In addition, studies are on going to define the most optimal water management strategies to improve water quality on site for closure.

5 REFERENCES

1. Agnico (2024) – 2023 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. SNC (2013) – Water Management Plan 2012. SNC Lavalin. March 2013.
6. AtkinsRéalis (2024) – Meadowbank Water Quality Forecasting Update for the 2023 Water Management Plan. March 2024.

APPENDIX A – 2023 WATER BALANCE UPDATE

Note: Reported values for October, November and December are estimated based on historical values, due to time constraint to produce the water balance for the end of the year 2023.

C:\Users\vanessa.wanie\Desktop\Water Balance - 2023_Annual_Report - Rev2\Water Balance - 2023_Annual_Report - Rev2

	Month	Nbr days	Fresh Water 3rd Portage Lake					Water Transfer								Reclaim Tailings Water						
			Fresh Water Flow (m^3/h)	Total Fresh Water Volume (m^3)	Total Camp Water Volume (m^3)	Total Mill Fresh Water Volume (m^3)	Fresh water per tons (m^3/t)	Transfer flow (m^3/h)	Total Reclaim Water Volume (m3)	Enter 1 for the origin			Enter 1 for the destination			Reclaim Water Flow (m^3/h)	Total Reclaim Water Volume (m^3)	Enter 1 for the origin				Reclaim water per tons (m^3/t)
										GOOSE	PIT A	PIT E	GOOSE	PIT A	PIT E			NC	SC	PIT E	PIT A	
raw inflow				x																		
2013 AVERAGES & TOTALS			181	1 587 409	34675	1 552 734	0.37									261	2 286 400					0.56
2014 AVERAGES & TOTALS			125	1 098 373	34675	1 063 698	0.26									279	2 447 002					0.59
2015 AVERAGES & TOTALS			93	812 285	34675	777 610	0.20									313	2 743 821					0.68
2016 AVERAGES & TOTALS			65	572 843	40532	539 482	0.14									328	2 880 483					0.72
2017 AVERAGES & TOTALS			55	477 383	42100	448 817	0.12									339	2 972 495					0.77
2018 AVERAGES & TOTALS			114	988 132	39944	948 188	0.29									249	2 191 390					0.67
2019 AVERAGES & TOTALS			255	2 226 927	40222	2 186 705	0.80									69	606 807					0.24
2020 AVERAGES & TOTALS			238	2 086 286	33637	2 052 649	0.79		1 376 334								1 367 816					0.41
2021 AVERAGES & TOTALS			123	1 079 342	31461	1 053 471	0.20		670 758								2 735 553					0.78
Q1	January-22	31	67	49 833	2500	47 333	0.23	76	56 715			1		1		358	266 541			0	1	1.28
	February-22	28	314	210 782	2859	207 923	0.68	52	34 898			1		1		108	72 375			0	1	0.24
	March-22	31	184	137 225	2964	134 261	0.36	403	299 751			1		1		288	214 517			0	1	0.57
Q2	April-22	30	79	56 862	3071	53 791	0.18	219	157 785			1		1		347	249 495			0.44	0.56	0.81
	May-22	31	71	52 816	3200	49 616	0.17	167	124 473			1		1		323	240 145			1		0.78
	June-22	30	102	73 494	2974	70 520	0.22	165	119 015			1		1		348	250 371			1		0.76
Q3	July-22	31	95	70 603	3082	67 521	0.19	164	122 269			1		1		377	280 756			0.94	0.06	0.77
	August-22	31	105	77 975	3047	74 928	0.22	135	100 361			1		1		359	267 093			0.47	0.53	0.76
	September-22	30	109	78 386	2982	75 404	0.25	151	108 560			1		1		356	256 410			0.98	0.02	0.81
Q4	October-22	31	82	61 162	3074	58 088	0.23	154	114 538			1		1		335	249 390			0.81	0.19	0.94
	November-22	30	88	63 607	3040	60 567	0.19	170	122 639			1		1		383	275 539			1	0	0.82
	December-22	31	82	61 061	3030	58 031	0.19	161	119 729			1		1		357	265 378			1	0	0.82
2022 AVERAGES & TOTALS			115	993 806	35823	957 983	0.26										2 888 010	0.804	1.004			0.78
Q1	January-23	31	72	53 462	3288	50 174	0.15	152	112 802			1		1		379	281 692			1	0	0.81
	February-23	28	88	58 818	2944	55 874	0.18	235	158 175			1		1		370	248 962			1	0	0.76
	March-23	31	88	65 387	2980	62 407	0.19	218	162 309			1		1		383	285 244			1	0	0.83
Q2	April-23	30	89	64 077	3131	60 946	0.21	221	159 090			1		1		400	287 931			1	0	0.96
	May-23	31	69	51 171	3024	48 147	0.28	175	130 514			1		1		360	268 126			1	0	1.47
	June-23	30	103	74 060	3003	71 057	0.20	105	75 786			1		1		425	306 018			0.35	0.65	0.84
Q3	July-23	31	127	94 371	3066	91 305	0.26	162	120 598			1		1		422	313 608			0	1	0.87
	August-23	31	159	118 099	2983	115 116	0.32	110	81 613			1		1		395	294 203			0	1	0.81
	September-23	30	118	84 801	2902	81 899	0.24	78	56 360			1		1		418	301 079			0.294	0.706	0.85
Q4	October-23	31	93	69 072	2945	66 127	0.20	160	119 040			1		1		373	277 670			1	0	0.80
	November-23	30	52	37 139	2850	34 289	0.20	160	115 200			1		1		207	149 299			1	0	0.80
	December-23	31	48	35 420	2945	32 475	0.20	160	119 040			1		1		191	142 388			1	0	0.80
2023 AVERAGES & TOTALS			92	805 877	36061	769 816	0.22										3 156 220					0.88
Q1	January-24	31	91	67 420	2945	64 475	0.20	160	119 040			1		1		364	271 004			1	0	0.80
	February-24	29	104	72 500	2755	69 745	0.20	160	111 360			1		1		419	291 450			1	0	0.80
	March-24	31	121	90 380	2945	87 435	0.20	160	119 040			1		1		488	363 328			1	0	0.80
Q2	April-24	30	84	60 588	2850	57 738	0.20	160	115 200			1		1		338	243 564			1	0	0.80
	May-24	31	92	68 124	2945	65 179	0.20	160	119 040			1		1		368	273 858			1	0	0.80
	June-24	30	97	69 740	2850	66 890	0.20	160	115 200			1		1		389	280 355			1	0	0.80
Q3	July-24	31	97	72 156	2945	69 211	0.20	160	119 040			1		1		390	290 067			1	0	0.80
	August-24	31	94	70 020	2945	67 075	0.20	160	119 040			1		1		378	281 480			1	0	0.80
	September-24	30	97	69 740	2850	66 890	0.20	160	115 200			1		1		389	280 355			1	0	0.80
Q4	October-24	31	82	61 132	2945	58 187	0.20	160	119 040			1		1		330	245 751			1	0	0.80
	November-24	30	91	65 708	2850	62 858	0.20	160	115 200			1		1		367	264 146			1	0	0.80
	December-24	31	97	72 156	2945	69 211	0.20	160	119 040			1		1		390	290 067			1	0	0.80
2024 AVERAGES & TOTALS			96	839 664	34770	804 894	0.20										3 375 425					0.80
Q1	January-25	31	99	73 391	2945	70 446	0.20	160	119 040			1		1		397	295 007			1	0	0.80
	February-25	28	102	68 475	2660	65 815	0.20	160	107 520			1		1		410	275 269			1	0	0.80
	March-25	31	99	73 391	2945	70 446	0.20	160	119 040			1		1		397	295 033			1	0	0.80
Q2	April-25	30	85	61 210	2850	58 360	0.20	160	115 200			1		1		342	246 063			1	0	0.80
	May-25	31	93	69 359	2945	66 414	0.20	160	119 040			1		1		375	278 824			1	0	0.80

	June-25	30	99	70 956	2850	68 106	0.20	160	115 200			1		1		396	285 243			1	0	0.80
	July-25	31	99	73 391	2945	70 446	0.20	160	119 040			1		1		397	295 033			1	0	0.80
Q3	August-25	31	96	71 248	2945	68 303	0.20	160	119 040			1		1		385	286 417			1	0	0.80
	September-25	30	99	70 956	2850	68 106	0.20	160	115 200			1		1		396	285 243			1	0	0.80
	October-25	31	83	61 758	2945	58 813	0.20	160	119 040			1		1		334	248 269			1	0	0.80
Q4	November-25	30	93	66 924	2850	64 074	0.20	160	115 200			1		1		374	269 034			1	0	0.80
	December-25	31	99	73 391	2945	70 446	0.20	160	119 040			1		1		397	295 033			1	0	0.80
2025 AVERAGES & TOTALS			**95**	**834 451**	**34675**	**799 776**	**0.20**										**3 354 466**					**0.80**
	January-26	31	98	72 898	2945	69 953	0.20	160	119 040			1		1		394	293 025			0	1	0.80
Q1	February-26	28	108	72 898	2660	70 238	0.20	160	107 520			1		1		436	293 051			0	1	0.80
	March-26	31	98	72 898	2945	69 953	0.20	160	119 040			1		1		394	293 051			0	1	0.80
	April-26	30	95	68 143	2850	65 293	0.20	160	115 200			1		1		380	273 937			0	1	0.80
Q2	May-26	31	92	68 143	2945	65 198	0.20	160	119 040			1		1		368	273 937			0	1	0.80
	June-26	30	95	68 143	2850	65 293	0.20	160	115 200			1		1		380	273 937			0	1	0.80
	July-26	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
Q3	August-26	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
	September-26	30	4	2 850	2850	0		160	115 200			1		1		0	0			0	1	0.80
	October-26	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
Q4	November-26	30	4	2 850	2850	0		160	115 200			1		1		0	0			0	1	0.80
	December-26	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
2026 AVERAGES & TOTALS			**51**	**440 605**	**34675**	**405 930**	**0**										**1 700 938**					
	January-27	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
Q1	February-27	28	4	2 660	2660	0		160	107 520			1		1		0	0			0	1	0.80
	March-27	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
	April-27	30	4	2 850	2850	0		160	115 200			1		1		0	0			0	1	0.80
Q2	May-27	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
	June-27	30	4	2 850	2850	0		160	115 200			1		1		0	0			0	1	0.80
	July-27	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
Q3	August-27	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
	September-27	30	4	2 850	2850	0		160	115 200			1		1		0	0			0	1	0.80
	October-27	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
Q4	November-27	30	4	2 850	2850	0		160	115 200			1		1		0	0			0	1	0.80
	December-27	31	4	2 945	2945	0		160	119 040			1		1		0	0			0	1	0.80
2027 AVERAGES & TOTALS			**4**	**34 675**	**34675**	**0**																
	January-28	31	4	2 945	2945	0		**455**	338 876			1		1		0	0			0	1	0.80
Q1	February-28	29	4	2 755	2755	0		160	111 360							0	0			0	1	0.80
	March-28	31	4	2 945	2945	0		160	119 040							0	0			0	1	0.80
	April-28	30	4	2 850	2850	0		160	115 200							0	0			0	1	0.80
Q2	May-28	31	4	2 945	2945	0		160	119 040							0	0			0	1	0.80
	June-28	30	4	2 850	2850	0		160	115 200							0	0			0	1	0.80
	July-28	31	4	2 945	2945	0		160	119 040							0	0			0	1	0.80
Q3	August-28	31	4	2 945	2945	0		160	119 040							0	0			0	1	0.80
	September-28	30	4	2 850	2850	0		160	115 200							0	0			0	1	0.80
	October-28	31	4	2 945	2945	0		160	119 040							0	0			0	1	0.80
Q4	November-28	30	4	2 850	2850	0		160	115 200							0	0			0	1	0.80
	December-28	31	4	2 945	2945	0		160	119 040							0	0			0	1	0.80
2028 AVERAGES & TOTALS			**4**	**34 770**	**34770**	**0**										**0**	**0**					
	January-29	31	4	2 945	2945	0		160	119 040							0	0					
Q1	February-29	28	4	2 660	2660	0		160	107 520							0	0					
	March-29	31	4	2 945	2945	0		160	119 040							0	0					
	April-29	30	4	2 850	2850	0		160	115 200							0	0					
Q2	May-29	31	4	2 945	2945	0		160	119 040							0	0					
	June-29	30	4	2 850	2850	0		160	115 200							0	0					
	July-29	31	4	2 945	2945	0		160	119 040							0	0					
Q3	August-29	31	4	2 945	2945	0		160	119 040							0	0					
	September-29	30	4	2 850	2850	0		160	115 200							0	0					
	October-29	31	4	2 945	2945	0		160	119 040							0	0					
Q4	November-29	30	4	2 850	2850	0		160	115 200							0	0					
	December-29	31	4	2 945	2945	0		100	74 400							0	0					

2029 AVERAGES & TOTALS			4	34 675	34675	0										0	0					
Q1	January-30	31	4	2 945	2945	0			0							0	0					
	February-30	28	4	2 660	2660	0			0							0	0					
	March-30	31	4	2 945	2945	0			0							0	0					
Q2	April-30	30	4	2 850	2850	0			0							0	0					
	May-30	31	4	2 945	2945	0			0							0	0					
	June-30	30	4	2 850	2850	0			0							0	0					
Q3	July-30	31	4	2 945	2945	0			0							0	0					
	August-30	31	4	2 945	2945	0			0							0	0					
	September-30	30	4	2 850	2850	0			0							0	0					
Q4	October-30	31	4	2 945	2945	0			0							0	0					
	November-30	30	4	2 850	2850	0			0							0	0					
	December-30	31	4	2 945	2945	0			0							0	0					
2030 AVERAGES & TOTALS			4	34 675	34675	0										0	0					
Q1	January-31	31	4	2 945	2945	0										0	0					
	February-31	28	4	2 660	2660	0										0	0					
	March-31	31	4	2 945	2945	0										0	0					
Q2	April-31	30	4	2 850	2850	0										0	0					
	May-31	31	4	2 945	2945	0										0	0					
	June-31	30	4	2 850	2850	0										0	0					
Q3	July-31	31	4	2 945	2945	0										0	0					
	August-31	31	4	2 945	2945	0										0	0					
	September-31	30	4	2 850	2850	0										0	0					
Q4	October-31	31	4	2 945	2945	0										0	0					
	November-31	30	4	2 850	2850	0										0	0					
	December-31	31	4	2 945	2945	0										0	0					
2031 AVERAGES & TOTALS			4	34 675	34675	0										0	0					
Q1	January-32	31	4	2 945	2945	0										0	0					
	February-32	29	4	2 755	2755	0										0	0					
	March-32	31	4	2 945	2945	0										0	0					
Q2	April-32	30	4	2 850	2850	0										0	0					
	May-32	31	4	2 945	2945	0										0	0					
	June-32	30	4	2 850	2850	0										0	0					
Q3	July-32	31	4	2 945	2945	0										0	0					
	August-32	31	4	2 945	2945	0										0	0					
	September-32	30	4	2 850	2850	0										0	0					
Q4	October-32	31	4	2 945	2945	0										0	0					
	November-32	30	4	2 850	2850	0										0	0					
	December-32	31	4	2 945	2945	0										0	0					
2032 AVERAGES & TOTALS			4	34 770	34770	0										0	0					
Q1	January-33	31	4	2 945	2945	0										0	0					
	February-33	28	4	2 660	2660	0										0	0					
	March-33	31	4	2 945	2945	0										0	0					
Q2	April-33	30	4	2 850	2850	0										0	0					
	May-33	31	4	2 945	2945	0										0	0					
	June-33	30	4	2 850	2850	0										0	0					
Q3	July-33	31	4	2 945	2945	0										0	0					
	August-33	31	4	2 945	2945	0										0	0					
	September-33	30	4	2 850	2850	0										0	0					
Q4	October-33	31	4	2 945	2945	0										0	0					
	November-33	30	4	2 850	2850	0										0	0					
	December-33	31	4	2 945	2945	0										0	0					
2033 AVERAGES & TOTALS			4	34 675	34675	0										0	0					
Q1	January-34	31	4	2 945	2945	0										0	0					
	February-34	28	4	2 660	2660	0										0	0					
	March-34	31	4	2 945	2945	0										0	0					
Q2	April-34	30	4	2 850	2850	0										0	0					
	May-34	31	4	2 945	2945	0										0	0					
	June-34	30	4	2 850	2850	0										0	0					

	July-34	31	4	2 945	2945	0										0	0					
Q3	August-34	31	4	2 945	2945	0										0	0					
	September-34	30	4	2 850	2850	0										0	0					
	October-34	31	4	2 945	2945	0										0	0					
Q4	November-34	30	4	2 850	2850	0										0	0					
	December-34	31	4	2 945	2945	0										0	0					
2034 AVERAGES & TOTALS			**4**	**34 675**	**34675**	**0**										**0**	**0**					
	January-35	31	4	2 945	2945	0										0	0					
Q1	February-35	28	4	2 660	2660	0										0	0					
	March-35	31	4	2 945	2945	0										0	0					
	April-35	30	4	2 850	2850	0										0	0					
Q2	May-35	31	4	2 945	2945	0										0	0					
	June-35	30	4	2 850	2850	0										0	0					
	July-35	31	4	2 945	2945	0										0	0					
Q3	August-35	31	4	2 945	2945	0										0	0					
	September-35	30	4	2 850	2850	0										0	0					
	October-35	31	4	2 945	2945	0										0	0					
Q4	November-35	30	4	2 850	2850	0										0	0					
	December-35	31	4	2 945	2945	0										0	0					
2035 AVERAGES & TOTALS			**4**	**34 675**	**34675**	**0**										**0**	**0**					
	January-36	31	4	2 945	2945	0										0	0					
Q1	February-36	29	4	2 755	2755	0										0	0					
	March-36	31	4	2 945	2945	0										0	0					
	April-36	30	4	2 850	2850	0										0	0					
Q2	May-36	31	4	2 945	2945	0										0	0					
	June-36	30	4	2 850	2850	0										0	0					
	July-36	31	4	2 945	2945	0										0	0					
Q3	August-36	31	4	2 945	2945	0										0	0					
	September-36	30	4	2 850	2850	0										0	0					
	October-36	31	4	2 945	2945	0										0	0					
Q4	November-36	30	4	2 850	2850	0										0	0					
	December-36	31	4	2 945	2945	0										0	0					
2036 AVERAGES & TOTALS			**4**	**34 770**	**34770**	**0**										**0**	**0**					
	January-37	31	4	2 945	2945	0										0	0					
Q1	February-37	28	4	2 660	2660	0										0	0					
	March-37	31	4	2 945	2945	0										0	0					
	April-37	30	4	2 850	2850	0										0	0					
Q2	May-37	31	4	2 945	2945	0										0	0					
	June-37	30	4	2 850	2850	0										0	0					
	July-37	31	4	2 945	2945	0										0	0					
Q3	August-37	31	4	2 945	2945	0										0	0					
	September-37	30	4	2 850	2850	0										0	0					
	October-37	31	4	2 945	2945	0										0	0					
Q4	November-37	30	4	2 850	2850	0										0	0					
	December-37	31	4	2 945	2945	0										0	0					
2037 AVERAGES & TOTALS			**4**	**34 675**	**34675**	**0**										**0**	**0**					
	January-38	31	4	2 945	2945	0										0	0					
Q1	February-38	28	4	2 660	2660	0										0	0					
	March-38	31	4	2 945	2945	0										0	0					
	April-38	30	4	2 850	2850	0										0	0					
Q2	May-38	31	4	2 945	2945	0										0	0					
	June-38	30	4	2 850	2850	0										0	0					
	July-38	31	4	2 945	2945	0										0	0					
Q3	August-38	31	4	2 945	2945	0										0	0					
	September-38	30	4	2 850	2850	0										0	0					
	October-38	31	4	2 945	2945	0										0	0					
Q4	November-38	30	4	2 850	2850	0										0	0					
	December-38	31	4	2 945	2945	0										0	0					
2038 AVERAGES & TOTALS			**4**	**34 675**	**34675**	**0**										**0**	**0**					

Q1	January-39	31	4	2 945	2945	0	0	0
	February-39	28	4	2 660	2660	0	0	0
	March-39	31	4	2 945	2945	0	0	0
Q2	April-39	30	4	2 850	2850	0	0	0
	May-39	31	4	2 945	2945	0	0	0
	June-39	30	4	2 850	2850	0	0	0
Q3	July-39	31	4	2 945	2945	0	0	0
	August-39	31	4	2 945	2945	0	0	0
	September-39	30	4	2 850	2850	0	0	0
Q4	October-39	31	4	2 945	2945	0	0	0
	November-39	30	4	2 850	2850	0	0	0
	December-39	31	4	2 945	2945	0	0	0
2039 AVERAGES & TOTALS			**4**	**34 675**	**34675**	**0**	**0**	**0**
Q1	January-40	31	4	2 945	2945	0	0	0
	February-40	29	4	2 755	2755	0	0	0
	March-40	31	4	2 945	2945	0	0	0
Q2	April-40	30	4	2 850	2850	0	0	0
	May-40	31	4	2 945	2945	0	0	0
	June-40	30	4	2 850	2850	0	0	0
Q3	July-40	31	4	2 945	2945	0	0	0
	August-40	31	4	2 945	2945	0	0	0
	September-40	30	4	2 850	2850	0	0	0
Q4	October-40	31	4	2 945	2945	0	0	0
	November-40	30	4	2 850	2850	0	0	0
	December-40	31	4	2 945	2945	0	0	0
2040 AVERAGES & TOTALS			**4**	**34 770**	**34770**	**0**	**0**	**0**
Q1	January-41	31	4	2 945	2945	0	0	0
	February-41	28	4	2 660	2660	0	0	0
	March-41	31	4	2 945	2945	0	0	0
Q2	April-41	30	4	2 850	2850	0	0	0
	May-41	31	4	2 945	2945	0	0	0
	June-41	30	4	2 850	2850	0	0	0
Q3	July-41	31	4	2 945	2945	0	0	0
	August-41	31	4	2 945	2945	0	0	0
	September-41	30	4	2 850	2850	0	0	0
Q4	October-41	31	4	2 945	2945	0	0	0
	November-41	30	4	2 850	2850	0	0	0
	December-41	31	4	2 945	2945	0	0	0
2041 AVERAGES & TOTALS			**4**	**34 675**	**34675**	**0**	**0**	**0**
Q1	January-42	31	4	2 945	2945	0	0	0
	February-42	28	4	2 660	2660	0	0	0
	March-42	31	4	2 945	2945	0	0	0
Q2	April-42	30	4	2 850	2850	0	0	0
	May-42	31	4	2 945	2945	0	0	0
	June-42	30	4	2 850	2850	0	0	0
Q3	July-42	31	4	2 945	2945	0	0	0
	August-42	31	4	2 945	2945	0	0	0
	September-42	30	4	2 850	2850	0	0	0
Q4	October-42	31	4	2 945	2945	0	0	0
	November-42	30	4	2 850	2850	0	0	0
	December-42	31	4	2 945	2945	0	0	0
2042 AVERAGES & TOTALS			**4**	**34 675**	**34675**	**0**	**0**	**0**
Q1	January-43	31	4	2 945	2945	0	0	0
	February-43	28	4	2 660	2660	0	0	0
	March-43	31	4	2 945	2945	0	0	0
Q2	April-43	30	4	2 850	2850	0	0	0
	May-43	31	4	2 945	2945	0	0	0
	June-43	30	4	2 850	2850	0	0	0
	July-43	31	4	2 945	2945	0	0	0

Q3	August-43	31	4	2 945	2945	0										0	0					
	September-43	30	4	2 850	2850	0										0	0					
Q4	October-43	31	4	2 945	2945	0										0	0					
	November-43	30	4	2 850	2850	0										0	0					
	December-43	31	4	2 945	2945	0										0	0					
2043 AVERAGES & TOTALS			**4**	**34 675**	**34675**	**0**										**0**	**0**					
Q1	January-44	31	4	2 945	2945	0										0	0					
	February-44	29	4	2 755	2755	0										0	0					
	March-44	31	4	2 945	2945	0										0	0					
Q2	April-44	30	4	2 850	2850	0										0	0					
	May-44	31	4	2 945	2945	0										0	0					
	June-44	30	4	2 850	2850	0										0	0					
Q3	July-44	31	4	2 945	2945	0										0	0					
	August-44	31	4	2 945	2945	0										0	0					
	September-44	30	4	2 850	2850	0										0	0					
Q4	October-44	31	4	2 945	2945	0										0	0					
	November-44	30	4	2 850	2850	0										0	0					
	December-44	31	4	2 945	2945	0										0	0					
2044 AVERAGES & TOTALS			**4**	**34 770**	**34770**	**0**										**0**	**0**					

Mill												North Cell										
Mill Throughput (t)	Moisture content (%)	Water Content (m^3)	Mill Process Water (m^3)	Enter 1 for the destination: NC	SC	GOOSE	PIT E	PIT A	Total water consumption (m^3/h)	Mill Throughput cumulative (t)	Total water per tons (m^3/t)	Runoff Volume (m^3)	Total Free Water Volume (m^3)	Total Ice Volume (m^3)	Total Pond Volume (Ice + Water) (m^3)	Tailings Deposited (t)	Cummulative Tailings Deposited (m^3)	Cummulative Volume (Tailings + Pond) (m^3)	Volume Available Remaining (m^3)	Flat Geometry Cell Elevation (m)	TSF Deposition Plan Ice Elevation (m)	Surveyed Ice elevation (m)
		x																				
4 142 842	1.14%	47 083	3 886 217						442		0.94	159832				4 142 842						
4 120 164	0.90%	37 075	3 547 775						405		0.86	177594				3 650 809						
4 030 158	0.99%	37 135	3 559 646						406		0.89	82885				1 292 685						
3 992 396	0.99%	37 991	3 457 956						393		0.87	9289				0						
3 853 027	0.99%	34 438	3 455 750						396		0.90	148 451				0						
3 264 050	0.00%	39 441	3 179 019						365		0.97	148451				474 746						
2 750 145	2.10%	57 567	2 851 079						324		1.09	148451				603 632						
2 602 828	1.19%	36 099	3 455 892						393		1.64	148451				0						
3 570 525	1.20%	42 837	3 831 861						437		1.09	148451				515 737						
207 804	1.36%	1 927	315 801				1		424	38 083 352	1.52	0	214 486	262 149	476 635	0	15 239 920	15 716 555	75 560	149.947		
307 276	1.06%	3 310	283 608				1		422	38 390 628	0.92	0	214 486	262 149	476 635	0	15 239 920	15 716 555	75 560	149.947		
377 012	1.20%	4 302	353 080				1		475	38 767 640	0.94	0	214 486	262 149	476 635	0	15 239 920	15 716 555	75 560	149.947		
307 028	0.85%	4 572	307 858				1		428	39 074 668	1.00	0	214 486	262 149	476 635	0	15 239 920	15 716 555	75 560	149.947		
307 005	0.91%	3 948	293 709				1		395	39 381 673	0.96	0	196 039	239 603	435 642	0	15 239 920	15 675 562	116 553	149.919		
328 165	2.50%	2 581	323 472				1		449	39 709 837	0.99	76665	464 368	0	464 368	0	15 239 920	15 704 288	87 827	149.939		
363 141	2.20%	2 453	350 730				1		471	40 072 978	0.97	7700	262 769	0	262 769	0	15 239 920	15 502 689	289 426	149.798		
352 064	1.20%	1 971	343 992				1		462	40 425 042	0.98	42862	298 408	0	298 408	0	15 239 920	15 538 328	253 787	149.823		
315 765	1.40%	2 644	334 459				1		465	40 740 807	1.06	21238	277 336	0	277 336	0	15 239 920	15 517 256	274 859	149.808		
266 496	1.48%	3 795	311 273				1		418	41 007 304	1.17	-13	215 831	44 206	260 038	0	15 239 920	15 499 958	292 157	149.796		
334 002	1.48%	5 778	341 884				1		475	41 341 305	1.02	0	109 216	150 822	260 038	0	15 239 920	15 499 958	292 157	149.796		
322 946	1.48%	4 780	328 189				1		464	41 664 251	1.07	0	91 013	169 025	260 038	0	15 239 920	15 499 958	292 157	149.796		
3 788 703	1.43%	42 061	3 888 054						446		1.05	148451				0						
348 343	1.36%	5 853	337 719				1		450	42 012 594	0.96	0	117 017	143 021	260 038	0	15 239 920	15 499 958	292 157	149.796		
325 867	1.06%	5 146	309 982				1		458	42 338 461	0.94	0	117 017	143 021	260 038	0	15 239 920	15 499 958	292 157	149.796		
345 469	1.20%	5 195	352 846				1		471	42 683 930	1.01	0	117 017	143 021	260 038	0	15 239 920	15 499 958	292 157	149.796		
298 713	0.85%	4 481	353 358				1		489	42 982 643	1.18	0	117 017	143 021	260 038	0	15 239 920	15 499 958	292 157	149.796		
182 698	0.91%	2 510	318 783				1		429	43 165 341	1.75	0	53 889	65 865	119 754	0	15 239 920	15 359 674	432 441	149.698		
363 441	2.50%	5 418	382 493				1		528	43 528 782	1.05	77826	185 972	0	185 972	0	15 239 920	15 425 892	366 223	149.745		
358 560	2.20%	3 483	408 396				1		548	43 887 342	1.14	20794	218 460	0	218 460	0	15 239 920	15 458 380	333 735	149.767		
364 730	1.20%	3 279	412 598		0.12		0.88		554	44 252 072	1.13	56114	270 968	0	270 968	0	15 239 920	15 510 888	281 227	149.804		
353 573	1.40%	3 829	386 807		0.7055		0.2945		536	44 605 645	1.09	26452	268 539	0	268 539	0	15 239 920	15 508 459	283 656	149.802		
345 361	1.48%	5 111	348 909				1		466	44 951 006	1.00	0	222 887	45 652	268 539	0	15 239 920	15 508 459	283 656	149.802		
185 695	1.48%	2 748	186 336				1		259	45 136 701	1.00	0	112 786	155 753	268 539	0	15 239 920	15 508 459	283 656	149.802		
177 100	1.48%	2 621	177 484				1		239	45 313 801	1.00	0	93 989	174 550	268 539	0	15 239 920	15 508 459	283 656	149.802		
3 649 550	1.43%	49 674	3 975 711						452		1.11	181187				0						
337 100	1.36%	4 585	340 064				1		455	45 650 901	1.00	0	120 843	147 696	268 539	0	15 239 920	15 508 459	283 656	149.802		
362 500	1.06%	3 843	365 038				1		523	46 013 401	1.00	0	120 843	147 696	268 539	0	15 239 920	15 508 459	283 656	149.802		
451 900	1.20%	5 423	456 185				1		610	46 465 301	1.00	0	120 843	147 696	268 539	0	15 239 920	15 508 459	283 656	149.802		
302 940	0.85%	2 575	303 877				1		422	46 768 241	1.00	0	120 843	147 696	268 539	0	15 239 920	15 508 459	283 656	149.802		
340 620	0.91%	3 100	342 137				1		460	47 108 861	1.00	0	121 520	148 524	270 044	0	15 239 920	15 509 964	282 151	149.803		
348 700	2.50%	8 718	355 962				1		486	47 457 561	1.00	77826	359 905	0	359 905	0	15 239 920	15 599 825	192 290	149.866		
360 780	2.20%	7 937	367 215				1		487	47 818 341	1.00	20794	395 520	0	395 520	0	15 239 920	15 635 440	156 675	149.891		
350 100	1.20%	4 201	352 757	1					472	48 168 441	1.00	56114	287 205	0	287 205	350 100	15 464 343	15 751 548	40 567	149.972		
348 700	1.40%	4 882	352 127				1		486	48 517 141	1.00	26452	318 292	0	318 292	0	15 464 343	15 782 635	9 480	149.993		
305 660	1.48%	4 524	308 461				1		412	48 822 801	1.00	0	84 406	17 288	101 694	0	15 464 343	15 566 037	226 078	149.842		
328 540	1.48%	4 862	331 867				1		458	49 151 341	1.00	0	42 712	58 983	101 694	0	15 464 343	15 566 037	226 078	149.842		
360 780	1.48%	5 340	364 618				1		487	49 512 121	1.00	0	35 593	66 101	101 694	0	15 464 343	15 566 037	226 078	149.842		
4 198 320	1.43%	59 988	4 240 307						480		1.00	181187			166 845	350 100						
366 956	1.36%	4 991	370 443				1		495	49 879 077	1.00	0	45 762	55 932	101 694	0	15 464 343	15 566 037	226 078	149.842		
342 374	1.06%	3 629	344 713				1		512	50 221 451	1.00	0	45 762	55 932	101 694	0	15 464 343	15 566 037	226 078	149.842		
366 956	1.20%	4 403	369 882				1		495	50 588 407	1.00	0	45 762	55 932	101 694	0	15 464 343	15 566 037	226 078	149.842		
306 048	0.85%	2 601	307 024				1		427	50 894 455	1.00	0	45 762	55 932	101 694	0	15 464 343	15 566 037	226 078	149.842		
346 796	0.91%	3 156	348 394				1		468	51 241 251	1.00	0	46 440	56 760	103 199	0	15 464 343	15 567 542	224 573	149.843		
354 780	2.50%	8 870	362 219				1		495	51 596 031	1.00	77826	193 060	0	193 060	0	15 464 343	15 657 403	134 712	149.906		
366 956	2.20%	8 073	373 552				1		495	51 962 987	1.00	20794	228 675	0	228 675	0	15 464 343	15 693 018	99 097	149.931		
356 240	1.20%	4 275	358 995		1				481	52 319 227	1.00	56114	287 204	0	287 204	0	15 464 343	15 751 547	40 568	149.972		
354 780	1.40%	4 967	358 316				1		495	52 674 007	1.00	26452	318 292	0	318 292	0	15 464 343	15 782 635	9 480	149.993		
308 792	1.48%	4 570	311 652				1		417	52 982 799	1.00	0	84 406	17 288	101 694	0	15 464 343	15 566 037	226 078	149.842		
334 620	1.48%	4 952	338 061				1		467	53 317 419	1.00	0	42 711	58 982	101 694	0	15 464 343	15 566 037	226 078	149.842		
366 956	1.48%	5 431	370 910				1		495	53 684 375	1.00	0	35 593	66 101	101 694	0	15 464 343	15 566 037	226 078	149.842		
4 172 254	1.43%	59 918	4 214 160						478		1.00	181187				0						

364 492	1.36%	4 957	367 936				1		492	54 048 866	1.00	0	45 762	55 932	101 694	0	15 464 343	15 566 037	226 078	149.842		
364 492	1.06%	3 864	367 153				1		545	54 413 358	1.00	0	45 762	55 932	101 694	0	15 464 343	15 566 037	226 078	149.842		
364 492	1.20%	4 374	367 379				1		492	54 777 849	1.00	0	45 762	55 932	101 694	0	15 464 343	15 566 037	226 078	149.842		
340 717	0.85%	2 896	342 126				1		475	55 118 567	1.00	0	45 762	55 932	101 694	0	15 464 343	15 566 037	226 078	149.842		
340 717	0.91%	3 101	342 236				1		460	55 459 284	1.00	0	46 439	56 759	103 199	0	15 464 343	15 567 542	224 573	149.843		
340 717	2.50%	8 518	347 748				1		475	55 800 001	1.00	77826	193 060	0	193 060	0	15 464 343	15 657 403	134 712	149.906		
0	2.20%	0	0				1		0	55 800 001	0.80	20794	228 674	0	228 674	0	15 464 343	15 693 017	99 098	149.931		
0	1.20%	0	0				1		0	55 800 001	0.80	56114	287 204	0	287 204	0	15 464 343	15 751 547	40 568	149.972		
0	1.40%	0	0				1		0	55 800 001	0.80	26452	318 291	0	318 291	0	15 464 343	15 782 634	9 481	149.993		
0	1.48%	0	0				1		0	55 800 001	0.80	0	84 405	17 288	101 693	0	15 464 343	15 566 036	226 079	149.842		
0	1.48%	0	0				1		0	55 800 001	0.80	0	42 711	58 982	101 693	0	15 464 343	15 566 036	226 079	149.842		
0	1.48%	0	0				1		0	55 800 001	0.80	0	35 593	66 101	101 693	0	15 464 343	15 566 036	226 079	149.842		
2 115 627	**1.43%**	**27 709**	**2 134 578**						**245**		**0.90**	**181187**				**0**						
0	1.36%	0	0				1		0	55 800 001	0.80	0	45 762	55 931	101 693	0	15 464 343	15 566 036	226 079	149.842		
0	1.06%	0	0				1		0	55 800 001	0.80	0	45 762	55 931	101 693	0	15 464 343	15 566 036	226 079	149.842		
0	1.20%	0	0				1		0	55 800 001	0.80	0	45 762	55 931	101 693	0	15 464 343	15 566 036	226 079	149.842		
0	0.85%	0	0				1		0	55 800 001	0.80	0	45 762	55 931	101 693	0	15 464 343	15 566 036	226 079	149.842		
0	0.91%	0	0				1		0	55 800 001	0.80	0	46 439	56 759	103 198	0	15 464 343	15 567 541	224 574	149.843		
0	2.50%	0	0				1		0	55 800 001	0.80	77826	193 059	0	193 059	0	15 464 343	15 657 402	134 713	149.906		
0	2.20%	0	0				1		0	55 800 001	0.80	20794	228 674	0	228 674	0	15 464 343	15 693 017	99 098	149.931		
0	1.20%	0	0				1		0	55 800 001	0.80	56114	287 203	0	287 203	0	15 464 343	15 751 546	40 569	149.972		
0	1.40%	0	0				1		0	55 800 001	0.80	26452	318 291	0	318 291	0	15 464 343	15 782 634	9 481	149.993		
0	1.48%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	1.48%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	1.48%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	**1.43%**	**0**	**0**									**181187**				**0**						
0	1.36%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	1.06%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	1.20%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.85%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.91%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	2.50%	0	0				1		0	55 800 001	0.80	77826	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	2.20%	0	0				1		0	55 800 001	0.80	20794	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	1.20%	0	0				1		0	55 800 001	0.80	56114	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	1.40%	0	0				1		0	55 800 001	0.80	26452	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	1.48%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	1.48%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	1.48%	0	0				1		0	55 800 001	0.80	0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	**0.00%**	**0**	**0**							**669 600 018**		**181187**				**0**						
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		77826	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		20794	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		56114	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		26452	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	**0.00%**	**0**	**0**							**0**		**181187**			**0**	**0**						
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		77826	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		20794	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		56114	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		26452	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
0	0.00%	0	0							0		0	0	0	0	0	15 464 343	15 464 343	327 772	149.771		
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South Cell											South Cell	Portage Pit E									Poi
Runoff Volume (m^3)	Total Free Water Volume (m^3)	Total Ice Volume (m^3)	Total Pond Volume (Ice + Water) (m^3)	Tailings Deposited (t)	Cummulative Tailings Deposited (m^3)	Cummulative Volume (Tailings + Pond) (m^3)	Volume Available Remaining (m^3)	Flat Geometry Cell Elevation (m)	TSF Deposition Plan Ice Elevation (m)	Surveyed Ice elevation (m)		Portage Inflow (m^3)	Enter 1 for the discharge location				Volume Pumped from 3rd Portage (m^3)	Cummulative Volume (m^3)	Volume Available Remaining (m^3)	Water Elevation (m)	
													NC	SC	Goose	Portage					
292 479				0								676 706					0				
404 286				467 197								165 877					0				
133 383				2 737 473								136627					0				
56 290				3 992 396								132359					0				
59 900				3 853 027								341192					0				
-127 149				2 789 304								2424					0				
949 610				786 010								289269					0				
45 584				0								696360					0				
45 584				0								2082707					0				
0	172 442	77 474	249 916	0	11 172 268	11 422 184	4 810 335	142.537				4278				1		10 557 797	27 517 731	74.63	
0	160 617	98 442	259 059	0	11 172 268	11 431 327	4 801 192	142.552				3864				1		10 944 038	27 131 490	75.90	
0	134 711	124 348	259 059	0	11 172 268	11 431 327	4 801 192	142.552				4278				1		11 227 596	26 847 932	76.83	
0	126 939	132 120	259 059	0	11 172 268	11 431 327	4 801 192	142.552				4140				1		11 409 613	26 665 915	77.42	
0	346 464	0	346 464	0	11 172 268	11 518 732	4 713 787	142.696				4278				1		11 694 333	26 381 195	78.33	
42 909	459 354	0	459 354	0	11 172 268	11 631 622	4 600 897	142.882				104772				1		11 956 815	26 118 713	79.17	
11 465	508 097	0	508 097	0	11 172 268	11 680 365	4 552 154	142.962				14341				1		12 225 574	25 849 954	80.02	
30 938	567 766	0	567 766	0	11 172 268	11 740 034	4 492 485	143.061				20587				1		12 726 978	25 348 550	81.58	
14 584	674 516	0	674 516	0	11 172 268	11 846 784	4 385 735	143.236				54976				1		13 183 278	24 892 250	95.00	
0	667 836	35 149	702 985	0	11 172 268	11 875 253	4 357 266	143.283				4278				1		13 473 337	24 602 191	95.69	
0	611 597	91 388	702 985	0	11 172 268	11 875 253	4 357 266	143.283				4140				1		13 724 390	24 351 138	96.28	
0	562 388	140 597	702 985	0	11 172 268	11 875 253	4 357 266	143.283				4278				1		13 986 753	24 088 775	96.89	
99 896				0								228210					0				
0	428 821	274 164	702 985	0	11 172 268	11 875 253	4 357 266	143.283				4278				1		14 183 178	23 892 349	97.35	
0	407 732	295 254	702 985	0	11 172 268	11 875 253	4 357 266	143.283				3864				1		14 417 677	23 657 851	97.90	
0	267 134	435 851	702 985	0	11 172 268	11 875 253	4 357 266	143.283				4278				1		14 663 442	23 412 086	98.47	
0	239 015	463 970	702 985	0	11 172 268	11 875 253	4 357 266	143.283				4140				1		14 935 617	23 139 911	99.09	
0	962 910	0	962 910	0	11 172 268	12 135 178	4 097 341	143.712				4278				1		15 388 778	22 686 750	100.13	
42 909	1 051 008	0	1 051 008	0	11 172 268	12 223 276	4 009 243	143.857				104772				1		16 041 501	22 034 027	101.60	
11 465	1 115 944	0	1 115 944	0	11 172 268	12 288 212	3 944 307	143.964				14341				1		16 295 341	21 780 187	102.16	
30 938	1 258 554	0	1 258 554	43 768	11 200 324	12 458 878	3 773 641	144.237				20587				1		16 490 249	21 585 279	102.60	
14 584	1 215 976	0	1 215 976	249 459	11 360 234	12 576 210	3 656 309	144.424				54976				1		16 887 408	21 188 120	103.47	
0	1 130 858	85 118	1 215 976	0	11 360 234	12 576 210	3 656 309	144.424				4278				1		16 854 676	21 220 852	103.40	
0	984 941	231 035	1 215 976	0	11 360 234	12 576 210	3 656 309	144.424				4140				1		16 903 377	21 172 151	103.51	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4278				1		16 996 854	21 078 674	103.71	
99 896				293 227								228210					0				
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4278				1		17 151 773	20 923 755	104.05	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				3864				1		17 307 592	20 767 936	104.39	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4278				1		17 502 563	20 572 965	104.81	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4140				1		17 639 529	20 435 999	105.11	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4278				1		17 859 338	20 216 190	105.58	
42 909	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				104772				1		18 532 882	19 542 646	107.02	
11 465	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				14341				1		18 939 599	19 135 928	107.86	
30 938	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				20587				1		19 233 099	18 842 429	108.47	
14 584	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				54976				1		19 575 301	18 500 227	109.16	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4278				1		20 040 183	18 035 345	110.05	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4140				1		20 213 352	17 862 176	110.37	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4278				1		20 375 732	17 699 796	110.67	
99 896				0								228210					0				
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4278				1		20 541 833	17 533 695	110.98	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				3864				1		20 690 196	17 385 332	111.25	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4278				1		20 853 426	17 222 102	111.55	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4140				1		20 991 547	17 083 981	111.80	
0	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				4278				1		21 213 655	16 861 873	112.20	
42 909	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				104772				1		21 889 512	16 186 016	113.41	

11 465	0	0	0	0	11 360 234	11 360 234	4 872 285	142.435				14341				1		22 298 569	15 776 958	114.13
30 938	0	0	0	356 240	11 588 593	11 588 592	4 643 927	142.811				20587				1		22 423 576	15 651 952	114.35
14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				54976				1		22 768 056	15 307 472	114.95
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		23 234 113	14 841 415	115.75
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		23 409 563	14 665 965	116.05
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		23 574 259	14 501 268	116.33
99 896				356 240								228210					0			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		23 739 438	14 336 090	116.61
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				3864				1		23 896 049	14 179 479	116.87
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		24 058 358	14 017 170	117.15
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		24 209 371	13 866 157	117.40
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		24 429 217	13 646 311	117.76
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				104772				1		25 099 724	12 975 804	118.87
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				14341				1		25 371 284	12 704 244	119.31
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				20587				1		25 593 507	12 482 021	119.67
14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				54976				1		25 806 530	12 268 998	120.01
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		26 158 282	11 917 246	120.57
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		26 209 689	11 865 839	120.65
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		26 238 262	11 837 266	120.69
99 896				0								228210					0			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		26 268 456	11 807 072	120.74
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				3864				1		26 290 516	11 785 012	120.78
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		26 318 157	11 757 371	120.82
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		26 343 956	11 731 572	120.86
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		26 438 531	11 636 997	121.01
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				104772				1		26 980 901	11 094 627	121.85
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				14341				1		27 252 460	10 823 067	122.27
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				20587				1		27 474 684	10 600 844	122.61
14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				54976				1		27 687 706	10 387 821	122.93
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		28 141 151	9 934 376	123.61
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		28 192 558	9 882 969	123.69
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		28 221 131	9 854 396	123.73
99 896				0								228210					0			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		28 260 253	9 815 274	123.79
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				3864				1		28 290 665	9 784 862	123.83
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		28 327 234	9 748 293	123.89
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		28 361 673	9 713 854	123.94
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		28 466 681	9 608 846	124.09
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				104772				1		29 107 552	8 967 976	125.02
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				14341				1		29 423 654	8 651 873	125.47
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				20587				1		29 713 335	8 362 193	125.87
14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				54976				1		29 966 085	8 109 442	126.22
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		30 110 167	7 965 360	126.41
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		30 170 214	7 905 313	126.49
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		30 207 715	7 867 812	126.54
99 896				0								228210					0			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		30 252 873	7 822 655	126.63
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				3864				1		30 289 897	7 785 631	126.68
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		30 332 502	7 743 026	126.74
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		30 373 265	7 702 263	126.79
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		30 484 309	7 591 219	126.94
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				104772				1		31 131 504	6 944 024	127.04
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				14341				1		31 453 642	6 621 886	127.06
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				20587				1		31 749 358	6 326 170	127.08
14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				54976				1		32 008 433	6 067 095	127.10
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		32 158 551	5 916 977	127.11
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		32 224 922	5 850 606	127.11
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		32 268 459	5 807 069	127.12
99 896				0								228210					0			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		32 313 617	5 761 911	127.12
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				3864				1		32 350 640	5 724 887	127.12

0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		32 393 245	5 682 282	127.12
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		32 434 008	5 641 520	127.13
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		32 535 429	5 540 099	127.13
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			104772				1		33 038 243	5 037 285	127.17
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			14341				1		33 306 496	4 769 032	127.19
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			20587				1		33 602 212	4 473 315	127.21
14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			54976				1		33 818 917	4 256 611	127.22
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		33 934 847	4 140 681	127.23
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		34 001 218	4 074 310	127.23
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		34 044 755	4 030 773	127.24
99 896				**0**							**228210**					**0**			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		33 922 707	4 152 821	127.23
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			3864				1		33 729 638	4 345 890	127.21
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		33 517 498	4 558 030	127.20
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		33 311 732	4 763 795	127.19
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		33 155 488	4 920 040	127.18
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			104772				1		33 187 477	4 888 051	127.18
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			14341				1		33 055 606	5 019 922	127.17
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			20587				1		33 002 587	5 072 940	127.17
14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			54976				1		32 920 117	5 155 410	127.16
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		32 778 569	5 296 959	127.15
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		32 598 412	5 477 116	127.14
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		32 387 203	5 688 325	127.12
99 896				**0**							**228210**					**0**			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		32 177 615	5 897 913	127.11
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			3864				1		31 976 329	6 099 199	127.10
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		31 764 188	6 311 340	127.08
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		31 558 423	6 517 105	127.07
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		31 402 178	6 673 349	127.06
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			104772				1		31 434 167	6 641 361	127.06
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			14341				1		31 302 297	6 773 231	127.05
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			20587				1		31 249 278	6 826 250	127.05
14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			54976				1		31 166 808	6 908 720	127.04
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		31 025 259	7 050 269	127.03
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		30 845 102	7 230 426	127.02
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		30 633 894	7 441 634	127.01
99 896				**0**							**228210**					**0**			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		30 424 306	7 651 222	126.86
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			3864				1		30 231 237	7 844 291	126.61
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		30 019 096	8 056 432	126.32
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		29 813 331	8 262 197	126.05
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		29 657 087	8 418 441	125.83
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			104772				1		29 689 076	8 386 452	125.88
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			14341				1		29 557 205	8 518 323	125.69
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			20587				1		29 504 186	8 571 342	125.62
14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			54976				1		29 421 716	8 653 812	125.51
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		29 280 167	8 795 360	125.30
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		29 100 010	8 975 517	125.05
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		28 888 802	9 186 726	124.74
99 896				**0**							**228210**					**0**			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		28 679 214	9 396 314	124.44
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			3864				1		28 486 145	9 589 383	124.16
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99 896				0								228210					0			
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0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		26 323 148	11 752 380	120.87
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42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				104772				1		26 198 892	11 876 636	120.67
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30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				20587				1		26 014 003	12 061 525	120.38
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99 896				0								228210					0			
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0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		24 569 838	13 505 690	118.04
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14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				54976				1		24 178 223	13 897 305	117.39
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0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4140				1		23 856 517	14 219 011	116.85
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99 896				0								228210					0			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				4278				1		23 435 721	14 639 807	116.14
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811				3864				1		23 242 652	14 832 876	115.81
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99 896				0								228210					0			
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99 896				0								228210					0			
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0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		26 904 039	11 171 489	121.73
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99 896				**0**							**228210**					**0**			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		28 350 430	9 725 098	123.92
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			3864				1		28 818 017	9 257 511	124.60
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42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			104772				1		31 268 911	6 806 617	127.05
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			14341				1		31 978 656	6 096 872	127.10
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			20587				1		32 734 919	5 340 609	127.15
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99 896				**0**							**228210**					**0**			
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0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		37 332 541	742 987	127.45
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99 896				**0**							**228210**					**0**			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		39 922 724	-1 847 196	129.35
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			3864				1		39 979 061	-1 903 533	129.40
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0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		40 100 690	-2 025 163	129.51
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		40 221 424	-2 145 896	129.62
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			104772				1		40 784 954	-2 709 426	130.12
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			14341				1		41 083 449	-3 007 921	130.37
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			20587				1		41 428 463	-3 352 935	130.66
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0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		41 899 177	-3 823 649	131.05
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		41 961 845	-3 886 317	131.10
99 896				**0**							**228210**					**0**			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		42 026 134	-3 950 606	131.15
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			3864				1		42 082 471	-4 006 943	131.19
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		42 144 207	-4 068 679	131.24
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		42 204 101	-4 128 573	131.29
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		42 324 835	-4 249 307	131.39
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			104772				1		42 888 364	-4 812 836	131.83
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			14341				1		43 186 859	-5 111 332	132.06
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14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			54976				1		43 781 842	-5 706 314	132.51
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		43 916 903	-5 841 375	132.61
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		44 002 587	-5 927 059	132.67
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		44 065 255	-5 989 727	132.72
99 896				**0**							**228210**					**0**			
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		44 129 544	-6 054 016	132.77
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			3864				1		44 185 881	-6 110 353	132.81
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		44 247 617	-6 172 089	132.85

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0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		44 307 511	-6 231 983	132.90
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		44 428 245	-6 352 717	132.99
42 909	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			104772				1		44 991 774	-6 916 247	133.39
11 465	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			14341				1		45 290 270	-7 214 742	**133.60**
30 938	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			20587				1		45 635 283	-7 559 755	133.84
14 584	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			54976				1		45 885 252	-7 809 725	#DIV/0!
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0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4140				1		46 105 997	-8 030 469	#DIV/0!
0	0	0	0	0	11 588 593	11 588 592	4 643 927	142.811			4278				1		46 168 665	-8 093 137	#DIV/0!
99 896				**0**							**228210**					**0**			

Pit A																	
Pit A Inflow (m^3) x	Enter 1 for the discharge location Pit A	Pit E	Volume Pumped from 3rd Portage (m^3)	INFLOW	OUTFLOW	All Pit A inflows Except Pit E ????	Total Pond Volume (Ice + Water) (m^3)	Tailings Deposited (t)	Cummulative Tailings Deposited (m^3)	Cummulative Volume (m^3)	Volume Available Remaining (m^3)	Water Elevation (m)	Planned Tailing Elevation (m)	Surveyed Water Elevation (m)	Pit A Error (m3)	Overflow to Pit E above 128	Overflow to pit E Via Central Dump
0			0														
0			0														
0			0														
0			0														
0			0														
0			0														
212679			0														
410360			0		0												
695168			0														
2 480	1	0		-44 952	266 541	-311 493	3 637 987	0	0	3 637 987	678 610	79.54		79.54	-120 000		0
2 240	1	0		144 138	72 375	71 763	3 709 750	0	0	3 709 750	606 847	80.18		80.18	107 000		0
2 480	1	0		296 700	214 517	82 183	3 791 933	0	0	3 791 933	524 664	80.91		80.91	-23 000		0
2 400	1	0		82 636	139 717	-57 081	3 724 852	0	0	3 724 852	591 745	80.32		80.41	-94 000		0
2 480	1	0		74 411	0	74 411	3 809 263	0	0	3 809 263	507 334	81.06		81.06	-73 000		0
53 245	1	0		269 354	0	269 354	4 090 118	0	0	4 090 118	226 479	83.47		83.47	-75 000		0
7 564	1	0		200 331	16 845	183 486	4 299 497	0	0	4 299 497	17 100	85.20		85.20	-181 000		0
10 720	1	0		170 493	141 559	28 934	4 328 430	0	0	4 328 430	-11 833	85.44		85.44	0		0
28 085	1	0		295 001	5 128	289 873	4 618 303	0	0	4 618 303	-301 706	87.73		87.73	40 000		0
2 480	1	0		243 007	47 384	195 623	4 813 926	0	0	4 813 926	-497 329	89.14		89.14	44 000		0
2 400	1	0		175 154	0	175 154	4 989 079	0	0	4 989 079	-672 482	90.32		90.32	22 000		0
2 480	1	0		205 309	17 698	187 611	5 176 690	0	0	5 176 690	-860 093	91.56		91.43	64 000		17698
119054			0														
2 480	1	0		169 311	35 836	133 475	5 310 166	0	0	5 310 166	15 248 210	92.43		92.43	40 000		35836
2 240	1	0		243 219	42 510	200 709	5 510 875	0	0	5 510 875	15 047 501	93.72		93.72	69 240		42510
2 480	1	0		263 709	52 545	211 164	5 722 039	0	0	5 722 039	14 836 337	95.05		95.05	85 000		52545
2 400	1	0		377 521	63 103	314 418	6 036 457	0	0	6 036 457	14 521 919	96.99		96.99	205 000		63103
2 480	1	0		492 278	78 824	458 327	6 494 784	0	0	6 494 784	14 063 592	99.74		99.75	123 000		78824
53 245	1	0		439 078	300 652	168 271	6 663 055	0	0	6 663 055	13 895 321	100.73		100.65	89 155		101740
7 564	1	0		231 548	423 762	-183 882	6 479 173	0	0	6 479 173	14 079 203	99.65		100.20	35 668		110154
10 720	1	0		121 359	395 163	-262 885	6 216 288	0	0	6 216 288	14 342 088	98.08		99.63	-50 919		100960
28 085	1	0		574 587	300 238	280 946	6 497 234	0	0	6 497 234	14 061 142	99.76		99.76	241 525		87816
2 480	1	0		-43 513	101 863	-145 376	6 351 859	0	0	6 351 859	14 206 518	98.89					101 863
2 400	1	0		93 984	94 594	-610	6 351 248	0	0	6 351 248	14 207 128	98.89					94 594
2 480	1	0		145 815	94 564	51 252	6 402 500	0	0	6 402 500	14 155 876	99.19			-1 215 976		94 564
119054			0												-378 307		673 487
2 480	1	0		147 436	97 126	50 310	6 452 810	0	0	6 452 810	14 105 566	99.49					97 126
2 240	1	0		131 796	99 642	32 154	6 484 964	0	0	6 484 964	14 073 412	99.68					99 642
2 480	1	0		144 883	101 249	43 634	6 528 598	0	0	6 528 598	14 029 779	99.94					101 249
2 400	1	0		139 259	103 431	35 828	6 564 425	0	0	6 564 425	13 993 951	100.15					103 431
2 480	1	0		211 817	105 222	106 595	6 671 020	0	0	6 671 020	13 887 356	100.78					105 222
53 245	1	0		590 715	110 552	495 490	7 166 510	0	0	7 166 510	13 391 866	103.63					110 552
7 564	1	0		359 558	135 327	248 496	7 415 007	0	0	7 415 007	13 143 370	105.02					135 327
10 720	1	0		678 211	147 752	536 401	7 951 408	0	0	7 951 408	12 606 968	107.90					147 752
28 085	1	0		295 970	174 572	126 760	8 078 168	0	0	8 078 168	12 480 208	108.56					174 572
2 480	1	0		466 535	180 910	288 084	8 366 252	0	0	8 366 252	12 192 124	109.95					180 910
2 400	1	0		164 867	195 314	-30 447	8 335 806	0	0	8 335 806	12 222 571	109.81					195 314
2 480	1	0		145 815	193 791	-47 976	8 287 829	0	0	8 287 829	12 270 547	109.59					193 791
119054			0		0												
2 480	1	0		147 436	191 393	-43 957	8 243 872	0	0	8 243 872	12 314 504	109.38					191 393
2 240	1	0		127 956	189 195	-61 239	8 182 634	0	0	8 182 634	12 375 743	109.09					189 195
2 480	1	0		144 883	186 133	-41 250	8 141 384	0	0	8 141 384	12 416 992	108.88					186 133
2 400	1	0		139 259	184 070	-44 811	8 096 572	0	0	8 096 572	12 461 804	108.66					184 070
2 480	1	0		211 817	181 830	29 987	8 126 559	0	0	8 126 559	12 431 817	108.81					181 830

Pit

53 245	1	0		590 715	183 329	422 714	8 549 273	0	0	8 549 273	12 009 103	110.78					183 329
7 564	1	0		359 558	204 465	179 358	8 728 631	0	0	8 728 631	11 829 745	111.59					204 465
10 720	1	0		514 654	213 433	307 163	9 035 794	0	0	9 035 794	11 522 582	112.94					213 433
28 085	1	0		295 970	228 791	72 541	9 108 335	0	0	9 108 335	11 450 041	113.26					228 791
2 480	1	0		466 535	232 418	236 576	9 344 911	0	0	9 344 911	11 213 465	114.28					232 418
2 400	1	0		164 867	244 247	-79 380	9 265 531	0	0	9 265 531	11 292 845	113.94					244 247
2 480	1	0		145 815	240 278	-94 463	9 171 069	0	0	9 171 069	11 387 307	113.53					240 278
119054			0		0												
2 480	1	0		147 436	293 025	-145 589	9 025 479	0	0	9 025 479	11 532 897	112.90					
2 240	1	0		127 956	293 051	-165 095	8 860 384	0	0	8 860 384	11 697 992	112.17					
2 480	1	0		144 883	293 051	-148 168	8 712 216	0	0	8 712 216	11 846 160	111.52					
2 400	1	0		139 259	273 937	-134 678	8 577 538	0	0	8 577 538	11 980 838	110.91					
2 480	1	0		211 817	273 937	-62 120	8 515 418	0	0	8 515 418	12 042 958	110.63					
53 245	1	0		590 715	273 937	332 106	8 847 524	0	0	8 847 524	11 710 852	112.12					
7 564	1	0		359 558	0	383 823	9 231 347	0	0	9 231 347	11 327 029	113.79					
10 720	1	0		325 454	0	331 396	9 562 743	0	0	9 562 743	10 995 633	115.22					
28 085	1	0		295 970	0	301 332	9 864 075	0	0	9 864 075	10 694 301	116.49					
2 480	1	0		466 535	0	468 994	10 333 069	0	0	10 333 069	10 225 307	118.44					
2 400	1	0		164 867	0	164 867	10 497 936	0	0	10 497 936	10 060 440	119.12					
2 480	1	0		145 815	0	145 815	10 643 751	0	0	10 643 751	9 914 625	119.71					
119054			0														
2 480	1	0		147 436	0	147 436	10 791 187	0	0	10 791 187	9 767 189	120.30					
2 240	1	0		127 956	0	127 956	10 919 143	0	0	10 919 143	9 639 233	120.82					
2 480	1	0		144 883	0	144 883	11 064 026	0	0	11 064 026	9 494 350	121.40					
2 400	1	0		139 259	0	139 259	11 203 285	0	0	11 203 285	9 355 091	121.95					
2 480	1	0		211 817	0	211 817	11 415 102	0	0	11 415 102	9 143 274	122.78					
53 245	1	0		590 715	0	606 043	12 021 145	0	0	12 021 145	8 537 231	125.12					
7 564	1	0		359 558	0	383 823	12 404 967	0	0	12 404 967	8 153 409	126.55					
10 720	1	0		325 454	0	331 396	12 736 364	0	0	12 736 364	7 822 013	127.72					
28 085	1	0		295 970	0	301 332	13 037 695	0	0	13 037 695	7 520 681	128.30					
2 480	1	0		568 228	0	570 687	13 608 382	0	0	13 608 382	6 949 994	129.09					
2 400	1	0		164 867	0	164 867	13 773 249	0	0	13 773 249	6 785 127	129.32					
2 480	1	0		145 815	0	145 815	13 919 064	0	0	13 919 064	6 639 312	129.52					
			0														
2 480	0	1		364 792	0	364 792	14 283 856	0	0	14 283 856	6 274 520	130.02					
2 240	0	1		18 196	0	18 196	14 302 052	0	0	14 302 052	6 256 324	130.04					
2 480	0	1		23 363	0	23 363	14 325 415	0	0	14 325 415	6 232 961	130.08					
2 400	0	1		21 659	0	21 659	14 347 074	0	0	14 347 074	6 211 302	130.10					
2 480	0	1		79 259	0	79 259	14 426 333	0	0	14 426 333	6 132 043	130.21					
53 245	0	1		143 453	0	158 781	14 585 114	0	0	14 585 114	5 973 262	130.43					
7 564	0	1		69 305	0	93 570	14 678 684	0	0	14 678 684	5 879 692	130.56					
10 720	0	1		160 234	0	166 176	14 844 860	0	0	14 844 860	5 713 516	130.79					
28 085	0	1		88 756	0	94 118	14 938 978	0	0	14 938 978	5 619 398	130.92					
2 480	0	1		91 496	0	93 955	15 032 933	0	0	15 032 933	5 525 443	131.05					
2 400	0	1		47 267	0	47 267	15 080 200	0	0	15 080 200	5 478 176	131.11					
2 480	0	1		24 295	0	24 295	15 104 495	0	0	15 104 495	5 453 881	131.15					
119054			0														
2 480	0	1		25 916	0	25 916	15 130 411	0	0	15 130 411	5 427 965	131.18					
2 240	0	1		18 196	0	18 196	15 148 607	0	0	15 148 607	5 409 769	131.21					
2 480	0	1		23 363	0	23 363	15 171 970	0	0	15 171 970	5 386 406	131.24					
2 400	0	1		21 659	0	21 659	15 193 629	0	0	15 193 629	5 364 747	131.27					
2 480	0	1		79 259	0	79 259	15 272 888	0	0	15 272 888	5 285 488	131.38					
53 245	0	1		143 453	0	158 781	15 431 669	0	0	15 431 669	5 126 707	131.60					
7 564	0	1		69 305	0	93 570	15 525 239	0	0	15 525 239	5 033 137	131.73					
10 720	0	1		160 234	0	166 176	15 691 415	0	0	15 691 415	4 866 961	131.96					
28 085	0	1		88 756	0	94 118	15 785 533	0	0	15 785 533	4 772 843	132.08					
2 480	0	1		91 496	0	93 955	15 879 488	0	0	15 879 488	4 678 888	132.21					
2 400	0	1		47 267	0	47 267	15 926 755	0	0	15 926 755	4 631 621	132.28					
2 480	0	1		24 295	0	24 295	15 951 050	0	0	15 951 050	4 607 326	132.31					

119054			0														
2 480	0	1		25 916	0	25 916	15 976 966	0	0	15 976 966	4 581 410	132.35					
2 240	0	1		18 196	0	18 196	15 995 162	0	0	15 995 162	4 563 214	132.37					
2 480	0	1		23 363	0	23 363	16 018 525	0	0	16 018 525	4 539 851	132.41					
2 400	0	1		21 659	0	21 659	16 040 184	0	0	16 040 184	4 518 192	132.44					
2 480	0	1		79 259	0	79 259	16 119 443	0	0	16 119 443	4 438 933	132.54					
53 245	0	1		143 453	0	158 781	16 278 224	0	0	16 278 224	4 280 152	132.76					
7 564	0	1		69 305	0	93 570	16 371 794	0	0	16 371 794	4 186 582	132.89					
10 720	0	1		160 234	0	166 176	16 537 970	0	0	16 537 970	4 020 406	133.12					
28 085	0	1		88 756	0	94 118	16 632 088	0	0	16 632 088	3 926 288	133.25					
2 480	0	1		91 496	0	93 955	16 726 043	0	0	16 726 043	3 832 333	133.38					
2 400	0	1		47 267	0	47 267	16 773 310	0	0	16 773 310	3 785 066	133.44					
2 480	0	1		24 295	0	24 295	16 797 605	0	0	16 797 605	3 760 771	133.48					
119054			0														
2 480	0	1		25 916	0	-141 290	16 656 316	0	0	16 656 316	3 902 060	133.28					
2 240	0	1		18 196	0	-211 897	16 444 419	0	0	16 444 419	4 113 957	132.99					
2 480	0	1		23 363	0	-231 383	16 213 036	0	0	16 213 036	4 345 340	132.67					
2 400	0	1		21 659	0	-224 869	15 988 167	0	0	15 988 167	4 570 209	132.36					
2 480	0	1		79 259	0	-175 487	15 812 681	0	0	15 812 681	4 745 695	132.12					
53 245	0	1		143 453	0	-87 747	15 724 934	0	0	15 724 934	4 833 442	132.00					
7 564	0	1		69 305	0	-161 176	15 563 758	0	0	15 563 758	4 994 618	131.78					
10 720	0	1		160 234	0	-88 570	15 475 188	0	0	15 475 188	5 083 188	131.66					
28 085	0	1		88 756	0	-152 410	15 322 778	0	0	15 322 778	5 235 598	131.45					
2 480	0	1		91 496	0	-160 791	15 161 988	0	0	15 161 988	5 396 388	131.23					
2 400	0	1		47 267	0	-199 261	14 962 727	0	0	14 962 727	5 595 649	130.95					
2 480	0	1		24 295	0	-230 451	14 732 276	0	0	14 732 276	5 826 100	130.64					
119054																	
2 480	0	1		25 916	0	-228 830	14 503 447	0	0	14 503 447	6 054 929	130.32					
2 240	0	1		18 196	0	-220 114	14 283 332	0	0	14 283 332	6 275 044	130.02					
2 480	0	1		23 363	0	-231 383	14 051 950	0	0	14 051 950	6 506 426	129.70					
2 400	0	1		21 659	0	-224 869	13 827 081	0	0	13 827 081	6 731 295	129.39					
2 480	0	1		79 259	0	-175 487	13 651 594	0	0	13 651 594	6 906 782	129.15					
53 245	0	1		143 453	0	-87 747	13 563 847	0	0	13 563 847	6 994 529	129.03					
7 564	0	1		69 305	0	-161 176	13 402 671	0	0	13 402 671	7 155 705	128.81					
10 720	0	1		160 234	0	-88 570	13 314 102	0	0	13 314 102	7 244 274	128.68					
28 085	0	1		88 756	0	-152 410	13 161 692	0	0	13 161 692	7 396 684	128.47					
2 480	0	1		91 496	0	-160 791	13 000 901	0	0	13 000 901	7 557 475	128.25					
2 400	0	1		47 267	0	-199 261	12 801 640	0	0	12 801 640	7 756 736	127.95					
2 480	0	1		24 295	0	-230 451	12 571 190	0	0	12 571 190	7 987 186	127.15					
119054			0														
2 480	0	1		25 916	0	-228 830	12 342 360	0	0	12 342 360	8 216 016	126.32					
2 240	0	1		18 196	0	-211 897	12 130 463	0	0	12 130 463	8 427 913	125.53					
2 480	0	1		23 363	0	-231 383	11 899 081	0	0	11 899 081	8 659 295	124.65					
2 400	0	1		21 659	0	-224 869	11 674 212	0	0	11 674 212	8 884 164	123.79					
2 480	0	1		79 259	0	-175 487	11 498 725	0	0	11 498 725	9 059 651	123.11					
53 245	0	1		143 453	0	-87 747	11 410 978	0	0	11 410 978	9 147 398	122.77					
7 564	0	1		69 305	0	-161 176	11 249 802	0	0	11 249 802	9 308 574	122.13					
10 720	0	1		160 234	0	-88 570	11 161 233	0	0	11 161 233	9 397 143	121.78					
28 085	0	1		88 756	0	-152 410	11 008 823	0	0	11 008 823	9 549 553	121.18					
2 480	0	1		91 496	0	-160 791	10 848 032	0	0	10 848 032	9 710 344	120.53					
2 400	0	1		47 267	0	-199 261	10 648 771	0	0	10 648 771	9 909 605	119.73					
2 480	0	1		24 295	0	-230 451	10 418 321	0	0	10 418 321	10 140 055	118.79					
119054			0														
2 480	0	1		25 916	0	-228 830	10 189 491	0	0	10 189 491	10 368 885	117.85					
2 240	0	1		18 196	0	-211 897	9 977 594	0	0	9 977 594	10 580 782	116.97					
2 480	0	1		23 363	0	-231 383	9 746 212	0	0	9 746 212	10 812 164	115.99					
2 400	0	1		21 659	0	-224 869	9 521 343	0	0	9 521 343	11 037 033	115.04					
2 480	0	1		79 259	0	-175 487	9 345 856	0	0	9 345 856	11 212 520	114.29					
53 245	0	1		143 453	0	-87 747	9 258 109	0	0	9 258 109	11 300 267	113.91					

7 564	0	1		69 305	0	-161 176	9 096 933	0	0	9 096 933	11 461 443	113.21					
10 720	0	1		160 234	0	-88 570	9 008 364	0	0	9 008 364	11 550 012	112.82					
28 085	0	1		88 756	0	-152 410	8 855 954	0	0	8 855 954	11 702 422	112.15					
2 480	0	1		91 496	0	-160 791	8 695 163	0	0	8 695 163	11 863 213	111.44					
2 400	0	1		47 267	0	-199 261	8 495 902	0	0	8 495 902	12 062 474	110.54					
2 480	0	1		24 295	0	-230 451	8 265 452	0	0	8 265 452	12 292 924	109.48					
119054			0														
2 480	0	1		25 916	0	-228 830	8 036 622	0	0	8 036 622	12 521 754	108.35					
2 240	0	1		18 196	0	-211 897	7 824 725	0	0	7 824 725	12 733 651	107.24					
2 480	0	1		23 363	0	-231 383	7 593 343	0	0	7 593 343	12 965 033	106.00					
2 400	0	1		21 659	0	-224 869	7 368 474	0	0	7 368 474	13 189 902	104.76					
2 480	0	1		79 259	0	-175 487	7 192 987	0	0	7 192 987	13 365 389	103.78					
53 245	0	1		143 453	0	-87 747	7 105 240	0	0	7 105 240	13 453 136	103.29					
7 564	0	1		69 305	0	-161 176	6 944 064	0	0	6 944 064	13 614 312	102.36					
10 720	0	1		160 234	0	-88 570	6 855 495	0	0	6 855 495	13 702 881	101.85					
28 085	0	1		88 756	0	-152 410	6 703 085	0	0	6 703 085	13 855 291	100.97					
2 480	0	1		91 496	0	-160 791	6 542 294	0	0	6 542 294	14 016 082	100.02					
2 400	0	1		47 267	0	-199 261	6 343 033	0	0	6 343 033	14 215 343	98.84					
2 480	0	1		24 295	0	-230 451	6 112 583	0	0	6 112 583	14 445 793	97.45					
119054			0				14 005 553										
2 480	0	1		25 916	0	-228 830	5 883 753	0	0	5 883 753	14 674 623	96.05					
2 240	0	1		18 196	0	-220 114	5 663 639	0	0	5 663 639	14 894 737	94.68					
2 480	0	1		23 363	0	-231 383	5 432 256	0	0	5 432 256	15 126 120	93.22					
2 400	0	1		21 659	0	-224 869	5 207 387	0	0	5 207 387	15 350 989	91.76					
2 480	0	1		79 259	0	-175 487	5 031 900	0	0	5 031 900	15 526 476	90.61					
53 245	0	1		143 453	0	-87 747	4 944 153	0	0	4 944 153	15 614 223	90.02					
7 564	0	1		69 305	0	-161 176	4 782 978	0	0	4 782 978	15 775 398	88.93					
10 720	0	1		160 234	0	-88 570	4 694 408	0	0	4 694 408	15 863 968	88.30					
28 085	0	1		88 756	0	-152 410	4 541 998	0	0	4 541 998	16 016 378	87.15					
2 480	0	1		91 496	0	-160 791	4 381 208	0	0	4 381 208	16 177 168	85.87					
2 400	0	1		47 267	0	-199 261	4 181 947	0	0	4 181 947	16 376 429	84.24					
2 480	0	1		24 295	0	-230 451	3 951 496	0	0	3 951 496	16 606 880	82.29					
119054			0														
2 480	0	1		25 916	0	-228 830	3 722 666	0	0	3 722 666	16 835 710	80.30					
2 240	0	1		18 196	0	-211 897	3 510 770	0	0	3 510 770	17 047 606	78.40					
2 480	0	1		23 363	0	-231 383	3 279 387	0	0	3 279 387	17 278 989	76.29					
2 400	0	1		21 659	0	-224 869	3 054 518	0	0	3 054 518	17 503 858	74.19					
2 480	0	1		79 259	0	-175 487	2 879 031	0	0	2 879 031	17 679 345	72.50					
53 245	0	1		143 453	0	-87 747	2 791 284	0	0	2 791 284	17 767 092	71.64					
7 564	0	1		69 305	0	-161 176	2 630 109	0	0	2 630 109	17 928 267	70.04					
10 720	0	1		160 234	0	-88 570	2 541 539	0	0	2 541 539	18 016 837	69.14					
28 085	0	1		88 756	0	-152 410	2 389 129	0	0	2 389 129	18 169 247	67.52					
2 480	0	1		91 496	0	-160 791	2 228 339	0	0	2 228 339	18 330 037	65.60					
2 400	0	1		47 267	0	-199 261	2 029 078	0	0	2 029 078	18 529 298	63.04					
2 480	0	1		24 295	0	-230 451	1 798 627	0	0	1 798 627	18 759 749	59.94					
119054			0														
2 480	0	1		25 916	0	-228 830	1 569 797	0	0	1 569 797	18 988 579	56.68					
2 240	0	1		18 196	0	-211 897	1 357 901	0	0	1 357 901	19 200 475	53.52					
2 480	0	1		23 363	0	-231 383	1 126 518	0	0	1 126 518	19 431 858	49.86					
2 400	0	1		21 659	0	-224 869	901 649	0	0	901 649	19 656 727	45.75					
2 480	0	1		82 179	0	-172 567	729 082	0	0	729 082	19 829 294	41.56					
53 245	0	1		367 750	0	136 550	865 632	0	0	865 632	19 692 744	44.92					
7 564	0	1		214 683	0	-15 797	849 835	0	0	849 835	19 708 541	44.54					
10 720	0	1		254 223	0	5 420	855 255	0	0	855 255	19 703 121	44.67					
28 085	0	1		141 403	0	-99 763	755 491	0	0	755 491	19 802 885	42.23					
2 480	0	1		94 229	0	-158 058	597 434	0	0	597 434	19 960 942	38.07					
2 400	0	1		47 267	0	-199 261	398 173	0	0	398 173	20 160 203	31.89					
2 480	0	1		24 295	0	-398 173	0	0	0	0	20 558 376	#DIV/0!					
119054			0														

2 480	0	1		437 166	0	437 166	437 166	0	0	437 166	20 121 210	33.27					
2 240	0	1		429 446	0	429 446	866 612	0	0	866 612	19 691 764	44.94					
2 480	0	1		434 613	0	434 613	1 301 225	0	0	1 301 225	19 257 151	52.64					
2 400	0	1		432 909	0	432 909	1 734 134	0	0	1 734 134	18 824 242	59.04					
2 480	0	1		493 429	0	493 429	2 227 563	0	0	2 227 563	18 330 813	65.59					
53 245	0	1		779 000	0	794 328	3 021 891	0	0	3 021 891	17 536 485	73.88					
7 564	0	1		625 933	0	650 198	3 672 089	0	0	3 672 089	16 886 287	79.85					
10 720	0	1		665 473	0	671 415	4 343 504	0	0	4 343 504	16 214 872	85.56					
28 085	0	1		552 653	0	558 015	4 901 519	0	0	4 901 519	15 656 857	89.74					
2 480	0	1		505 479	0	507 938	5 409 457	0	0	5 409 457	15 148 919	93.07					
2 400	0	1		458 517	0	458 517	5 867 974	0	0	5 867 974	14 690 402	95.95					
2 480	0	1		435 545	0	435 545	6 303 519	0	0	6 303 519	14 254 857	98.60					
119054			0														
2 480	0	1		437 166	0	437 166	6 740 685	0	0	6 740 685	13 817 691	101.19					
2 240	0	1		429 446	0	429 446	7 170 131	0	0	7 170 131	13 388 245	103.65					
2 480	0	1		434 613	0	434 613	7 604 744	0	0	7 604 744	12 953 632	106.06					
2 400	0	1		432 909	0	432 909	8 037 653	0	0	8 037 653	12 520 723	108.35					
2 480	0	1		493 429	0	493 429	8 531 082	0	0	8 531 082	12 027 294	110.70					
53 245	0	1		779 000	0	794 328	9 325 410	0	0	9 325 410	11 232 966	114.20					
7 564	0	1		625 933	0	650 198	9 975 608	0	0	9 975 608	10 582 768	116.96					
10 720	0	1		665 473	0	671 415	10 647 023	0	0	10 647 023	9 911 353	119.72					
28 085	0	1		552 653	0	558 015	11 205 038	0	0	11 205 038	9 353 338	121.96					
2 480	0	1		505 479	0	507 938	11 712 976	0	0	11 712 976	8 845 400	123.94					
2 400	0	1		458 517	0	458 517	12 171 493	0	0	12 171 493	8 386 883	125.69					
2 480	0	1		435 545	0	435 545	12 607 038	0	0	12 607 038	7 951 338	127.27					
119054			0														
2 480	0	1		228 916	0	228 916	12 835 954	0	0	12 835 954	7 722 422	128.03					
2 240	0	1		18 196	0	18 196	12 854 150	0	0	12 854 150	7 704 226	128.05					
2 480	0	1		23 363	0	23 363	12 877 513	0	0	12 877 513	7 680 863	128.08					
2 400	0	1		21 659	0	21 659	12 899 172	0	0	12 899 172	7 659 204	128.11					
2 480	0	1		82 179	0	82 179	12 981 351	0	0	12 981 351	7 577 025	128.23					
53 245	0	1		367 750	0	383 078	13 364 429	0	0	13 364 429	7 193 947	128.75					
7 564	0	1		214 683	0	238 948	13 603 377	0	0	13 603 377	6 954 999	129.08					
10 720	0	1		254 223	0	260 165	13 863 542	0	0	13 863 542	6 694 834	129.44					
28 085	0	1		141 403	0	146 765	14 010 307	0	0	14 010 307	6 548 069	129.64					
2 480	0	1		94 229	0	96 688	14 106 995	0	0	14 106 995	6 451 381	129.77					
2 400	0	1		47 267	0	47 267	14 154 262	0	0	14 154 262	6 404 114	129.84					
2 480	0	1		24 295	0	24 295	14 178 557	0	0	14 178 557	6 379 819	129.87					
119054			0														
2 480	1	0		28 396	0	28 396	14 206 953	0	0	14 206 953	6 351 423	129.91					
2 240	1	0		20 436	0	20 436	14 227 389	0	0	14 227 389	6 330 987	129.94					
2 480	1	0		25 843	0	25 843	14 253 232	0	0	14 253 232	6 305 144	129.98					
2 400	1	0		24 059	0	24 059	14 277 291	0	0	14 277 291	6 281 085	130.01					
2 480	1	0		84 659	0	84 659	14 361 950	0	0	14 361 950	6 196 426	130.13					
53 245	1	0		420 995	0	436 323	14 798 273	0	0	14 798 273	5 760 103	130.73					
7 564	1	0		222 247	0	246 512	15 044 785	0	0	15 044 785	5 513 591	131.07					
10 720	1	0		264 943	0	270 885	15 315 670	0	0	15 315 670	5 242 706	131.44					
28 085	1	0		169 488	0	174 850	15 490 520	0	0	15 490 520	5 067 856	131.68					
2 480	1	0		96 709	0	99 168	15 589 688	0	0	15 589 688	4 968 688	131.82					
2 400	1	0		49 667	0	49 667	15 639 355	0	0	15 639 355	4 919 021	131.88					
2 480	1	0		26 775	0	26 775	15 666 130	0	0	15 666 130	4 892 246	131.92					
119054			0														
2 480	1	0		28 396	0	28 396	15 694 526	0	0	15 694 526	4 863 850	131.96					
2 240	1	0		20 436	0	20 436	15 714 962	0	0	15 714 962	4 843 414	131.99					
2 480	1	0		25 843	0	25 843	15 740 805	0	0	15 740 805	4 817 571	132.02					
2 400	1	0		24 059	0	24 059	15 764 864	0	0	15 764 864	4 793 512	132.06					
2 480	1	0		84 659	0	84 659	15 849 523	0	0	15 849 523	4 708 853	132.17					
53 245	1	0		420 995	0	436 323	16 285 846	0	0	16 285 846	4 272 530	132.77					
7 564	1	0		222 247	0	246 512	16 532 358	0	0	16 532 358	4 026 018	133.11					

10 720	1	0		264 943	0	270 885	16 803 243	0	0	16 803 243	3 755 133	133.49					
28 085	1	0		169 488	0	174 850	16 978 093	0	0	16 978 093	3 580 283	133.73					
2 480	1	0		96 709	0	99 168	17 077 261	0	0	17 077 261	3 481 115	133.86					
2 400	1	0		49 667	0	49 667	17 126 928	0	0	17 126 928	3 431 448	133.93					
2 480	1	0		26 775	0	26 775	17 153 703	0	0	17 153 703	3 404 673	133.97					
119054			0														
2 480	1	0		28 396	0	28 396	17 182 099	0	0	17 182 099	3 376 277	134.01					
2 240	1	0		20 436	0	20 436	17 202 535	0	0	17 202 535	3 355 841	134.03					
2 480	1	0		25 843	0	25 843	17 228 378	0	0	17 228 378	3 329 998	134.07					
2 400	1	0		24 059	0	24 059	17 252 437	0	0	17 252 437	3 305 939	134.10					
2 480	1	0		84 659	0	84 659	17 337 096	0	0	17 337 096	3 221 280	134.22					
53 245	1	0		420 995	0	436 323	17 773 419	0	0	17 773 419	2 784 957	134.82					
7 564	1	0		222 247	0	246 512	18 019 931	0	0	18 019 931	2 538 445	135.16					
10 720	1	0		264 943	0	270 885	18 290 816	0	0	18 290 816	2 267 560	135.53					
28 085	1	0		169 488	0	174 850	18 465 666	0	0	18 465 666	2 092 710	135.77					
2 480	1	0		96 709	0	99 168	18 564 834	0	0	18 564 834	1 993 542	135.91					
2 400	1	0		49 667	0	49 667	18 614 501	0	0	18 614 501	1 943 875	135.98					
2 480	1	0		26 775	0	26 775	18 641 276	0	0	18 641 276	1 917 100	136.01					
119054			0														

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Pit E

Pit E Inflow (m³)	Enter 1 for the discharge location		Volume Pumped from 3rd Portage (m3)	INFLOW	OUTFLOW	All Pit E inflows Except Pit A	Total Pond Volume (Ice + Water) (m3)	Tailings Deposited (t)	Cummulative Tailings Deposited (m3)	Cummulative Volume (m3)	Volume Available Remaining (m3)	Water Elevation (m)	Planned Tailing Elevation (m)	Surveyed Water Elevation (m)	Pit E Error (m3)	Overflow Towards Pit A Via Central Dump	Outflow to Pit A above 128	Overflow Towards Goose above 131
	Pit A	Pit E																
x																		
0			0															
0			0															
0			0															
0			0															
0			0															
0			0															
76590			0															
286000			0	0	0											0	0	
1387539			0	0	0	0										0	0	
1 798	0	1		258 257	56 715	201 542	3 798 662	207 804	3 121 149	6 919 810		75.85	49.70	75.85	92 000	0	0	
1 624	0	1		149 846	34 898	114 948	3 913 610	307 276	3 320 678	7 234 288		77.56	51.43	77.56	-7 000	0	0	
1 798	0	1		256 313	299 751	-43 438	3 870 171	377 012	3 565 491	7 435 663		78.63	53.47	78.63	64 000	0	0	
1 740	0	1		317 292	267 563	49 729	3 919 900	307 028	3 764 860	7 684 761		79.94	55.05	79.94	154 000	0	0	
1 798	0	1		365 574	364 618	956	3 920 856	307 005	3 964 214	7 885 070		80.99	56.58	80.98	206 000	0	0	
51 527	0	1		137 919	369 386	-231 467	3 689 389	328 165	4 177 308	7 866 697		80.89	58.17	80.89	-86 000	0	0	
6 777	0	1		209 754	386 180	-176 426	3 512 963	363 141	4 413 113	7 926 077		81.20	59.88	81.20	-9 000	0	0	
9 867	0	1		469 753	225 894	243 858	3 756 822	352 064	4 641 726	8 398 548		83.60	61.50	83.60	249 000	0	0	
26 891	0	1		321 227	359 842	-38 616	3 718 206	315 765	4 846 769	8 564 975		84.43	62.92	84.43	88 000	0	0	
1 798	0	1		237 931	316 544	-78 613	3 639 593	266 496	5 019 818	8 659 411		84.90	64.09	84.90	42 000	0	0	
1 740	0	1		257 193	398 178	-140 984	3 498 608	334 002	5 236 703	8 735 311		85.27	65.54	85.26	58 000	0	0	
1 798	0	1		250 154	385 107	-134 953	3 363 655	322 946	5 446 407	8 810 062		85.64	66.92	85.63	60 000	0	0	
109156																0	0	
1 798	0	1		231 248	394 494	-163 246	3 200 409	348 343	5 672 604	8 873 013		85.95	68.35	85.99	18 000	0	0	
1 624	0	1		229 324	407 137	-177 813	3 022 596	325 867	5 884 206	8 906 802		86.11	69.62	86.03	24 000	0	0	
1 798	0	1		257 823	447 553	-189 730	2 832 866	345 469	6 108 537	8 941 402		86.28	70.92	86.20	20 000	0	0	
1 740	0	1		210 809	447 021	-236 212	2 596 653	298 713	6 302 506	8 899 160		86.07	72.02	86.00	-38 000	0	0	
1 798	0	1		274 839	398 640	-123 801	2 472 853	182 698	6 421 141	8 893 994		86.05	72.68	85.97	22 000	0	0	
51 527	0	1		431 344	182 892	248 451	2 721 304	363 441	6 657 142	9 378 446		88.36	73.99	88.36	62 000	0	0	
6 777	0	1		325 489	120 598	204 891	2 926 195	358 560	6 889 973	9 816 168		90.33	75.25	90.23	-36 000	0	0	
9 867	0	1		330 989	81 613	249 376	3 175 571	320 962	7 098 390	10 273 961		92.29	76.35	92.12	1 000	0	0	
26 891	0	1		193 623	145 016	48 606	3 224 177	104 114	7 165 997	10 390 174		92.78	76.71	92.72	-12 000	0	0	
1 798	0	1		285 094	396 710	-111 617	3 112 560	345 361	7 390 257	10 502 817		93.25	77.87			0	0	
1 740	0	1		193 229	264 499	-71 270	3 041 291	185 695	7 510 838	10 552 129		93.46	78.49			0	0	
1 798	0	1		188 654	261 428	-72 775	2 968 516	177 100	7 625 838	10 594 354		93.64	79.07			0	0	
109156															61 000	0	0	
1 798	0	1		275 758	390 044	-114 287	2 854 229	337 100	7 844 734	10 698 963		94.07	80.18			0	0	
1 624	0	1		291 085	402 810	-111 725	2 742 504	362 500	8 080 124	10 822 628		94.58	81.34			0	0	
1 798	0	1		340 264	482 368	-142 104	2 600 400	451 900	8 373 565	10 973 966		95.21	82.77			0	0	
1 740	0	1		263 187	358 764	-95 577	2 504 823	302 940	8 570 280	11 075 103		95.62	83.70			0	0	
1 798	0	1		284 932	392 898	-107 967	2 396 857	340 620	8 791 462	11 188 318		96.08	84.74			0	0	
51 527	0	1		347 180	395 555	-48 375	2 348 482	348 700	9 017 890	11 366 372		96.81	85.79			0	0	
6 777	0	1		333 056	409 107	-76 051	2 272 430	360 780	9 252 163	11 524 593		97.45	86.72			0	0	
9 867	0	1		157 619	400 520	-242 902	2 029 528	0	9 252 163	11 281 691		96.46	86.72			0	0	
26 891	0	1		384 568	395 555	-10 986	2 018 542	348 700	9 478 591	11 497 133		97.34	87.35			0	0	
1 798	0	1		343 108	364 791	-21 683	1 996 859	305 660	9 677 072	11 673 931		98.05	87.90			0	0	
1 740	0	1		369 624	379 346	-9 722	1 987 137	328 540	9 890 410	11 877 547		98.86	88.49			0	0	
1 798	0	1		385 191	409 107	-23 916	1 963 221	360 780	10 124 682	12 087 903		99.69	89.14			0	0	
109156																0	0	
1 798	0	1		385 821	414 047	-28 225	1 934 995	366 956	10 362 965	12 297 961		100.52	89.80			0	0	
1 624	0	1		370 069	382 789	-12 719	1 922 276	342 374	10 585 286	12 507 562		101.34	90.42			0	0	
1 798	0	1		380 270	414 073	-33 803	1 888 473	366 956	10 823 569	12 712 042		102.14	91.08			0	0	
1 740	0	1		345 463	361 263	-15 800	1 872 673	306 048	11 022 302	12 894 975		102.85	91.63			0	0	
1 798	0	1		364 793	397 864	-33 071	1 839 602	346 796	11 247 494	13 087 096		103.59	92.26			0	0	
51 527	0	1		423 210	400 443	22 767	1 862 369	354 780	11 477 871	13 340 239		104.56	92.90			0	0	
6 777	0	1		405 489	414 073	-8 584	1 853 785	366 956	11 716 154	13 569 939		105.43	93.56			0	0	
9 867	0	1		223 300	405 457	-182 157	1 671 628	0	11 716 154	13 387 781		104.74	93.56			0	0	

Pit

26 891	0	1		442 006	400 443	41 563	1 713 191	354 780	11 946 530	13 659 721		105.77	94.20			0	0	
1 798	0	1		396 275	367 309	28 966	1 742 157	308 792	12 147 045	13 889 202		106.63	94.75			0	0	
1 740	0	1		421 778	384 234	37 544	1 779 701	334 620	12 364 330	14 144 031		107.58	95.36			0	0	
1 798	0	1		434 949	414 073	20 876	1 800 577	366 956	12 602 613	14 403 191		108.54	96.02			0	0	
109156																0	0	
1 798	0	1		193 125	119 040	74 085	1 874 662	364 492	12 839 296	14 713 958		109.67	96.68			0	0	
1 624	0	1		192 544	107 520	85 024	1 959 686	364 492	13 075 979	15 035 665		110.80	97.33			0	0	
1 798	0	1		192 835	119 040	73 795	2 033 481	364 492	13 312 662	15 346 143		111.86	97.99			0	0	
1 740	0	1		179 646	115 200	64 446	2 097 926	340 717	13 533 907	15 631 833		112.83	98.60			0	0	
1 798	0	1		179 761	119 040	60 721	2 158 647	340 717	13 755 152	15 913 799		113.77	99.22			0	0	
51 527	0	1		232 356	115 200	117 156	2 275 803	340 717	13 976 397	16 252 200		114.89	99.83			0	0	
6 777	0	1		6 777	119 040	-112 263	2 163 540	0	13 976 397	16 139 937		114.52	99.83			0	0	
9 867	0	1		9 867	119 040	-109 173	2 054 367	0	13 976 397	16 030 764		114.16	99.83			0	0	
26 891	0	1		26 891	115 200	-88 309	1 966 058	0	13 976 397	15 942 455		113.87	99.83			0	0	
1 798	0	1		1 798	119 040	-117 242	1 848 816	0	13 976 397	15 825 213		113.48	99.83			0	0	
1 740	0	1		1 740	115 200	-113 460	1 735 356	0	13 976 397	15 711 753		113.10	99.83			0	0	
1 798	0	1		1 798	119 040	-117 242	1 618 114	0	13 976 397	15 594 511		112.70	99.83			0	0	
109156																		
1 798	0	1		1 798	119 040	-117 242	1 500 872	0	13 976 397	15 477 269		112.31	99.83			0	0	
1 624	0	1		1 624	107 520	-105 896	1 394 976	0	13 976 397	15 371 373		111.95	99.83			0	0	
1 798	0	1		1 798	119 040	-117 242	1 277 734	0	13 976 397	15 254 131		111.55	99.83			0	0	
1 740	0	1		1 740	115 200	-113 460	1 164 274	0	13 976 397	15 140 671		111.16	99.83			0	0	
1 798	0	1		1 798	119 040	-117 242	1 047 032	0	13 976 397	15 023 429		110.76	99.83			0	0	
51 527	0	1		51 527	115 200	-63 673	983 359	0	13 976 397	14 959 756		110.54	99.83			0	0	
6 777	0	1		6 777	119 040	-112 263	871 096	0	13 976 397	14 847 493		110.15	99.83			0	0	
9 867	0	1		9 867	119 040	-109 173	761 923	0	13 976 397	14 738 320		109.76	99.83			0	0	
26 891	0	1		26 891	115 200	-88 309	673 614	0	13 976 397	14 650 011		109.44	99.83			0	0	
1 798	0	1		1 798	119 040	-117 242	556 372	0	13 976 397	14 532 769		109.02	99.83			0	0	
1 740	0	1		1 740	115 200	-113 460	442 912	0	13 976 397	14 419 309		108.60	99.83			0	0	
1 798	0	1		1 798	119 040	-117 242	325 670	0	13 976 397	14 302 067		108.17	99.83			0	0	
109156																		
1 798	0	1		13 206	338 876	-325 670	0	0	13 976 397	13 976 397		106.96	99.83					
1 624	0	1		12 216	0	12 216	12 216	0	13 976 397	13 988 613		107.01	99.83					
1 798	0	1		13 206	0	13 206	25 422	0	13 976 397	14 001 819		107.06	99.83					
1 740	0	1		12 780	0	12 780	38 202	0	13 976 397	14 014 599		107.10	99.83					
1 798	0	1		25 749	0	25 749	63 951	0	13 976 397	14 040 348		107.20	99.83					
51 527	0	1		482 090	0	482 090	546 041	0	13 976 397	14 522 438		108.98	99.83					
6 777	0	1		222 532	0	222 532	768 573	0	13 976 397	14 744 970		109.78	99.83					
9 867	0	1		123 504	0	123 504	892 077	0	13 976 397	14 868 475		110.22	99.83					
26 891	0	1		158 633	0	158 633	1 050 710	0	13 976 397	15 027 107		110.77	99.83					
1 798	0	1		50 127	0	50 127	1 100 837	0	13 976 397	15 077 234		110.94	99.83					
1 740	0	1		12 780	0	12 780	1 113 617	0	13 976 397	15 090 014		110.99	99.83					
1 798	0	1		13 206	0	13 206	1 126 823	0	13 976 397	15 103 220		111.03	99.83					
109156																		
1 798	0	1		19 242	0	19 242	1 146 065	**0**	**13 976 397**	15 122 462		111.10						
1 624	0	1		18 828	0	18 828	1 164 893	**0**	**13 976 397**	15 141 290		111.16						
1 798	0	1		19 242	0	19 242	1 184 135	**0**	**13 976 397**	15 160 532		111.23						
1 740	0	1		19 104	0	19 104	1 203 239	**0**	**13 976 397**	15 179 636		111.30						
1 798	0	1		31 785	0	31 785	1 235 024	**0**	**13 976 397**	15 211 421		111.41						
51 527	0	1		488 414	0	488 414	1 723 437	**0**	**13 976 397**	15 699 835		113.06						
6 777	0	1		228 568	0	228 568	1 952 006	**0**	**13 976 397**	15 928 403		113.82						
9 867	0	1		129 540	0	129 540	2 081 546	**0**	**13 976 397**	16 057 943		114.25						
26 891	0	1		164 957	0	164 957	2 246 502	**0**	**13 976 397**	16 222 900		114.80						
1 798	0	1		56 163	0	56 163	2 302 665	**0**	**13 976 397**	16 279 062		114.98						
1 740	0	1		19 104	0	19 104	2 321 769	**0**	**13 976 397**	16 298 166		115.05						
1 798	0	1		19 242	0	19 242	2 341 011	**0**	**13 976 397**	16 317 408		115.11						
109156																		
1 798	**0**	**1**		19 242	0	19 242	2 360 253	**0**	**13 976 397**	16 336 650		115.17						
1 624	**0**	**1**		18 828	0	18 828	2 379 081	**0**	**13 976 397**	16 355 478		115.23						
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1 740	**0**	**1**		19 104	0	19 104	2 417 427	**0**	**13 976 397**	16 393 824		115.36						
1 798	**0**	**1**		22 162	0	22 162	2 439 589	**0**	**13 976 397**	16 415 986		115.43						
51 527	**0**	**1**		344 033	0	344 033	2 783 622	**0**	**13 976 397**	16 760 019		116.56						

6 777	**0**	**1**		174 683	0	174 683	2 958 305	**0**	**13 976 397**	17 064 242		117.12						
9 867	**0**	**1**		129 540	0	129 540	3 087 845	**0**	**13 976 397**	17 064 242		117.54						
26 891	**0**	**1**		122 587	0	122 587	3 210 432	**0**	**13 976 397**	17 186 829		117.93						
1 798	**0**	**1**		21 975	0	21 975	3 232 407	**0**	**13 976 397**	17 208 804		118.00						
1 740	**0**	**1**		19 104	0	19 104	3 251 510	**0**	**13 976 397**	17 227 908		118.07						
1 798	**0**	**1**		19 242	0	19 242	3 270 752	**0**	**13 976 397**	17 247 150		118.13						
109156						**929 741**												
1 798	**0**	**1**		19 242	0	19 242	3 289 994	**0**	**13 976 397**	17 266 391		118.19						
1 624	**0**	**1**		18 828	0	18 828	3 308 822	**0**	**13 976 397**	17 285 219		118.25						
1 798	**0**	**1**		19 242	0	19 242	3 328 064	**0**	**13 976 397**	17 304 461		118.31						
1 740	**0**	**1**		19 104	0	19 104	3 347 168	**0**	**13 976 397**	17 323 565		118.37						
1 798	**0**	**1**		19 242	0	19 242	3 366 410	**0**	**13 976 397**	17 342 807		118.43						
51 527	**0**	**1**		119 736	0	119 736	3 486 146	**0**	**13 976 397**	17 462 543		118.81						
6 777	**0**	**1**		29 305	0	29 305	3 515 451	**0**	**13 976 397**	17 491 848		118.91						
9 867	**0**	**1**		35 551	0	35 551	3 551 002	**0**	**13 976 397**	17 527 399		119.02						
26 891	**0**	**1**		69 940	0	69 940	3 620 942	**0**	**13 976 397**	17 597 339		119.24						
1 798	**0**	**1**		19 242	0	19 242	3 640 184	**0**	**13 976 397**	17 616 581		119.30						
1 740	**0**	**1**		19 104	0	19 104	3 659 288	**0**	**13 976 397**	17 635 685		119.36						
1 798	**0**	**1**		19 242	0	19 242	3 678 530	**0**	**13 976 397**	17 654 927		119.43						
109156						**407 777**												
1 798	**0**	**1**		19 242	0	19 242	3 697 771	**0**	**13 976 397**	17 674 169		119.49						
1 624	**0**	**1**		18 828	0	18 828	3 716 599	**0**	**13 976 397**	17 692 997		119.55						
1 798	**0**	**1**		19 242	0	19 242	3 735 841	**0**	**13 976 397**	17 712 239		119.61						
1 740	**0**	**1**		19 104	0	19 104	3 754 945	**0**	**13 976 397**	17 731 342		119.67						
1 798	**0**	**1**		19 242	0	19 242	3 774 187	**0**	**13 976 397**	17 750 584		119.73						
51 527	**0**	**1**		119 736	0	119 736	3 893 923	**0**	**13 976 397**	17 870 320		120.11						
6 777	**0**	**1**		29 305	0	29 305	3 923 228	**0**	**13 976 397**	17 899 625		120.20						
9 867	**0**	**1**		35 551	0	35 551	3 958 779	**0**	**13 976 397**	17 935 176		120.31						
26 891	**0**	**1**		69 940	0	69 940	4 028 719	**0**	**13 976 397**	18 005 116		120.53						
1 798	**0**	**1**		19 242	0	19 242	4 047 961	**0**	**13 976 397**	18 024 358		120.59						
1 740	**0**	**1**		19 104	0	19 104	4 067 065	**0**	**13 976 397**	18 043 462		120.65						
1 798	**0**	**1**		19 242	0	19 242	4 086 307	**0**	**13 976 397**	18 062 704		120.71						
109156						**407 777**												
1 798	**0**	**1**		19 242	0	19 242	4 105 549	**0**	**13 976 397**	18 081 946		120.77						
1 624	**0**	**1**		18 828	0	18 828	4 124 377	**0**	**13 976 397**	18 100 774		120.83						
1 798	**0**	**1**		19 242	0	19 242	4 143 619	**0**	**13 976 397**	18 120 016		120.89						
1 740	**0**	**1**		19 104	0	19 104	4 162 722	**0**	**13 976 397**	18 139 120		120.95						
1 798	**0**	**1**		19 242	0	19 242	4 181 964	**0**	**13 976 397**	18 158 362		121.01						
51 527	**0**	**1**		119 736	0	119 736	4 301 700	**0**	**13 976 397**	18 278 097		121.38						
6 777	**0**	**1**		29 305	0	29 305	4 331 005	**0**	**13 976 397**	18 307 402		121.47						
9 867	**0**	**1**		35 551	0	35 551	4 366 556	**0**	**13 976 397**	18 342 953		121.58						
26 891	**0**	**1**		69 940	0	69 940	4 436 496	**0**	**13 976 397**	18 412 893		121.80						
1 798	**0**	**1**		19 242	0	19 242	4 455 738	**0**	**13 976 397**	18 432 135		121.86						
1 740	**0**	**1**		19 104	0	19 104	4 474 842	**0**	**13 976 397**	18 451 239		121.92						
1 798	**0**	**1**		19 242	0	19 242	4 494 084	**0**	**13 976 397**	18 470 481		121.98						
109156																		
1 798	**0**	**1**		19 242	0	19 242	4 513 326	**0**	**13 976 397**	18 489 723		122.04						
1 624	**0**	**1**		18 828	0	18 828	4 532 154	**0**	**13 976 397**	18 508 551		122.09						
1 798	**0**	**1**		19 242	0	19 242	4 551 396	**0**	**13 976 397**	18 527 793		122.15						
1 740	**0**	**1**		19 104	0	19 104	4 570 500	**0**	**13 976 397**	18 546 897		122.21						
1 798	**0**	**1**		19 242	0	19 242	4 589 742	**0**	**13 976 397**	18 566 139		122.27						
51 527	**0**	**1**		119 736	0	119 736	4 709 478	**0**	**13 976 397**	18 685 875		122.64						
6 777	**0**	**1**		29 305	0	29 305	4 738 782	**0**	**13 976 397**	18 715 180		122.73						
9 867	**0**	**1**		35 551	0	35 551	4 774 333	**0**	**13 976 397**	18 750 731		122.84						
26 891	**0**	**1**		69 940	0	69 940	4 844 273	**0**	**13 976 397**	18 820 670		123.05						
1 798	**0**	**1**		19 242	0	19 242	4 863 515	**0**	**13 976 397**	18 839 912		123.11						
1 740	**0**	**1**		19 104	0	19 104	4 882 619	**0**	**13 976 397**	18 859 016		123.16						
1 798	**0**	**1**		19 242	0	19 242	4 901 861	**0**	**13 976 397**	18 878 258		123.22						
109156																		
1 798	**0**	**1**		19 242	0	19 242	4 921 103	**0**	**13 976 397**	18 897 500		123.28						
1 624	**0**	**1**		18 828	0	18 828	4 939 931	**0**	**13 976 397**	18 916 328		123.34						
1 798	**0**	**1**		19 242	0	19 242	4 959 173	**0**	**13 976 397**	18 935 570		123.40						
1 740	**0**	**1**		19 104	0	19 104	4 978 277	**0**	**13 976 397**	18 954 674		123.45						

1 798	0	1		19 242	0	19 242	4 997 519	0	13 976 397	18 973 916		123.51						
51 527	0	1		119 736	0	119 736	5 117 255	0	13 976 397	19 093 652		123.87						
6 777	0	1		29 305	0	29 305	5 146 560	0	13 976 397	19 122 957		123.96						
9 867	0	1		35 551	0	35 551	5 182 111	0	13 976 397	19 158 508		124.07						
26 891	0	1		69 940	0	69 940	5 252 050	0	13 976 397	19 228 448		124.27						
1 798	0	1		19 242	0	19 242	5 271 292	0	13 976 397	19 247 690		124.33						
1 740	0	1		19 104	0	19 104	5 290 396	0	13 976 397	19 266 794		124.39						
1 798	0	1		19 242	0	19 242	5 309 638	0	13 976 397	19 286 035		124.45						
109156																		
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1 798	0	1		19 242	0	19 242	5 366 950	0	13 976 397	19 343 347		124.61						
1 740	0	1		19 104	0	19 104	5 386 054	0	13 976 397	19 362 451		124.67						
1 798	0	1		19 242	0	19 242	5 405 296	0	13 976 397	19 381 693		124.73						
51 527	0	1		119 736	0	119 736	5 525 032	0	13 976 397	19 501 429		125.08						
6 777	0	1		29 305	0	29 305	5 554 337	0	13 976 397	19 530 734		125.16						
9 867	0	1		35 551	0	35 551	5 589 888	0	13 976 397	19 566 285		125.26						
26 891	0	1		69 940	0	69 940	5 659 828	0	13 976 397	19 636 225		125.47						
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1 798	0	1		19 242	0	19 242	5 717 415	0	13 976 397	19 693 813		125.63						
109156																		
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1 740	0	1		19 104	0	19 104	5 793 831	0	13 976 397	19 770 228		125.85						
1 798	0	1		19 242	0	19 242	5 813 073	0	13 976 397	19 789 470		125.90						
51 527	0	1		119 736	0	119 736	5 932 809	0	13 976 397	19 909 206		126.24						
6 777	0	1		29 305	0	29 305	5 962 114	0	13 976 397	19 938 511		126.32						
9 867	0	1		35 551	0	35 551	5 997 665	0	13 976 397	19 974 062		126.42						
26 891	0	1		69 940	0	69 940	6 067 605	0	13 976 397	20 044 002		126.61						
1 798	0	1		19 242	0	19 242	6 086 847	0	13 976 397	20 063 244		126.66						
1 740	0	1		19 104	0	19 104	6 105 951	0	13 976 397	20 082 348		126.72						
1 798	0	1		19 242	0	19 242	6 125 193	0	13 976 397	20 101 590		126.77						
109156																		
1 798	0	1		38 373	0	38 373	6 163 566	0	13 976 397	20 139 963		126.88						
1 624	0	1		38 141	0	38 141	6 201 707	0	13 976 397	20 178 104		126.98						
1 798	0	1		38 373	0	38 373	6 240 079	0	13 976 397	20 216 477		127.08						
1 740	0	1		38 235	0	38 235	6 278 314	0	13 976 397	20 254 712		127.19						
1 798	0	1		38 555	0	38 555	6 316 869	0	13 976 397	20 293 266		127.29						
51 527	0	1		180 452	0	180 452	6 497 321	0	13 976 397	20 473 718		127.77						
6 777	0	1		59 547	0	59 547	6 556 868	0	13 976 397	20 533 265		127.93						
9 867	0	1		84 848	0	84 848	6 641 716	0	13 976 397	20 618 113		128.08						
26 891	0	1		103 205	0	103 205	6 744 921	0	13 976 397	20 721 318		128.22						
1 798	0	1		38 373	0	38 373	6 783 294	0	13 976 397	20 759 691		128.28						
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109156																		
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1 798	0	1		38 373	0	38 373	6 974 971	0	13 976 397	20 951 368		128.54						
1 740	0	1		38 235	0	38 235	7 013 206	0	13 976 397	20 989 603		128.59						
1 798	0	1		38 555	0	38 555	7 051 760	0	13 976 397	21 028 158		128.65						
51 527	0	1		180 452	0	180 452	7 232 212	0	13 976 397	21 208 610		128.89						
6 777	0	1		59 547	0	59 547	7 291 759	0	13 976 397	21 268 157		128.98						
9 867	0	1		84 848	0	84 848	7 376 607	0	13 976 397	21 353 004		129.09						
26 891	0	1		103 205	0	103 205	7 479 812	0	13 976 397	21 456 209		129.24						
1 798	0	1		38 373	0	38 373	7 518 185	0	13 976 397	21 494 582		129.29						
1 740	0	1		38 417	0	38 417	7 556 602	0	13 976 397	21 532 999		129.34						
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109156																		
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1 624	0	1		38 141	0	38 141	7 671 489	0	13 976 397	21 647 886		129.50						

1 798	0	1		38 373	0	38 373	7 709 862	0	13 976 397	21 686 259		129.55						
1 740	0	1		38 235	0	38 235	7 748 097	0	13 976 397	21 724 494		129.60						
1 798	0	1		38 555	0	38 555	7 786 652	0	13 976 397	21 763 049		129.66						
51 527	0	1		180 452	0	180 452	7 967 104	0	13 976 397	21 943 501		129.91						
6 777	0	1		59 547	0	59 547	8 026 651	0	13 976 397	22 003 048		129.99						
9 867	0	1		84 848	0	84 848	8 111 498	0	13 976 397	22 087 896		130.10						
26 891	0	1		103 205	0	103 205	8 214 703	0	13 976 397	22 191 101		130.25						
1 798	0	1		38 373	0	38 373	8 253 076	0	13 976 397	22 229 473		130.30						
1 740	0	1		38 417	0	38 417	8 291 493	0	13 976 397	22 267 890		130.35						
1 798	0	1		38 373	0	38 373	8 329 866	0	13 976 397	22 306 263		130.41						
109156																		
1 798	0	1		246 623	0	246 623	8 576 489	0	13 976 397	22 552 886		130.74						
1 624	0	1		449 391	0	449 391	9 025 880	0	13 976 397	23 002 277		131.36						
1 798	0	1		449 623	0	449 623	9 475 503	0	13 976 397	23 451 900		131.98						
1 740	0	1		449 485	0	449 485	9 924 988	0	13 976 397	23 901 385		132.60						
1 798	0	1		449 805	0	449 805	10 374 793	0	13 976 397	24 351 190		133.22						
51 527	0	1		591 702	0	591 702	10 966 495	0	13 976 397	24 942 892		134.03						
6 777	0	1		433 770	0	433 770	11 400 265	0	13 976 397	25 376 662		134.63						
9 867	0	1		84 848	0	84 848	11 485 113	0	13 976 397	25 461 510		134.75						
26 891	0	1		103 205	0	103 205	11 588 318	0	13 976 397	25 564 715		134.89						
1 798	0	1		38 373	0	38 373	11 626 691	0	13 976 397	25 603 088		134.94						
1 740	0	1		38 417	0	38 417	11 665 108	0	13 976 397	25 641 505		135.00						
1 798	0	1		38 373	0	38 373	11 703 480	0	13 976 397	25 679 878		135.05						
109156																		
1 798	0	1		35 893	0	35 893	11 739 373	0	13 976 397	25 715 771		135.10						
1 624	0	1		35 901	0	35 901	11 775 274	0	13 976 397	25 751 672		135.15						
1 798	0	1		35 893	0	35 893	11 811 167	0	13 976 397	25 787 564		135.20						
1 740	0	1		35 835	0	35 835	11 847 002	0	13 976 397	25 823 399		135.25						
1 798	0	1		36 075	0	36 075	11 883 077	0	13 976 397	25 859 474		135.30						
51 527	0	1		127 207	0	127 207	12 010 284	0	13 976 397	25 986 681		135.47						
6 777	0	1		51 983	0	51 983	12 062 267	0	13 976 397	26 038 664		135.54						
9 867	0	1		74 128	0	74 128	12 136 395	0	13 976 397	26 112 792		135.64						
26 891	0	1		75 120	0	75 120	12 211 515	0	13 976 397	26 187 912		135.75						
1 798	0	1		35 893	0	35 893	12 247 408	0	13 976 397	26 223 805		135.80						
1 740	0	1		36 017	0	36 017	12 283 425	0	13 976 397	26 259 822		135.85						
1 798	0	1		35 893	0	35 893	12 319 318	0	13 976 397	26 295 715		135.90						
109156																		
1 798	0	1		35 893	0	35 893	12 355 211	0	13 976 397	26 331 608		135.95						
1 624	0	1		35 901	0	35 901	12 391 112	0	13 976 397	26 367 509		135.99						
1 798	0	1		35 893	0	35 893	12 427 004	0	13 976 397	26 403 402		136.04						
1 740	0	1		35 835	0	35 835	12 462 839	0	13 976 397	26 439 237		136.09						
1 798	0	1		36 075	0	36 075	12 498 914	0	13 976 397	26 475 312		136.14						
51 527	0	1		127 207	0	127 207	12 626 121	0	13 976 397	26 602 518		136.32						
6 777	0	1		51 983	0	51 983	12 678 104	0	13 976 397	26 654 501		136.39						
9 867	0	1		74 128	0	74 128	12 752 232	0	13 976 397	26 728 629		136.49						
26 891	0	1		75 120	0	75 120	12 827 352	0	13 976 397	26 803 749		136.60						
1 798	0	1		35 893	0	35 893	12 863 245	0	13 976 397	26 839 642		136.64						
1 740	0	1		36 017	0	36 017	12 899 262	0	13 976 397	26 875 659		136.69						
1 798	0	1		35 893	0	35 893	12 935 155	0	13 976 397	26 911 552		136.74						
109156																		
1 798	0	1		35 893	0	35 893	12 971 048	0	13 976 397	26 947 445		136.79						
1 624	0	1		35 901	0	35 901	13 006 949	0	13 976 397	26 983 346		136.84						
1 798	0	1		35 893	0	35 893	13 042 842	0	13 976 397	27 019 239		136.89						
1 740	0	1		35 835	0	35 835	13 078 677	0	13 976 397	27 055 074		136.94						
1 798	0	1		36 075	0	36 075	13 114 752	0	13 976 397	27 091 149		136.99						
51 527	0	1		127 207	0	127 207	13 241 958	0	13 976 397	27 218 356		137.17						
6 777	0	1		51 983	0	51 983	13 293 941	0	13 976 397	27 270 339		137.24						
9 867	0	1		74 128	0	74 128	13 368 069	0	13 976 397	27 344 466		137.34						
26 891	0	1		75 120	0	75 120	13 443 189	0	13 976 397	27 419 586		137.44						
1 798	0	1		35 893	0	35 893	13 479 082	0	13 976 397	27 455 479		137.49						
1 740	0	1		36 017	0	36 017	13 515 099	0	13 976 397	27 491 496		137.54						
1 798	0	1		35 893	0	35 893	13 550 992	0	13 976 397	27 527 389		137.59						
109156																		

Goose Pit														
Goose Inflow (m^3)	Enter 1 for the discharge location				Volume Pumped from 3rd Portage (m^3)	Total Pond Volume (Ice + Water) (m^3)	Tailings Deposited (t)	Cummulative Tailings Deposited (m^3)	Cummulative Volume (m^3)	Volume Available Remaining (m^3)	Water Elevation (m)	Planned Tailing Elevation (m)	Modeled Tailing Elevation (m)	Surveyed Water Elevation (m)
	NC	SC	Goose	Portage										
x														
344 994					**0**									
307 769					**0**									
383 800					**0**									
375 300					**0**									
464 019					**0**									
89 963					**0**									
327 114					**0**									
389 350					**0**									
199 289					**0**									
15 000			1			3 085 777	0	1 773 921	4 859 698	3 014 574	110.95	89.87		110.95
14 000			1			3 099 777	0	1 773 921	4 873 698	3 000 574	111.07	89.87		111.07
12 000			1			3 111 777	0	1 773 921	4 885 698	2 988 574	111.17	89.87		111.17
15 000			1			3 126 777	0	1 773 921	4 900 698	2 973 574	111.30	89.87		error
15 000			1			3 141 777	0	1 773 921	4 915 698	2 958 574	111.42	89.87		Error
50 000			1			3 191 777	0	1 773 921	4 965 698	2 908 574	111.84	89.87		Error
28 000			1			3 219 777	0	1 773 921	4 993 698	2 880 574	112.08	89.87		112.08
15 000			1			3 234 777	0	1 773 921	5 008 698	2 865 574	112.20	89.87		112.20
42 000			1			3 276 777	0	1 773 921	5 050 698	2 823 574	112.55	89.87		112.55
24 000			1			3 300 777	0	1 773 921	5 074 698	2 799 574	112.75	89.87		112.75
6 500			2			3 313 777	0	1 773 921	5 087 698	2 786 574	112.86	89.87		112.86
17 000			1			3 330 777	0	1 773 921	5 104 698	2 769 574	113.00	89.87		113.00
253 500					**0**									
27 218			1			3 357 995	0	1 773 921	5 131 916	2 742 356	113.22	89.87		113.14
24 584			1			3 382 579	0	1 773 921	5 156 500	2 717 772	113.43	89.87		113.24
27 218			1			3 409 797	0	1 773 921	5 183 718	2 690 554	113.65	89.87		113.35
26 340			1			3 436 137	0	1 773 921	5 210 058	2 664 214	113.87	89.87		113.44
27 218			1			3 463 355	0	1 773 921	5 237 276	2 636 996	114.09	89.87		113.96
65 316			1			3 528 671	0	1 773 921	5 302 592	2 571 680	114.62	89.87		114.26
31 116			1			3 559 787	0	1 773 921	5 333 708	2 540 564	114.87	89.87		114.41
33 535			1			3 593 322	0	1 773 921	5 367 243	2 507 029	115.15	89.87		114.58
46 029			1			3 751 874	0	1 773 921	5 525 795	2 348 477	116.42	89.87		115.42
27 218			1			4 035 621	0	1 773 921	5 809 542	2 064 730	118.66	89.87		
26 340			1			4 132 844	0	1 773 921	5 906 765	1 967 507	119.41	89.87		
27 218			1			4 160 062	0	1 773 921	5 933 983	1 940 289	119.62	89.87		
389 350					**0**									
27 218			1			4 187 280	0	1 773 921	5 961 201	1 913 071	119.83	89.87		
24 584			1			4 211 864	0	1 773 921	5 985 785	1 888 487	120.02	89.87		

Goose Pit

27 218			1			4 239 082	0	1 773 921	6 013 003	1 861 269	120.22	89.87		
26 340			1			4 265 422	0	1 773 921	6 039 343	1 834 929	120.42	89.87		
27 218			1			4 292 640	0	1 773 921	6 066 561	1 807 711	120.63	89.87		
65 316			1			4 357 956	0	1 773 921	6 131 877	1 742 395	121.11	89.87		
31 116			1			4 389 072	0	1 773 921	6 162 993	1 711 279	121.34	89.87		
33 535			1			4 422 607	0	1 773 921	6 196 528	1 677 744	121.59	89.87		
46 029			1			4 468 636	0	1 773 921	6 242 557	1 631 715	121.93	89.87		
27 218			1			4 495 854	0	1 773 921	6 269 775	1 604 497	122.12	89.87		
26 340			1			4 522 194	0	1 773 921	6 296 115	1 578 157	122.31	89.87		
27 218			1			4 549 412	0	1 773 921	6 323 333	1 550 939	122.51	89.87		
389 350					**0**									
27 218			1			4 576 630	0	1 773 921	6 350 551	1 523 721	122.70	89.87		
24 584			1			4 601 214	0	1 773 921	6 375 135	1 499 137	122.88	89.87		
27 218			1			4 628 432	0	1 773 921	6 402 353	1 471 919	123.07	89.87		
26 340			1			4 654 772	0	1 773 921	6 428 693	1 445 579	123.25	89.87		
27 218			1			4 681 990	0	1 773 921	6 455 911	1 418 361	123.44	89.87		
65 316			1			4 747 306	0	1 773 921	6 521 227	1 353 045	123.89	89.87		
31 116			1			4 778 422	0	1 773 921	6 552 343	1 321 929	124.11	89.87		
33 535			1			4 811 957	0	1 773 921	6 585 878	1 288 394	124.34	89.87		
46 029			1			4 857 986	0	1 773 921	6 631 907	1 242 365	124.65	89.87		
27 218			1			4 885 204	0	1 773 921	6 659 125	1 215 147	124.83	89.87		
26 340			1			4 911 544	0	1 773 921	6 685 465	1 188 807	125.01	89.87		
27 218			1			4 938 762	0	1 773 921	6 712 683	1 161 589	125.19	89.87		
389 350					**0**									
27 218			1			4 965 980	0	1 773 921	6 739 901	1 134 371	125.37	89.87		
24 584			1			4 990 564	0	1 773 921	6 764 485	1 109 787	125.53	89.87		
27 218			1			5 017 782	0	1 773 921	6 791 703	1 082 569	125.70	89.87		
26 340			1			5 044 122	0	1 773 921	6 818 043	1 056 229	125.86	89.87		
27 218			1			5 071 340	0	1 773 921	6 845 261	1 029 011	126.03	89.87		
65 316			1			5 136 656	0	1 773 921	6 910 577	963 695	126.41	89.87		
31 116			1			5 167 772	0	1 773 921	6 941 693	932 579	126.58	89.87		
33 535			1			5 201 307	0	1 773 921	6 975 228	899 044	126.77	89.87		
46 029			1			5 247 336	0	1 773 921	7 021 257	853 015	127.03	89.87		
27 218			1			5 274 554	0	1 773 921	7 048 475	825 797	127.17	89.87		
26 340			1			5 300 894	0	1 773 921	7 074 815	799 457	127.31	89.87		
27 218			1			5 328 112	0	1 773 921	7 102 033	772 239	127.46	89.87		
389 350					**0**									
27 218			1			5 355 330	0	1 773 921	7 129 251	745 021	127.60	89.87		
24 584			1			5 379 914	0	1 773 921	7 153 835	720 437	127.72	89.87		
27 218			1			5 407 132	0	1 773 921	7 181 053	693 219	127.86	89.87		
26 340			1			5 433 472	0	1 773 921	7 207 393	666 879	128.00	89.87		
27 218			1			5 460 690	0	1 773 921	7 234 611	639 661	128.13	89.87		
65 316			1			5 526 006	0	1 773 921	7 299 927	574 345	128.45	89.87		
31 116			1			5 557 122	0	1 773 921	7 331 043	543 229	128.60	89.87		

33 535			1			5 590 657	0	1 773 921	7 364 578	509 694	128.76	89.87		
46 029			1			5 636 686	0	1 773 921	7 410 607	463 665	128.98	89.87		
27 218			1			5 663 904	0	1 773 921	7 437 825	436 447	129.10	89.87		
26 340			1			5 690 244	0	1 773 921	7 464 165	410 107	129.22	89.87		
27 218			1			5 717 462	0	1 773 921	7 491 383	382 889	129.34	89.87		
389 350					**0**									
27 218			1			5 744 680	0	1 773 921	7 518 601	355 671	129.47			
24 584			1			5 769 264	0	1 773 921	7 543 185	331 087	129.58			
27 218			1			5 796 482	0	1 773 921	7 570 403	303 869	129.70			
26 340			1			5 822 822	0	1 773 921	7 596 743	277 529	129.81			
27 218			1			5 850 040	0	1 773 921	7 623 961	250 311	129.93			
65 316			1			5 915 356	0	1 773 921	7 689 277	184 995	130.22			
31 116			1			5 819 099	0	1 773 921	7 593 020	281 252	129.80			
33 535			1			5 725 262	0	1 773 921	7 499 183	375 089	129.38			
46 029			1			5 648 027	0	1 773 921	7 421 948	452 324	129.03			
27 218			1			5 547 872	0	1 773 921	7 321 793	552 479	128.56			
26 340			1			5 450 948	0	1 773 921	7 224 869	649 403	128.08			
27 218			1			5 350 793	0	1 773 921	7 124 714	749 558	127.57			
389 350					**0**									
27 218			1			5 123 265	0	1 773 921	6 897 186	977 086	126.33			
24 584			1			4 917 757	0	1 773 921	6 691 678	1 182 594	125.05			
27 218			1			4 690 229	0	1 773 921	6 464 150	1 410 122	123.50			
26 340			1			4 470 041	0	1 773 921	6 243 962	1 630 310	121.94			
27 218			1			4 242 513	0	1 773 921	6 016 434	1 857 838	120.25			
65 316			1			4 061 301	0	1 773 921	5 835 222	2 039 050	118.86			
31 116			1			3 837 672	0	1 773 921	5 611 593	2 262 679	117.10			
33 535			1			3 616 461	0	1 773 921	5 390 382	2 483 890	115.33			
46 029			1			3 415 962	0	1 773 921	5 189 883	2 684 389	113.70			
27 218			1			3 188 435	0	1 773 921	4 962 356	2 911 916	111.82			
26 340			1			2 968 247	0	1 773 921	4 742 168	3 132 104	109.94			
27 218			1			2 740 719	0	1 773 921	4 514 640	3 359 632	107.83			
389 350					**0**									
19 131			1			2 505 104	0	1 773 921	4 279 025	3 595 247	105.55			
19 313			1			2 294 325	0	1 773 921	4 068 246	3 806 026	103.45			
19 131			1			2 058 710	0	1 773 921	3 832 631	4 041 641	101.05			
19 131			1			1 831 313	0	1 773 921	3 605 234	4 269 038	98.68			
19 313			1			1 595 880	0	1 773 921	3 369 801	4 504 471	96.16			
60 716			1			1 410 068	0	1 773 921	3 183 989	4 690 283	94.12			
30 242			1			1 185 565	0	1 773 921	2 959 486	4 914 786	91.59			
49 297			1			980 116	0	1 773 921	2 754 037	5 120 235	89.18			
33 265			1			766 853	0	1 773 921	2 540 774	5 333 498	86.44			
19 131			1			531 239	0	1 773 921	2 305 160	5 569 112	83.18			
19 313			1			304 024	0	1 773 921	2 077 945	5 796 327	79.86			
19 131			1			68 409	0	1 773 921	1 842 330	6 031 942	76.24			

327 114					0									
19 131			1			0	0	1 773 921	1 773 921	6 100 351	75.14			
19 313			1			19 313	0	1 773 921	1 793 234	6 081 038	75.46			
19 131			1			38 444	0	1 773 921	1 812 365	6 061 907	75.76			
19 131			1			57 575	0	1 773 921	1 831 496	6 042 776	76.07			
19 313			1			79 808	0	1 773 921	1 853 729	6 020 543	76.42			
60 716			1			364 821	0	1 773 921	2 138 742	5 735 530	80.77			
30 242			1			540 441	0	1 773 921	2 314 362	5 559 910	83.31			
49 297			1			683 727	0	1 773 921	2 457 648	5 416 624	85.31			
33 265			1			769 639	0	1 773 921	2 543 560	5 330 712	86.48			
19 131			1			791 503	0	1 773 921	2 565 424	5 308 848	86.77			
19 313			1			810 816	0	1 773 921	2 584 737	5 289 535	87.03			
19 131			1			829 947	0	1 773 921	2 603 868	5 270 404	87.28			
327 114					0									
19 131			1			849 078	0	1 773 921	2 622 999	5 251 273	87.53			
19 313			1			868 391	0	1 773 921	2 642 312	5 231 960	87.79			
19 131			1			887 522	0	1 773 921	2 661 443	5 212 829	88.03			
19 131			1			906 653	0	1 773 921	2 680 574	5 193 698	88.28			
19 313			1			928 886	0	1 773 921	2 702 807	5 171 465	88.56			
60 716			1			1 213 899	0	1 773 921	2 987 820	4 886 452	91.91			
30 242			1			1 389 519	0	1 773 921	3 163 440	4 710 832	93.89			
49 297			1			1 532 805	0	1 773 921	3 306 726	4 567 546	95.47			
33 265			1			1 618 717	0	1 773 921	3 392 638	4 481 634	96.40			
19 131			1			1 640 581	0	1 773 921	3 414 502	4 459 770	96.64			
19 313			1			1 659 894	0	1 773 921	3 433 815	4 440 457	96.85			
19 131			1			1 679 025	0	1 773 921	3 452 946	4 421 326	97.05			
327 114					0									
19 131			1			1 698 156	0	1 773 921	3 472 077	4 402 195	97.26			
19 313			1			1 717 469	0	1 773 921	3 491 390	4 382 882	97.47			
19 131			1			1 736 600	0	1 773 921	3 510 521	4 363 751	97.67			
19 131			1			1 755 731	0	1 773 921	3 529 652	4 344 620	97.87			
19 313			1			1 777 964	0	1 773 921	3 551 885	4 322 387	98.11			
60 716			1			2 062 977	0	1 773 921	3 836 898	4 037 374	101.09			
30 242			1			2 238 597	0	1 773 921	4 012 518	3 861 754	102.89			
49 297			1			2 381 883	0	1 773 921	4 155 804	3 718 468	104.33			
33 265			1			2 467 795	0	1 773 921	4 241 716	3 632 556	105.18			
19 131			1			2 489 659	0	1 773 921	4 263 580	3 610 692	105.39			
19 313			1			2 508 972	0	1 773 921	4 282 893	3 591 379	105.58			
19 131			1			2 528 103	0	1 773 921	4 302 024	3 572 248	105.77			
327 114					0									
19 131			1			2 547 234	0	1 773 921	4 321 155	3 553 117	105.96			
19 313			1			2 566 547	0	1 773 921	4 340 468	3 533 804	106.15			
19 131			1			2 585 678	0	1 773 921	4 359 599	3 514 673	106.33			
19 131			1			2 604 809	0	1 773 921	4 378 730	3 495 542	106.52			

19 313			1			2 627 042	0	1 773 921	4 400 963	3 473 309	106.74			
60 716			1			2 912 055	0	1 773 921	4 685 976	3 188 296	109.43			
30 242			1			3 087 675	0	1 773 921	4 861 596	3 012 676	110.97			
49 297			1			3 230 961	0	1 773 921	5 004 882	2 869 390	112.17			
33 265			1			3 316 873	0	1 773 921	5 090 794	2 783 478	112.88			
19 131			1			3 338 737	0	1 773 921	5 112 658	2 761 614	113.07			
19 313			1			3 358 050	0	1 773 921	5 131 971	2 742 301	113.22			
19 131			1			3 377 181	0	1 773 921	5 151 102	2 723 170	113.38			
327 114					**0**									
19 131			1			3 396 312	0	1 773 921	5 170 233	2 704 039	113.54			
19 313			1			3 415 625	0	1 773 921	5 189 546	2 684 726	113.70			
19 131			1			3 434 756	0	1 773 921	5 208 677	2 665 595	113.85			
19 131			1			3 453 887	0	1 773 921	5 227 808	2 646 464	114.01			
19 313			1			3 476 120	0	1 773 921	5 250 041	2 624 231	114.19			
60 716			1			3 761 133	0	1 773 921	5 535 054	2 339 218	116.49			
30 242			1			3 936 753	0	1 773 921	5 710 674	2 163 598	117.89			
49 297			1			4 080 039	0	1 773 921	5 853 960	2 020 312	119.00			
33 265			1			4 165 951	0	1 773 921	5 939 872	1 934 400	119.67			
19 131			1			4 187 815	0	1 773 921	5 961 736	1 912 536	119.83			
19 313			1			4 207 128	0	1 773 921	5 981 049	1 893 223	119.98			
19 131			1			4 226 259	0	1 773 921	6 000 180	1 874 092	120.12			
327 114														
19 131			1			4 245 390	0	1 773 921	6 019 311	1 854 961	120.27			
19 313			1			4 264 703	0	1 773 921	6 038 624	1 835 648	120.42			
19 131			1			4 283 834	0	1 773 921	6 057 755	1 816 517	120.56			
19 131			1			4 302 965	0	1 773 921	6 076 886	1 797 386	120.70			
19 313			1			4 325 198	0	1 773 921	6 099 119	1 775 153	120.87			
60 716			1			4 610 211	0	1 773 921	6 384 132	1 490 140	122.94			
30 242			1			4 785 831	0	1 773 921	6 559 752	1 314 520	124.16			
49 297			1			4 929 117	0	1 773 921	6 703 038	1 171 234	125.13			
33 265			1			5 015 029	0	1 773 921	6 788 950	1 085 322	125.68			
19 131			1			5 036 893	0	1 773 921	6 810 814	1 063 458	125.82			
19 313			1			5 056 206	0	1 773 921	6 830 127	1 044 145	125.94			
19 131			1			5 075 337	0	1 773 921	6 849 258	1 025 014	126.05			
327 114					**0**									
19 131			1			5 094 468	0	1 773 921	6 868 389	1 005 883	126.16			
19 313			1			5 113 781	0	1 773 921	6 887 702	986 570	126.27			
19 131			1			5 132 912	0	1 773 921	6 906 833	967 439	126.39			
19 131			1			5 152 043	0	1 773 921	6 925 964	948 308	126.50			
19 313			1			5 174 276	0	1 773 921	6 948 197	926 075	126.62			
60 716			1			5 459 289	0	1 773 921	7 233 210	641 062	128.12			
30 242			1			5 810 845	0	1 773 921	7 584 766	289 506	129.76			
49 297			1			5 954 131	0	1 773 921	7 728 052	146 220	130.38			
33 265			1			6 040 043	0	1 773 921	7 813 964	60 308	130.75			

19 131			1			6 061 907	0	1 773 921	7 835 828	38 444	130.84			
19 313			1			6 081 220	0	1 773 921	7 855 141	19 131	130.92			
19 131			1	0		6 100 351	0	1 773 921	7 874 272	0.00	131.00			
327 114					**0**									
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
60 716				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
30 242				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
49 297				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
33 265				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
327 114					**0**									
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
60 716				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
30 242				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
49 297				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
33 265				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
327 114					**0**									
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
60 716				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
30 242				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
49 297				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
33 265				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
327 114					**0**									
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			

19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
60 716				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
30 242				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
49 297				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
33 265				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
327 114					**0**									
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
60 716				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
30 242				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
49 297				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
33 265				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
327 114					**0**									
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
60 716				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
30 242				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
49 297				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
33 265				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
327 114					**0**									
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
60 716				1		6 100 351	0	1 773 921	7 874 272	0	131.00			

30 242				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
49 297				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
33 265				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 313				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
19 131				1		6 100 351	0	1 773 921	7 874 272	0	131.00			
327 114					**0**									

Water Transfers

NC to SC (m^3)	SC to NC (m^3)	SC to 3PL **open system** (m^3)	Portage to 3PL(m^3)	Pit A to Goose Pit (m^3)	Goose to WTP	Portage to WTP	Tear Drop Lake to SC (m^3)	Tear Drop Lake to NC (m^3)	Tear Drop Lake to Goose (m^3)	Tear Drop Lake to CD Seepage (m^3)	SC to Pit A (m^3)	Goose to Pit A (m^3)	Goose to Pit E (m^3)	Landfill to SC (m3)	Central Dike D/S pond to Pit E (m^3)	Goose to SC (m^3)	China sump to SC (m^3)	SD1-2, NC-A-B-C-D-E to NC (m^3)	Waste rock seep (ST16) to NC (m^3)	Waste rock seep (ST16) to Pit A (m^3)	SD3-4-5 to SC (m^3)	Central Dike D/S pond to Pit A (m^3)	Central Dike D/S pond to SC (m^3)	SC to Central Dike D/S pond (m^3)	SC Vol correction (m3)
											x				x							x			
0	507 144	485 018					0	0	0		0					0									
0	0	190 882					10 342	26 242	0		0					0	0								
1 085 614	0	0					53 394	0	0		0					-50 431	171 214	15 569	19 236				2 904 219	2 572 663	242 577
342 538	0	0					46 338	0	0		0					0	120 052	23 586	26 340		34 927				385 353
238 762	0	0					71 433	0	32 461		0					-332 177	193 556	16 250	50 553		45 638		4 366 869	4 623 032	-256 163
534 054	0	0					70 152	0	0		0					0	113 643	46 745	34 550		28 163				
848 851	0	0					61 489	0	0	20 492	0	615 600	0		0	-358 156	128 037	103 916	68 893		73 769		754 347	2 294 063	-171 040
258 123	0	0					0	0	0	0	253 452	1 376 334	0	0	237 631	0	150 783	12 087	14 246		19 042	447 910	54 734	121 160	0
463 598	0	0					0	0	0	0	294 781	416 907	0		33 024	0	270 043	19 713	25 391		36 161	857 194	0	0	0
0											0	0	0	0	0	0	0	0	0		0	15 853	4 709	0	0
0											0	0	0	0	0	0	0	0	0		0	0	9 143	0	0
0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	17 469	0	0	0
0												0	0	0	0	0	0	0	0		0	16 451	0	0	0
55 736										0	0	0	0	0	0	0	28 870	12 218	2 525		2 799	20 458	0	0	0
110 384										3 746	60 038	0	0	5 531	0	0	12 245	24 273	38 172		1 859	108 310	0	0	0
218 275										9 451	189 452	0	0	5 823	0	0	0	3 360	5 616		2 633	52 595	0	0	0
17 046										6 135	0	0	0	9 458	0	0	0	3 719	6 105		2 227	53 277	0	0	0
77 883										3 575	17 819	0	0	7 674	0	0	18 241	27 115	8 458		6 187	96 962	0	0	0
20 303										0	0	0	0	0	0	0	7 343	2 315	703		823	81 989	0	0	0
0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		0	28 115	0	0	0
0																						19 100			
499 627	0	0					0	0	0	22 907	267 309	0	0	28 486	0	0	66 699	73 000	61 579		16 528	510 579	13 852	0	0
0																						14 029			
0																						13 564			
0																						13 920			
0																						11 031			
194 582							11 369				124 030			4 614			129 044	54 298		44 873	44 346	112 254			
56 788										16 380	91 823			11 322			42 185	45 180		29 845	26 717	112 689			
4 934														15 962			6 840	16 628		8 332	25 735	67 718			
26 743										20 492				31 511			0	23 136		10 919	27 324	59 453			
35 476											251 809	-112 523						6 596		6 598	15 342	109 331			
												-256 529										91 496			
												-70 883										47 267			
											1 215 976											24 295			
318 523	0	0					11 369	0	0	36 872	1 683 638	-439 935	0	63 409	0	0	178 069	145 838		100 567	139 464	677 047	0	0	0
											0	0	0				0	0		0	0	25 916			
											0	0	0				0	0		0	0	18 196			
											0	0	0				0	0		0	0	23 363			
											0	0	0				0	0		0	0	21 659			
										33 280	11 038	0	0				9 623	1 505		0	1 415	45 979			
										16 380	278 817	0	0				144 381	12 035		15 328	91 527	127 073			
											163 649	0	0				53 885	14 820		24 265	98 299	69 305			
352 757										20 492	388 217	0	0				0	2 415		5 942	4 522	139 742			
											63 929	0	0				42 370	4 636		5 362	6 975	88 756			
219 057											253 519	0	0				34 188	2 459		2 459	274	91 496			
											0	0	0				0	0		0	0	47 267			
											0	0	0				0	0		0	0	24 295			
571 814	0	0					0	0	0	70 152	1 159 168	0	0		0	0	284 447	37 870		53 356	203 012	723 047	0	0	0
											0	0	0				0	0		0	0	25 916			
											0	0	0				0	0		0	0	18 196			
											0	0	0				0	0		0	0	23 363			
											0	0	0				0	0		0	0	21 659			
										33 280	11 038	0	0				9 623	1 505		0	1 415	45 979			
										16 380	278 817	0	0				144 381	12 035		15 328	91 527	127 073			
											163 649	0	0				53 885	14 820		24 265	98 299	69 305			
										20 492	224 660	0	0				0	2 415		5 942	4 522	139 742			
											63 929	0	0				42 370	4 636		5 362	6 975	88 756			
219 057											253 519	0	0				34 188	2 459		2 459	274	91 496			
											0	0	0				0	0		0	0	47 267			
											0	0	0				0	0		0	0	24 295			
219 057	0	0					0	0	0	70 152	995 612	0	0		0	0	284 447	37 870		53 356	203 012	723 047	0	0	0
											0	0	0				0	0		0	0	25 916			
											0	0	0				0	0		0	0	18 196			
											0	0	0				0	0		0	0	23 363			
											0	0	0				0	0		0	0	21 659			
										33 280	11 038	0	0				9 623	1 505		0	1 415	45 979			
										16 380	278 817	0	0				144 381	12 035		15 328	91 527	127 073			
											163 649	0	0				53 885	14 820		24 265	98 299	69 305			
										20 492	35 460	0	0				0	2 415		5 942	4 522	139 742			
											63 929	0	0				42 370	4 636		5 362	6 975	88 756			

Water Transfers

219 057											253 519	**0**	**0**				34 188	2 459		2 459	274	91 496			
											0	**0**	**0**				0	0		0	0	47 267			
											0	**0**	**0**				0	0		0	0	24 295			
219 057	**0**	**0**					**0**	**0**	**0**	**70 152**	**806 412**	**0**	**0**		**0**	**0**	**284 447**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
											0	**0**	**0**				0	0		0	0	25 916			
											0	**0**	**0**				0	0		0	0	18 196			
											0	**0**	**0**				0	0		0	0	23 363			
											0	**0**	**0**				0	0		0	0	21 659			
										33 280	11 038	**0**	**0**				9 623	1 505		0	1 415	45 979			
										16 380	278 817	**0**	**0**				144 381	12 035		15 328	91 527	127 073			
											163 649	**0**	**0**				53 885	14 820		24 265	98 299	69 305			
										20 492	35 460	**0**	**0**				0	2 415		5 942	4 522	139 742			
											63 929	**0**	**0**				42 370	4 636		5 362	6 975	88 756			
320 750											355 212	**0**	**0**				34 188	2 459		2 459	274	91 496			
											0	**0**	**0**				0	0		0	0	47 267			
											0	**0**	**0**				0	0		0	0	24 295			
320 750	**0**	**0**					**0**	**0**	**0**	**70 152**	**908 105**	**0**	**0**		**0**	**0**	**284 447**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
0											0	0	0				0	0		0	0	25 916			
0											0	0	0				0	0		0	0	18 196			
0											0						0	0		0	0	23 363			
0											0	0	0				0	0		0	0	21 659			
1 505										33 280	0	0	12 543			-12 543	9 623	1 505		0	1 415	45 979			
89 861										16 380	0	0	368 678			-368 678	144 381	12 035		15 328	91 527	127 073			
35 614											0	0	199 263			-199 263	53 885	14 820		24 265	98 299	69 305			
58 529										20 492	0	0	93 989			-93 989	0	2 415		5 942	4 522	139 742			
31 088											0	0	95 017			-95 017	42 370	4 636		5 362	6 975	88 756			
2 459											0	0	36 921			-36 921	34 188	2 459		2 459	274	91 496			
0											0	0	0			0	0	0		0	0	47 267			
0											0	0	0			0	0	0		0	0	24 295			
219 057	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**70 152**	**0**	**0**	**806 411**	**0**	**0**	**-806 411**	**284 447**	**37 870**	**0**	**53 356**	**203 012**	**723 047**	**0**	**0**	**0**
0											0	0	0				0	0		0	0	25 916			
0											0	0	0				0	0		0	0	18 196			
0											0	0	0				0	0		0	0	23 363			
0											0	0	0				0	0		0	0	21 659			
1 505										33 280	0	0	12 543			-12 543	9 623	1 505		0	1 415	45 979			
89 861										16 380	0	0	368 678			-368 678	144 381	12 035		15 328	91 527	127 073			
35 614											0	0	199 263			-199 263	53 885	14 820		24 265	98 299	69 305			
58 529										20 492	0	0	93 989			-93 989	0	2 415		5 942	4 522	139 742			
31 088											0	0	95 017			-95 017	42 370	4 636		5 362	6 975	88 756			
2 459											0	0	36 921			-36 921	34 188	2 459		2 459	274	91 496			
0											0	0	0			0	0	0		0	0	47 267			
0											0	0	0			0	0	0		0	0	24 295			
219 057	**0**	**0**					**0**	**0**	**0**	**70 152**	**0**	**0**	**806 411**		**0**	**-806 411**	**284 447**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	0	0	2 920			-2 920		1 505		0	1 415	45 979			
89 861										16 380	0	0	224 297			-224 297		12 035		15 328	91 527	127 073			
35 614											0	0	145 378			-145 378		14 820		24 265	98 299	69 305			
58 529										20 492	0	0	93 989			-93 989		2 415		5 942	4 522	139 742			
31 088											0	0	52 647			-52 647		4 636		5 362	6 975	88 756			
2 459											0	0	2 733			-2 733		2 459		2 459	274	91 496			
0											0	0	0			0		0		0	0	47 267			
0											0	0	0			0		0		0	0	24 295			
219 057	**0**	**0**				**0**	**0**	**0**	**0**	**70 152**	**0**	**0**	**521 964**		**0**	**-521 964**	**0**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	0	0	0			-2 920		1 505		0	1 415	45 979			
89 861										16 380	0	0	0			-224 297		12 035		15 328	91 527	127 073			
35 614											0	0	0			-145 378		14 820		24 265	98 299	69 305			
58 529										20 492	0	0	0			-93 989		2 415		5 942	4 522	139 742			
31 088											0	0	0			-52 647		4 636		5 362	6 975	88 756			
2 459											0	0	0			-2 733		2 459		2 459	274	91 496			
0											0	0	0			0		0		0	0	47 267			
0											0	0	0			0		0		0	0	24 295			
219 057	**0**	**0**					**0**	**0**	**0**	**70 152**	**0**	**0**	**0**		**0**	**-521 964**	**0**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	0	0	0			-2 920		1 505		0	1 415	45 979			
89 861										16 380	0	0	0			-224 297		12 035		15 328	91 527	127 073			
35 614											0	0	0			-145 378		14 820		24 265	98 299	69 305			
58 529										20 492	0	0	0			-93 989		2 415		5 942	4 522	139 742			

31 088											0	0	0			-52 647		4 636		5 362	6 975	88 756			
2 459											0	0	0			-2 733		2 459		2 459	274	91 496			
0											0	0	0			0		0		0	0	47 267			
0											0	0	0			0		0		0	0	24 295			
219 057	**0**	**0**					**0**	**0**	**0**	**70 152**	**0**	**0**	**0**		**0**	**-521 964**	**0**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	0	0	0			-2 920		1 505		0	1 415	45 979			
89 861										16 380	0	0	0			-224 297		12 035		15 328	91 527	127 073			
35 614											0	0	0			-145 378		14 820		24 265	98 299	69 305			
58 529										20 492	0	0	0			-93 989		2 415		5 942	4 522	139 742			
31 088											0	0	0			-52 647		4 636		5 362	6 975	88 756			
2 459											0	0	0			-2 733		2 459		2 459	274	91 496			
0											0	0	0			0		0		0	0	47 267			
0											0	0	0			0		0		0	0	24 295			
219 057	**0**	**0**					**0**	**0**	**0**	**70 152**	**0**	**0**	**0**		**0**	**-521 964**	**0**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	0	0	0			-2 920		1 505		0	1 415	45 979			
89 861										16 380	0	0	0			-224 297		12 035		15 328	91 527	127 073			
35 614											0	0	0			-145 378		14 820		24 265	98 299	69 305			
58 529										20 492	0	0	0			-93 989		2 415		5 942	4 522	139 742			
31 088											0	0	0			-52 647		4 636		5 362	6 975	88 756			
2 459											0	0	0			-2 733		2 459		2 459	274	91 496			
0											0	0	0			0		0		0	0	47 267			
0											0	0	0			0		0		0	0	24 295			
219 057	**0**	**0**					**0**	**0**	**0**	**70 152**	**0**	**0**	**0**		**0**	**-521 964**	**0**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	0	0	0			-2 920		1 505		0	1 415	45 979			
89 861										16 380	0	0	0			-224 297		12 035		15 328	91 527	127 073			
35 614											0	0	0			-145 378		14 820		24 265	98 299	69 305			
58 529										20 492	0	0	0			-93 989		2 415		5 942	4 522	139 742			
31 088											0	0	0			-52 647		4 636		5 362	6 975	88 756			
2 459											0	0	0			-2 733		2 459		2 459	274	91 496			
0											0	0	0			0		0		0	0	47 267			
0											0	0	0			0		0		0	0	24 295			
219 057	**0**	**0**					**0**	**0**	**0**	**70 152**	**0**	**0**	**0**		**0**	**-521 964**	**0**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	0	0	0			-2 920		1 505		0	1 415	45 979			
89 861										16 380	0	0	0			-224 297		12 035		15 328	91 527	127 073			
35 614											0	0	0			-145 378		14 820		24 265	98 299	69 305			
58 529										20 492	0	0	0			-93 989		2 415		5 942	4 522	139 742			
31 088											0	0	0			-52 647		4 636		5 362	6 975	88 756			
2 459											0	0	0			-2 733		2 459		2 459	274	91 496			
0											0	0	0			0		0		0	0	47 267			
0											0	0	0			0		0		0	0	24 295			
219 057	**0**	**0**					**0**	**0**	**0**	**70 152**	**0**	**0**	**0**		**0**	**-521 964**	**0**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	0	0	0			-2 920		1 505		0	1 415	45 979			
89 861										16 380	0	0	0			-224 297		12 035		15 328	91 527	127 073			
35 614											0	0	0			-145 378		14 820		24 265	98 299	69 305			
58 529										20 492	0	0	0			-93 989		2 415		5 942	4 522	139 742			
31 088											0	0	0			-52 647		4 636		5 362	6 975	88 756			
2 459											0	0	0			-2 733		2 459		2 459	274	91 496			
0											0	0	0			0		0		0	0	47 267			
0											0	0	0			0		0		0	0	24 295			
219 057	**0**	**0**					**0**	**0**	**0**	**70 152**	**0**	**0**	**0**		**0**	**-521 964**	**0**	**37 870**		**53 356**	**203 012**		**0**	**0**	**0**
0											*0*	0	0					0		0	0	25 916			
0											*0*	0	0					0		0	0	18 196			
0											*0*	0	0					0		0	0	23 363			
0											*0*	0	0					0		0	0	21 659			
1 505										33 280	*2 920*	0	0					1 505		0	1 415	45 979			
89 861										16 380	*224 297*	0	0					12 035		15 328	91 527	127 073			
35 614											*145 378*	0	0					14 820		24 265	98 299	69 305			

58 529										20 492	*93 989*	0	0					2 415		5 942	4 522	139 742			
31 088											*52 647*	0	0					4 636		5 362	6 975	88 756			
2 459											*2 733*	0	0					2 459		2 459	274	91 496			
0											*0*	0	0					0		0	0	47 267			
0											*0*	0	0					0		0	0	24 295			
181 187	**0**	**0**					**0**	**0**	**0**	**70 152**	**521 964**					**0**									
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	2 920	0	0					1 505		0	1 415	45 979			
89 861										16 380	224 297	0	0					12 035		15 328	91 527	127 073			
35 614											145 378	0	0					14 820		24 265	98 299	69 305			
58 529										20 492	93 989	0	0					2 415		5 942	4 522	139 742			
31 088											52 647	0	0					4 636		5 362	6 975	88 756			
2 459											2 733	0	0					2 459		2 459	274	91 496			
0											0	0	0					0		0	0	47 267			
0											0	0	0					0		0	0	24 295			
181 187	**0**	**0**					**0**	**0**	**0**	**70 152**	**521 964**					**0**									
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	2 920	0	0					1 505		0	1 415	45 979			
89 861										16 380	224 297	0	0					12 035		15 328	91 527	127 073			
35 614											145 378	0	0					14 820		24 265	98 299	69 305			
58 529										20 492	93 989	0	0					2 415		5 942	4 522	139 742			
31 088											52 647	0	0					4 636		5 362	6 975	88 756			
2 459											2 733	0	0					2 459		2 459	274	91 496			
0											0	0	0					0		0	0	47 267			
0											0	0	0					0		0	0	24 295			
181 187	**0**	**0**					**0**	**0**	**0**	**70 152**	**521 964**					**0**									
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	2 920	0	0					1 505		0	1 415	45 979			
89 861										16 380	224 297	0	0					12 035		15 328	91 527	127 073			
35 614											145 378	0	0					14 820		24 265	98 299	69 305			
58 529										20 492	93 989	0	0					2 415		5 942	4 522	139 742			
31 088											52 647	0	0					4 636		5 362	6 975	88 756			
2 459											2 733	0	0					2 459		2 459	274	91 496			
0											0	0	0					0		0	0	47 267			
0											0	0	0					0		0	0	24 295			
181 187	**0**	**0**					**0**	**0**	**0**	**70 152**	**521 964**					**0**									
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	2 920	0	0					1 505		0	1 415	45 979			
89 861										16 380	224 297	0	0					12 035		15 328	91 527	127 073			
35 614											145 378	0	0					14 820		24 265	98 299	69 305			
58 529										20 492	93 989	0	0					2 415		5 942	4 522	139 742			
31 088											52 647	0	0					4 636		5 362	6 975	88 756			
2 459											2 733	0	0					2 459		2 459	274	91 496			
0											0	0	0					0		0	0	47 267			
0											0	0	0					0		0	0	24 295			
181 187	**0**	**0**					**0**	**0**	**0**	**70 152**	**521 964**					**0**									
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	2 920	0	0					1 505		0	1 415	45 979			
89 861										16 380	224 297	0	0					12 035		15 328	91 527	127 073			
35 614											145 378	0	0					14 820		24 265	98 299	69 305			
58 529										20 492	93 989	0	0					2 415		5 942	4 522	139 742			
31 088											52 647	0	0					4 636		5 362	6 975	88 756			
2 459											2 733	0	0					2 459		2 459	274	91 496			
0											0	0	0					0		0	0	47 267			
0											0	0	0					0		0	0	24 295			
181 187	**0**	**0**					**0**	**0**	**0**	**70 152**	**521 964**					**0**									
0											0	0	0					0		0	0	25 916			
0											0	0	0					0		0	0	18 196			
0											0	0	0					0		0	0	23 363			
0											0	0	0					0		0	0	21 659			
1 505										33 280	2 920	0	0					1 505		0	1 415	45 979			
89 861										16 380	224 297	0	0					12 035		15 328	91 527	127 073			

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35 614											145 378	0	0					14 820		24 265	98 299	69 305			
58 529										20 492	93 989	0	0					2 415		5 942	4 522	139 742			
31 088											52 647	0	0					4 636		5 362	6 975	88 756			
2 459											2 733	0	0					2 459		2 459	274	91 496			
0											0	0	0					0		0	0	47 267			
0											0	0	0					0		0	0	24 295			
181 187	**0**	**0**					**0**	**0**	**0**	**70 152**	**521 964**					**0**									

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Closure												Parameters								
Pit A Treatment (m3)	Cumulative Pit A Treatment (m^3)	Pit E Treatment (m3)	Cumulative Pit E Treatment (m^3)	Goose Pit Treatment (m3)	Cumulative Goose Pit (m^3)	Cumulative Treatment (m^3)	Pit A flooding (m^3)	Pit E Flooding (m^3)	Goose Pit Flooding (m^3)	Flooding Volume (m^3)	Cumulative Portage and Goose Flooding (m^3)	Ice Thickness (m)	NC Ice Ratio (%)	SC Ice Ratio (%)	NC Tailings Dry Density	SC Tailings Dry Density	IPD In Situ Density	NC Tailings water/ice entrampment (%)	SC Tailings water/ice entrampment (%)	IPD Tailings water entrampment (%)
																1.48				
															1.28	1.49				
																1.43			39%	
																1.33		68%	38%	
																1.25		61%	55%	48%
																1.26			48%	48%
																1.26			48%	48%
																1.26		48%	48%	48%
												1.10	55%	31%	1.08	1.05	1.54	64%	65%	48%
												1.30	55%	38%	1.08	1.05	1.54	64%	65%	48%
												1.60	55%	48%	1.08	1.05	1.54	64%	65%	48%
												1.70	55%	51%	1.08	1.05	1.54	64%	65%	48%
												0.00	55%	0%	1.08	1.31	1.54	64%	56%	48%
												0.00	0%	0%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	0%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	0%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	0%	1.56	1.56	1.54	47%	47%	48%
												0.20	17%	5%	1.32	1.31	1.54	55%	56%	48%
												0.50	58%	13%	1.08	1.05	1.54	64%	65%	48%
												0.80	65%	20%	1.08	1.05	1.54	64%	65%	48%
																1.26		57%	57%	48%
												1.10	55%	39%	1.08	1.05	1.54	64%	65%	48%
												1.30	55%	42%	1.08	1.05	1.54	64%	65%	48%
												1.60	55%	62%	1.08	1.05	1.54	64%	65%	48%
												1.70	55%	66%	1.08	1.05	1.54	64%	65%	48%
												0.00	55%	0%	1.08	1.31	1.54	64%	56%	48%
												0.00	0%	0%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	0%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	0%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	0%	1.56	1.56	1.54	47%	47%	48%
												0.20	17%	7%	1.32	1.31	1.54	55%	56%	48%
												0.50	58%	19%	1.08	1.05	1.54	64%	65%	48%
												0.80	65%	37%	1.08	1.05	1.54	64%	65%	48%
																1.26			57%	48%
												1.10	55%	55%	1.08	1.05	1.54	64%	65%	48%
												1.30	55%	55%	1.08	1.05	1.54	64%	65%	48%
												1.60	55%	55%	1.08	1.05	1.54	64%	65%	48%
												1.70	55%	55%	1.08	1.05	1.54	64%	65%	48%
												0.00	55%	55%	1.08	1.31	1.54	64%	56%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.20	17%	55%	1.32	1.31	1.54	55%	56%	48%
												0.50	58%	55%	1.08	1.05	1.54	64%	65%	48%
												0.80	65%	55%	1.08	1.05	1.54	64%	65%	48%
																1.26			57%	48%
												1.10	55%	55%	1.08	1.05	1.54	64%	65%	48%
												1.30	55%	55%	1.08	1.05	1.54	64%	65%	48%
												1.60	55%	55%	1.08	1.05	1.54	64%	65%	48%
												1.70	55%	55%	1.08	1.05	1.54	64%	65%	48%
												0.00	55%	55%	1.08	1.31	1.54	64%	56%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.20	17%	55%	1.32	1.31	1.54	55%	56%	48%
												0.50	58%	55%	1.08	1.05	1.54	64%	65%	48%
												0.80	65%	55%	1.08	1.05	1.54	64%	65%	48%
																1.26			57%	48%
												1.10	55%	55%	1.08	1.05	1.54	64%	65%	48%

												1.30	55%	55%	1.08	1.05	1.54	64%	65%	48%
												1.60	55%	55%	1.08	1.05	1.54	64%	65%	48%
												1.70	55%	55%	1.08	1.05	1.54	64%	65%	48%
												0.00	55%	55%	1.08	1.31	1.54	64%	56%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.00	0%	55%	1.56	1.56	1.54	47%	47%	48%
												0.20	17%	55%	1.32	1.31	1.54	55%	56%	48%
												0.50	58%	55%	1.08	1.05	1.54	64%	65%	48%
												0.80	65%	55%	1.08	1.05	1.54	64%	65%	48%
																1.26			57%	48%
	0		0		0	0				0	0	1.10	55%	55%	1.08	1.05	1.54	90%	65%	48%
	0		0		0	0				0	0	1.30	55%	55%	1.08	1.05	1.54	90%	65%	48%
	0		0		0	0				0	0	1.60	55%	55%	1.08	1.05	1.54	90%	65%	48%
	0		0		0	0				0	0	1.70	55%	55%	1.08	1.05	1.54	90%	65%	48%
	0		0		0	0				0	0	0.00	55%	55%	1.08	1.31	1.54	90%	40%	48%
	0		0		0	0				0	0	0.00	0%	55%	1.56	1.56	1.54	30%	25%	48%
	0		0		0	0				0	0	0.00	0%	55%	1.56	1.56	1.54	30%	25%	48%
	0		0		0	0				0	0	0.00	0%	55%	1.56	1.56	1.54	30%	25%	48%
	0		0		0	0				0	0	0.00	0%	55%	1.56	1.56	1.54	30%	25%	48%
	0		0		0	0				0	0	0.20	17%	55%	1.32	1.31	1.54	75%	40%	48%
	0		0		0	0				0	0	0.50	58%	55%	1.08	1.05	1.54	80%	65%	48%
	0		0		0	0				0	0	0.80	65%	55%	1.08	1.05	1.54	90%	65%	48%
	0		0		0	0				0	0					1.26				48%
	0	0	0		0	0				0	0	1.10	55%	55%	1.08	1.05	2.96	90%	65%	48%
	0		0		0	0				0	0	1.30	55%	55%	1.08	1.05	2.96	90%	65%	48%
	0		0		0	0				0	0	1.60	55%	55%	1.08	1.05	2.96	90%	65%	48%
	0		0		0	0				0	0	1.70	55%	55%	1.08	1.05	2.96	90%	65%	48%
	0		0		0	0				0	0	0.00	55%	55%	1.08	1.31	2.96	90%	40%	48%
	0		0		0	0				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	25%	48%
	0		0	127 373	127 373	127 373				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	25%	48%
	0		0	127 373	254 746	254 746				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	25%	48%
	0		0	123 264	378 010	378 010				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	25%	48%
	0		0	127 373	505 382	505 382				0	0	0.20	17%	55%	1.32	1.31	2.96	75%	40%	48%
	0		0	123 264	628 646	628 646				0	0	0.50	58%	55%	1.08	1.05	2.96	80%	65%	48%
	0		0	127 373	756 019	756 019				0	0	0.80	65%	55%	1.08	1.05	2.96	90%	65%	48%
0	0	0	0	756 019	756 019		0	0	0	0	0					1.26				48%
	0		0	254 746	1 010 765	1 010 765				0	0	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
	0		0	230 093	1 240 858	1 240 858				0	0	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
	0		0	254 746	1 495 603	1 495 603				0	0	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
	0		0	246 528	1 742 131	1 742 131				0	0	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
	0		0	254 746	1 996 877	1 996 877				0	0	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
	0		0	246 528	2 243 405	2 243 405				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	0		0	254 746	2 498 150	2 498 150				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	0		0	254 746	2 752 896	2 752 896				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	0		0	246 528	2 999 424	2 999 424				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	0		0	254 746	3 254 170	3 254 170				0	0	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
	0		0	246 528	3 500 698	3 500 698				0	0	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
	0		0	254 746	3 755 443	3 755 443				0	0	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
0	0	0	0	2 999 424	3 755 443		0	0	0	0	0					1.26				48%
	0		0	254 746	4 010 189	4 010 189				0	0	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
	0		0	230 093	4 240 282	4 240 282				0	0	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
	0		0	254 746	4 495 027	4 495 027				0	0	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
	0		0	246 528	4 741 555	4 741 555				0	0	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
	0		0	254 746	4 996 301	4 996 301				0	0	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
	0		0	246 528	5 242 829	5 242 829				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	0		0	254 746	5 497 574	5 497 574				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	0		0	254 746	5 752 320	5 752 320				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	0		0	246 528	5 998 848	5 998 848				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	0		0	254 746	6 253 594	6 253 594				0	0	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
	0		0	246 528	6 500 122	6 500 122				0	0	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
	0		0	254 746	6 754 867	6 754 867				0	0	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
0	0	0	0	2 999 424	6 754 867		0	0	0	0	0					1.26				48%
167 206	167 206		0	87 540	6 842 407	7 009 613				0	0	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
230 093	397 298		0		6 842 407	7 239 706				0	0	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	652 044		0		6 842 407	7 494 451				0	0	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
246 528	898 572		0		6 842 407	7 740 979				0	0	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	1 153 318		0		6 842 407	7 995 725				0	0	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%

246 528	1 399 846		0		6 842 407	8 242 253				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	1 654 591		0		6 842 407	8 496 998				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	1 909 337		0		6 842 407	8 751 744				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
246 528	2 155 865		0		6 842 407	8 998 272				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	2 410 610		0		6 842 407	9 253 018				0	0	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
246 528	2 657 138		0		6 842 407	9 499 546				0	0	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
254 746	2 911 884		0		6 842 407	9 754 291				0	0	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
	18 367 709		**0**	**87 540**	**6 842 407**		**0**	**0**	**0**	**0**	**0**					**1.26**				**48%**
254 746	3 166 630		0		6 842 407	10 009 037				0	0	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
238 310	3 404 940		0		6 842 407	10 247 347				0	0	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	3 659 686		0		6 842 407	10 502 093				0	0	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
246 528	3 906 214		0		6 842 407	10 748 621				0	0	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	4 160 959		0		6 842 407	11 003 366				0	0	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
246 528	4 407 487		0		6 842 407	11 249 894				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	4 662 233		0		6 842 407	11 504 640				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	4 916 978		0		6 842 407	11 759 386				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
246 528	5 163 506		0		6 842 407	12 005 914				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	5 418 252		0		6 842 407	12 260 659				0	0	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
246 528	5 664 780		0		6 842 407	12 507 187				0	0	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
254 746	5 919 526		0		6 842 407	12 761 933				0	0	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
	54 451 191		**0**	**0**	**6 842 407**		**0**	**0**	**0**	**0**	**0**					**1.26**				**48%**
254 746	6 174 271		0		6 842 407	13 016 678				0	0	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
230 093	6 404 364		0		6 842 407	13 246 771				0	0	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	6 659 110		0		6 842 407	13 501 517				0	0	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
246 528	6 905 638		0		6 842 407	13 748 045				0	0	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	7 160 383		0		6 842 407	14 002 790				0	0	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
246 528	7 406 911		0		6 842 407	14 249 318				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	7 661 657		0		6 842 407	14 504 064				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	7 916 402		0		6 842 407	14 758 810				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
246 528	8 162 930		0		6 842 407	15 005 338				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	8 417 676		0		6 842 407	15 260 083				0	0	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
246 528	8 664 204		0		6 842 407	15 506 611				0	0	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
254 746	8 918 950		0		6 842 407	15 761 357				0	0	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
																1.26				**48%**
254 746	9 173 695		0		6 842 407	16 016 102				0	0	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
230 093	9 403 788		0		6 842 407	16 246 195				0	0	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	9 658 534		0		6 842 407	16 500 941				0	0	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
246 528	9 905 062		0		6 842 407	16 747 469				0	0	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	10 159 807		0		6 842 407	17 002 214				0	0	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
246 528	10 406 335		0		6 842 407	17 248 742				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	10 661 081		0		6 842 407	17 503 488				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	10 915 826		0		6 842 407	17 758 234				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
246 528	11 162 354		0		6 842 407	18 004 762				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	11 417 100		0		6 842 407	18 259 507				0	0	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
246 528	11 663 628		0		6 842 407	18 506 035				0	0	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
254 746	11 918 374		0		6 842 407	18 760 781				0	0	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
																1.26				**48%**
254 746	12 173 119		0		6 842 407	19 015 526				0	0	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
230 093	12 403 212		0		6 842 407	19 245 619				0	0	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	12 657 958		0		6 842 407	19 500 365				0	0	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
246 528	12 904 486		0		6 842 407	19 746 893				0	0	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	13 159 231		0		6 842 407	20 001 638				0	0	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
246 528	13 405 759		0		6 842 407	20 248 166				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	13 660 505		0		6 842 407	20 502 912				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	13 915 250		0		6 842 407	20 757 658				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
246 528	14 161 778		0		6 842 407	21 004 186				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	14 416 524		0		6 842 407	21 258 931				0	0	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
246 528	14 663 052		0		6 842 407	21 505 459				0	0	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
254 746	14 917 798		0		6 842 407	21 760 205				0	0	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
																1.26				**48%**
254 746	15 172 543		0		6 842 407	22 014 950				0	0	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
238 310	15 410 854		0		6 842 407	22 253 261				0	0	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	15 665 599		0		6 842 407	22 508 006				0	0	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
246 528	15 912 127		0		6 842 407	22 754 534				0	0	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	16 166 873		0		6 842 407	23 009 280				0	0	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
246 528	16 413 401		0		6 842 407	23 255 808				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	16 668 146		0		6 842 407	23 510 554				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	16 922 892		0		6 842 407	23 765 299				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
246 528	17 169 420		0		6 842 407	24 011 827				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%

254 746	17 424 166		0		6 842 407	24 266 573				0	0	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
246 528	17 670 694		0		6 842 407	24 513 101				0	0	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
254 746	17 925 439		0		6 842 407	24 767 846				0	0	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
																1.26				48%
254 746	18 180 185		0		6 842 407	25 022 592				0	0	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
230 093	18 410 278		0		6 842 407	25 252 685				0	0	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	18 665 023		0		6 842 407	25 507 430				0	0	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
246 528	18 911 551		0		6 842 407	25 753 958				0	0	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	19 166 297		0		6 842 407	26 008 704				0	0	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
246 528	19 412 825		0		6 842 407	26 255 232				0	0	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	19 667 570		0		6 842 407	26 509 978			175 936	175 936	175 936	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	19 922 316		0		6 842 407	26 764 723				0	175 936	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
246 528	20 168 844		0		6 842 407	27 011 251				0	175 936	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	20 423 590		0		6 842 407	27 265 997				0	175 936	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
246 528	20 670 118		0		6 842 407	27 512 525				0	175 936	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
254 746	20 924 863		0		6 842 407	27 767 270				0	175 936	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
																1.26				48%
254 746	21 179 609		0		6 842 407	28 022 016				0	175 936	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
230 093	21 409 702		0		6 842 407	28 252 109				0	175 936	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	21 664 447		0		6 842 407	28 506 854				0	175 936	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
246 528	21 910 975		0		6 842 407	28 753 382				0	175 936	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
254 746	22 165 721		0		6 842 407	29 008 128				0	175 936	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
246 528	22 412 249		0		6 842 407	29 254 656				0	175 936	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	22 666 994		0		6 842 407	29 509 402				0	175 936	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	22 921 740		0		6 842 407	29 764 147				0	175 936	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
246 528	23 168 268		0		6 842 407	30 010 675				0	175 936	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
254 746	23 423 014		0		6 842 407	30 265 421				0	175 936	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
246 528	23 669 542		0		6 842 407	30 511 949				0	175 936	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
422 468	24 092 009		0		6 842 407	30 934 416				0	175 936	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
																1.26				48%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	587 186	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	998 436	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	1 409 686	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	1 820 936	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	2 232 186	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	2 643 436	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	3 054 686	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	3 465 936	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	3 877 186	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	4 288 436	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	4 699 686	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	5 110 936	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
										4 935 000						1.26				48%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	5 522 186	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	5 933 436	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	6 344 686	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	6 755 936	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	7 167 186	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	7 578 436	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	7 989 686	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	8 400 936	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	8 812 186	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	9 223 436	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	9 634 686	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
	24 092 009		0		6 842 407	30 934 416	411 250			411 250	10 045 936	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
										4 935 000						1.26				48%
	24 092 009		0		6 842 407	30 934 416	203 000	208 250		411 250	10 457 186	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416		411 250		411 250	10 868 436	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416		411 250		411 250	11 279 686	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416		411 250		411 250	11 690 936	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416		411 250		411 250	12 102 186	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
	24 092 009		0		6 842 407	30 934 416		411 250		411 250	12 513 436	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416		374 223		374 223	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
										2 841 723						1.26				48%

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	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
																1.26				48%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
																1.26				48%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.10	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.30	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.60	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	1.70	55%	55%	1.08	1.05	2.96	90%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	55%	55%	1.08	1.31	2.96	90%	40%	40%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.00	0%	55%	1.56	1.56	2.96	30%	32%	25%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.20	17%	55%	1.32	1.31	2.96	75%	40%	40%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.50	58%	55%	1.08	1.05	2.96	80%	46%	65%
	24 092 009		0		6 842 407	30 934 416				0	12 887 659	0.80	65%	55%	1.08	1.05	2.96	90%	46%	65%
																1.26				48%

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East Dike Seepage					East Dike Seepage	Vault Pit							Va	Vault ATP				Va
Volume pumped	Discharge location			Volume pumped 2PL		Vault Pit Inflow (m³)	Enter 1 for the discharge location		Volume Pumped from Wally (m^3)	Cummulative Volume (m^3)	Volume Available Remaining (m^3)	Water Elevation (m)		Vault ATP Inflow (m³)	Volume Pumped from Wally (m^3)	Cummulative Volume (m^3)	Water Elevation (m)	
	2PL	Pit E	Pit A				Vault Pit	Vault ATP										
x				-x														
36 537				0		0			0					0	0			
207 466				141 392		101 617			0					123 925	0			
208 047				169 585		111 336			0					631 435	0			
179 567				179 548		54 964			0					-31 131	0			
194 954				99 731		149 876			0					74 702	0			
213 221				155 869		116 338			0					67 302	0			
151 208				21 482		154 880			0					216 100	0			
162 967				89 497		154 880			0					216 100	0			
134 165				34 440		154 880			0					216 100	0			
6 138	0.96	0.04	0	5 896		0	1			464 639	29 135 252	(7.4)		0		1 277 839	137.0	
7 746	0	1	0	0		0	1			464 639	29 135 252	(7.4)		0		1 277 839	137.0	
6 913	0	1	0	0		0	1			464 639	29 135 252	(7.4)		0		1 277 839	137.0	
6 178	0.76	0.24	0	4 713		0	1		0	464 639	29 135 252	(7.4)		0		1 277 839	137.0	
5 047	0	1	0	0		0	1		0	464 639	29 135 252	(7.4)		0		1 277 839	137.0	
4 187	0	1	0	0		66 526	1		0	531 165	29 068 726	(5.2)		118 708		1 396 547	137.2	
29 597	0	1	0	0		17 775	1		0	548 940	29 050 951	(4.6)		6 053		1 402 600	137.2	
32 010	0	1	0	0		47 967	1		0	596 907	29 002 984	(3.0)		60 667		1 463 267	137.4	
32 417	0	1	0	0		22 611	1		0	619 518	28 980 373	(2.4)		30 672		1 493 939	137.4	
32 271	0	1	0	0		0	1			619 518	28 980 373	(2.4)		0		1 493 939	137.4	
22 647	0.13	0.87	0	2 974		0	1			619 518	28 980 373	(2.4)		0		1 493 939	137.4	
8 753	1.00	0.00	0	8 753		0	1			619 518	28 980 373	(2.4)		0		1 493 939	137.4	
193 904				22 336		154 880			0					216 100	0			
8 619	1	0	0	8 619		0	1			619 518	28 980 373	(2.4)		0		1 493 939	137.4	
7 548	1	0	0	7 548		0	1			619 518	28 980 373	(2.4)		0		1 493 939	137.4	
7 466	1	0	0	7 466		0	1			619 518	28 980 373	(2.4)		0		1 493 939	137.4	
5 108	0.9561	0.043	0	4 884		0	1			619 518	28 980 373	(2.4)		0		1 493 939	137.4	
6 450	0	1	0	0		0	1		0	619 518	28 980 373	(2.4)		0		1 493 939	137.4	
17 180	0	1	0	0		66 526	1		0	686 044	28 913 846	(0.6)		118 708		1 612 647	137.7	
32 192	0	1	0	0		17 775	1		0	703 820	28 896 071	(0.1)		6 053		1 618 700	137.7	
30 357	0	1	0	0		47 967	1		0	751 786	28 848 104	1.2		60 667		1 679 367	137.8	
31 688	0	1	0	0		22 611	1		0	774 398	28 825 493	1.8		30 672		1 710 039	137.9	
8 928	1	0	0	8 928		0	1		0	774 398	28 825 493	1.8		0		1 710 040	137.9	
8 640	1	0	0	8 640		0	1		0	774 398	28 825 493	1.8		0		1 710 040	137.9	
8 928	1	0	0	8 928		0	1			774 398	28 825 493	1.8		0		1 710 040	137.9	
173 104				55 013		154 880			0					216 100	0			
8 928	1			8 928		0	1			774 398	28 825 493	1.8		0		1 710 040	137.9	
8 352	1			8 352		0	1			774 398	28 825 493	1.8		0		1 710 040	137.9	
8 928	1			8 928		0	1			774 398	28 825 493	1.8		0		1 710 040	137.9	
8 640	1			8 640		0	1		0	774 398	28 825 493	1.8		0		1 710 040	137.9	
8 928	1			8 928		0	1		0	774 398	28 825 493	1.8		0		1 710 040	137.9	
8 640	1			8 640		66 526	1		0	840 924	28 758 967	3.6		118 708		1 828 748	138.1	
8 928	1			8 928		17 775	1		0	858 699	28 741 192	4.1		6 053		1 834 801	138.1	
8 928	1			8 928		47 967	1		0	906 666	28 693 225	5.1		60 667		1 895 468	138.2	
8 640	1			8 640		22 611	1		0	929 277	28 670 614	5.6		30 672		1 926 140	138.3	

8 928	1			8 928		0	1		0	929 277	28 670 614	5.6		0		1 926 140	138.3	
8 640	1			8 640		0	1		0	929 277	28 670 614	5.6		0		1 926 140	138.3	
8 928	1			8 928		0	1			929 277	28 670 614	5.6		0		1 926 140	138.3	
105 408				**105 408**		**154 880**			**0**					**216 100**	**0**			
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8 928	1			8 928		0	1			929 277	28 670 614	5.6		0		1 926 140	138.3	
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8 928	1			8 928		0	1			929 277	28 670 614	5.6		0		1 926 140	138.3	
8 640	1			8 640		66 526	1			995 803	28 604 087	7.0		118 708		2 044 848	138.5	
8 928	1			8 928		17 775	1			1 013 579	28 586 312	7.4		6 053		2 050 901	138.5	
8 928	1			8 928		47 967	1			1 061 545	28 538 345	8.4		60 667		2 111 568	138.6	
8 640	1			8 640		22 611	1			1 084 157	28 515 734	8.8		30 672	314 194	2 456 434	139.1	
8 928	1			8 928		0	1			1 084 157	28 515 734	8.8		0		2 456 434	139.1	
8 640	1			8 640		0	1			1 084 157	28 515 734	8.8		0		2 456 434	139.1	
8 928	1			8 928		0	1			1 084 157	28 515 734	8.8		0		2 456 434	139.1	
105 120				**105 120**		**154 880**			**0**					**216 100**	**314 194**			
8 928	1			8 928		0	1			1 084 157	28 515 734	8.8		0		2 456 434	139.1	
8 064	1			8 064		0	1			1 084 157	28 515 734	8.8		0		2 456 434	139.1	
8 928	1			8 928		0	1			1 084 157	28 515 734	8.8		0		2 456 434	139.1	
8 640	1			8 640		0	1			1 084 157	28 515 734	8.8		0		2 456 434	139.1	
8 928	1			8 928		0	1			1 084 157	28 515 734	8.8		0		2 456 434	139.1	
8 640	1			8 640		66 526	1			1 150 683	28 449 208	10.2		118 708		2 575 142	139.2	
8 928	1			8 928		17 775	1			1 168 458	28 431 433	10.6		6 053		2 581 195	139.2	
8 928	1			8 928		47 967	1			1 216 425	28 383 466	11.5		60 667		2 641 862	139.3	
8 640	1			8 640		22 611	1			1 239 036	28 360 855	11.9		30 672		2 672 534	139.3	
8 928	1			8 928		0	1			1 239 036	28 360 855	11.9		0		2 672 534	139.3	
8 640	1			8 640		0	1			1 239 036	28 360 855	11.9		0		2 672 534	139.3	
8 928	1			8 928		0	1			1 239 036	28 360 855	11.9		0		2 672 534	139.3	
105 120				**105 120**		**154 880**			**0**					**216 100**	**0**			
8 928	1			8 928		0	1			1 239 036	28 360 855	11.9		0		2 672 534	139.3	
8 064	1			8 064		0	1			1 239 036	28 360 855	11.9		0		2 672 534	139.3	
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8 640	1			8 640		0	1			1 239 036	28 360 855	11.9		0		2 672 534	139.3	
8 928	1			8 928		0	1			1 239 036	28 360 855	11.9		0		2 672 534	139.3	
8 640	1			8 640		66 526	1			1 305 562	28 294 328	13.2		118 708		2 812 793	139.4	
8 928	1			8 928		17 775	1			1 323 338	28 276 553	13.5		6 053		2 838 525	139.5	
8 928	1			8 928		47 967	1			1 371 304	28 228 586	14.4		60 667		2 952 297	139.6	
8 640	1			8 640		22 611	1			1 393 916	28 205 975	14.8		30 672		3 008 002	139.6	
8 928	1			8 928		0	1			1 393 916	28 205 975	14.8		0		3 008 002	139.6	
8 640	1			8 640		0	1			1 393 916	28 205 975	14.8		0		3 008 002	139.6	
8 928	1			8 928		0	1			1 393 916	28 205 975	14.8		0		3 008 002	139.6	
105 120				**105 120**		**154 880**			**0**					**216 100**	**0**			
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8 352		1		0		0	1			1 393 916	28 205 975	14.8		0		3 008 002	139.6	
8 928		1		0		0	1			1 393 916	28 205 975	14.8		0		3 008 002	139.6	
8 640		1		0		0	1			1 393 916	28 205 975	14.8		0		3 008 002	139.6	
8 928		1		0		0	1			1 393 916	28 205 975	14.8		0		3 008 002	139.6	
8 640		1		0		66 526	1			1 460 442	28 139 449	16.0		118 708		3 200 363	139.8	
8 928		1		0		17 775	1			1 478 217	28 121 674	16.3		6 053		3 226 095	139.8	
8 928		1		0		47 967	1			1 526 184	28 073 707	17.2		60 667		3 339 867	139.9	

8 640		1		0	22 611	1			1 548 795	28 051 096	17.6	30 672		3 395 572	139.9
8 928		1		0	0	1			1 548 795	28 051 096	17.6	0		3 395 572	139.9
8 640		1		0	0	1			1 548 795	28 051 096	17.6	0		3 395 572	139.9
8 928		1		0	0	1			1 548 795	28 051 096	17.6	0		3 395 572	139.9
105 408				**0**	**154 880**			**0**				**216 100**	**0**		
14 964		1		0	0	1			1 548 795	28 051 096	17.6	0		3 395 572	139.9
14 964		1		0	0	1			1 548 795	28 051 096	17.6	0		3 395 572	139.9
14 964		1		0	0	1			1 548 795	28 051 096	17.6	0		3 395 572	139.9
14 964		1		0	0	1			1 548 795	28 051 096	17.6	0		3 395 572	139.9
14 964		1		0	0	1			1 548 795	28 051 096	17.6			3 395 572	139.9
14 964		1		0	66 526	1			1 688 974	27 910 917	19.8			3 395 572	139.9
14 964		1		0	17 775	1			1 726 428	27 873 463	20.4			3 395 572	139.9
14 964		1		0	47 967	1			1 827 500	27 772 391	21.9			3 395 572	139.9
14 964		1		0	22 611	1			1 875 144	27 724 747	22.6			3 395 572	139.9
14 964		1		0	0	1			1 875 144	27 724 747	22.6			3 395 572	139.9
14 964		1		0	0	1			1 875 144	27 724 747	22.6			3 395 572	139.9
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179 567				**0**	**154 880**			**0**				**0**	**0**		
14 964		1		0	0	1			1 875 144	27 724 747	22.6	0		3 395 572	139.9
14 964		1		0	0	1			1 875 144	27 724 747	22.6	0		3 395 572	139.9
14 964		1		0	0	1			1 875 144	27 724 747	22.6	0		3 395 572	139.9
14 964		1		0	0	1			1 875 144	27 724 747	22.6	0		3 395 572	139.9
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14 964		1		0	66 526	1			2 015 323	27 584 568	24.7			3 395 572	139.9
14 964		1		0	17 775	1			2 052 777	27 547 114	25.2			3 395 572	139.9
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14 964		1		0	0	1			2 201 493	27 398 398	27.0	0		3 395 573	139.9
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14 964		1		0	0	1			2 527 842	27 072 049	30.9			3 395 573	139.9
14 964		1		0	0	1			2 527 842	27 072 049	30.9	0		3 395 573	139.9
14 964		1		0	0	1			2 527 842	27 072 049	30.9	0		3 395 573	139.9
179 567				**0**	**154 880**			**0**				**0**	**0**		
14 964		1		0	0	1			2 527 842	27 072 049	30.9	0		3 395 573	139.9
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14 964		1		0	66 526	1			2 668 021	26 931 870	32.4			3 395 573	139.9
14 964		1		0	17 775	1			2 705 475	26 894 416	32.8			3 395 573	139.9

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14 964		1		0	0	1			2 854 191	26 745 700	34.3			3 395 573	139.9
14 964		1		0	0	1			2 854 191	26 745 700	34.3	0		3 395 573	139.9
14 964		1		0	0	1			2 854 191	26 745 700	34.3	0		3 395 573	139.9
179 567				**0**	**154 880**			**0**				**0**	**0**		
14 964		1		0	0	1			2 854 191	26 745 700	34.3	0		3 395 573	139.9
14 964		1		0	0	1			2 854 191	26 745 700	34.3	0		3 395 573	139.9
14 964		1		0	0	1			2 854 191	26 745 700	34.3	0		3 395 573	139.9
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179 567				**0**	**154 880**			**0**				**0**	**0**		
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14 964		1		0	333 333	1			14 694 949	14 904 942	97.5	0		3 395 573	139.9
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14 964		1		0	333 333	1			15 361 615	14 238 275	99.9	0		3 395 573	139.9
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14 964		1		0	333 333	1			18 866 418	10 733 473	111.4	0		2 728 906	139.3
14 964		1		0	333 333	1			19 199 751	10 400 139	112.5	0		2 395 572	139.0
14 964		1		0	333 333	1			19 533 085	10 066 806	113.5	0		2 062 239	138.5
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14 964		1		0	333 333	1			20 199 751	9 400 139	115.4	118 708		1 395 572	137.2
14 964		1		0	333 333	1			20 533 085	9 066 806	116.4	6 053		1 062 239	136.4
14 964		1		0	333 333	1			20 866 418	8 733 473	117.4	60 667		728 906	135.4
14 964		1		0	333 333	1			21 199 751	8 400 139	118.3	30 672		395 572	134.0
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14 964		1		0	333 333	1			22 866 418	6 733 473	123.1	0		2 728 906	139.3
14 964		1		0	333 333	1			23 199 751	6 400 139	124.0	0		2 395 572	139.0
14 964		1		0	333 333	1			23 533 085	6 066 806	124.9	0		2 062 239	138.5
14 964		1		0	333 333	1			23 866 418	5 733 473	125.8	0		1 728 906	137.9
14 964		1		0	333 333	1			24 199 751	5 400 139	126.7	118 708		1 395 572	137.2
14 964		1		0	333 333	1			24 533 085	5 066 806	127.6	6 053		1 062 239	136.4
14 964		1		0	333 333	1			24 866 418	4 733 473	128.5	60 667		728 906	135.4
14 964		1		0	333 333	1			25 199 751	4 400 139	129.3	30 672		395 572	134.0
14 964		1		0	333 333	1			25 533 085	4 066 806	130.2	0		62 239	131.1
14 964		1		0	333 333	1			25 866 418	3 733 473	131.0	0		-271 094	#N/A
14 964		1		0	333 333	1			26 199 751	3 400 139	131.8	0		-604 427	#N/A
179 567				**0**	**4 000 000**			**0**				**216 100**	**0**		
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14 964		1		0	333 333	1			26 866 418	2 733 473	133.5	0		2 728 906	139.3
14 964		1		0	333 333	1			27 199 751	2 400 139	134.3	0		2 395 573	139.0
14 964		1		0	333 333	1			27 533 085	2 066 806	135.1	0		2 062 239	138.5
14 964		1		0	333 333	1			27 866 418	1 733 473	135.9	0		1 728 906	137.9

14 964		1		0	333 333	1			28 199 751	1 400 139	136.7	118 708		1 395 573	137.2
14 964		1		0	333 333	1			28 533 085	1 066 806	137.5	6 053		1 062 239	136.4
14 964		1		0	333 333	1			28 866 418	733 473	138.3	60 667		728 906	135.4
14 964		1		0	333 333	1			29 199 751	400 139	139.1	30 672		395 573	134.0
14 964		1		0	333 333	1			29 533 085	66 806	139.8	0		62 239	131.1
14 964		1		0	0	1			29 533 085	66 806	139.8	0		62 239	131.1
14 964		1		0	0	1			29 533 085	66 806	139.8	0		62 239	131.1
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14 964		1		0	333 333	1			34 199 751	-4 599 861	161.8	0		2 062 239	138.5
14 964		1		0	333 333	1			34 533 085	-4 933 194	163.3	0		1 728 906	137.9
14 964		1		0	333 333	1			34 866 418	-5 266 527	164.9	118 708		1 395 573	137.2
14 964		1		0	333 333	1			35 199 751	-5 599 861	166.5	6 053		1 062 239	136.4
14 964		1		0	333 333	1			35 533 085	-5 933 194	168.1	60 667		728 906	135.4
14 964		1		0	333 333	1			35 866 418	-6 266 527	169.6	30 672		395 573	134.0
14 964		1		0	333 333	1			36 199 751	-6 599 861	171.2	0		62 239	131.1
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14 964		1		0	333 333	1			36 866 418	-7 266 527	174.4	0		2 728 906	139.3
14 964		1		0	333 333	1			37 199 751	-7 599 861	175.9	0		2 395 573	139.0
14 964		1		0	333 333	1			37 533 085	-7 933 194	177.5	0		2 062 239	138.5
14 964		1		0	333 333	1			37 866 418	-8 266 527	179.1	0		1 728 906	137.9
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14 964		1		0	333 333	1			38 533 085	-8 933 194	182.3	6 053		1 062 239	136.4
14 964		1		0	333 333	1			38 866 418	-9 266 527	183.8	60 667		728 906	135.4
14 964		1		0	333 333	1			39 199 751	-9 599 861	185.4	30 672		395 573	134.0
14 964		1		0	333 333	1			39 533 085	-9 933 194	187.0	0		62 240	131.1
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14 964		1		0	333 333	1			40 866 418	-11 266 527	193.3	0		2 062 239	138.5

14 964		1		0		333 333	1			41 199 751	-11 599 861	194.9		0		1 728 906	137.9	
14 964		1		0		333 333	1			41 533 085	-11 933 194	196.4		118 708		1 395 573	137.2	
14 964		1		0		333 333	1			41 866 418	-12 266 527	198.0		6 053		1 062 239	136.4	
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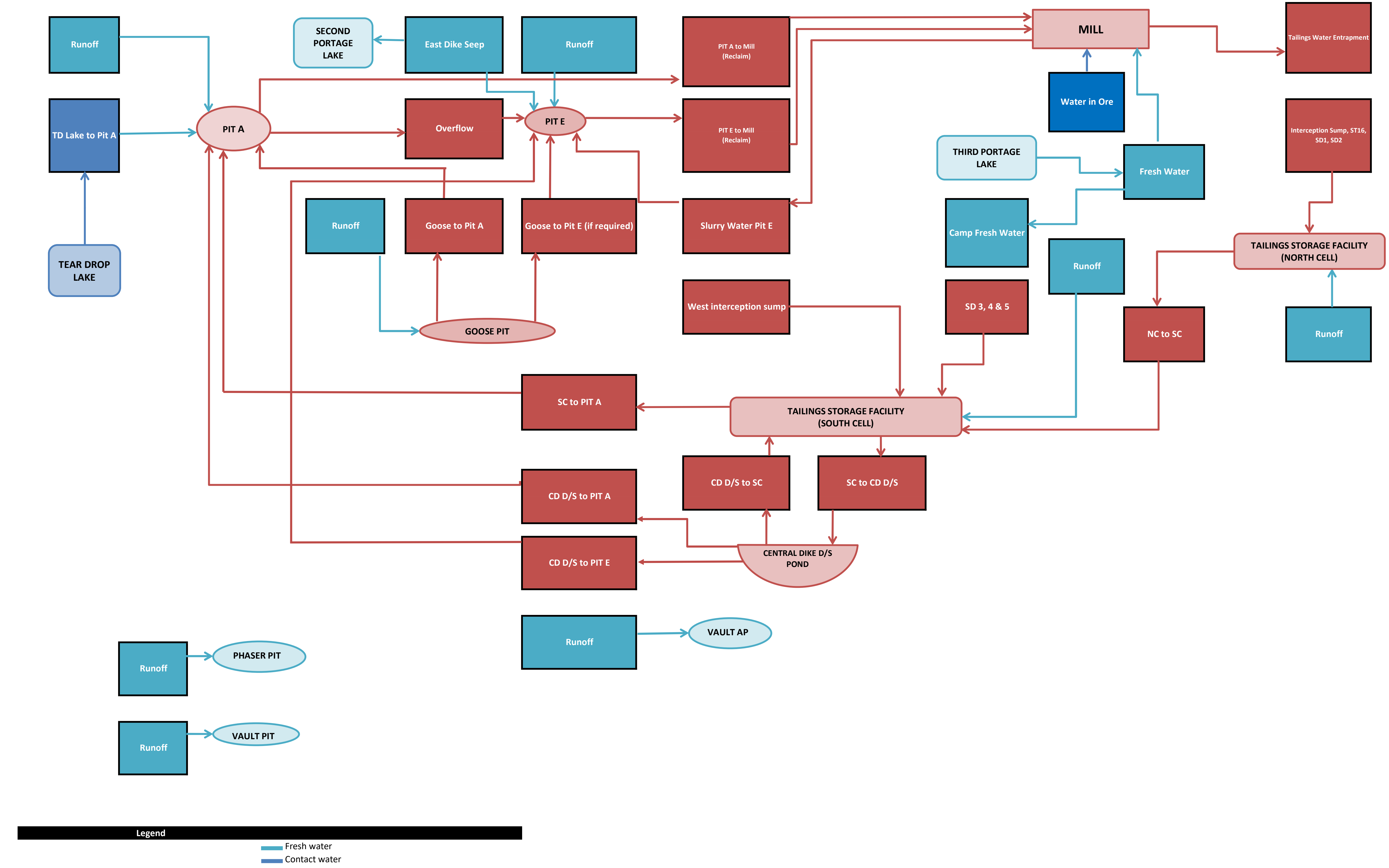
179 567				**0**		**3 333 333**			**0**					**216 100**	**0**			

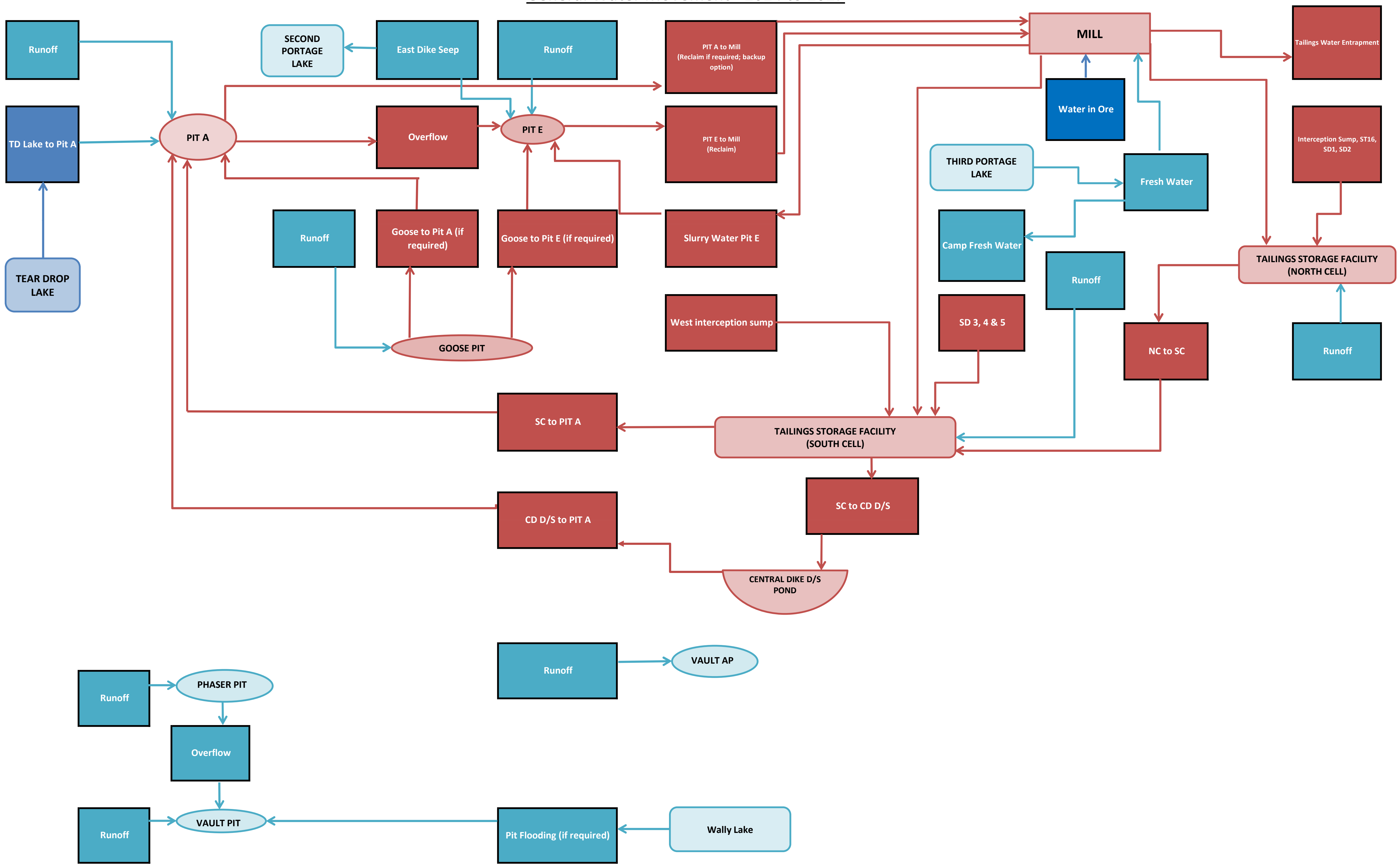
APPENDIX B – WATER MANAGEMENT SCHEMATIC FLOWSHEETS

General Water Movement - 2021 to 2023



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

General Water Movement - 2024 to 2027

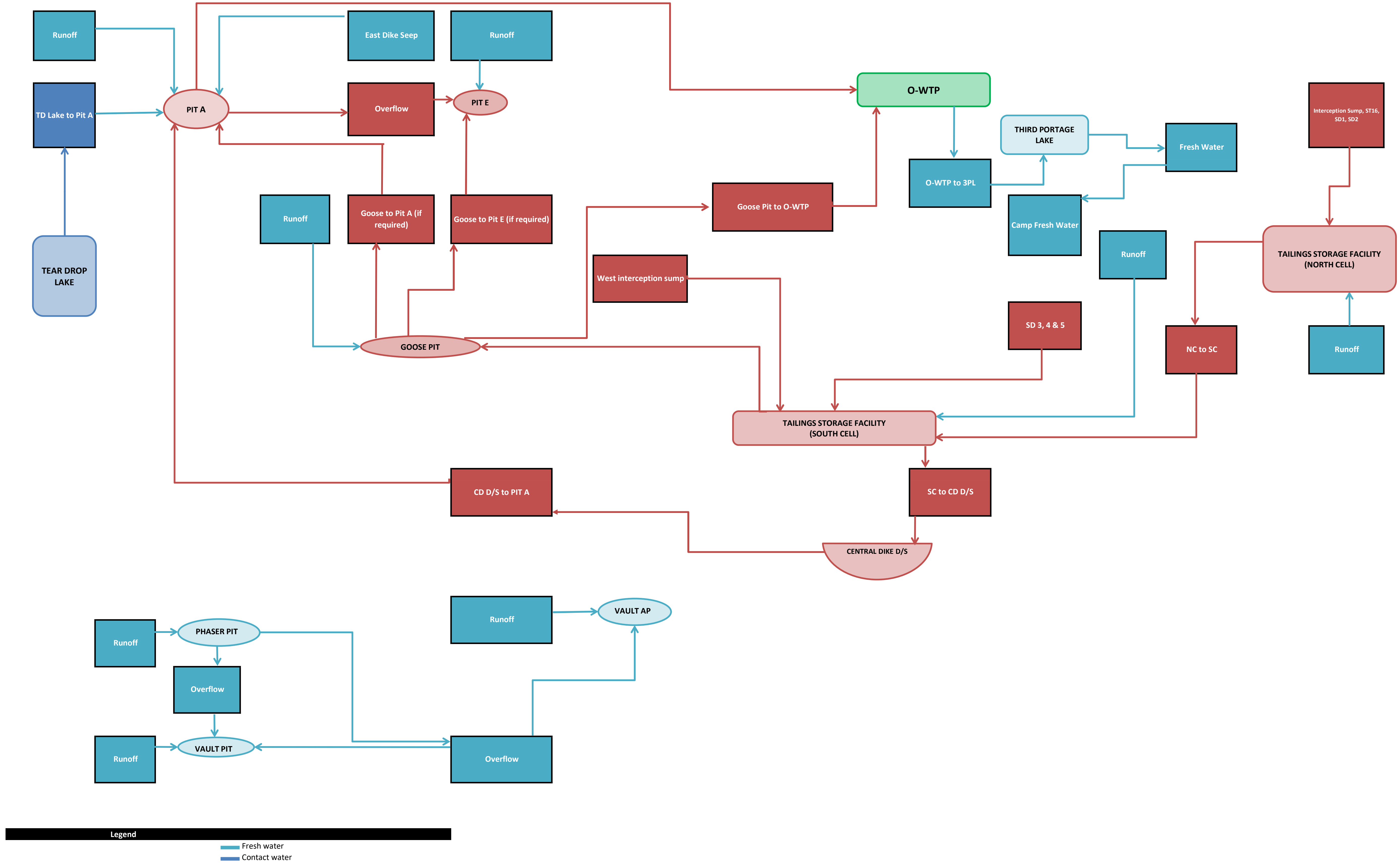


Legend

- Fresh water
- Contact water
- Mill contaminated water

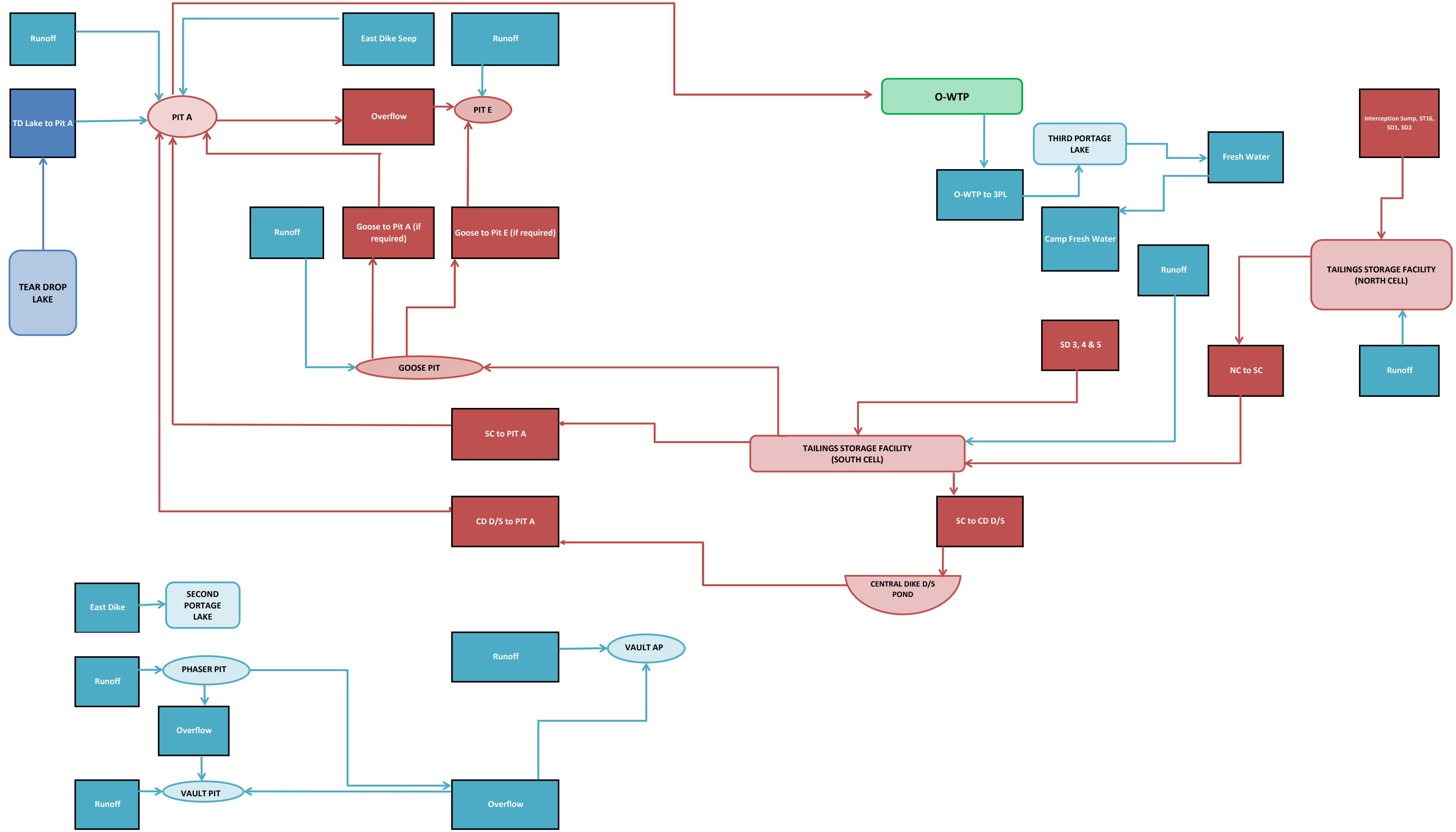
*Small water transfers are not shown on this drawing, refer to water balance tables for detailed water movement.

General Water Movement - 2028 to 2036



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

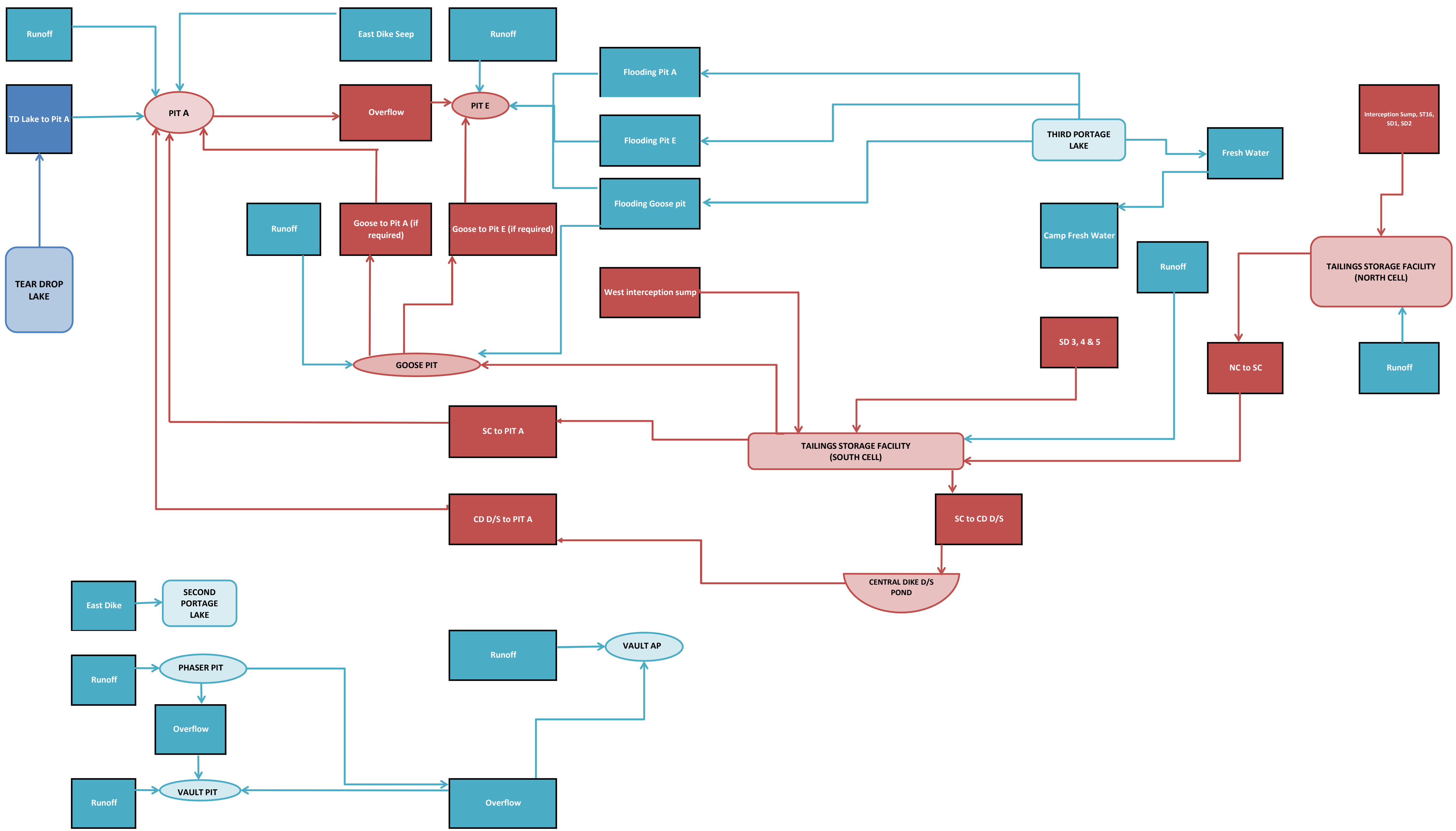
General Water Movement - 2037 to 2038



Legend	
	Fresh water
	Contact water
	Mill contaminated water

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

General Water Movement - 2039 to 2044

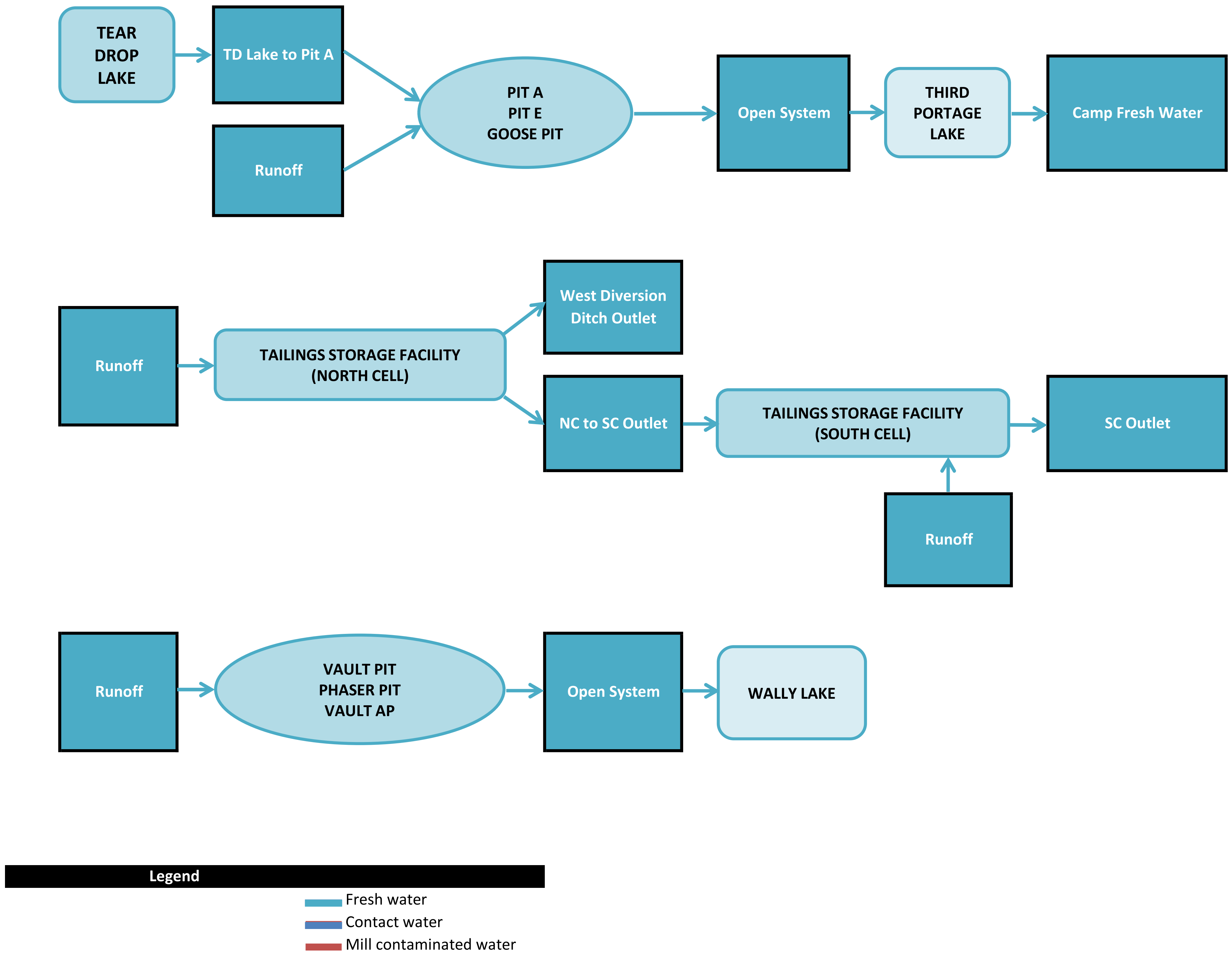


Legend

- Fresh water
- Contact water
- Mill contaminated water

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

General Water Movement - Post-Closure



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

APPENDIX C – 2023 MEADOWBANK WATER QUALITY FORECASTING UPDATE

AtkinsRéalis	**TECHNICAL NOTE** Meadowbank Water Quality Forecasting Update for the 2023 Water Management Plan		
	Document No :	**Rev.**	**Date :**
	699141-1000-40ER-0001	00	March 26, 2024

Title of document: **MEADOWBANK WATER QUALITY FORECASTING UPDATE FOR THE 2023 WATER MANAGEMENT PLAN**

Client: **AGNICO EAGLE MINES**

Project: **MEADOWBANK GOLD PROJECT**

Prepared by: *(under ICS[1])* Rachid Amrou, M.Sc.
#OIQ: 5095767

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#OIQ: 122858, #NAPEG: L2716

Approved by: Anh-Long Nguyen, Eng., M.Sc.
#OIQ: 122858, #NAPEG: L2716

[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.

Notice to Reader

List of Revisions

#	Prep.	Rev.	App.	Date	Pages	Remarks
PA	RA	ALN	ALN	Mar. 4, 2024	All	Issue for internal comments
PB	RA	ALN	ALN	Mar. 8, 2024	All	Issue for client's comments
00	RA	ALN	ALN	Mar. 26, 2024	All	Final

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1.0 Introduction

1.1 Mandate

AtkinsRéalis was mandated by Agnico Eagle Mines (Agnico) to review and update the water quality forecasting model developed in 2012 and updated yearly using the Water Balance reported in the 2023 Water Management Report and Plan (2023 WMP) to be submitted in March 2024 for 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 2023 (WB 2023) of Agnico (latest revision provided on January 18th, 2024). The WB 2023 was developed according to the updated Life of Mine (LOM) (Meadowbank 2023 Waste Management Plan) and to 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 until closure, verify last year's assumptions and results, update the model, if necessary, and develop recommendations and assess water treatment requirements.

For the Vault Pit, no treatment is planned during the re-flooding of 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 Licence 2AM-MEA1530. 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 2023 for this monitoring campaign were analyzed and are presented in **Section 5.0**.

1.3 Water Balance

The Water Balance 2023 (WB 2023) was developed by Agnico (Agnico 2024). The water balance examined the water transfers required for the water management infrastructure during the active LOM under average hydrologic conditions.

The WB 2023 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 Meadowbank 2023 Waste Management Plan)

ACTIVITY	UPDATED START DATE[1]	UPDATED END DATE[1]
Pits Mining		
Portage Pit	January 2010	June 2019
North (Pit A)	January 2010	June 2018
Central (Pit B, C D)	January 2010	April 2013
South (Pit E)	January 2010	June 2019
Goose Pit	April 2012	May 2015
Vault Pit	January 2014	September 2018
Phaser and BB Phaser Pit	July 2018	September 2018
Whale Tail Project Pits (and underground)	July 2019	December 2025
Tailings Storage Facility Operations		
North Cell	January 2010	June 2026
South Cell	November 2014	June 2026
Goose Pit (in pit tailings deposition)	July 2019	August 2020
Portage (in pit tailings deposition)	August 2020	June 2026
Rock Storage Facility (RSF) Operations		
Portage RSF	January 2009	October 2019
Vault RSF	January 2014	September 2018
Attenuation/Reclaim Pond Water Management		
Attenuation Pond (South Cell)[2]	January 2009	November 2014
Attenuation/Phaser Ponds Vault Lake	January 2014	September 2018
Other Key Activities		
Mill Operations	January 2010	June 2026
Dewatering of Vault Lake	June 2013	July 2014
Dewatering of Phaser Lake	July 2016	October 2016
Flooding of Vault Pit[4]	June 2019	August 2040
Flooding of Phaser and BB Phaser Pits[4]	-	-
Reclaim Water Treatment[5, 6] – Goose Pit	July 2028	January- 2031
Reclaim Water Treament[5,6] – Portage Pit	January 2031	December 2038
North and South Cell TSF Cover Construction	January 2026	December 2027
Flooding of Portage and Goose Pits[3, 5]	January 2031	July 2041
Breaching of dikes[5]	n/a	August 2041 only if water criteria are met

Notes:

1. *Periods are given from the beginning of the starting month to the end of the ending month.*
2. *After November 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 for in this table.*
4. *Vault and Phaser pits and lakes are expected to will mostly be flooded passively (run-offs) due to the small flooding volume required to re-establish the initial elevation combined with its large watershed.*
5. *Tentative dates. Water treatment at Meadowbank may be required to meet approved effluent criteria and to allow cover construction if deemed necessary. Schedule will be modified if required based on monitoring and water quality results. The closure schedule for the overall project is based on the preliminary closure methods and strategies discussed in the Meadowbank ICRP. It is anticipated that the schedule will be refined throughout the project life as the designs are advanced, and as the closure methods and strategies are further developed.*
6. *In-pit tailings cover may be required in Goose and Portage Pits based on monitoring results and feasibility assessment.*

2.0 Review of Water Balance and Water Quality Data for 2023

2.1 Documents Reviewed

A review of the available water balance and water quality data measured in 2023 was undertaken by AtkinsRéalis and compiled with previous data measured since 2012. This includes a review of the following documents:

- WB 2023 based on the Meadowbank 2023 Waste Management Plan.
- Water quality chemical analysis results from the Portage Area for 2023. The chemical analysis results of interest for this Technical Note are presented in **Section 8.0** of the 2023 Annual Report and were integrated in the data previously obtained, specifically:
  - North Cell TSF Reclaim Pond (ST-21) from January 2014 to October 2023;
  - South Cell TSF Reclaim Pond (ST-21) (former South Cell TSF Attenuation Pond ST-18) from June 2014 to October 2023;
  - Mill effluent metal and cyanide concentrations from January 2013 to November 2023;
  - Monthly grab samples of Mill Effluent taken in 2023;
  - Portage North Pit (ST-17, Pit A) from May 2015 to November 2023 and for Portage South Pit (ST-19, Pit E) from November 2014 to November 2023;
  - Goose Pit (samples taken in the sump pit and in the lake, ST-20) from March 2014 to October 2023;
  - Central Dike seepages collected in the downstream collection pond (ST-S-5) sampled in 2023;
  - East Dike (ST-1) seepage and Saddle Dam 3 (ST-32) sump sampled in 2023;
  - Saddle Dam 1 downstream sump (ST-S-2) and Portage Rock Storage Facility seepage (RSF) (ST-16) sampled from 2015 to 2023;
  - Results of shake flask extraction (SFE) tests conducted in 2023 on the tailings.
- Water quality chemical analysis results for the Vault Area for 2023, specifically:
  - Vault Pit lake (ST-26);
  - Vault RSF (ST-24);
  - Vault Attenuation Pond (ST-25);
  - Phaser Pit (ST-41);
  - Phaser Attenuation Pond (ST-43).

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 water quality forecast mass balance model.

An analysis of the Vault water quality data was undertaken to gain a better understanding of the water quality in this area.

2.2 Updates to the Water Balance

The initial 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 updates to the LOM. **Table 2-1** summarizes the main differences between the WB from 2012 to 2023.

The WB 2023 integrates the extension of the LOM of Meadowbank Mine through the construction and operation of the Whale Tail Pit, a satellite deposit located on the Whale Tail property, and by 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 YEAR	FORECASTED END OF DEPOSITION	MAIN DIFFERENCES
2012	February 2018	Initial WB model based on the 2012 WMP. Tailings' deposition started in the North Cell TSF and continued until March 2015, and was then transferred to the 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 the deposition of tailings in North and South Cell TSF in 2014 and 2015. Deposition in the North Cell TSF was planned to end in October 2015 and to 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 in November 2014. Deposition in the North Cell TSF was planned to end in September 2015 and to 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 2014 WMP to better reflect what was currently observed on site.
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, the deposition of

WB YEAR	FORECASTED END OF DEPOSITION	MAIN DIFFERENCES
		tailings continued only in the South Cell TSF until the end of the LOM. The LOM was extended compared to WB 2014, where tailings deposition was planned to end in September 2017. The transfer of Reclaim Water to the Portage Pit was postponed for one year due to the longer LOM and was planned to start in 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 (CDDP), 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, 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 transferred and of tailings deposited in 2017 were entered into the model. About 332,177 m^3 of pond water was transferred to Goose Pit from the CDDP 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 for 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.
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 Whale Tail site. The actual volumes of water transferred and of tailings deposited in 2018 were entered into the model. In 2018, no Reclaim Water was transferred from CDDP 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 were deposited in the South Cell TSF and North Cell until April 2019 and July 2019, respectively. Tailings were then deposited in Goose and Portage pits. In-pit deposition started in Goose Pit in July 2019. The additional tailings came from the continuation of the milling of ore produced from the Whale Tail pit operation.

WB YEAR	FORECASTED END OF DEPOSITION	MAIN DIFFERENCES
		The actual volumes of water transferred and of 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 CDDP 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.
2020	June 2026	The tailings deposition and water transfer schedule were extended until June 2026. In-pit deposition occurred in Goose Pit from July 2019 until August 2020. In-pit deposition continued in Portage Pit starting in August 2020 and is projected to end in June 2026. The additional tailings come from the continuation of the milling of ore produced from the Whale Tail Pit, IVR Pit and underground mine operation at the Whale Tail site. The actual volumes and quantity of water transferred and of tailings deposited in 2020 were integrated into the model. In 2020, Reclaim Water was transferred from South Cell TSF Reclaim Pond to Portage Pit. Reclaim Water from CDDP was transferred back to SC Reclaim Pond or to Portage South Pit (Pit E). Reclaim Water was pumped from South Cell TSF and Portage North Pit (Pit A) to the mill. In the Vault area, natural pit flooding was allowed to continue. Following in-pit deposition, the Interim Closure and Reclamation Plan (ICRP) includes the treatment of the Reclaim Water in Portage and Goose Pits. The treated effluent shall be discharged to Third Portage Lake. Once treatment is completed, if necessary, cover construction over the tailings in the pits will begin, followed by re-flooding of the pits with natural runoff and water transfer from Third Portage Lake. Note that the cover requirement will be reviewed based on monitoring results and the feasibility of building the cover will be evaluated and updated in the closure plan.
2021	December 2026	The tailings deposition and water transfer schedule were extended until December 2026. In-pit deposition occurred in Goose Pit from July 2019 until August 2020. In-pit deposition continued in Portage Pit starting in August 2020 and is projected to end in December 2026. The additional tailings come from the continuation of the milling of ore produced from the Whale Tail Pit, IVR Pit and underground mine operation at the Whale Tail site. In 2021, tailings were deposited in the North Cell TSF in July and August. The actual volumes and quantity of water transferred and of tailings deposited in 2021 were integrated into the model. In 2021, Reclaim Water was transferred from South Cell (SC) TSF Reclaim Pond to Portage North Pit (A). Reclaim Water from CDDP was transferred back to SC Reclaim Pond or to Portage North Pit (Pit A). Reclaim Water was pumped from Portage South Pit (Pit E) to the mill and to Portage North Pit (Pit A). In the Vault area, natural pit flooding was allowed to continue.

WB YEAR	FORECASTED END OF DEPOSITION	MAIN DIFFERENCES
		Following in-pit deposition, the ICRP includes the treatment of the Reclaim Water in Portage and Goose Pits. The treated effluent shall be discharged to Third Portage Lake. Once treatment is completed, if necessary, cover construction over the tailings in the pits will begin, followed by re-flooding of the pits with natural runoff and water transfer from Third Portage Lake. Note that the cover requirement will be reviewed based on monitoring results and the feasibility of building the cover will be evaluated and updated in the closure plan.
2022	December 2026	The tailings deposition and water transfer schedule are still forecasted to continue until December 2026. The actual volumes and quantity of water transferred and of tailings deposited in 2022 were integrated into the model. In 2022, Reclaim Water was transferred from South Cell (SC) TSF Reclaim Pond to Portage North Pit (A). Reclaim Water from CDDP was transferred back to SC Reclaim Pond or to Portage North Pit (Pit A). Reclaim Water was pumped mainly from Portage South Pit (Pit E) to the mill. Water was also transferred from Portage South Pit (Pit E) to Portage North Pit (Pit A). In the Vault area, natural pit flooding was allowed to continue. There are no changes to the current closure plan. At closure, if necessary, Reclaim Water in Portage and Goose Pits shall be treated and discharged to Third Portage Lake. Once treatment is completed, if necessary, cover construction over the tailings in the pits will begin, followed by re-flooding of the pits with natural runoff and water transfer from Third Portage Lake. Note that the cover requirement will be reviewed based on monitoring results and the feasibility of building the cover will be evaluated and updated in the closure plan.
2023	June 2026	The tailings deposition and water transfer schedule are forecasted to continue until June 2026. The actual volumes and quantity of water transferred and of tailings deposited in 2023 were integrated into the model. Since 2022, Reclaim Water was transferred from South Cell (SC) TSF Reclaim Pond to Portage North Pit (A). Reclaim Water from CDDP was transferred back to SC Reclaim Pond or to Portage North Pit (Pit A). Reclaim Water was pumped mainly from Portage South Pit (Pit E) and Portage North Pit (Pit A) to the mill. Water was also transferred from Portage North Pit (Pit A) to Goose Pit in 2023. In the Vault area, natural pit flooding was allowed to continue. There are no changes to the current closure plan. At closure, if necessary, Reclaim Water in Portage and Goose Pits shall be treated and discharged to Third Portage Lake. Once treatment is completed, if necessary, cover construction over the tailings in the pits will begin, followed by re-flooding of the pits with natural runoff and water transfer from Third Portage Lake. Note that the cover requirement will be reviewed based on monitoring results and the feasibility of building the cover will be evaluated and updated in the closure plan.

2.3 Parameters of Concern

A review of the chemical analysis for water samples collected in the North Cell (Station ST-21-N now transferred to the South Cell) and South Cell TSF Reclaim Ponds (Station ST-21-S) and in Portage and Goose Pits (ST-17/19 and ST-20) was undertaken by AtkinsRéalis to identify contaminants that could be above the discharge criteria as stipulated in the Metal and Diamond Mining Effluent Regulations (MDMER), the Canadian Council of Ministers of the Environment (CCME) guidelines and the Water Licence, Part F.

In the current LOM, Reclaim Water collected from the North Cell and South Cell TSF and the CDDP is currently transferred to Portage Pit until the end of in-pit deposition. The Reclaim Water is then pumped back to the mill for re-use. There is no discharge of Reclaim Water to the environment during operations. At closure, the Reclaim Water stored in Portage and Goose Pits shall be treated and discharged to the environment. The pits will then be reflooded with natural runoff and water transfer from Third Portage Lake.

For the purpose of this analysis, the following parameters of concern, which are listed in the Water Licence, shall be reviewed, specifically:

- Total Cyanide
- Total Aluminum
- Total Arsenic
- Total Cadmium
- Total Nickel
- Total Zinc
- Total dissolved solids
- Total Aluminum
- Total Mercury
- Chloride
- Total Ammonia
- Nitrate

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

- Total Iron
- Total Selenium
- Fluoride
- Sulphate

It is understood that the MDMER and the Water Licence criteria apply to mining effluents discharged to the environment and are as such not applicable to the North Cell, South Cell TSF Reclaim Ponds and Portage and Goose Pits since no effluent is discharged from these areas to the environment during operations. However, the MDMER, the Water Licence criteria, as well as the CCME guidelines are used as a guide to identify potential parameters of concern at the start of closure activities.

It should be noted that the parameters of concern were only determined based on the chemical analyses provided by Agnico. **Table 2-2** presents the MDMER, the Water Licence 2AM-MEA1530 at ST-9 (Nunavut Water Board Licence, 2020) discharge criteria and the CCME discharge guidelines for the parameters of concern. For the water quality forecast report, the British Columbia guidelines for sulphate for the protection of aquatic life were used as a benchmark for reference only. However, final site-specific closure limits will be developed through review of the closure plan by regulatory agencies.

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

PARAMETER	DISCHARGE CRITERIA & WATER QUALITY GUIDELINES		
	MDMER[1]	Water Licence[2] (Part F)	CCME[3] (Issue Date)
Cyanide (CN)	0.5 mg/L (as total CN)	0.5 mg/L (as total CN)	0.005 mg/L (as free CN) (1987)
Aluminum (Al)	*no criteria*	1.5 mg/L	0.16 mg/L[8] (2021)
Arsenic (As)	0.3 mg/L	0.3 mg/L	0.005 mg/L (1997)
Cadmium (Cd)	*no criteria*	0.002 mg/L	0.00004 mg/L[9] (2014)
Copper (Cu)	0.3 mg/L	0.1 mg/L	0.002 mg/L[4] (1987)
Iron (Fe)	*no criteria*	no criteria	0.3 mg/L (1987)
Lead (Pb)	0.1 mg/L	0.1 mg/L	0.001 mg/L[9] (1987)
Mercury (Hg)	*no criteria*	0.0004 mg/L	0.000026 mg/L (2003)
Nickel (Ni)	0.5 mg/L	0.2 mg/L	0.025 mg/L[9] (1987)
Selenium (Se)	*no criteria*	no criteria	0.001 mg/L (1987)
Zinc (Zn)	0.5 mg/L	0.4 mg/L	0.013 mg/L[9] (2018)
Total Ammonia (NH_3)	*no criteria*	16 mg N/L	1.83 mg N/L[5] (2001)
Un-ionized ammonia	0.5 mg N/L	n/a	0.019 mg N/L (2001)
Nitrate (NO_3)	*no criteria*	20 mg N/L	2.94 mg N/L[7] (2012)
Total Dissolved Solids	*no criteria*	1,400 mg/L	*no criteria*
Chloride (Cl)	*no criteria*	1,000 mg/L	120 mg/L[6] (2011)
Sulphate (SO4)	*no criteria*	no criteria	128 mg/L[10] (2013)
Fluoride (F)	*no criteria*	no criteria	0.12 mg/L (2002)

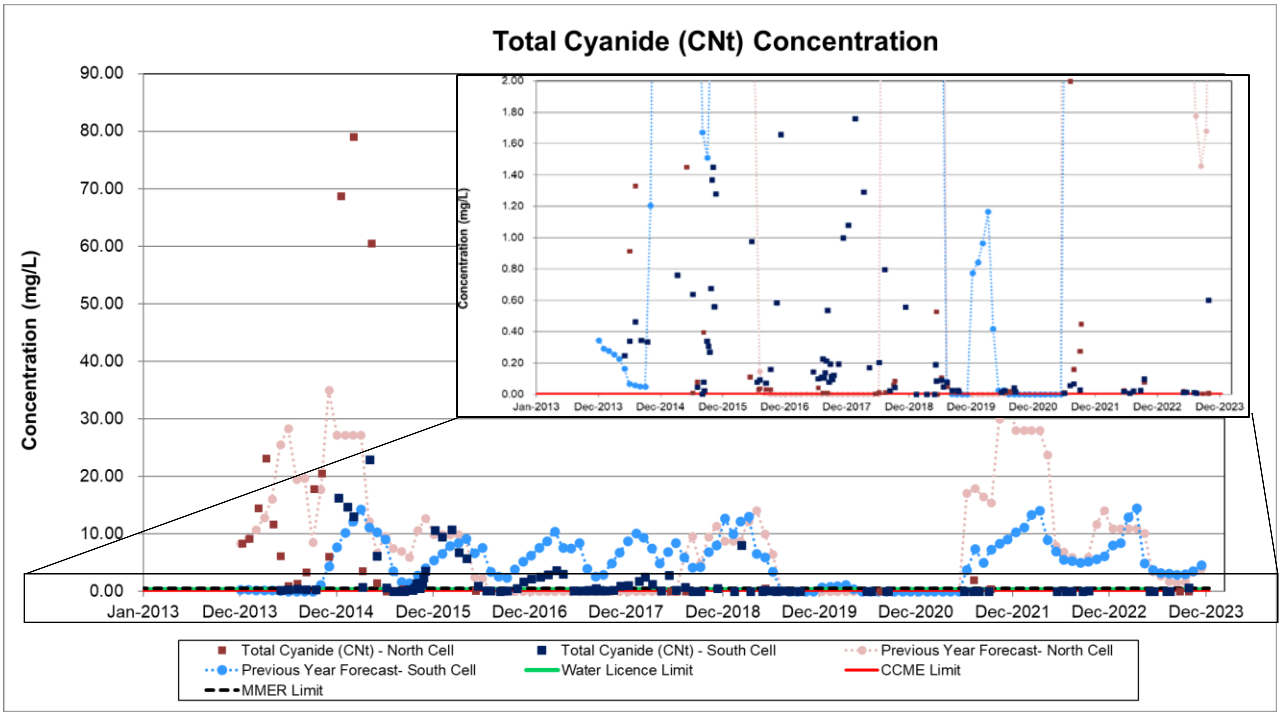
Notes:

1. *Current MDMER criteria (as of December 2021) corresponding to the maximum average monthly concentration (schedule 4, table 2).*
2. *Water Licence (Part F) criteria for Third Portage Lake (ST-9) corresponding to the maximum average concentration (2020).*
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 2021.*
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 criterion in fresh water is calculated using the equation described in Appendix B of the Federal Environmental Quality Guidelines (FWQG). The FWQG equation is valid between hardness 10 and 430 mg/L, pH 6 and 8.7, and dissolved organic carbon (DOC) 0.08 and 12.3 mg/L. The Al criterion is calculated based on the Third Portage Lake water quality (hardness of 12 mg/L $CaCO_3$, pH 7.09 and DOC 1.47 mg/).*
9. *Cadmium, lead, nickel, and zinc discharge criteria 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 mg/L $CaCO_3$, the limit is set at 0.001 mg/L for lead and 0.025 mg/L for nickel. For hardness of 12 mg/L as $CaCO_3$, the limit for zinc is 0.013 mg/L.*
10. *Threshold value for sulphate based on BC Environment guidelines for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).*

2.4 North and South Cell TSF Reclaim Ponds

At the start of operations, tailings were deposited in the North and South Cell TSF. Reclaim Water was collected in the North and South Cell TSF Reclaim Ponds and transferred back to the mill for re-use. Since 2019, tailings are no longer deposited constantly in these cells and the contact water collected in these areas is transferred to Portage Pit. In 2021, tailings were deposited in the North Cell TSF in July and August. In 2023, no tailings were deposited in the North Cell TSF, while 293,227 tons of tailings were deposited in the South Cell TSF.

Figure 2-1 to **Figure 2-3** present the concentration of the parameters of concern measured in the North and South Cell TSF Reclaim Ponds from January 2013 to December 2023. Also shown in these figures are the forecasted concentrations from the Water Quality Forecasting Update based on the planned water transfers described in the 2022 Water Management Plan (SNC-Lavalin, 2023). 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.


Total Cyanide (CNt) Concentration
Concentration (mg/L)
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Jan-2013
Dec-2013
Dec-2014
Dec-2015
Dec-2016
Dec-2017
Dec-2018
Dec-2019
Dec-2020
Dec-2021
Dec-2022
Dec-2023
Total Cyanide (CNt) - North Cell
Total Cyanide (CNt) - South Cell
Previous Year Forecast- North Cell
Previous Year Forecast- South Cell
Water Licence Limit
CCME Limit
MMER Limit

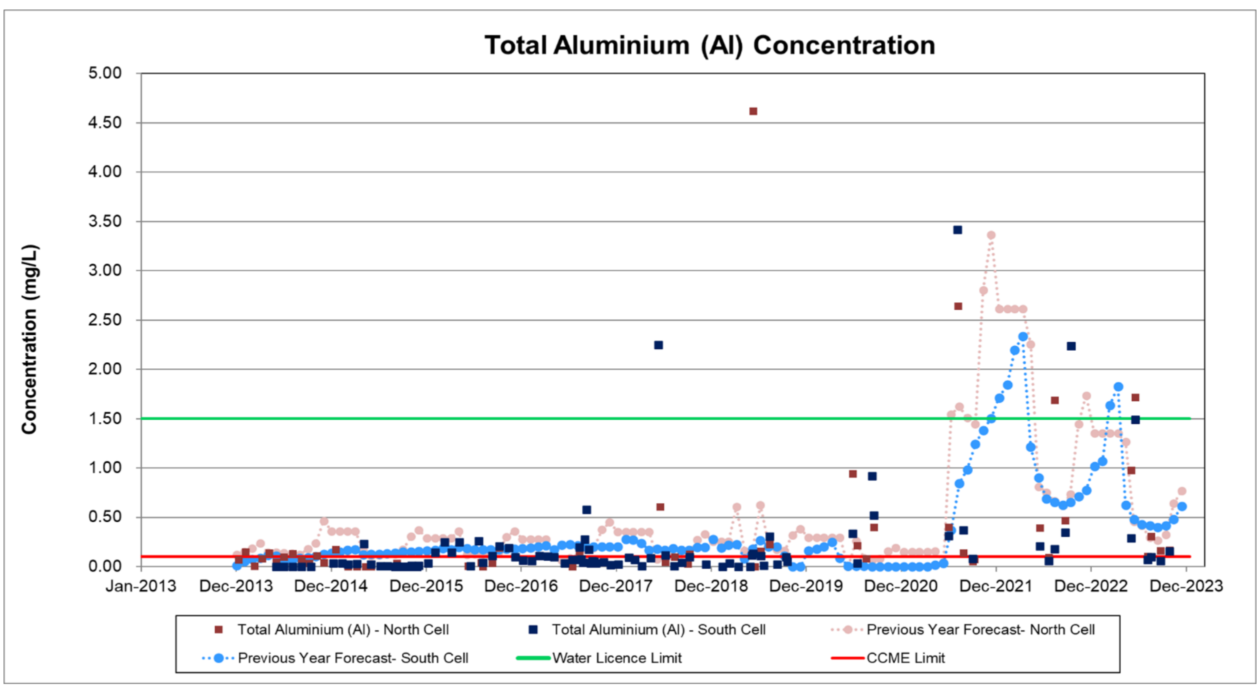
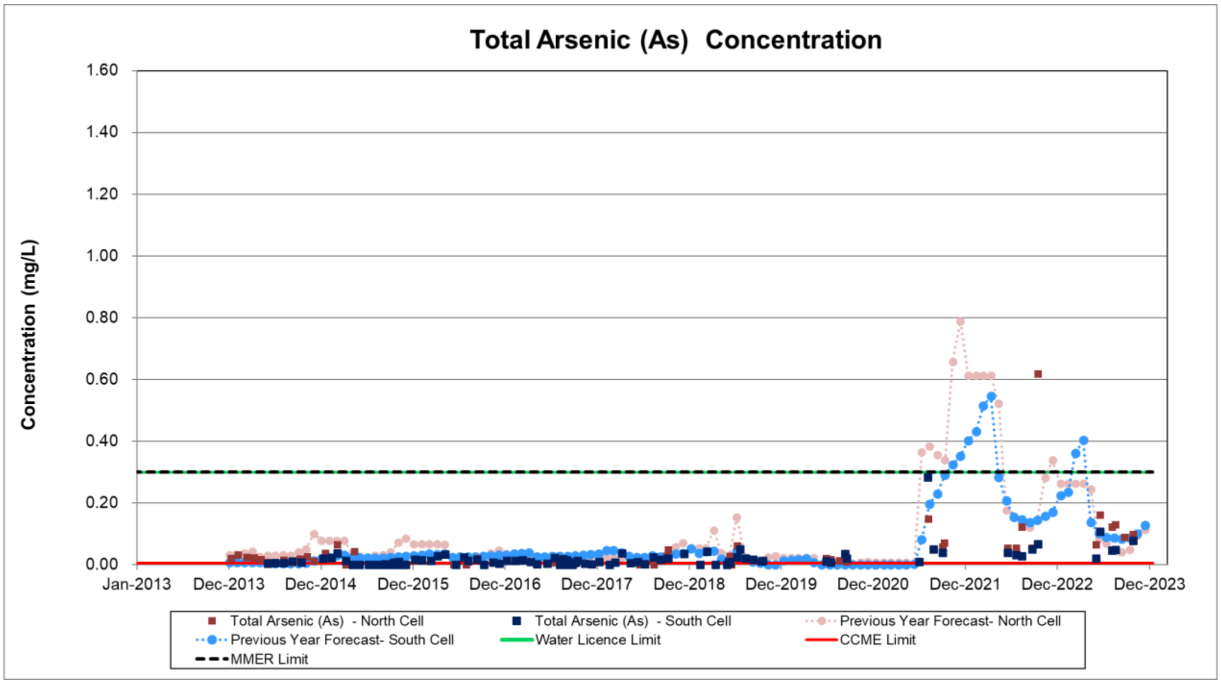

Total Aluminium (Al) Concentration
Concentration (mg/L)
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Jan-2013
Dec-2013
Dec-2014
Dec-2015
Dec-2016
Dec-2017
Dec-2018
Dec-2019
Dec-2020
Dec-2021
Dec-2022
Dec-2023
Total Aluminium (Al) - North Cell
Total Aluminium (Al) - South Cell
Previous Year Forecast- North Cell
Previous Year Forecast- South Cell
Water Licence Limit
CCME Limit

Figure 2-1: Concentrations North and South Cell TSF Reclaim Ponds – Total Cyanide & Metals



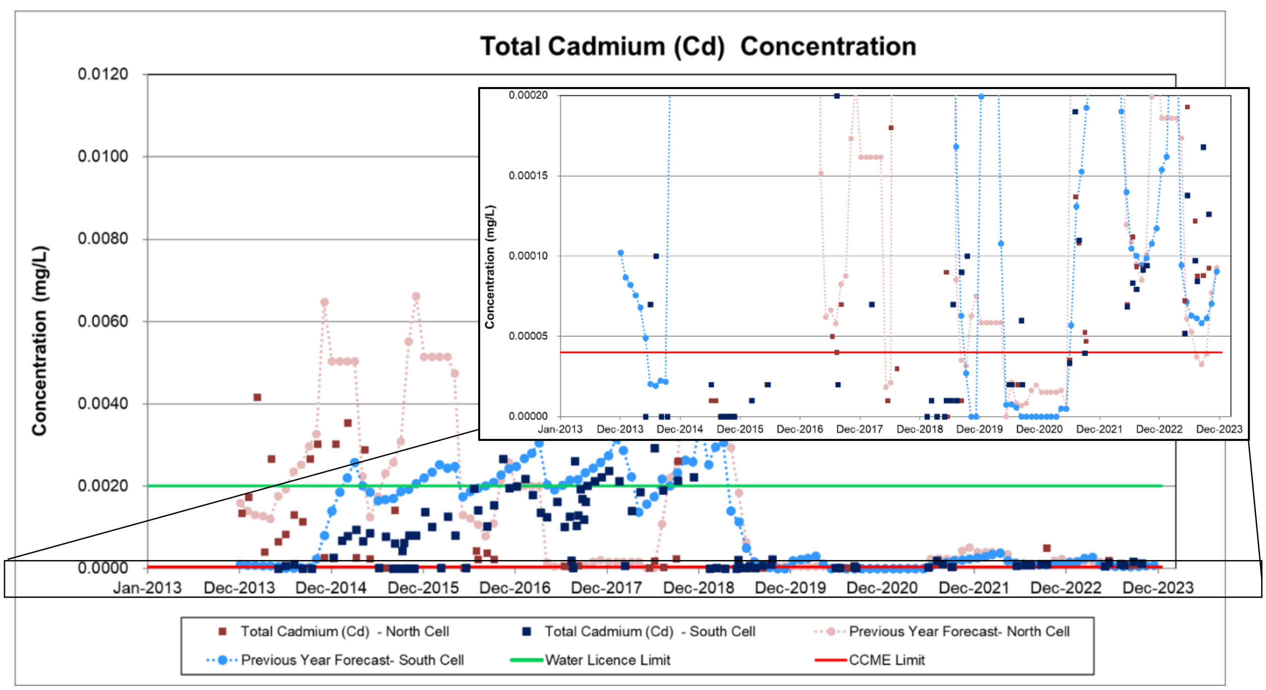
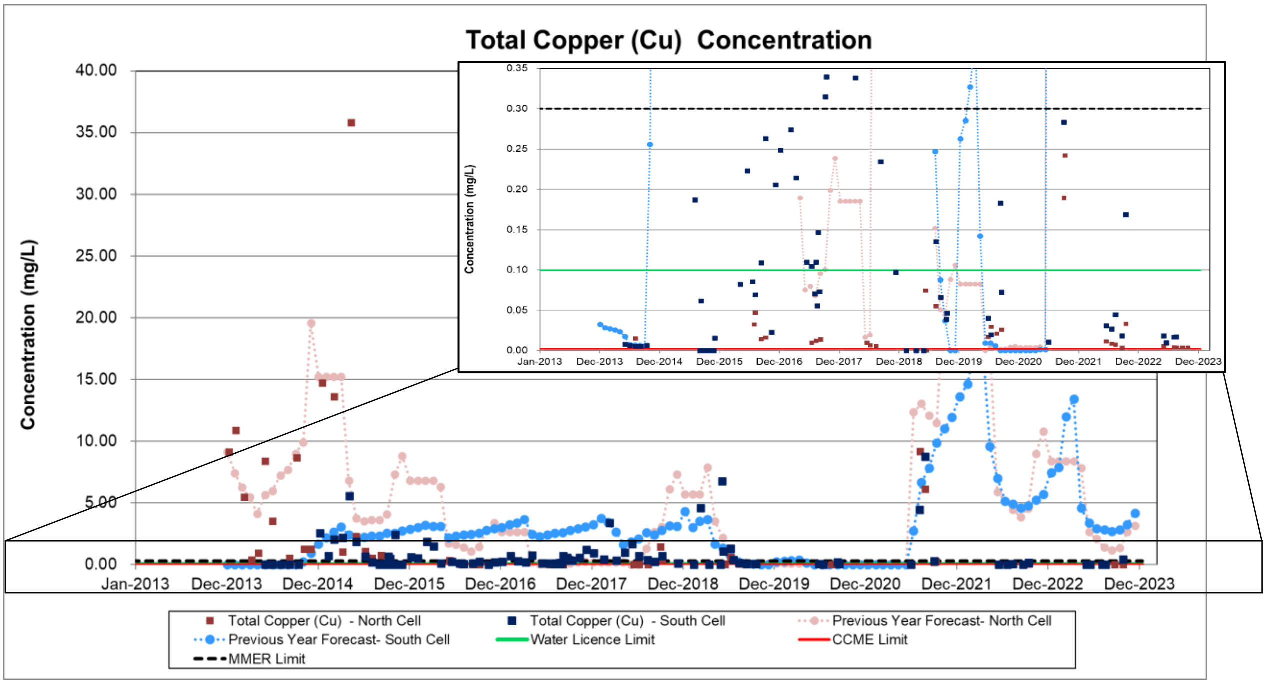


Figure 2-1: (continued) Concentrations North and South Cell TSF Reclaim Ponds – Total Cyanide & Metals



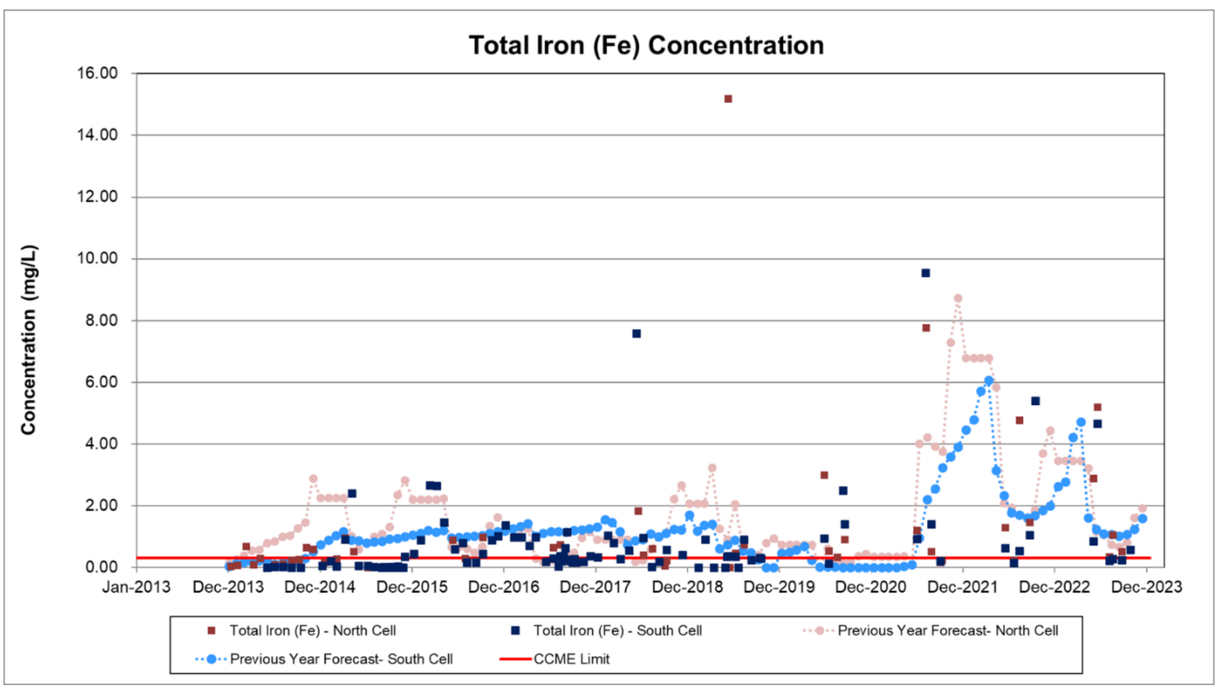
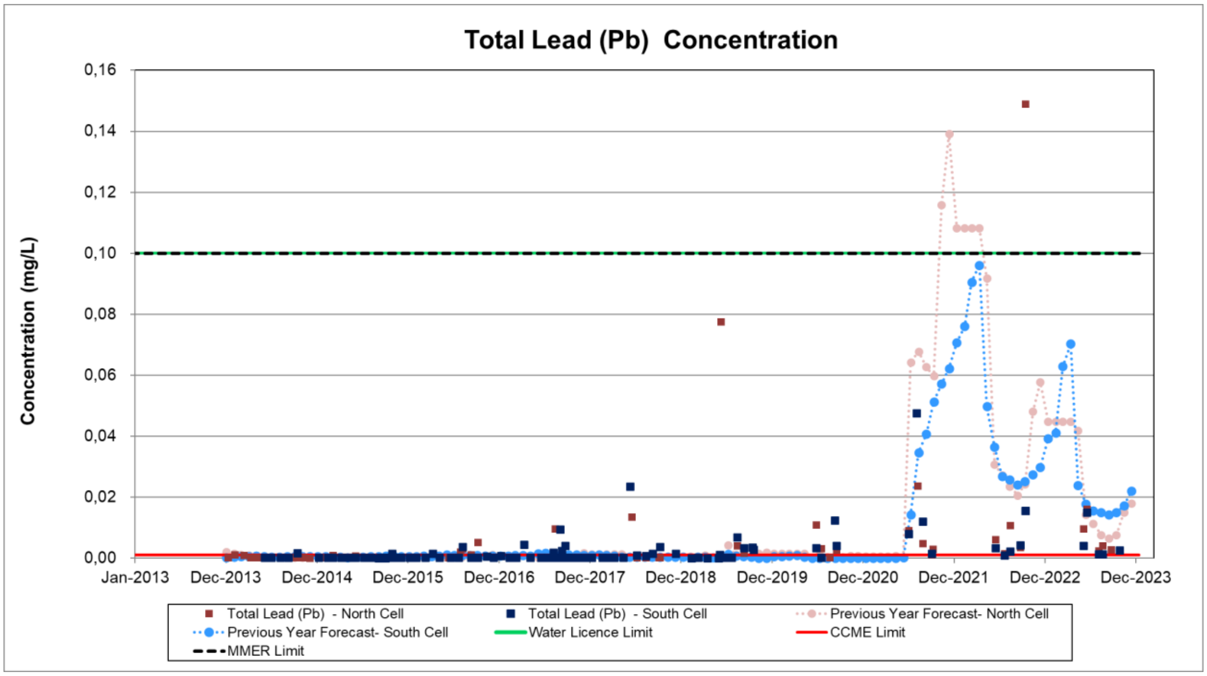


Figure 2-1: (continued) Concentrations North and South Cell TSF Reclaim Ponds – Total Cyanide & Metals



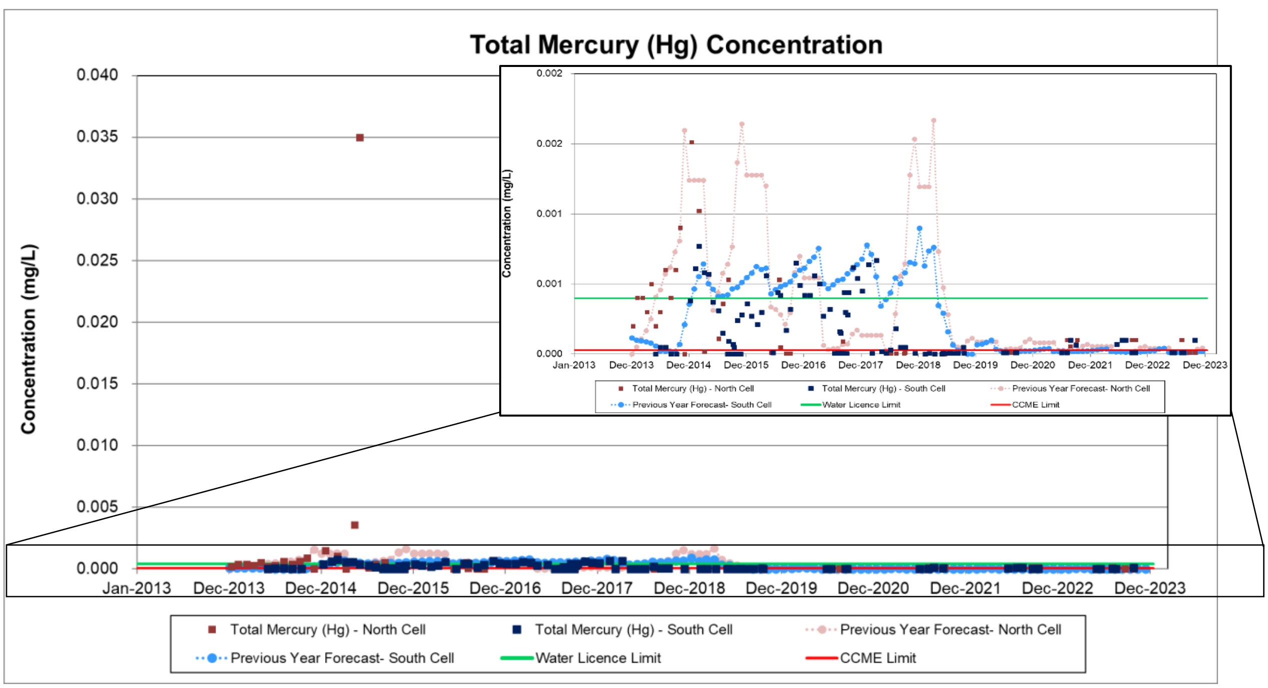
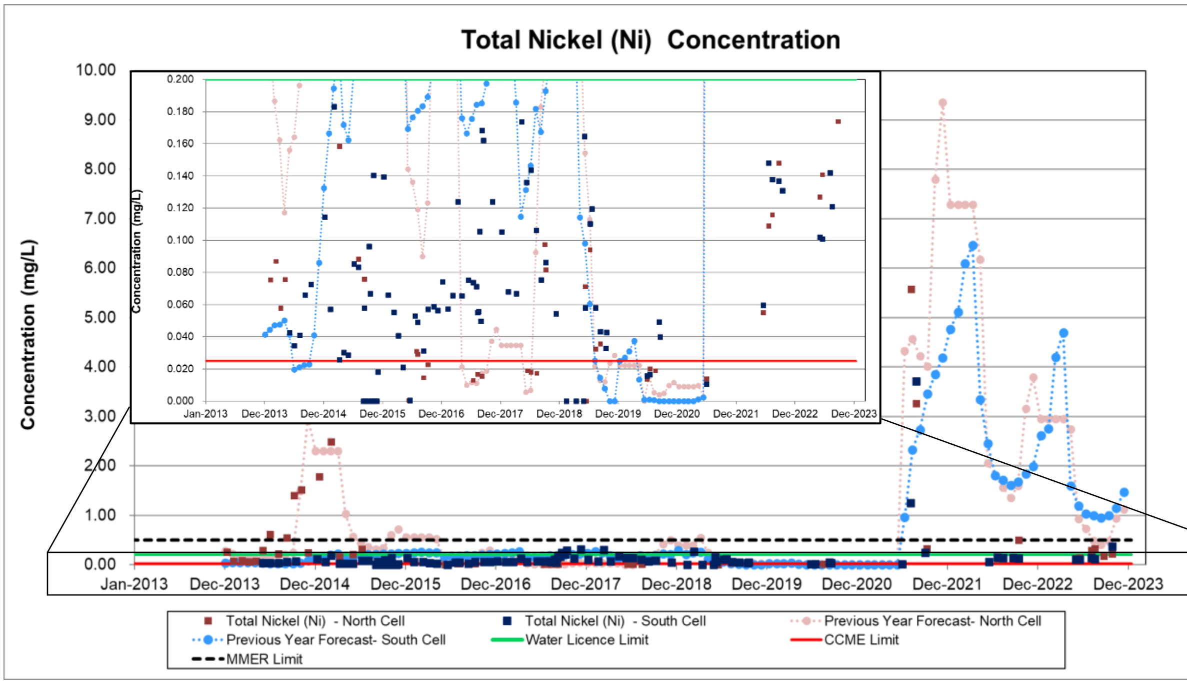


Figure 2-1: (continued) Concentrations North and South Cell TSF Reclaim Ponds – Total Cyanide & Metals



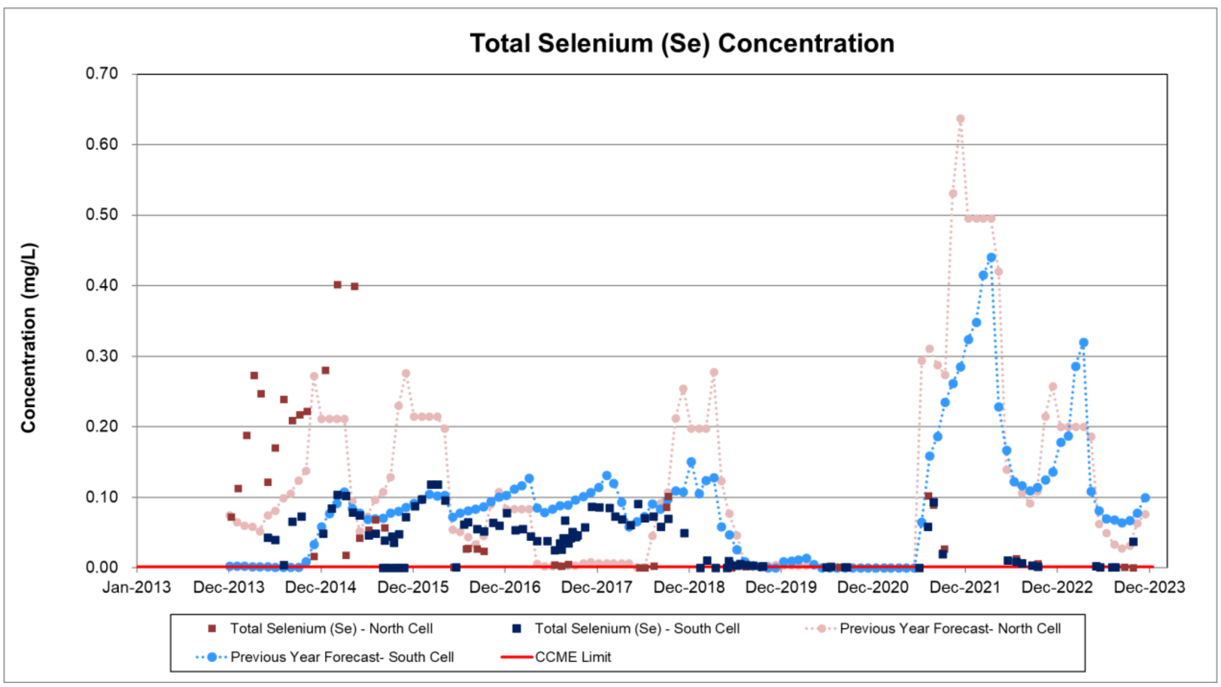


Figure 2-1: (continued) Concentrations North and South Cell TSF Reclaim Ponds – Total Cyanide & Metals

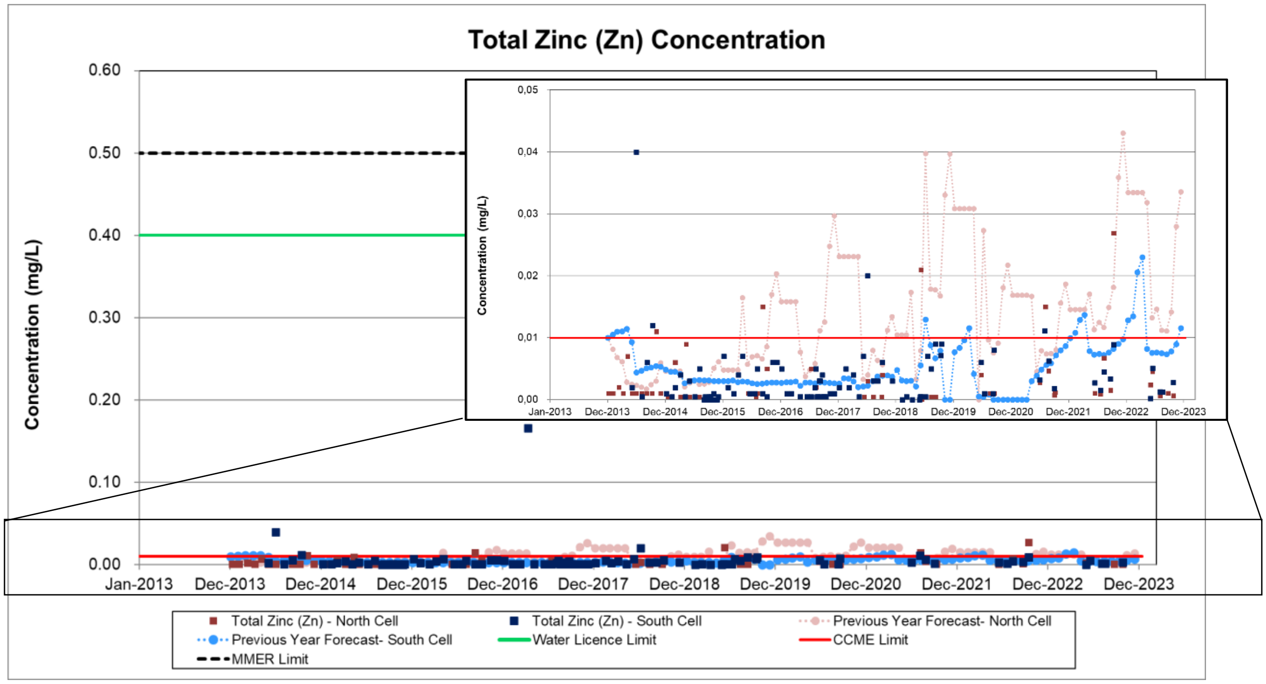
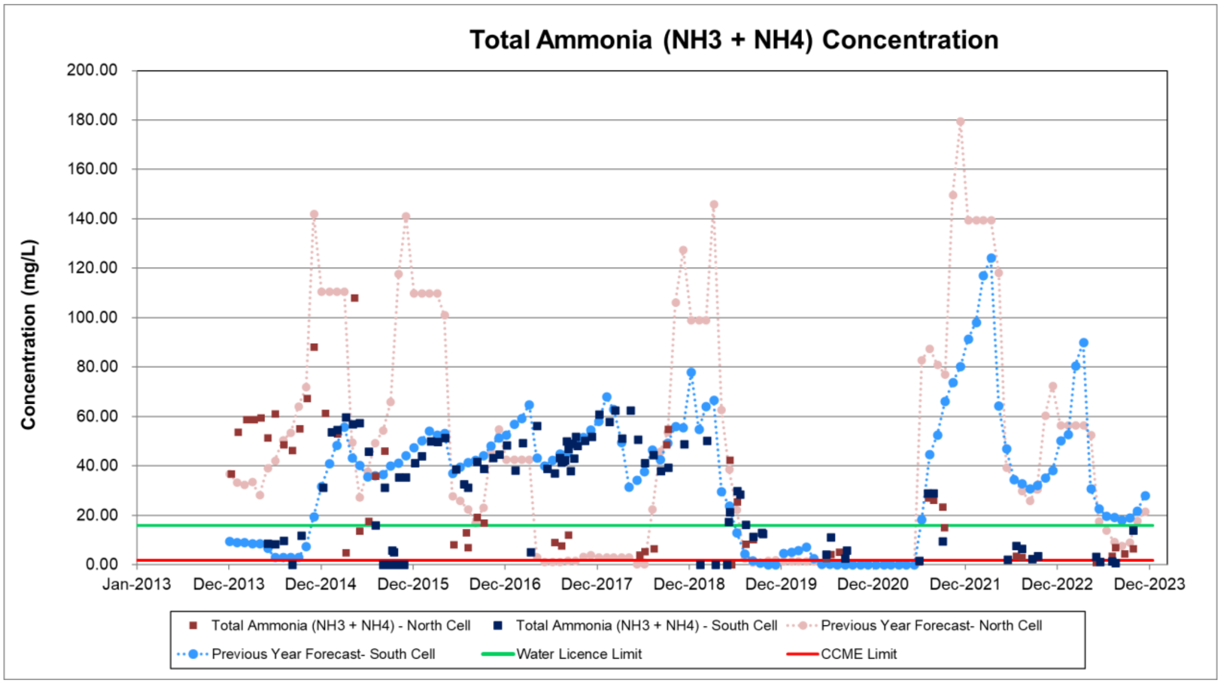


Figure 2-1: (continued) Concentrations North and South Cell TSF Reclaim Ponds – Total Cyanide & Metals



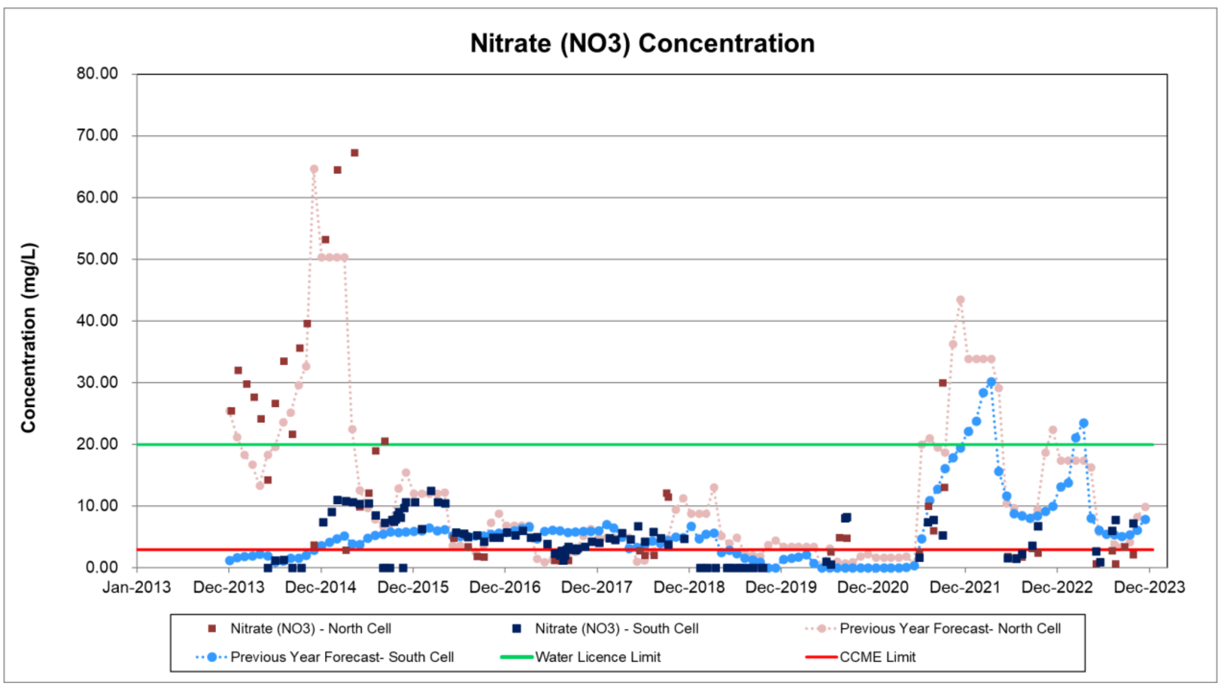
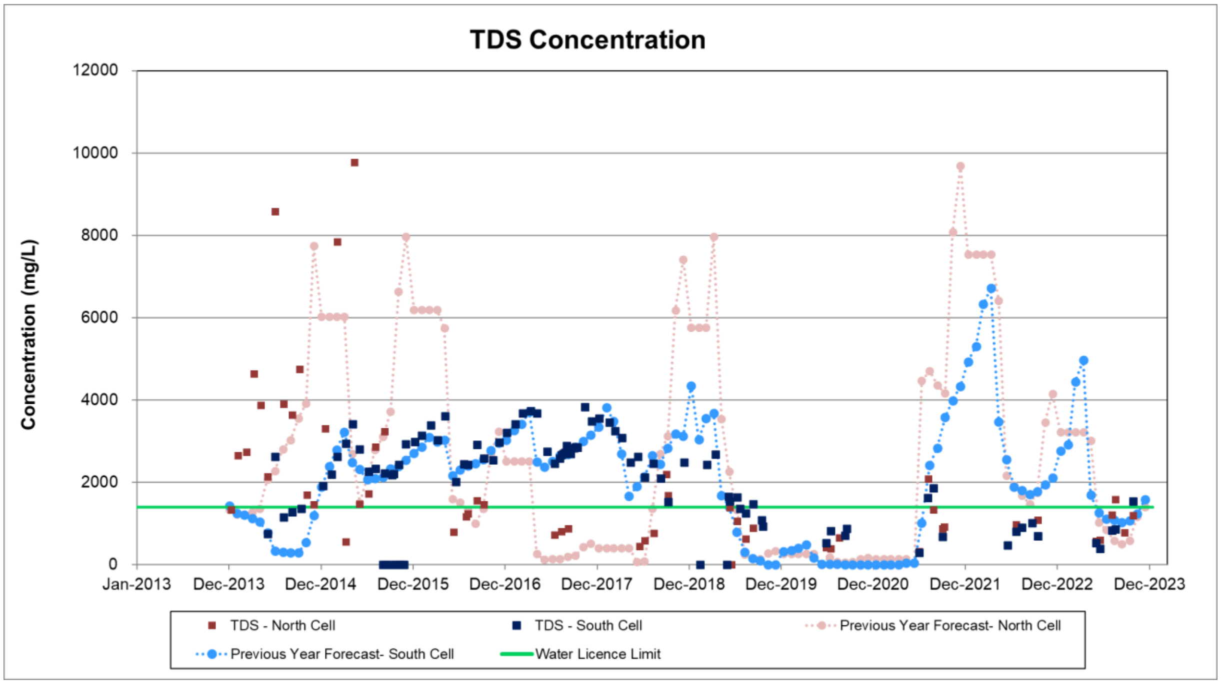


Figure 2-2: Concentrations North and South Cell TSF Reclaim Ponds – Ammonia & Nitrate



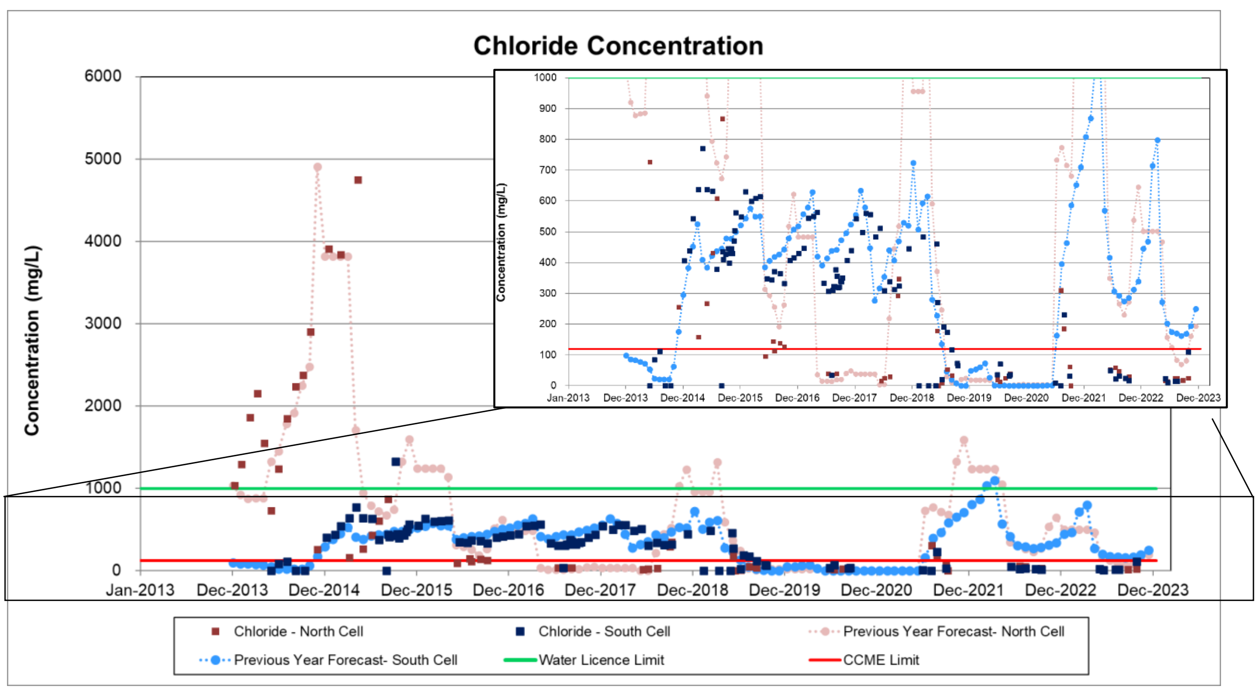
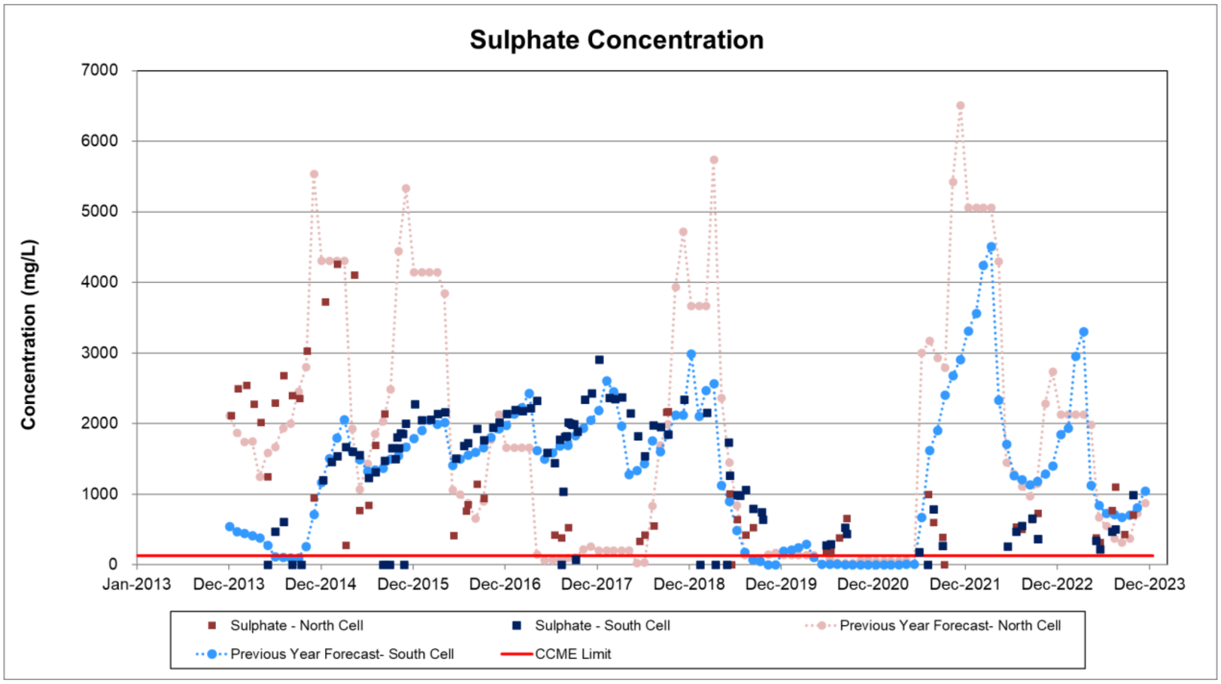


Figure 2-3: Concentrations North and South Cell TSF Reclaim Ponds – TDS & Anions



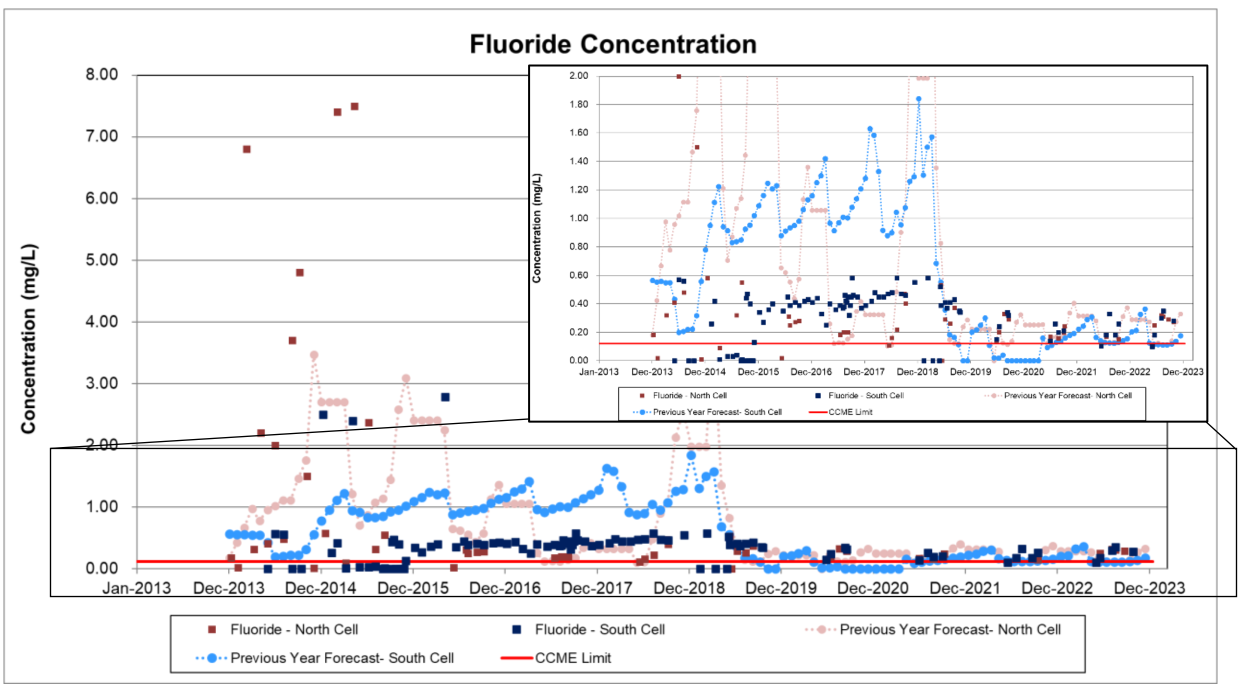


Figure 2-3: (continued) Concentrations North and South Cell TSF Reclaim Ponds – TDS & Anions

Table 2-3 summarizes the observations that can be made based on the measured values and forecasted concentrations as shown in **Figure 2-3**. 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 (SNC-Lavalin, 2023).

Table 2-3: Observations from Measured and Forecasted Concentrations in NC and SC TSF Reclaim Ponds

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Cyanide (CN)	**NC & SC:** Since the end of deposition of tailings in NC and SC in 2019, the CN concentrations are very low. For comparison purposes only, concentrations were below MDMER and Water Licence criterion for all the analyzed samples. The concentrations are generally above the CCME limit. However, tailings were deposited in 2021 in NC, and the CN concentration did increase slightly in NC and SC compared to 2020. No deposition occurred in 2022 and CN concentration decreased. In 2023, limited deposition of tailings occurred in SC, but CN concentration remains low.	**NC& SC:** In 2019, as there was no tailings deposition in both North Cell (after April) and South Cell (after August) between 2019 and 2020, cyanide volatizes in the summer and its concentration slowly reduces in the cell with time. This was confirmed with the monitored data. In 2021, tailings were deposited in the NC, which was not included in the previous year's forecast. In 2022, it was forecasted that the concentration would decrease in both cells, with a slight increase at the end of the year in the NC. The forecasted values were above the measured values indicating that the forecast model is conservative. In 2023, forecasted concentrations decreased in both cells, with a slight increase at the end of the year in both cells. The forecasted values were above the measured values indicating that the forecast model is conservative.
Total Metals (general)	See specific parameters for details.	The current forecasting model was 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. Furthermore, for both NC and SC: Deposition of tailings in 2021 in the NC was accounted for in the forecast. Forecasted concentration indicated an increase in concentration in 2021 in both cells followed by a decrease in 2022 and 2023. The measured values generally followed this trend. See specific parameters for additional details.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Aluminum	**NC & SC:** Measured concentrations decreased in 2022 compared to previous years since no tailings deposition occurred at this location. However, there were some peak concentrations that were higher than the Water Licence discharge criterion. Measured concentrations continued to decrease in 2023. However, some values slightly increased towards the end of the year. Almost all concentrations are below the Water Licence discharge criterion.	**NC & SC:** Prior to the deposition of tailings in NC, the measured values were higher than the forecasted values. This indicates that natural runoff into the NC and SC were carrying suspended solids that contain metal particulates. The forecasted model integrated the tailings deposition in the NC in 2021. Forecasted concentration indicated an increase in concentration in 2021 in both cells followed by a decrease in 2022 and 2023. The measured values generally followed this trend.
Total Arsenic	**NC & SC:** Measured concentrations were in the same range/trend as last year. In general for 2023, concentrations decreased compared to 2022 and were above CCME limits and lower than the Water Licence discharge criterion.	See notes on Total Metals.
Total Cadmium	**NC & SC:** Measured concentrations were relatively low. For comparison purposes only, all the collected samples showed concentrations below the Water Licence criterion and slightly above the CCME limit.	**NC & SC:** Forecasted concentration was expected to be close to the CCME limit.
Total Copper	**NC & SC:** Measured concentrations decreased in 2022 compared to previous years. This was expected since no tailings were deposited in the NC. In 2023, measured concentrations continued to decrease. Concentrations were near the CCME limit, but remained below the Water Licence discharge criterion.	See notes on Total Metals.
Total Iron	**NC & SC:** Measured concentrations decreased in 2022 and 2023 between January and June compared to previous years. In July and August concentrations started to increase slightly, coinciding with runoff season. In 2023, 50% of concentrations exceeded the CCME limit, while the remaining concentrations were below or near the CCME limit.	Forecasted concentration was expected to be approaching the CCME limit. In the summer period, certain measured values were higher.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Lead	**NC & SC:** Measured concentrations increased in 2022 during the summer months. This increase could be due to runoff scouring the surface of the tailings. Nevertheless, measured concentrations decreased in 2023. However, concentrations were lower than the Water Licence discharge criterion, but above the CCME limit.	**NC & SC:** Forecasted concentrations were expected to be close to the CCME limit. The deposition of tailings in the NC in 2021 led to an increase in concentrations that are above the CCME limit but below the Water Licence discharge criterion. This trend continued in 2022. However, in 2023, forecasted concentrations were expected to decrease and to be close to the CCME limit, but below the Water Licence discharge criterion.
Total Mercury	**NC & SC:** Measured concentrations in 2022 are similar compared to previous years. This was due to the deposition of tailings in NC in July and August of 2021. Measured concentrations in 2023 are similar to values measured in the previous year. However, all concentrations were lower than the Water Licence discharge criterion, but almost all of them were below or close to the CCME limit.	**NC & SC:** Forecasted concentrations were expected to be close to the CCME limit. Despite the deposition of tailings in both cells, the forecasted concentrations in 2023 remained close to the CCME limit.
Total Nickel	**NC & SC:** Measured concentrations decreased in 2022 compared to 2021 since no deposition was going in the NC. Compared to 2022, measured concentrations increased slightly in 2023. In 2022, all concentrations were between the CCME limit and Water Licence discharge criterion. In 2023, almost all concentrations were between the CCME limit and Water Licence discharge criterion, but lower than the MDMER limit.	See notes on Total Metals.
Total Selenium	**NC & SC:** Measured concentrations decreased in 2022 compared to 2021. A possible geochemical reaction may contribute to a decrease in the concentration of selenium. As in 2022, measured concentrations continued to decrease more in 2023. Almost all concentrations were below the CCME limit.	See notes on Total Metals.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Zinc	**NC & SC:** Concentration values in 2023 were similar when compared to previous years. All concentrations remain below the Water Licence criterion and the CCME limit.	**NC & SC:** Forecasted concentration was expected to be close to the CCME limit. In 2021, despite the deposition of tailings in the NC, the forecasted concentrations remained below the CCME limit for SC and above the same limit for NC after August. Compared to 2022, in 2023, almost all forecasted concentrations were expected to be below the CCME limit for both cells.
Total Ammonia	**NC & SC:** Measured concentrations decreased in 2022 compared to 2021. However, they continued to decrease until the midpoint of 2023, then increased until the end of the year. This was due to the deposition of tailings in August and September 2023 in SC. Concentrations were lower than the Water Licence criterion but, slightly above CCME limit.	**NC & SC:** Forecasted concentrations in 2023 were expected to decrease initially and then increase slightly. Generally, the forecasted concentrations of NC are still below the Water Licence criterion and close to the CCME limit. However, the forecasted concentrations of SC were above the Water Licence criterion and close to the CCME limit. Measured values were below this forecast.
Nitrate	**NC & SC:** As in 2022, measured concentrations increased in 2023. This was due to the deposition of tailings in August and September 2023 in SC. Concentrations were lower than the Water Licence criterion for both cells, and close to the CCME limit for NC.	**NC & SC:** Compared to 2022, forecasted concentrations in 2023 were expected to increase slightly but remained below the Water Licence criterion and close to the CCME limit.
TDS	**NC & SC:** Measured concentrations increased slightly in 2023 compared to 2022. Most of the concentrations were below the Water Licence criterion.	**NC & SC:** Forecasted concentrations in 2023 were expected to decrease until the midpoint of the year, followed by a slight increase until the end of the year. Most of the measured values for SC were below the forecasted values. However, most of the measured values for NC were slightly above the forecasted values.
Chloride	The primary source of chloride found in the TSF Reclaim Ponds was 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 & SC:** Despite the deposition of tailings in the NC in 2021, the concentrations decreased slightly in 2022 compared to 2021 and remained below the water license criteria and the CCME limit. In 2023, concentrations remained generally stable for NC. Towards the end of the year, there was a slight increase observed for SC. Measured values were below the Water License criterion and the CCME limit.	**NC & SC:** Generally, forecasted concentrations in 2023 were expected to decrease more than in 2022 and were expected to range between the CCME limit and the Water Licence criterion. Measured values were below the forecasted values.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Sulphate	**NC & SC:** As in 2022, measured concentrations slightly increased in 2023. This was due to the deposition of tailings in July and August in 2023. Concentrations were generally higher than the adopted limit for this criterion.	**NC & SC:** As in 2022, forecasted concentrations in 2023 were expected to decrease more and to be slightly above the BC Environmental limit for this parameter. Measured values were below the forecasted values.
Fluoride	**NC & SC:** Fluoride concentrations were more or less constant and low during the year, despite the deposition of tailings in the NC in 2021. For comparison purposes only, the concentrations were generally slightly above the CCME limit.	**NC & SC:** Forecasted concentrations in 2023 were expected to increase until the midpoint of the year, followed by a slight decrease until the end of the year while remaining close to the CCME limit. The forecasted values trended approximately with the measured data.

2.5 Portage and Goose Pits

In 2020, in-pit tailings deposition continued in Goose Pit from January to August 2020 and was then transferred to South Portage Pit (Pit E).

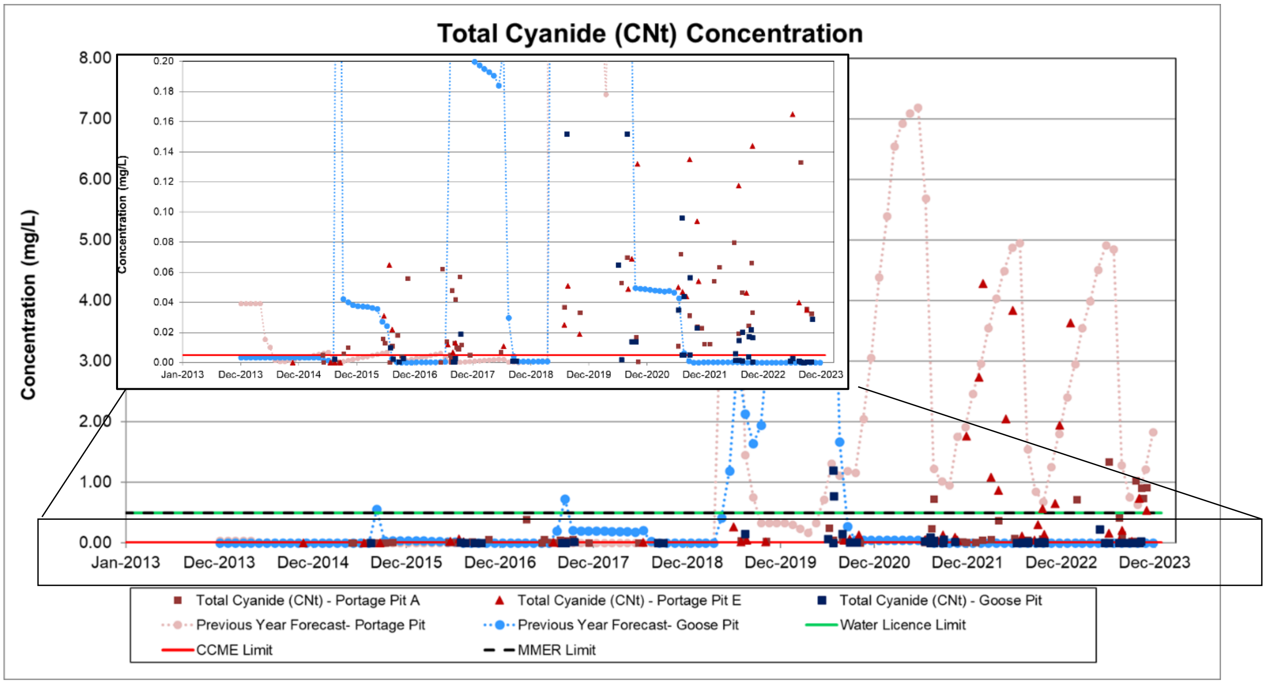
In Goose Pit, Reclaim Water and natural runoff from its sub-catchment area were allowed to accumulate in the pit. Water was then transferred to Portage North (Pit A) between May to September 2020 and in May and June 2021. There was no water transfer in 2022. In 2023, about 439,935 m^3 of reclaim water from Portage North (Pit A) was transferred to Goose Pit.

In Portage Pit E, Reclaim Water (as of August 2020) and natural runoff from its sub-catchment area also accumulated in the pit. No water transfer occurred in 2020. Water was transferred to Portage North Pit (Pit A) from October to December 2021, between January to December 2022, and between January to December 2023. Reclaim water was also pumped from Pit E to the Mill.

North Portage Pit (Pit A) continues to receive its natural runoff from its sub-catchment area, as well as water transfer from East Dike Seepage, South Cell TSF, CDDP, Portage Pit E, and Storm Water Management Pond. Water from Pit A was also pumped to the Mill to be reused as Reclaim Water intermittently: from June 2020 to the end of 2021; from January to April 2022 and July to October 2022; and from June to September 2023.

Water quality analysis of samples taken from the pit lakes formed in Portage Pit A (ST-17) and Pit E (ST-19), and in Goose Pit (ST-20) in 2023 are tabulated in Section 8.0 of AEM's 2023 Annual Report.

Figure 2-4 to **Figure 2-6** present the concentration of the parameters of concern measured in the Portage and Goose Pits from 2013 to 2023. Based on the graphs shown in **Figure 2-4** to **Figure 2-6**, observations from measured and forecasted concentrations in Portage and Goose Pits are summarized in **Table 2-4**.To facilitate the reading, Portage Pit has been abbreviated as PP and Goose Pit as GP.



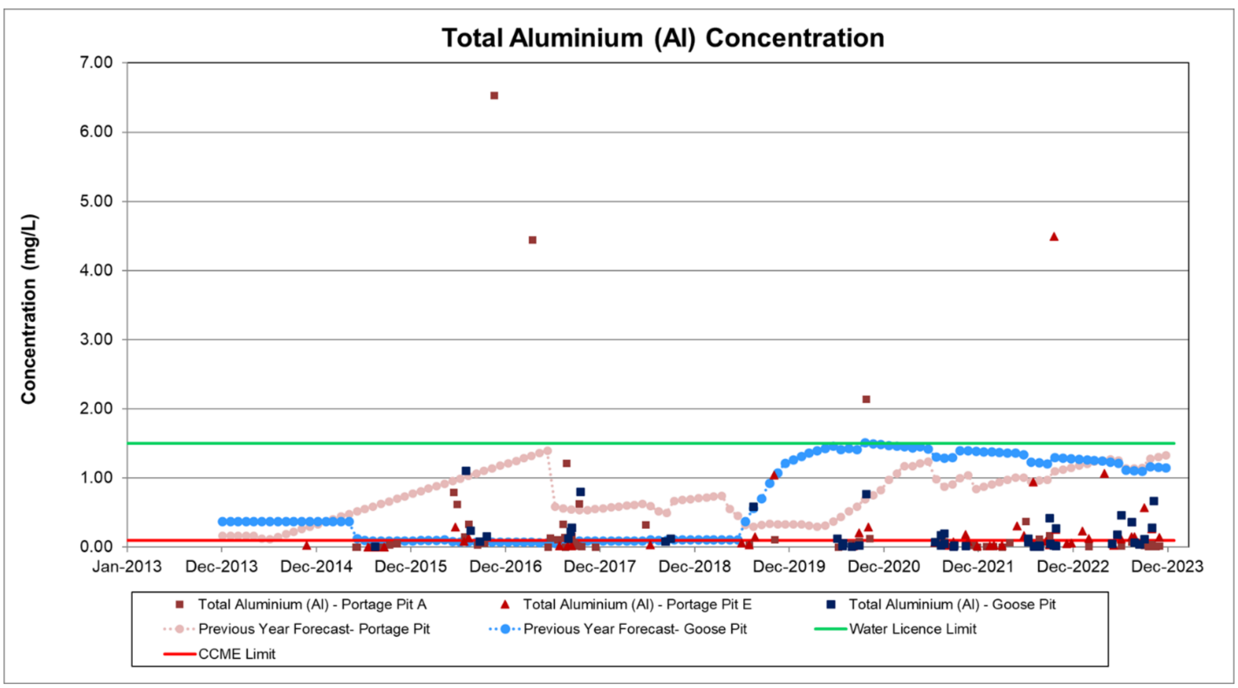
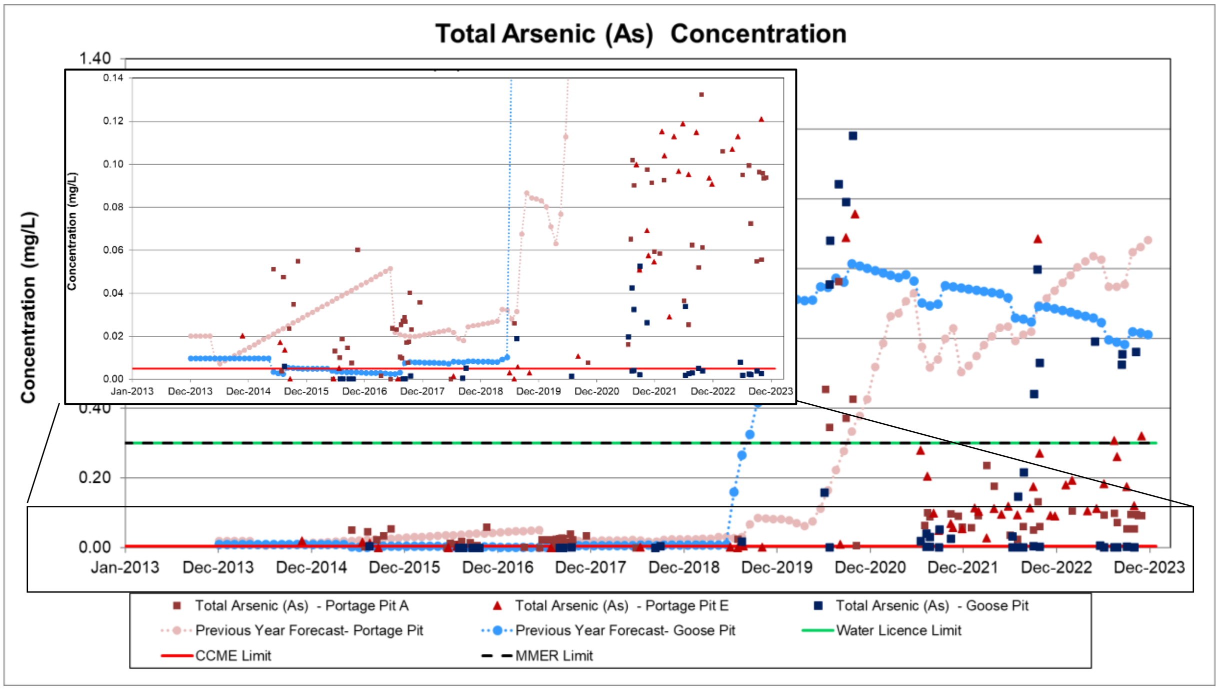


Figure 2-4: Concentrations Portage Pit and Goose Pit – Total Cyanide & Metals



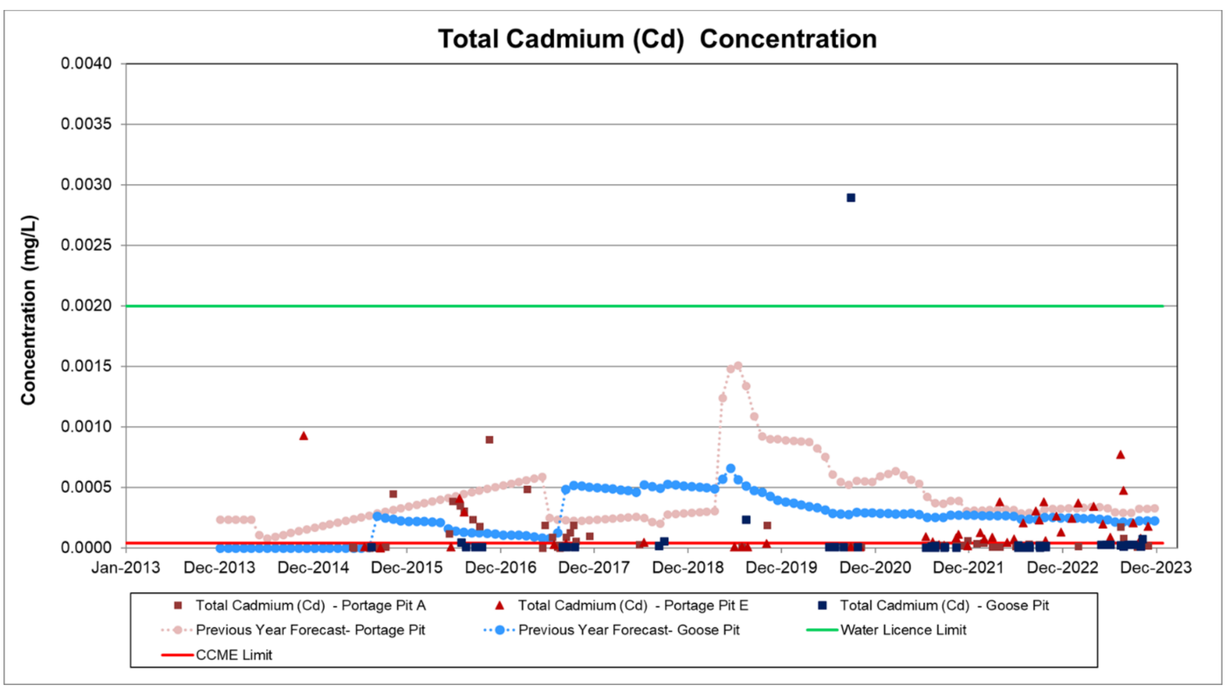
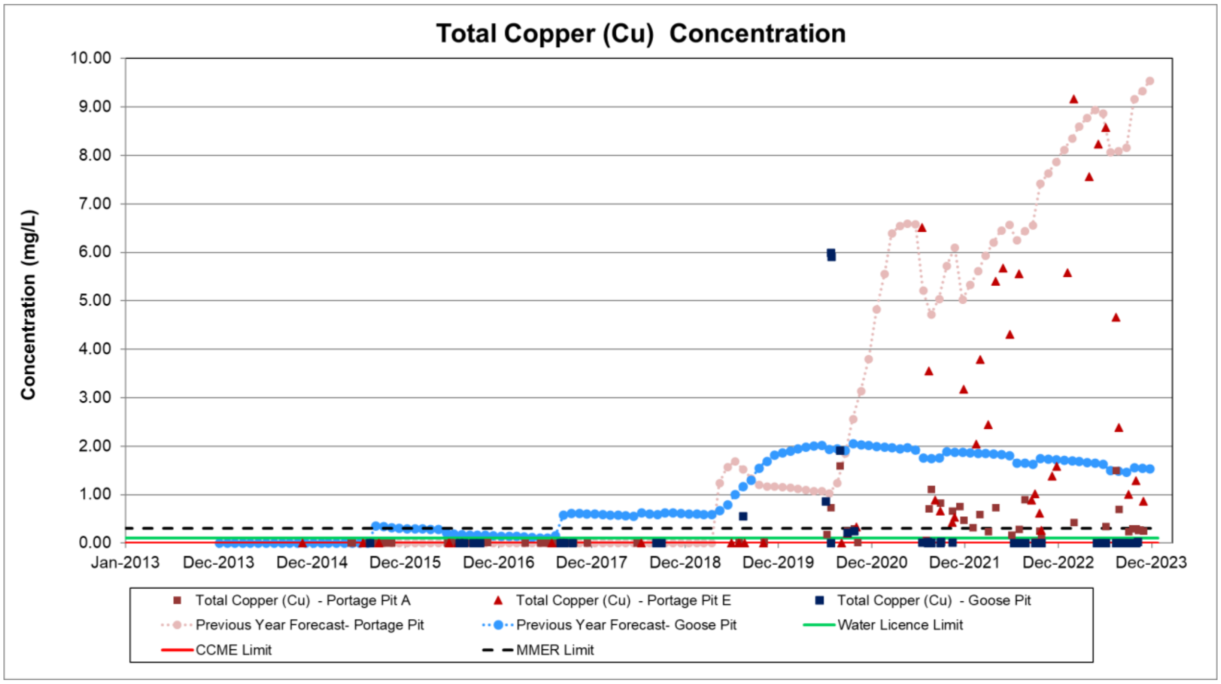


Figure 2-4: (continued) Concentrations Portage Pit and Goose Pit – Total Cyanide & Metals



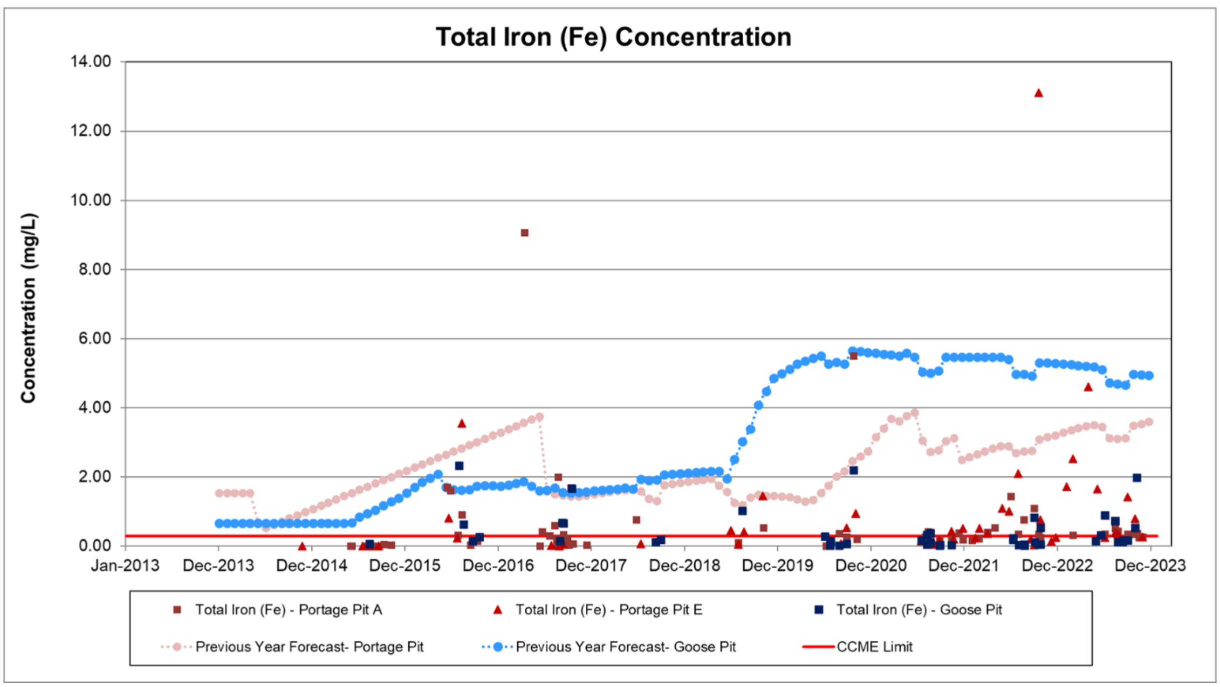
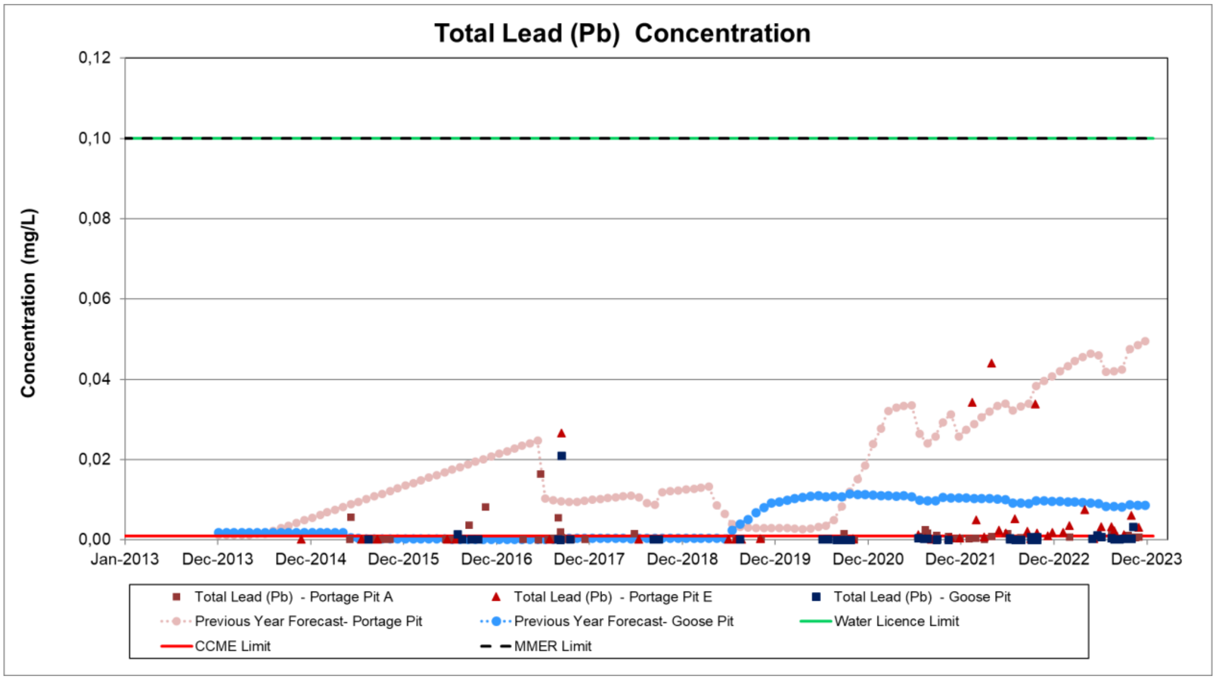


Figure 2-4: (continued) Concentrations Portage Pit and Goose Pit – Total Cyanide & Metals



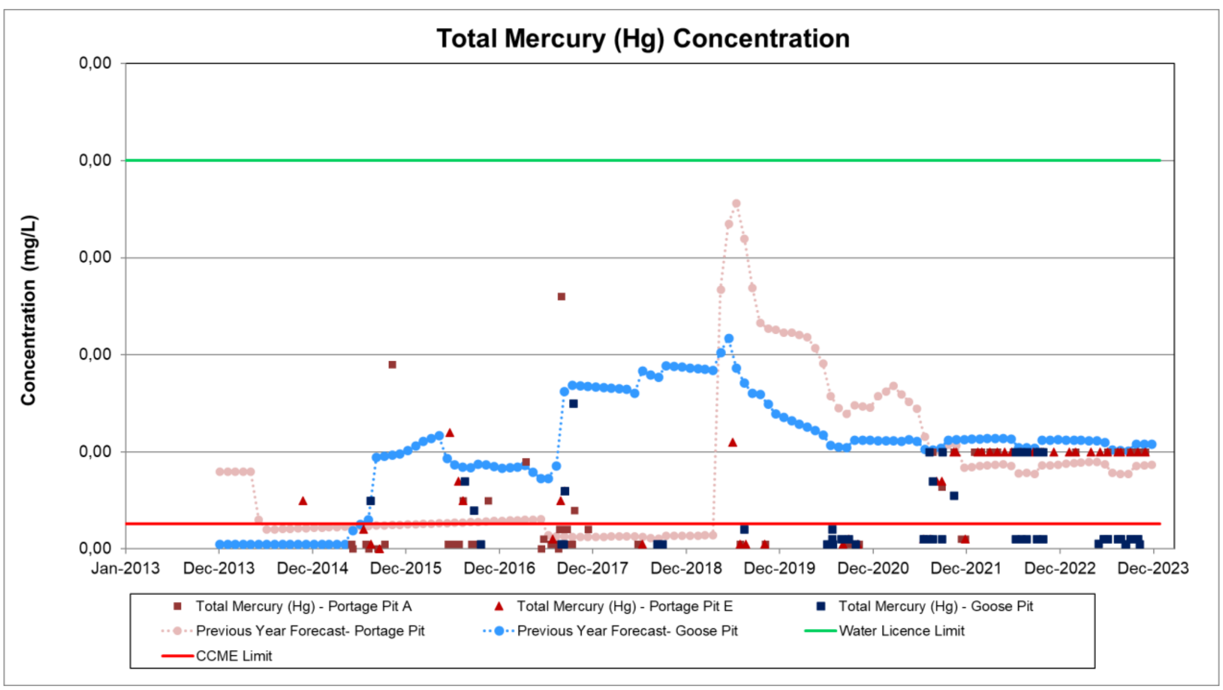
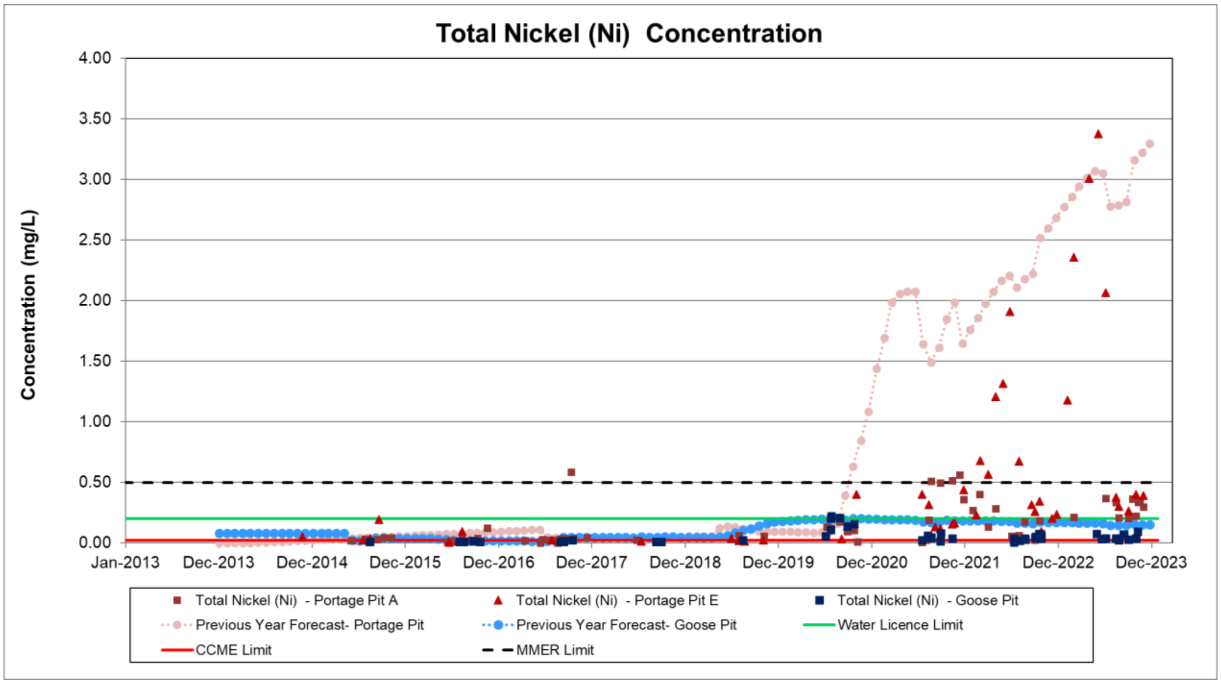


Figure 2-4: (continued) Concentrations Portage Pit and Goose Pit – Total Cyanide & Metals



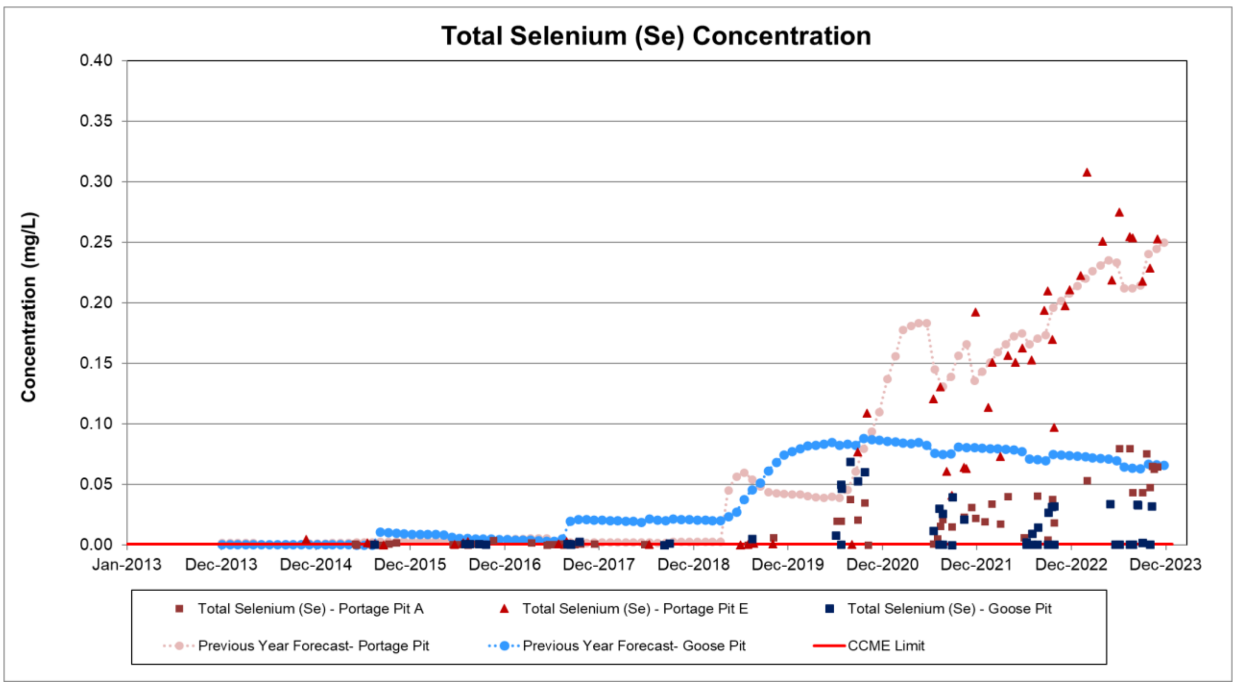


Figure 2-4: (continued) Concentrations Portage Pit and Goose Pit – Total Cyanide & Metals

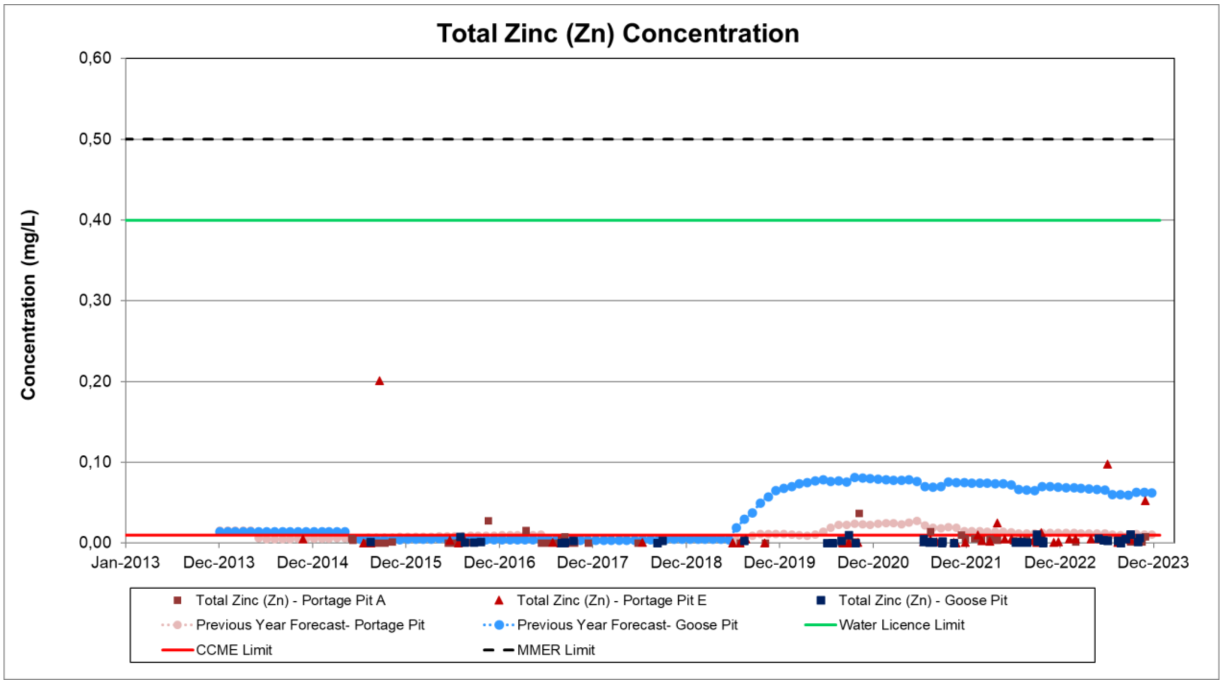
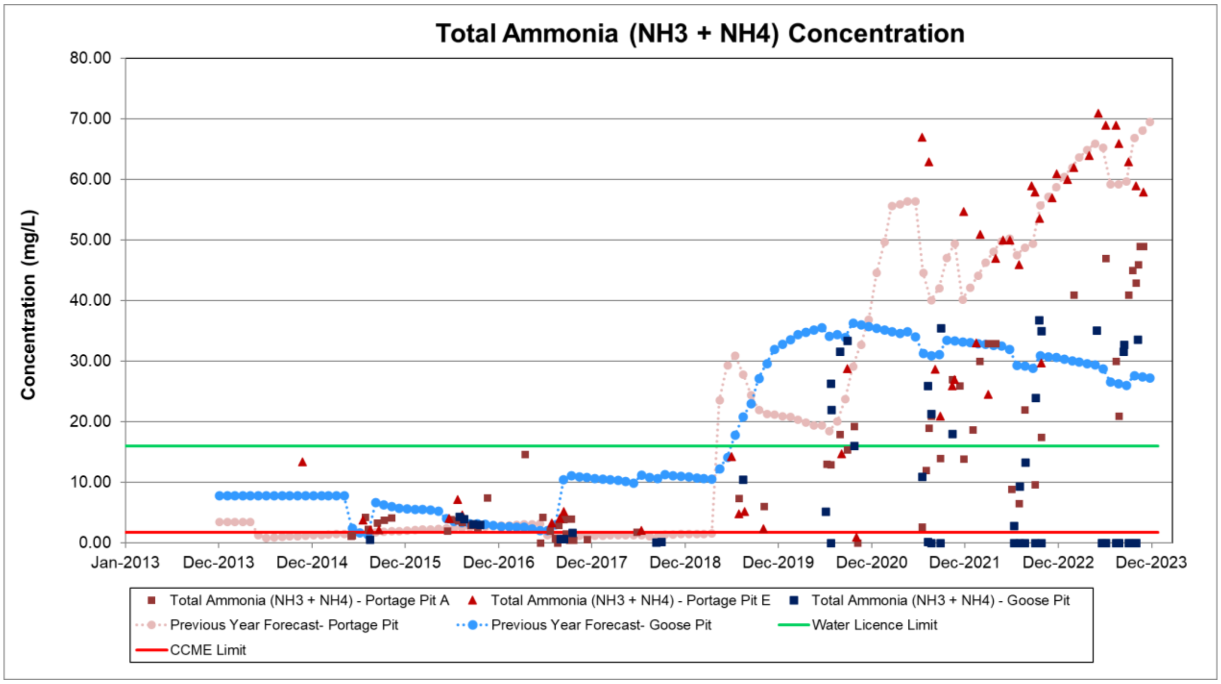


Figure 2-4: (continued) Concentrations Portage Pit and Goose Pit – Total Cyanide & Metals



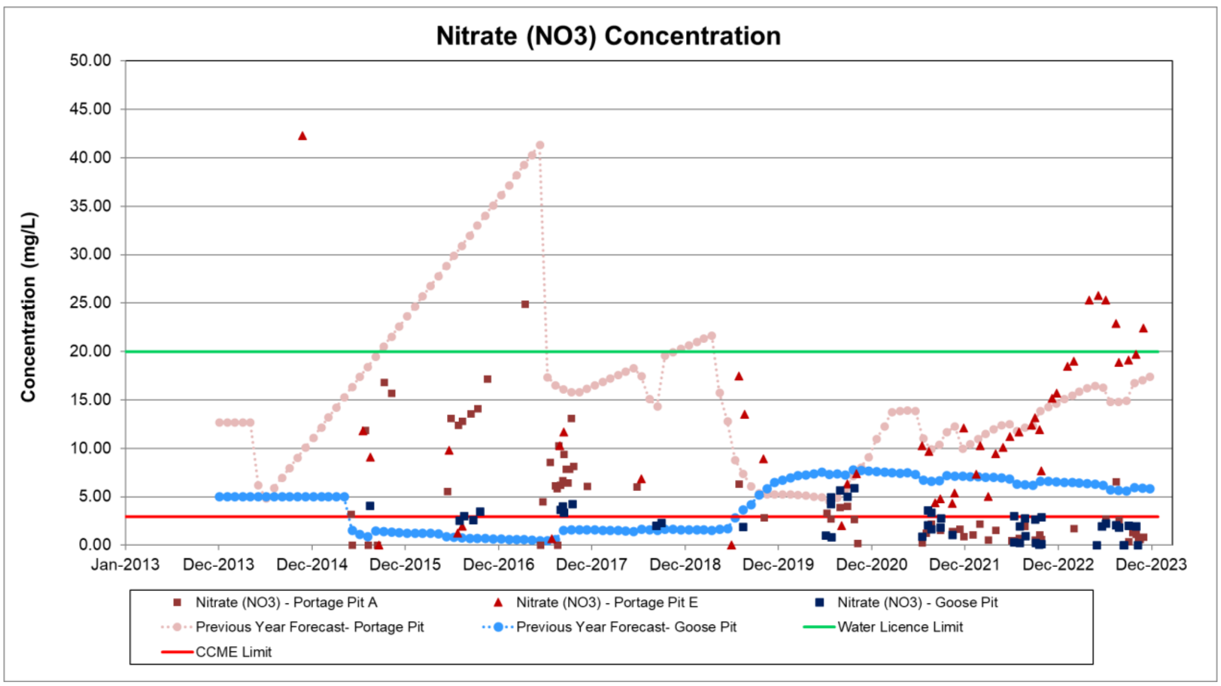
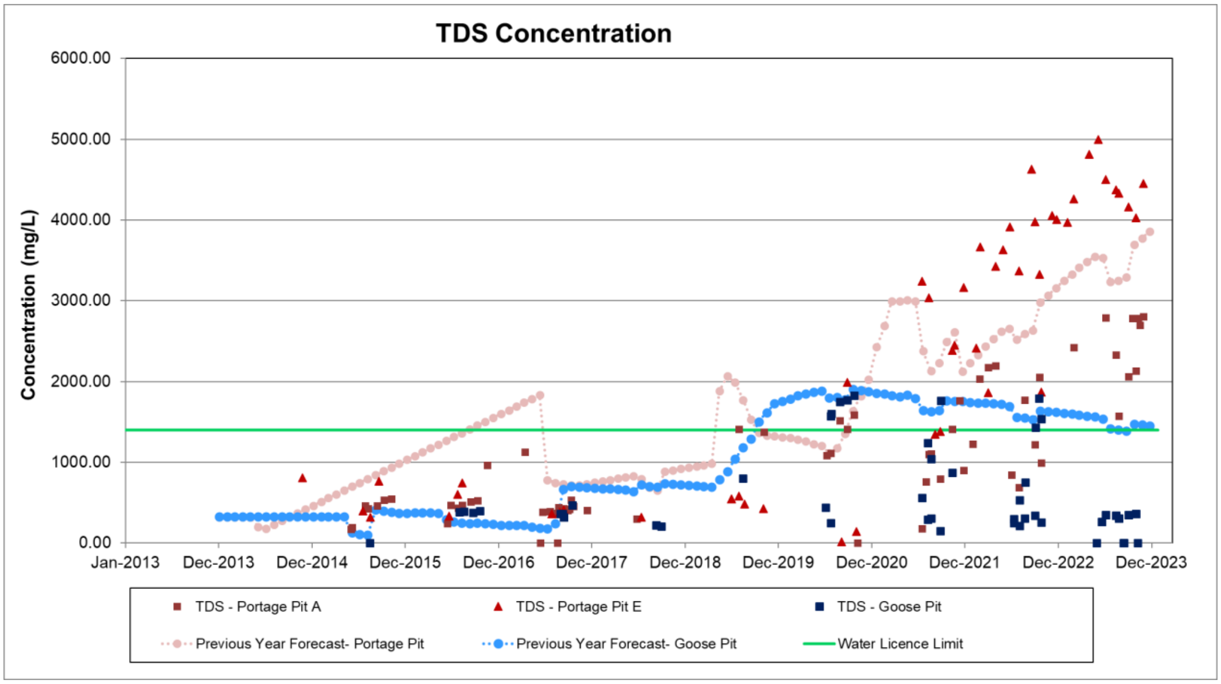


Figure 2-5: Concentrations Portage Pit and Goose Pit – Ammonia & Nitrate



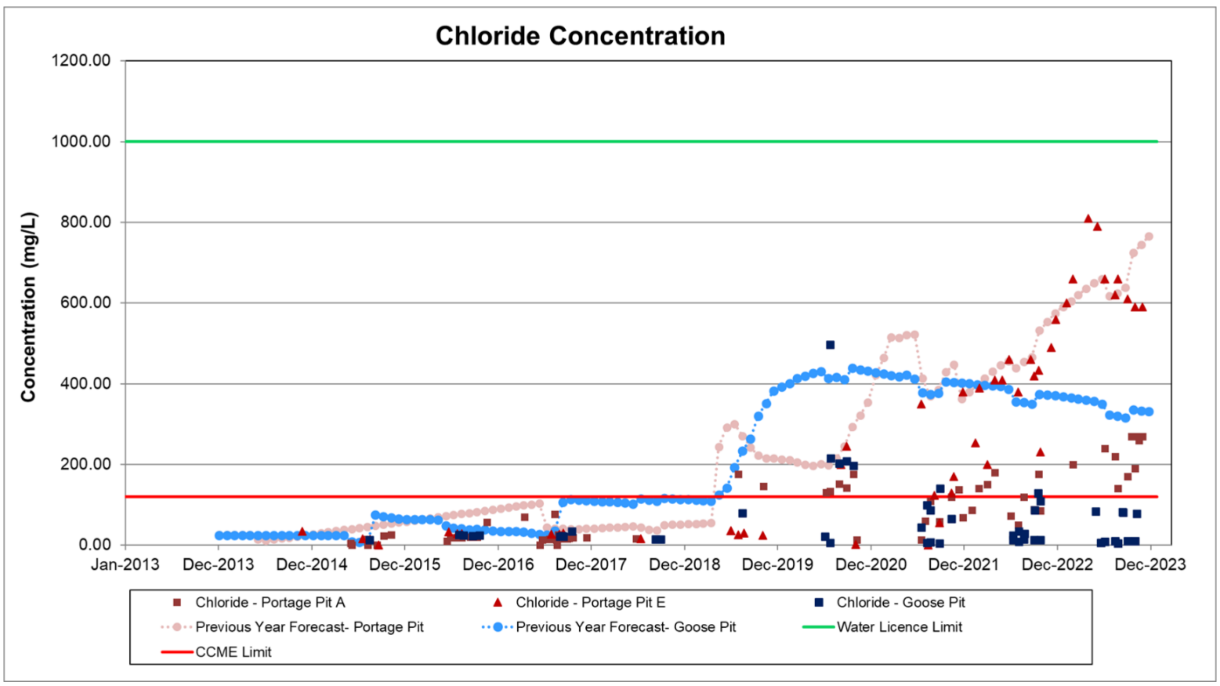
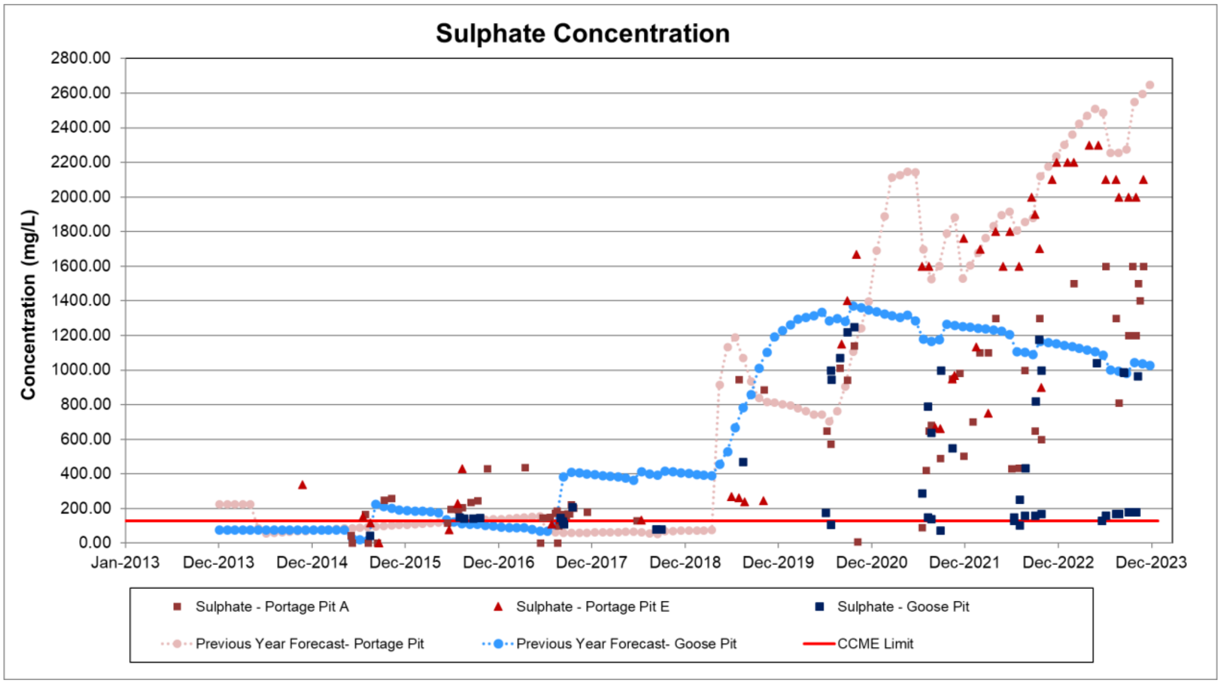


Figure 2-6: Concentrations Portage Pit and Goose Pit – TDS & Anions



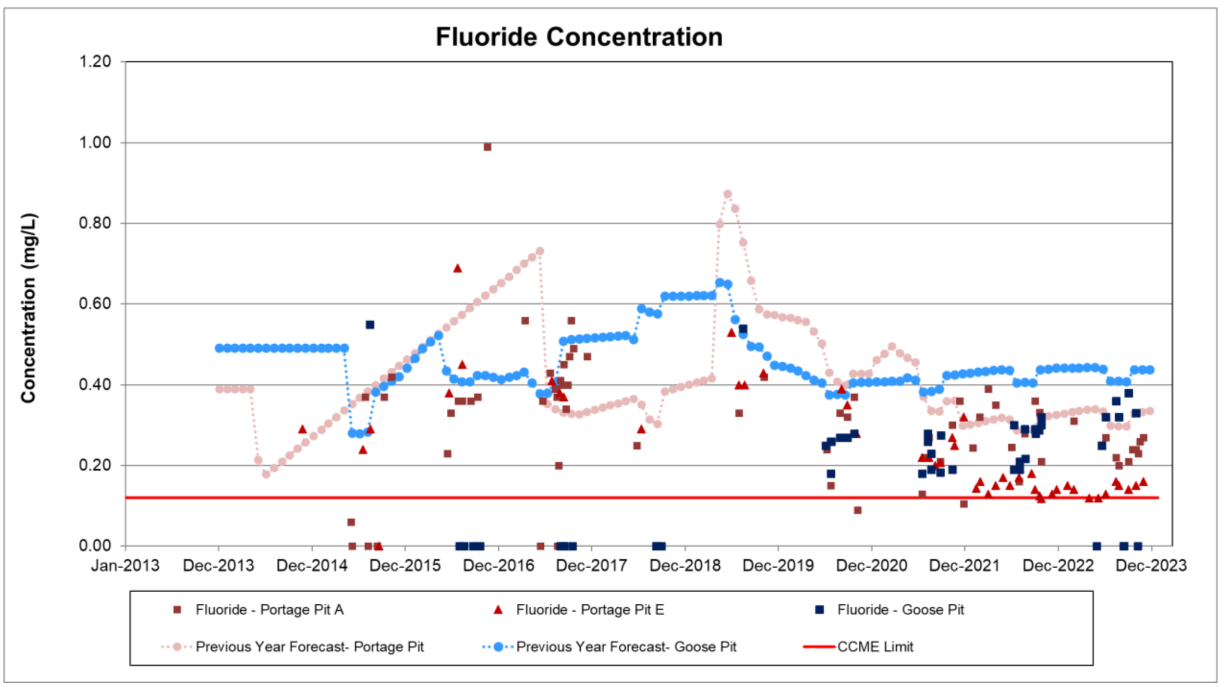


Figure 2-6: (continued) Concentrations Portage Pit and Goose Pit – TDS & Anions

Table 2-4: Observations from Measured and Forecasted Concentrations in Portage and Goose Pits

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total cyanide	**PP:** Measured values continued to increase in 2022 since deposition of tailings started in PP Pit E. For comparison purposes only, the measured concentrations of Pit E and Pit A were generally below Water Licence and MDMER limits during the summer months and increased above these limits in winter. The concentrations remained above the CCME limit. In 2023, measured values of Pit A decreased. However, the measured concentrations of Pit E continued to increase, albeit slightly compared to the previous year. Measured concentrations were below 2 mg/L, and generally, below the Water Licence and MDMER limits for Pit E, while exceeding these limits in autumn for Pit A. The concentrations remained above the CCME limit. **GP:** Measured concentrations were very low since no deposition occurred in this pit. For comparison purposes only, the measured concentrations were below MDMER and Water Licence limits and were slightly above the CCME limit. In 2023, with the exception of one concentration (~0,03 mg/L), the trend of measured concentrations was similar to that of 2022.	**PP:** The forecast model predicted an increase in total cyanide values since tailings deposition started in this pit. In 2022, the measured concentrations were higher than the forecasted values. However, in 2023, the forecasted values were higher than the measured concentrations. **GP:** Forecasted values for 2022 and 2023 were lower than measured concentrations, suggesting that the model slightly overestimated the impact of natural degradation occurring in the pit lake, but the concentration remains low (< 0.02 mg/L). Forecasted values for PP are expected to be above the Water Licence limits, and below the limits for GP.
Total Aluminum	**PP:** In 2022, measured values were similar to those in 2021. For comparison purposes only, all values were below the Water Licence limit and were slightly above the CCME limit. The transfer of Reclaim Water to Pit A from Pit E and the deposition of tailings in Pit E did not contribute to increase the concentration for this parameter. In 2023, measured concentrations of both Pit E and Pit A were below the Water Licence limit and slightly above and close to the CCME limit for Pit E. **GP:** Measured values decreased slightly until summer 2023 and then increased in the fall. For comparison purposes only, the concentrations were generally below the Water Licence limit and slightly above and close to the CCME limit.	**PP & GP:** The forecasted concentrations were generally higher than the measured concentrations and continued to increase slightly for PP and to decrease slightly for GP, suggesting that the load for this constituent assumed in the model is conservative. The lower measured concentration could also be explained by a good settling of suspended particles in these pits. Forecasted concentrations were expected to be lower than the Water Licence limit.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Arsenic	**PP:** Measured concentrations in 2023 are relatively lower compared to last year's data. For comparison purposes only, most of the measured values were below MDMER and Water Licence limits but remained above the CCME limit. **GP:** As of 2022, measured concentrations increased after the summer. Concentrations increased from 0,005 to approximately 0,55 mg/L. For comparison purposes only, 40% of concentrations were slightly above the MDMER and Water Licence limits, but the majority were below these limits and close to the CCME limit.	**PP:** As of 2022, forecasted values of 2023 indicated a slight increase in concentrations during tailings deposition, which was observed based on the measured data. However, the forecasted values are higher than the measured values, which suggest that the load assumed for this constituent in the model is conservative. Furthermore, the model assumes a constant loading for this constituent from the mill effluent over time and does not consider any variability in mill effluent chemistry over the year, resulting in a conservative assessment. Also, the model considers that the solid fraction associated with Arsenic remains in suspension, again resulting in a conservative assessment. **GP:** As of 2022, forecasted values indicated a slight decrease until the summer in 2023, followed by an increase in autumn. This trend was observed based on the measured data. The forecasted values are higher than the measured values, which suggest that the load assumed for this constituent in the model is conservative.
Total Cadmium	**PP:** Measured concentrations were generally below the detection limit. For comparison purposes only, the concentrations were below the limits for Pit A. For Pit E, measured values were below the Water Licence limit and generally slightly above the CCME limit. Concentrations values decreased. **GP:** Measured concentrations were generally below the detection limit and demonstrate a slight decrease. For comparison purposes only, the concentrations were generally below the limits.	**PP and GP:** In general, forecasted values were higher than the measured ones, which suggest that the load assumed for this constituent in the model is conservative. Based on measured data, forecasted values continued to decrease slightly.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Copper	**PP:** In contrast to 2022, measured concentrations decreased for both Pits in 2023, which could be due to a better settling of the Cu in the pits or a lower use of Cu in the mill. For comparison purpose only, values were higher than the MDMER and Water Licence limits. **GP:** Measured concentrations in 2023 remain low since no tailings deposition took place in this pit. For comparison purposes only, measured values were lower than the MDMER and Water Licence limits and slightly above and close to the CCME limit.	**PP:** Forecasted values indicated a decrease in concentrations until summer and an increase starting in the fall. The measured values did follow this trend in winter, but decreased in the summer months. Most measured values remain below the forecasted values, suggesting that the load for this constituent assumed in the model is conservative. The lower measured concentration could also be explained by a good settling of suspended particles in these pits. **GP:** Forecasted values indicated a decrease in concentration. The measured values do follow this trend, but remain well below the forecasted values, suggesting that the load for this constituent assumed in the model is conservative. The lower measured concentration could also be explained by a good settling of suspended particles in these pits.
Total Iron	**PP:** Measured concentrations were relatively low in 2023. However, almost all of these concentrations were above the CCME limit. **GP:** Measured concentrations were generally low until summer 2023 and increased in the fall. For comparison purposes only, 50% of values were below or close to the CCME limit.	**PP & GP:** Forecasted values were much higher than the measured values, suggesting that the load for this constituent assumed in the model is conservative. The lower measured concentration could also be explained by a good settling of suspended particles in these pits.
Total Lead	**PP & GP:** Measured concentrations in 2023 were relatively low. For comparison purposes only, most values of Pit A and Goose Pit were below the Water Licence limit and close to the CCME limit. However, most values of Pit E were slightly above the CCME limit.	**PP & GP:** Forecasted values were generally higher than the measured values, suggesting that the load for this constituent assumed in the model is conservative. The lower measured concentration could also be explained by a good settling of suspended particles in these pits.
Total Mercury	**PP:** Measured concentrations were at the detection limit for 2023. For comparison purposes only, concentration values were below the Water Licence discharge criterion and slightly above the CCME limit. **GP:** Measured concentrations were generally at the detection limit for 2023 and showed a similar trend. For comparison purposes only, all values were below limits.	**PP & GP:** Concentrations were forecasted to remain below the Water Licence discharge criterion. Forecasted concentrations values were higher than the measured values, suggesting that the load for this constituent assumed in the model is conservative. The lower measured concentration could also be explained by a good settling of suspended particles in these pits.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Nickel	**PP:** Measured concentrations decreased until the summer 2023, then increased in autumn, which was expected since deposition of tailings continued in these pits. For comparison purposes only, except for some concentrations of Pit E, which were exceeding the MMER limit, all measurements of both Pits were below the MMER limit and most of them were above the Water Licence and CCME limits. **GP:** Measured concentrations in 2023 were generally similar compared to last year. This was expected since no deposition took place in this pit. For comparison purposes only, measured concentrations were below the Water Licence limit and slightly above the CCME limit.	**PP:** Forecasted values indicated an increase in concentration as tailings deposition continued in this pit. In 2023, one of the measured values was higher than the forecasted value. Since the model assumes a constant load for this constituent to the pit, it does not consider any variability of the mill effluent water chemistry over the year. **GP:** Forecasted values were slightly higher than the measured values, suggesting that the load for this constituent assumed in the model is conservative. The lower measured concentration could also be explained by a good settling of suspended particles in these pits.
Total Selenium	**PP:** Measured concentrations decreased during the summer 2023, then increased in autumn, due to tailings deposition. For comparison purposes only, the measured values were above the CCME limit. **GP:** Compared to 2022, measured concentrations in 2023 decreased during the summer and increased in the fall. For comparison purposes only, 40% of measured values were slightly above the CCME limit.	**PP:** Forecasted values projected a similar trend of measured data. Some of the measured values were higher than the forecasted values. Since the model assumes a constant load for this constituent to the pit, it does not consider the variability of the mill effluent water chemistry over the year. **GP:** Forecasted values projected a decrease in concentration and were generally higher than measured ones, suggesting that the load for this constituent assumed in the model is conservative.
Total Zinc	**PP & GP:** Measured concentrations in both pits were low in 2023. For comparison purposes only, measured values remained below Water Licence limits and were generally below or close to the CCME limit. Concentrations values decreased during the summer then increased in autumn.	**PP & GP:** Forecasted concentrations in the previous model projected an increasing trend for PP this year due to the deposition of tailings. In GP, the model projected a slight decreasing trend. The measured values are much lower than the forecasted values, suggesting that the load for this constituent assumed in the model is conservative.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Total Ammonia	**PP:** In Pit A, measured concentrations in 2023 decreased slightly during the summer, then increased due to the transfer of Reclaim Water from Pit E. In Pit E, measured data increased during the year due to tailings deposition in this pit. For comparison purposes only, all of the measured concentrations exceeded the Water Licence criterion. **GP:** Measured concentrations in 2023 were relatively similar compared to the last year. Concentrations varied during the season, with a lower concentration measured at the start of the summer and then increasing in the fall. For comparison purposes only, in general, most measurements were below the Water Licence criterion early in the summer and then were above it in the fall.	**PP:** Forecasted concentrations in the previous model projected a generally increasing trend this year due to the deposition of tailings in Pit E. The measured values reflect this trend. However, some measured values of Pit E are higher than the forecasted values. Since the model assumes a constant load for this constituent to the pit, it does not consider any variability of the mill effluent water chemistry over the year. **GP:** Forecasted concentrations projected a continuing decreasing trend. This was observed based on the measured values. Almost all of the measured values were lower than the forecasted values except for some samples, suggesting that the load for this constituent assumed in the model is conservative.
Nitrate	**PP:** During the summer 2023, measured concentrations continued to increase due to tailings deposition in the Pits. Most of the measured concentrations were above the Water Licence criterion for Pit E and below the CCME limit for Pit A. **GP:** Measured concentrations in 2023 were relatively similar compared to last year. For comparison purposes only, most of the measurements were below the Water Licence criterion and the CCME limit.	**PP:** Forecasted concentrations in the previous model projected an increasing trend this year due to the deposition of tailings. The measured values reflect this trend. However, measured values in Pit E are higher than the forecasted values. **GP:** Forecasted concentrations projected a slight decreasing trend. This was observed based on the measured values. The measured values were lower than the forecasted values.
TDS	**PP:** During the summer 2023, measured concentrations increased due to tailings deposition in Pit E. However, in Pit A, measured values decreased during the summer, then increased in the fall following the transfer of water from Pit E. For comparison purposes only, measured concentrations were above the Water Licence criterion. **GP:** Compared to the previous year, measured values in 2023 decreased and were below the Water Licence criterion.	**PP:** Forecasted concentrations in the previous model projected an increasing trend this year due to the deposition of tailings. The measured values reflect this trend. Since the model assumes a constant load for this constituent to the pit, it does not consider any variability of the mill effluent water chemistry over the year. Measured values in both pits were higher than the forecasted values. **GP:** Compared to the previous year, forecasted concentrations projected a decreasing trend. This observation was based on the measured values. The measured values were much lower than the forecasted values, suggesting that the load for this constituent assumed in the model is conservative.

PARAMETER	MEASURED VALUES OBSERVATIONS	FORECASTED VALUES OBSERVATIONS
Chloride	**PP:** In Pit E, measured concentrations in 2023 increased slightly during winter due to tailings deposition in the Pit. Then, measured values decreased during the summer and in autumn. Conversely, in Pit A, the trend of measured values was opposite of that observed in Pit E. Measured concentrations were lower than the Water Licence criterion but remained above or close to the CCME limit. **GP:** Measured concentrations in 2023 are generally lower than for previous years and relatively similar compared to the previous year. For comparison purposes only, measured concentrations were below the Water Licence criterion and the CCME limit.	**PP:** Forecasted concentrations in the previous model projected an increasing trend this year due to the deposition of tailings. The measured values reflect this trend. Some measured values of Pit E are higher than the forecasted values. **GP:** Compared to the three previous years, forecasted concentration projected a continuing decreasing trend. This was observed based on the measured values. The measured values were lower than the forecasted values, suggesting that the load for this constituent assumed in the model is conservative.
Sulphate	**PP:** Compared to the previous year, measured concentrations in 2023 increased due to tailings deposition in Pit E. Generally, three trends were observed for both Pits. Measured values increased during winter and fall and decreased during the summer. For comparison purposes only, measured values were higher than the threshold value for sulphate based on BC Environment guidelines for the protection of aquatic life for very soft water. **GP:** Measured concentrations in 2023 are relatively similar in comparison to the concentrations of the previous year. For comparison purposes only, measured values were slightly above or close to the threshold value for sulphate based on BC Environment guidelines for the protection of aquatic life for very soft water.	**PP:** Forecasted concentrations in the previous model projected an increasing trend this year due to the deposition of tailings. The measured values reflect this trend. **GP:** Forecasted concentrations projected a decreasing trend. This was observed based on the measured values. Some measured values were much lower than the forecasted values, while others were close to the forecasted values, suggesting that the load for this constituent assumed in the model is conservative.
Fluoride	**PP & GP:** Measured concentrations were generally lower than 0.4 mg/L. For comparison purposes only, the measured values of Pit E were close to the CCME limit. However, in Pit A and Goose Pit, the measured concentrations were above the CCME limit.	**PP and GP:** Forecasted values were higher than the measured values, suggesting that the load for this constituent assumed in the model is conservative.

2.6 Mill Effluent

2.6.1 Mill Effluent Measurements

A review of the chemical analysis for the Mill Effluent was undertaken by AtkinsRéalis 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 AtkinsRéalis between January 2013 and November 2023.

Figure 2-7 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 for the last six (6) years. This figure illustrates the following:

- Dissolved iron and copper concentrations were present in the Mill Effluent. Thus, the main source of iron and copper in the Reclaim Water comes from the Mill Effluent.
- There is a relationship between copper and cyanide concentrations in the Mill Effluent. The two trends behaved similarly in 2021, less so in 2022. However, in 2023, this similar trend was not observed. A very low concentration of CN-WAD was generally associated with less cyanide (average of 1.9 mg/L) required to extract the gold in certain ore types, resulting in less copper catalyst (average of 8.2 mg/l) required in the cyanide destruction.

Compared to the values of 2017, the peaks observed in 2018, 2019, 2020, 2021 and 2022 for copper and CN-WAD were generally higher, as shown in **Figure 2-7**. This figure also shows that the concentrations measured in 2021 were still the highest compared to the other years. Compared to the previous years, the peak of copper decreased to less than 13 mg/L and the measured concentrations of CN-WAD were very low.

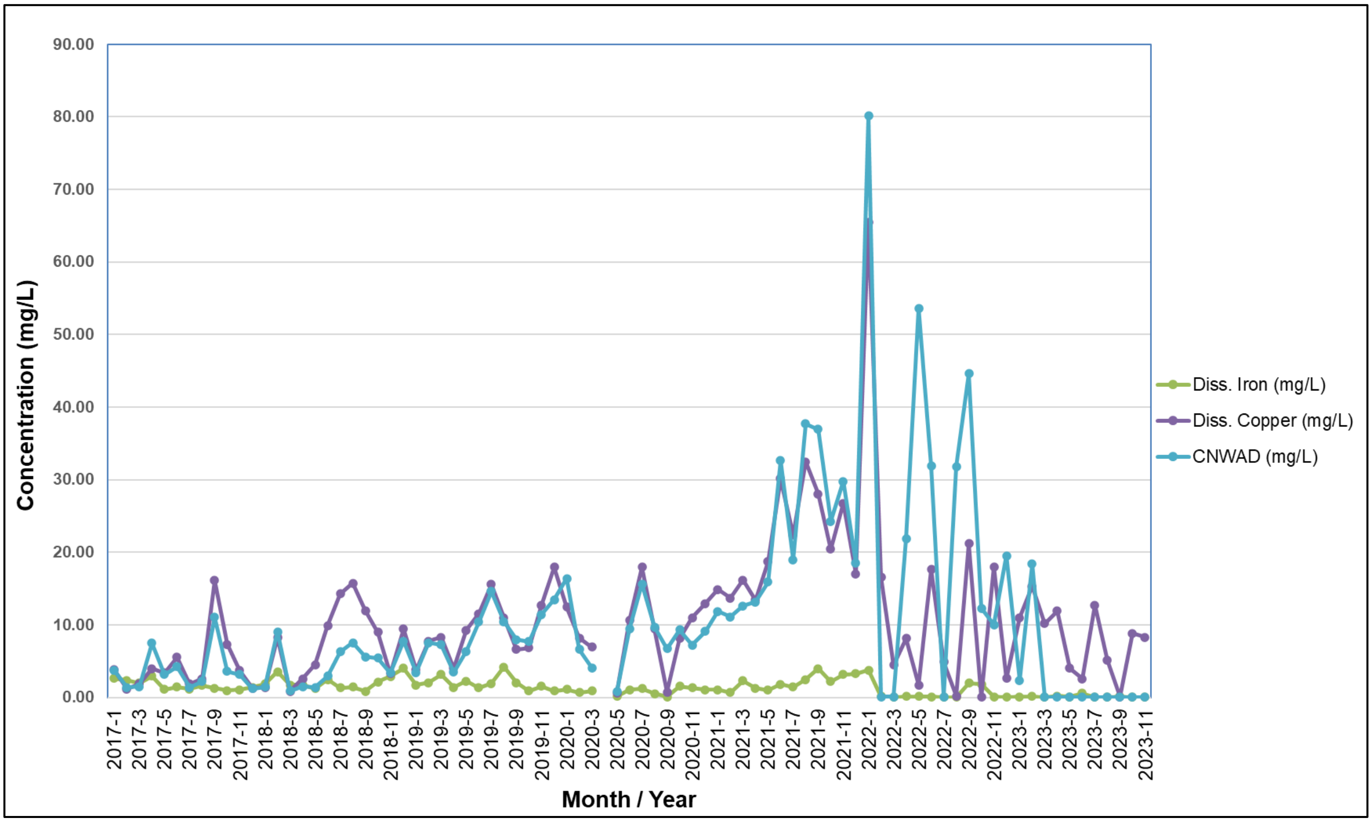


Figure 2-7: Mill Effluent Monthly Average 2017 to 2023: Iron, Copper and Cyanide (CN-WAD)

2.6.2 Additional Mill Effluent Water Quality Results

Agnico analyzed the water fraction of Mill Effluent after cyanide destruction on a monthly basis to obtain representative data of the tailings water being discharged to the Portage Pit in 2023. The water quality analysis was completed by an external accredited laboratory. Parameters of concern are plotted on **Figure 2-8** and **Figure 2-9**.

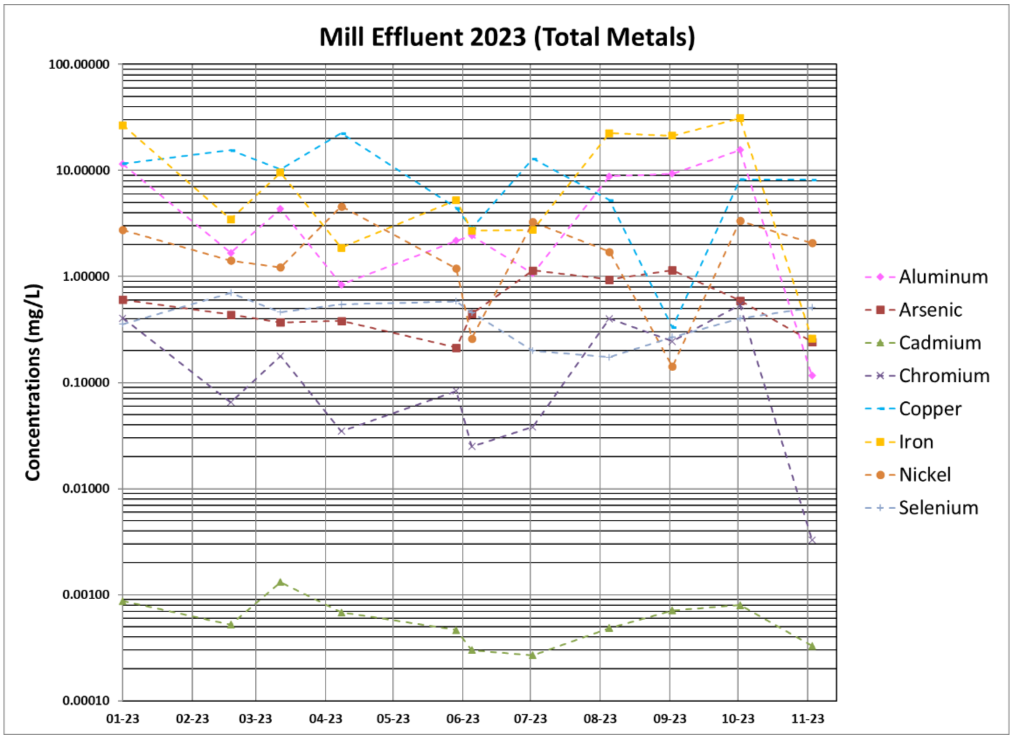


Figure 2-8: Mill Effluent Concentrations Sampled in 2023 – Total Metals

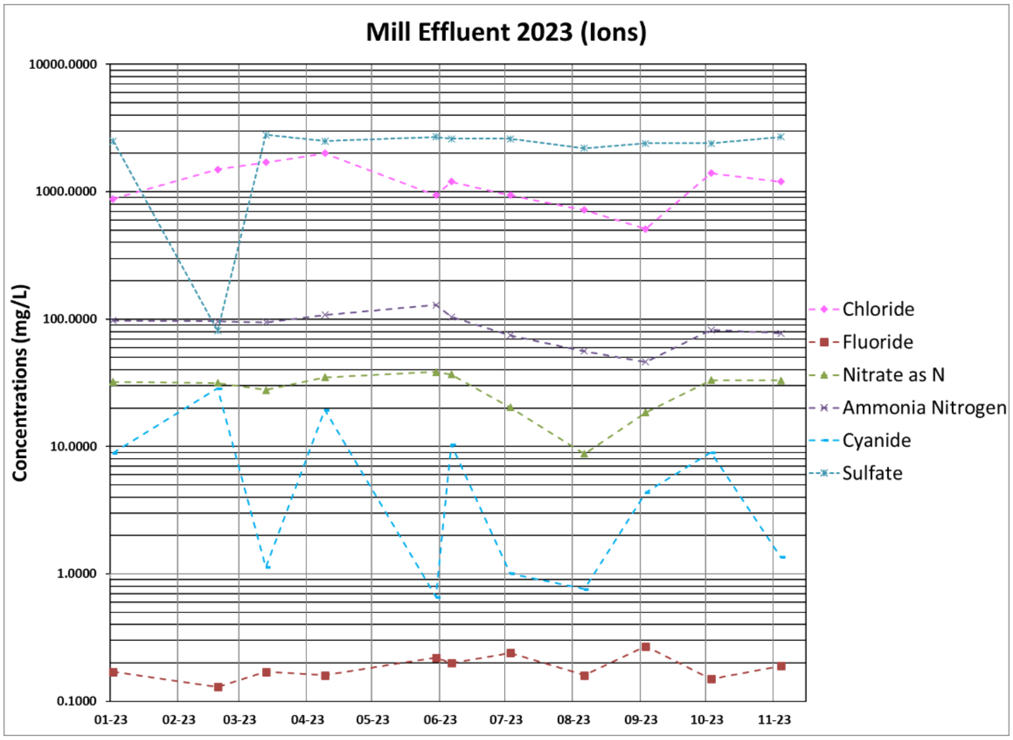


Figure 2-9: Mill Effluent Concentrations Sampled in 2023 – Major Ions

Samples of Mill Effluent were taken and analyzed throughout the year to compare the concentration of key parameters.

Table 2-5 compares the yearly average Mill Effluent samples between 2015 and 2023 for some parameters of concern.

Since 2020, only ore from the Whale Tail pit was processed at the Mill. When comparing with the measured values taken from 2022 to 2023, the measured concentrations are mostly similar, except for cyanide, copper, and nickel, which were low and aluminum, cadmium, chromium, iron, ammonia, and nitrate, which were higher.

In 2023, as in 2022, the measured data confirmed some of the differences observed in the measurements taken in 2019 regarding the Mill Effluent quality produced when processing Portage/Vault ore versus Whale Tail ore:

- Aluminum, copper, iron, ammonia, nitrate, and chloride were slightly higher to one order of magnitude higher on the Mill Effluent when processing Whale Tail ore;
- Arsenic, cadmium, selenium, and chromium were one to two orders of magnitude higher in the Mill Effluent when processing Whale Tail ore;
- Cyanide and nickel concentrations were similar when processing both types of ores; and

- Fluoride was about 30% lower with the Whale Tail ore.

Table 2-5: Mill Effluent Concentrations Sampled from 2015 to 2023

PARAMETER	Average 2015	Average 2016	Average 2017	Average 2018	Average 2019 w/o Whale Tail	Average 2019 Whale Tail only	Average 2020 Whale Tail only	Average 2021 Whale Tail only	Average 2022 Whale Tail only	Average 2023 Whale Tail only
Total Cyanide (CNt)	18.2	9.3	20.4	6.2	11.7	11.8	24.6	23.8	37.4	7.78
Total Aluminum (Al)	0.629	0.326	1.541	2.2	0.394	109.5**	1.73	0.59	2.32	5.26
Total Arsenic (As)	0.036	0.026	0.018	0.025	0.034	9.0**	0.72	0.93	0.46	0.59
Total Cadmium (Cd)	0.0020	0.0003	0.0072	0.0004	0.0002	0.0035	0.017	0.0003	0.0004	0.001
Total Chromium (Cr)	0.002	0.001	0.009	0.005	0.002	3.5	0.654	0.026	0.090	0.18
Total Copper (Cu)	11.0	3.6	5.3	0.161	3.925	9.1**	6.4	8.3	18.92	9.25
Total Iron (Fe)	5.9	2.8	6.9	6.5	5.6	401.7**	5.6	1.9	6.05	11.57
Total Nickel (Ni)	0.423	0.024	0.982	0.026	2.7	7.7	2.8	6.8	6.62	1.99
Total Selenium (Se)	0.131	0.166	0.076	0.131	0.007	0.143	0.144	0.189	0.30	0.42
Ammonia (NH_3-NH_4)	127	105	79	84	64	75	65	60	74.4	87.76
Nitrate (NO_3)	15.9	13.3	12.7	8.9	10.0	12.9	9.2	12.0	20.01	28.69
Chloride (Cl)	775	558	630	515	660	767	411	861	1247	1180.91
Fluoride (F)	0.545	0.645	0.335	0.680	0.565	0.297	0.28	0.20	0.18	0.19

Note:
*** Samples taken in 2019 when treating Whale Tail ore contained much higher suspended solids compared to the following years.*

2.7 Central Dike Downstream Pond

2.7.1 General

From December 2015 to April 2019, 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 increased as tailings' deposition progressed in the South Cell. Due in part to the higher hydraulic gradient, seepage flows were being observed downstream of Central Dike, located to the east of the South Cell TSF. The water was 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.

Since 2020, no continuous tailings deposition was occurring in the SC TSF. Only natural runoff coming from the NC TSF and SC TSF catchment area was collected in the SC Reclaim Pond and transferred to North Portage Pit (i.e., Pit A). In 2021, tailings were deposited in the NC and the resulting Reclaim Water was transferred to the SC TSF and eventually to Portage Pit A. In 2023, tailings were deposited in SC. Water accumulation downstream of the Central Dike was still observed from 2020 to 2023 and was transferred to Portage Pit A.

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 (CDDP). This steady state test proved the 1:1 ratio used in the water balance, meaning that if the D/S pond was recirculated, there was globally no net loss of water in the South Cell. As of 2016, 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. Water from the CDDP was also transferred to either Goose Pit, South Portage Pit (Pit E) or North Portage Pit (A):

- Between August and October 2017, about 332,177 m^3 of pond water was transferred to Goose Pit from the CDDP.
- In 2018, no reclaim water was transferred from CDDP 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 CDDP to Goose Pit between May and July 2019.
- Between February and June of 2020, water from the CDDP was discharged to the South Portage Pit (Pit E). From July to December of 2020, water was then discharged to North Portage Pit (Pit A).
- As of 2021, water from CDDP was discharged mainly to Portage Pit A.

Water samples from the CDDP were routinely collected during the year (sampling point ST-S-5) as per the Water Licence requirement.

2.7.2 Water Balance

Table 2-6 presents the estimated monthly inflows and outflows around the CDDP for 2023 based on:

- the seepage volume from the South Cell TSF to the CDDP estimated by Agnico;
- the total volume pumped back to the South Cell TSF;
- the total volume transferred to Portage Pits (Pit A and Pit E).

The volume of seepage estimated in 2023 from South Cell TSF to CDDP was about 25% higher compared to the previous year and approximately 24% lower compared to 2021. This increase in 2023 was expected since some tailings were deposited in the South Cell, which increased the volume of Reclaim Water stored in the South Cell TSF Reclaim Pond. In 2023, no volume of water was transferred from CDDP to South Cell TSF.

Table 2-6: Estimated Monthly Inflows and Outflows to Central Dike D/S Pond for 2023

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 Goose Pit or Portage Pit (Pit A or Pit E)
	m^3/month	m^3/month	m^3/month
Jan-23	14,029	0	14,029
Feb-23	13,564	0	13,564
Mar-23	13,920	0	13,920
Apr-23	11,031	0	11,031
May-23	112,254	0	112,254
Jun-23	112,254	0	112,254
Jul-23	67,718	0	67,718
Aug-23	59,453	0	59,453
Sep-23	109,331	0	109,331
Oct-23	91,496	0	91,496
Nov-23	47,267	0	47,267
Dec-23	24,295	0	24,295
Total 2023	677,047	0	677,047
Total 2022	510,579	13,852	510,579
Total 2021	890,218	0	890,218
Total 2020	702,031	54,734	685,541
		739,915	
Total 2019	**2,294,063**	**754,347**	**1,368,676**
		2,123,023	
Total 2018	**2,171,246**	**2,300,416**	
Total 2017	**4,636,032**	**4,366,869**	**332,177**

2.7.3 Water Quality

The water analysis taken from the CDDP is tabulated and presented in Section 8.0 of the 2023 Annual Report. **Table 2-7** 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 2023.

The data confirms that one of the main inflows to the CDDP was from the South Cell TSF Reclaim Pond. The water in the CDDP has detectable concentrations of all the key parameters of concern found in the South Cell TSF Reclaim Pond.

The average measured values in the South Cell TSF were higher than the values measured in the CDDP for all parameters but not for total arsenic, iron, ammonia, chloride, fluoride, and sulphate.

The lower concentration detected for these parameters in the CDDP may indicate that either some of the parameters were subject to a natural degradation process, precipitating out of solution in the Central Dike D/S Pond or were 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.

The higher concentration measured in the pond for parameters such as total arsenic, ammonia, chloride, sulphate, and fluoride could originate from the pore water in the tailings flowing towards the pond.

Table 2-7: Water Quality in Central Dike D/S Pond for 2023

PARAMETER	Central Dike Downstream Pond (ST-S-5) (mg/L)			South Cell TSF Reclaim Pond (ST-21-S) (mg/L)		
	Min	Mean	Max	Min	Mean	Max
Total Cyanide (CNt)	0.006	0.040	0.077	0.007	0.130	0.603
Aluminum (Al)	0.006	0.044	0.154	0.069	0.421	1.490
Arsenic (As)	0.047	0.096	0.138	0.021	0.060	0.108
Cadmium (Cd)	0.00001	0.00004	0.00017	0.0000519	0.00010	0.00014
Chromium (Cr)	0.00045	0.0020	0.0050	0.0018	0.0154	0.0551
Copper (Cu)	0.0004	0.0010	0.0025	0.0010	0.0974	0.421
Iron (Fe)	1.350	2.186	2.910	0.225	1.3182	4.660
Nickel (Ni)	0.0020	0.00808	0.01761	0.101	0.168	0.374
Selenium (Se)	0.00018	0.00048	0.00141	0.0009	0.0086	0.0375
Total Ammonia-Nitrogen (mg N/L)	14.0	20.0	23.0	0.8	4.1	14.0
Nitrate (NO_3) (mg N/L)	0.1000	0.311	0.970	0.960	4.948	7.80
Chloride (Cl)	70	131	190	11	34	110
Fluoride (F)	0.330	0.469	0.530	0.100	0.242	0.350
Sulphate (SO_4)	770	1191	1400	220	504	990

2.8 Ammonia Loading to Environment at Meadowbank

Ammonia that is found in the TSF Reclaim Water at Meadowbank originates mainly from the hydrolysis of cyanate which is 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. This latter is pumped twice yearly to the South Cell TSF.

In 2023:

- Approximately 1,683,638 m^3 of pond water from the South Cell TSF Reclaim Pond were transferred to North Portage Pit (Pit A). The average concentration measured in 2023 in the SC TSF Reclaim Pond was approximately 4.1 mg N/L. Thus, using this average concentration value of ammonia, the total load of ammonia transferred to Portage Pit A in 2023 is evaluated at approximately 6,896 kg of ammonia (expressed as N).
- Approximately 677,047 m^3 of pond water from the Central Dike D/S Pond were transferred to North Portage Pit (Pit A). The average concentration measured was approximately 20 mg N/L. Thus, using this average concentration value of ammonia, the total load of ammonia transferred to the North Portage Pit in 2023 is evaluated at approximately 13,541 kg of ammonia (expressed as N). This additional load of ammonia in the North Portage Pit is taken into account in this year's forecasting model.
- Approximately 3,653,292 m^3 of Reclaim Water is transferred with the tailings in South Portage Pit (Pit E). Approximately 48% of this volume is entrapped in the pore water of the tailings, leaving 1,899,712 m^3 in the pit. The average concentration measured in the mill effluent was approximately 87.76 mg N/L, resulting in a total load evaluated at approximately 165,841 kg of ammonia (expressed as N).

This additional load of ammonia to Portage Pit A and Pit E is considered 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.

For this year, the end date of the model is set at the end of pit reflooding, which is projected to be in July 2041. Per the Meadowbank ICRP 2019 update, the Reclaim Water stored in the pits shall be treated and discharged to Third Portage Lake. Once the cover will be installed on the tailings if deemed required, pit flooding will commence with natural runoff and transfer of water from Third Portage Lake.

The main objectives for this year's model are to:

- Forecast the Reclaim Water quality at the end of in-pit deposition to help define the water treatment system that shall be required at the start of closure;
- Forecast the water quality following pit reflooding.

This mass balance model was based on the following:

- Flows and volumes provided in the Water Balance – 2023-IPD Plan (Agnico 2023);
- Assumptions presented below in **Section 3.2**;
- Chemical analyses for ST-21 (North and South Cell TSF Reclaim Pond) (2014-2023);
- Chemical analyses for Third Portage Lake (2015);
- Chemical analyses for the Mill Effluent (samples taken in 2023);
- Chemical analyses for Portage North Pit (ST-17, Pit A) and Portage South Pit (ST-19, Pit E) (from 2013 to 2023);
- Chemical analysis for Goose Pit (samples taken in the sump pit and in the lake, ST-20) (from 2013 to 2023);
- East Dike (ST-1) seepage and Saddle Dam 3 (ST-32) sumps sampled in 2023;
- Stormwater management pond water sampled in 2018;
- Saddle Dam 1 seepage (ST-S-2) and Portage RSF runoff (ST-16) (2015 to 2023);
- Portage Pit A and Pit E seepage water quality sampled from 2017 to 2020 and Goose Pit seepage water quality sampled from 2017 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 (2019) and Portage Pit E;
- End of tailings deposition projected for June 2026.

3.2 Assumptions

Table 3-1 summarizes the assumptions used in the development of the water quality forecast model for the Meadowbank site.

Table 3-1: Water Quality Forecast Model Assumptions

PARAMETERS	ASSUMPTIONS
Water quality forecast model	▪ Mass balance model. ▪ Assume completely mixed system. ▪ Ponds to model: North and South Cell TSF Reclaim Pond, Goose Pit and North Portage Pit (Pit A) and South Portage Pit (Pit E). ▪ Portage Pit E and Pit A are hydraulically connected through the waste rock deposited between both pits. 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.
Model time period	▪ Start: January 2014. ▪ End: July 2041 (projected end date of pit reflooding).
Input Source Terms: **Mill Effluent / Pore Water**	▪ Mill Effluent is the main source terms for metal contaminants, cyanide, sulphate, chloride, ammonia and nitrate in the Reclaim Pond. ▪ Mill Effluent quality is assumed to be constant over time for all parameters. ▫ Assumed two different types of Mill Effluent quality: – One when Portage/Vault ore is processed: 2014 to June 2019; – One when Whale Tail ore is processed: July 2019 to June 2026. ▫ From 2015 to June 2019, the average Mill Effluent quality measured for that year was considered in the model, based on the processing of Portage/Vault ore. ▫ From July 2019 to the end of the model, the average Mill Effluent quality measured for that year was considered in the model, based on the processing of Whale Tail ore. Adjustment factors were applied for certain parameters so that the forecasted values followed a similar trend to that of the measured values. ▪ As of April 2021, consider additional brine (i.e., chloride and TDS) loading the pore water contained in the underground ore mined at the Whale Tail site. ▪ At closure, the pore water released from tailings consolidations is expected to be very low since consolidation occurs rapidly during operation. In the model, the volume of reclaim water released from the tailings due to consolidation is taken into account each month when tailings are actively deposited in the NC and SC TSF and in the pits.

PARAMETERS	ASSUMPTIONS
Other Input Source Terms	▪ The following source terms are considered in the model, based on measured water quality data: ▫ Mill effluent; ▫ Portage Pit E and Pit A transfer; ▫ Goose Pit transfer; ▫ Stormwater Management Pond; ▫ Portage RSF; ▫ Saddle Dam 1 sump; ▫ Saddle Dam 3 sump; ▫ East Dike seepage. ▪ Precipitation runoff loading: ▫ Assumed negligible loading and to have similar water characteristics as Third Portage Lake water. ▪ Assumed constant water quality for each stream.
Input Source Terms: **Pit seepage loading**	▪ Seepage flow considered into Goose Pit and Portage Pit based on the hydrogeological modelling results conducted for the in-pit deposition project (SNC-Lavalin, 2018b). ▪ Seepage quality based on the average water quality measured from the seepages sampled in the pits. ▪ Assumed constant water quality for each seepage stream.
Input Source Terms: **North and South Cell TSF after Closure**	▪ Assumed that the water accumulated in closed North and South Cell TSF is transferred to Portage Pit and will have a water quality similar to non-contact runoff water once closure work is completed.
Cyanide modelling	▪ 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.

PARAMETERS	ASSUMPTIONS
Water treatment	▪ 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 in-pit deposition. ▪ During the closure, Reclaim Water will be pumped to a water treatment plant and discharged to the environment. ▪ Projected water treatment period of the Reclaim Water in the pits: ▫ Portage Pits: January 2031 to December 2038; ▫ Goose Pit: July 2028 to January 2031. ▪ Water treatment to be done to meet approved effluent criteria and to allow cover construction if deemed necessary. ▪ The closure schedule for the overall Project is based on the preliminary closure methods and strategies discussed in the Meadowbank ICRP. Schedule may be modified based on monitoring and water quality results. ▪ It is anticipated that the schedule will be refined throughout the Project life as the designs are advanced, and the closure methods and strategies are further developed.
Pit reflooding	▪ Pits shall be reflooded by natural runoff from the site and active transfer of water from Third Portage Lake. ▪ Period of pit reflooding: January 2039 to July 2041.

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:

1. 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 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.
2. The mass balance model is based on the water quality analysis results provided by Agnico.
3. The model does make some allowances for the impact that changes in the TSF 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).
4. The model is based on a monthly time step and the resulting concentrations provided represent monthly values.
5. 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. The model provides only an order of magnitude forecast of the concentration trends in these areas.
6. 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 6.2** for recommendations on improving the mass balance.

3.4 Input Parameters

3.4.1 General

The mass balance model for the Meadowbank site 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 (TDS).

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);
- SFE leaching test results conducted in 2019 on tailings from ores from Vault and Portage Pit and test results conducted in 2023 from ores from 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;
- Runoff from the Portage RSF;
- Sumps from Saddle Dam 1 (ST-S-2), Saddle Dam 3 (ST-32) and East Dike seepage (ST-8);
- Runoff water quality similar to Third Portage Lake;
- Stormwater Management Pond concentration used to compute the influent loading to the TSF Reclaim Pond;
- Goose Pit and Portage Pit seepage estimated water flow and water quality data; and
- Agnico 2023 Water Balance which defines all of the input and output flows in the North and South Cell TSF, CDDP, Portage Pit and Goose Pit.

3.4.2 Mill Effluent Concentration

The Mill Effluent concentrations considered for the input parameters of the mass balance are divided into three types:

- Type 1: Based on the ore produced from Portage/Goose/Vault pits for model years between 2014 and June 2019. For each model year, the characteristics of the Mill Effluent are based on the yearly average measured concentrations for samples taken for that year. The average concentrations considered in the model between 2015 and 2019 are presented in **Table 2-5**.
- Type 2: Based on the ore produced from Whale Tail pit as of 2019. For each model year, the characteristics of the Mill Effluent are based on the yearly average measured concentrations for samples taken that year. The average concentrations considered in the model between 2019 and 2023 are also presented in **Table 2-5**.
- Type 3: For the future modelling years from 2023 to 2026, the same adjusted Mill Effluent quality considered for the model year 2023 was used.

Please note the items below on the parameters used for the Mill Effluent when processing Meadowbank Mine site ore for the updated water quality forecast model based on the 2023 WMP:

- Mill Effluent adjustment factors:
  - Adjustment factors were applied to some constituents measured in the Mill Effluent to obtain forecasted concentrations that are in the same order of magnitude as the measured values.
- Ammonia, Chloride, Sulphate and TDS are present in the Mill Effluent due to the following processes in the mill:
  - Ammonia is present due to the hydrolysis of cyanate to ammonia. The concentration of cyanate is proportional to the concentration of cyanide removed in the cyanide destruction system;
  - Chloride is present due to the continued use of calcium chloride as a dust suppressant in the mill and crusher;
  - Sulphates are present due to the oxidation of sulphide produced in the ore; and
  - The overall TDS of the Mill Effluent will continue to increase due to the increase in ammonia, chloride, and sulphate.
- Copper, Nitrate, Total Cyanide and Chloride in the North Cell:
  - Higher concentrations of the listed parameters were considered for 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.

Table 3-2 presents the adjusted Mill Effluent concentration considered in the model from July 2019 to the end of the LOM.

Table 3-2: Mill Effluent Concentration Selected for Mass Balance Model from July 2019 to end of LOM

Parameters (mg/L)	Model Year 2019	Model Year 2020	Model Year 2021	Model Year 2022	Model Year 2023-2026
Alkalinity	77	86	68	83	78
Hardness	1658	1511	1392	1750	1940
Total Dissolved Solids (TDS)	3460	3544	5908	6809	8084
Aluminum (Al)	1.0953	1.7270	0.5684	2.3224	5.2596
Silver (Ag)	0.0018	0.0024	0.0080	0.0033	0.0028
Arsenic (As)	2.7020	0.3619	0.4670	0.2333	0.2962
Barium (Ba)	0.6147	0.0987	0.1219	0.1378	0.1299
Cadmium (Cd)	0.0035	0.0170	0.0003	0.0004	0.0006
Chromium (Cr)	0.3496	0.6540	0.0261	0.0901	0.1833
Copper (Cu)	9.1487	6.3693	8.2979	18.9212	9.2593
Iron (Fe)	4.0173	2.7862	0.9676	3.0234	5.7881
Manganese (Mn)	0.2910	0.2351	0.1064	0.2118	0.4082
Mercury (Hg)	0.00001	0.00001	0.00002	0.00001	0.00011
Molybdenum (Mo)	0.0972	1.0134	0.1244	0.1260	0.1498
Nickel (Ni)	7.6640	2.8217	6.8443	6.6183	1.9984
Lead (Pb)	0.8460	0.0205	0.0075	0.0245	0.0541
Selenium (Se)	0.1432	0.1436	0.1886	0.2983	0.4240
Strontium (Sr)	1.3833	1.5081	1.9413	3.4075	4.1745
Thallium (Tl)	0.00183	0.00005	0.00002	0.00004	0.00009
Uranium (U)	0.0381	0.0563	0.0252	0.0298	0.0414
Zinc (Zn)	0.2723	0.1431	0.0041	0.0082	0.0186
Chloride	767	411	646	935	886
Fluoride (F)	0.30	0.28	0.20	0.18	0.19
Sulphate (SO_4)	2185	1800	1967	2958	2316
Total Cyanide (CNt)	12	25	24	37	35
Total Ammonia (NH_3-NH_4)	75	65	60	112	123
Nitrate (NO_3)	13	9	12	28	46

Notes:

Grey highlighted cells indicate values that were increased with an adjustment factor to obtain forecasted concentrations that are in the same order of magnitude as the measured values.

Green highlighted cells indicate values that were decreased with an adjustment factor to obtain forecasted concentrations that are in the same order of magnitude as the measured values.

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 twelve (12) months (2014) average concentrations' 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 to 2023 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 2023 at sampling station ST-S-2.
- Saddle Dam 3 sump that is transferred to the South Cell is based on the average concentration measured from 2016 to 2023 at sampling station ST-32.
- East dike seepage quality is based on the average concentrations measured in 2015 to 2023 at sampling stations ST-8 and ST-S-1.
- Stormwater Management Pond quality is based on the value measured in July 2018.
- Surface runoff water is assumed to be of similar quality to that of 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 SFE Leach Tests conducted on the tailings produced from Portage and Vault ore bodies in 2019 were used to account for possible leaching of contaminants from the tailings. The SFE Leach Tests conducted on the tailings produced from the Whale Tail ore bodies in 2023 were used to account for possible leaching of contaminants from this type of tailings.

Table 3-3 summarizes the leaching rates used in the model while **Table 3-4** summarizes the water quality characteristics for various input source streams 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 **Table 3-4**, which are used for comparison purposes only.

Table 3-3: 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)	LEACHING OF TAILS FROM WHALE TAIL PIT (kg/ton)
		From SFE Leach Test- Avg 2019 tests	From SFE Leach Test- Avg 2022 tests	From SFE Leach Test- Avg 2023 tests
Alkalinity	mg $CaCO_3$/L	3.90E-02	2.57E-02	4.02E-02
Hardness	mg $CaCO_3$/L	1.89E-01	2.23E-01	2.58E-01
Total Dissolved Solids (TDS)	mg/L	0 (1)	0 (1)	0 (1)
Total Aluminum (Al)	mg/L	8.67E-05	6.25E-05	4.59E-05
Total Silver (Ag)	mg/L	2.50E-08	2.02E-07	1.85E-07
Total Arsenic (As)	mg/L	1.26E-05	6.76E-04	3.22E-04
Total Barium (Ba)	mg/L	1.13E-05	3.99E-05	4.03E-05
Total Cadmium (Cd)	mg/L	0 (1)	6.07E-08	6.15E-08
Total Chromium (Cr)	mg/L	1.20E-04	1.83E-07	9.00E-08
Total Copper (Cu)	mg/L	1.54E-06	2.79E-06	2.15E-05
Total Iron (Fe)	mg/L	1.34E-04	1.55E-04	1.20E-04
Total Manganese (Mn)	mg/L	1.57E-05	1.25E-05	6.98E-05
Total Mercury (Hg)	mg/L	6.67E-09	5.00E-09	5.45E-09
Total Molybdenum (Mo)	mg/L	4.63E-05	4.11E-05	3.38E-05
Total Nickel (Ni)	mg/L	1.13E-06	1.58E-05	6.07E-05
Total Lead (Pb)	mg/L	6.67E-08	1.33E-07	1.48E-07
Total Selenium (Se)	mg/L	1.43E-06	2.39E-05	2.20E-05
Total Strontium (Sr)	mg/L	2.44E-04	4.50E-04	5.35E-04
Total Thallium (Tl)	mg/L	9.00E-09	6.68E-09	1.09E-08
Total Uranium (U)	mg/L	9.30E-07	2.86E-07	6.78E-07
Total Zinc (Zn)	mg/L	1.00E-06	1.00E-06	1.18E-06
Chloride	mg/L	0 (1)	0 (1)	0 (1)
Fluoride (F)	mg/L	3.40E-04	1.63E-04	1.63E-04
Sulphate (SO_4)	mg SO_4/L	2.30E-01	2.94E-01	3.26E-01
Total Cyanide (CNt)	mg/L	0 (1)	0 (1)	0 (1)
Total Ammonia (NH_3 + NH_4)	mg N/L	3.10E-03	3.89E-03	3.89E-03
Nitrate (NO_3)	mg N/L	3.00E-04	1.53E-03	1.53E-03

Note:

1. *No data available. Assume negligible.*

Table 3-4: Input Source Stream 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 LICENCE MEADOWBANK MAX. AVG. CONC.
		Initial condition for model January-08-14	Initial condition for model Average 2014	Average 2015 to 2023 sampled at ST-16	Average 2015 to 2023 sampled at ST-S-2	Average 2016 to 2023 sampled at ST-32	Average 2015 to 2023 sampled at ST-8 and ST-S-1	July 2018	Average-East Basin Summer 2015	Initial Condition for Model Average 2013	Initial Condition for Model Average 2013	Long Term Based on 3PL quality	Part F of License
Alkalinity	mg $CaCO_3$/L	135	106	68	55	132	36	129	9.1	72.2	129.8	n/a	n/a
Hardness	mg $CaCO_3$/L	1329	362	143	268	220	79	134	12	274	130	n/a	n/a
Total Dissolved Solids (TDS)	mg/L	1329	1437	215	374	343	131	293	22	320	326	n/a	1400
Total Aluminum (Al)	mg/L	0.119[1]	0.010[1]	0.295	0.537	1.876	0.04416	0.229	0.0075	0.1720	0.3708	0.16[7]	1.5
Total Silver (Ag)	mg/L	0.0001[1]	0.0001[1]	0.0001	0.0001	0.0001	0.00099	0.0001	0.000005	0.00005	0.00005	0.00025	n/a
Total Arsenic (As)	mg/L	0.032[1]	0.008[1]	0.022	0.024	0.024	0.00107	0.004	0.0005	0.0202	0.0099	0.005	0.3
Total Barium (Ba)	mg/L	0.094[1]	0.051[1]	0.016	0.032	0.060	0.16151	0.020	0.0037	0.0110	0.0219	n/a	n/a
Total Cadmium (Cd)	mg/L	0.00160	0.00010	0.00003	0.00004	0.00004	0.00023	0.00001	0.000003	0.000240	0.000000	0.00004	0.002
Total Chromium (Cr)	mg/L	0.0008	0[4]	0.003	0.006	0.017	0.02259	0.002	0.0001	0.0027	0.0026	0.001	n/a
Total Copper (Cu)	mg/L	9.135	0.033[1]	0.014	0.007	0.017	0.00129	0.003	0.0006	0.0042	0.0069	0.002	0.1
Total Iron (Fe)	mg/L	0.140[1]	0.047[1]	0.763	1.246	3.869	0.62951	0.880	0.017	1.5	0.7	0.3	n/a

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 LICENCE MEADOWBANK MAX. AVG. CONC.
		Initial condition for model January-08-14	Initial condition for model Average 2014	Average 2015 to 2023 sampled at ST-16	Average 2015 to 2023 sampled at ST-S-2	Average 2016 to 2023 sampled at ST-32	Average 2015 to 2023 sampled at ST-8 and ST-S-1	July 2018	Average-East Basin Summer 2015	Initial Condition for Model Average 2013	Initial Condition for Model Average 2013	Long Term Based on 3PL quality	Part F of License
Total Manganese (Mn)	mg/L	0.065[1]	2.898[1]	0.801	0.187	0.583	0.09390	0.410	0.002	0.257	0.108	***0.23***	***n/a***
Total Mercury (Hg)	mg/L	0.000000	0.000117	0.010263	0.000097	0.000016	0.00001	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	0.011	0.007	0.03057	0.004	0.0002	0.0664	0.0082	***0.073***	***n/a***
Total Nickel (Ni)	mg/L	0.277[1]	0.041[1]	0.017	0.034	0.073	0.00092	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	0.004	0.00051	0.0002	0.00003	0.00131	0.00192	***0.001***	***0.1***
Total Selenium (Se)	mg/L	0.075[1]	0.003[1]	0.001	0.001	0.001	0.00260	0.003	0.00003	0.00183	0.00080	***0.001***	***n/a***
Total Strontium (Sr)	mg/L	0.743[3]	0[4]	0.151	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]	0.001	0.001	0[4]	0.00070	0.0004	0.000005	0.0020	0.0016	***0.0008***	***n/a***
Total Uranium (U)	mg/L	0.010[3]	0[4]	0.005	0[4]	0[4]	[4]	0.002	0.000049	0[4]	0[4]	***0.015***	***n/a***
Total Zinc (Zn)	mg/L	0.010[1]	0.010[1]	0.004	0.088	0.017	0.00353	0.005	0.002	0.016	0.015	***0.01***	***0.4***
Chloride	mg/L	1035	98	5	7	15	7.83739	52	0.793	26.117	24.978	***120***	***1000***
Fluoride (F)	mg/L	0.180	0.565	0.184	0.193	0.292	0.12146	0.860	0.0793	0.3900	0.4922	***0.12***	***n/a***
Sulphate (SO_4)	mg SO_4/L	2115	542	65	212	126	9.44783	30	5	224	77	***128[5]***	***n/a***

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 LICENCE MEADOWBANK MAX. AVG. CONC.
		Initial condition for model January-08-14	Initial condition for model Average 2014	Average 2015 to 2023 sampled at ST-16	Average 2015 to 2023 sampled at ST-S-2	Average 2016 to 2023 sampled at ST-32	Average 2015 to 2023 sampled at ST-8 and ST-S-1	July 2018	Average-East Basin Summer 2015	Initial Condition for Model Average 2013	Initial Condition for Model Average 2013	Long Term Based on 3PL quality	Part F of License
Total Cyanide (CNt)	mg/L	8	0.346	0.002	0.010	0.012	0.0025	0.002	0.0005	0.0393	0.0033	***0.005***	***0.5***
Total Ammonia ($NH_3 + NH_4$)	mg N/L	37	10	0.216	0.362	1.852	0.30490	1.320	0.015	3.6	7.9	***1.83***	***16***
Nitrate (NO_3)	mg N/L	26	1	4	7	10	0.28322	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 on 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 January 8, 2014. Used data sampled on July 1, 2014.*
4. *No data. Assume negligible.*
5. *Threshold value for sulphate based on BC Environment guidelines 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. *Aluminum criterion in fresh water is calculated using the equation described in Appendix B of the Federal Environmental Quality Guidelines (FWQG).*
8. *Pink cells 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 on tailings 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:

- First, metal-cyanide complexes dissociate to free cyanide (HCN and CN-) based on a first-order decay constant (k1). 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.
- It is then followed by HCN volatilization based on a first-order decay constant (kv).
- Both decay constants k1 and kv depend on the presence of UV light (sun) and air (wind), and water temperature and pH. The volatilization decay constant, kv, also depends on the surface area to volume ratio of the pond.

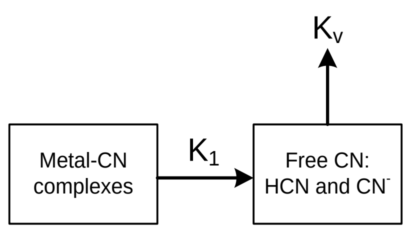


Figure 3-1: Cyanide Volatilization Process

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%) 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 k0) 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 3-5 presents the assumptions and cyanide decay constants used in the water quality model.

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

DECAY CONSTANT	DESCRIPTION	WINTER CONDITIONS			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	HCN volatilization		n/a	n/a		2.382 cm/hr	58.0 m/month

3.6 Portage and Goose Pit Groundwater Seepage Loading

Loadings from groundwater seepages to Portage and Goose Pits shall be estimated based on the following information:

- In the hydrogeological modelling of the groundwater flow in Goose Pit and Portage Pit, the seepage flow entering each pit was estimated at: 196 m^3/day in Portage Pit and 423 m^3/day in Goose Pit (AtkinsRéalis 2018b). This seepage flow is assumed to be constant over the modelling period;
- The average concentration measured from samples taken of the pit seepages in each pit between 2017 and 2019 shall be used to estimate the loadings to each pit assuming a constant seepage flow rate.

Table 3-6 presents the average concentration considered for seepages reporting to Goose Pit and Portage Pit in the water quality forecast model.

Table 3-6: Pit Seepage Water Quality Considered in the Model

Parameters	Units	Portage Pit Seepage	Goose Pit Seepage
		Average Data from 2017-2020	Average Data from 2017-2019
Alkalinity	mg CaCO3/L	69.8	80.3
Hardness	mg CaCO3/L	523	81
Total Dissolved Solids (TDS)	mg/L	813	175
Total Aluminum (Al)	mg/L	0.63	0.127
Total Silver (Ag)	mg/L	0.0000355	0.00005
Total Arsenic (As)	mg/L	0.0217	0.0022
Total Barium (Ba)	mg/L	0.0318	0.0417
Total Cadmium (Cd)	mg/L	0.000251	0.000013
Total Chromium (Cr)	mg/L	0.0002	0.0001
Total Copper (Cu)	mg/L	0.0011	0.0020
Total Iron (Fe)	mg/L	1.6	5.1
Total Manganese (Mn)	mg/L	0.357	0.043
Total Mercury (Hg)	mg/L	0.000005	0.000171
Total Molybdenum (Mo)	mg/L	0.0801	0.0093
Total Nickel (Ni)	mg/L	0.05101	0.00682
Total Lead (Pb)	mg/L	0.0114	0.00015
Total Selenium (Se)	mg/L	0.00257	0.00071
Total Strontium (Sr)	mg/L	0.74650	0.22333
Total Thallium (Tl)	mg/L	0.00023	0.00035
Total Uranium (U)	mg/L	0.06960	0.00333
Total Zinc (Zn)	mg/L	0.003	0.007
Chloride (Cl)	mg/L	45.5	16.2
Fluoride (F)	mg/L	0.2720	0.8333
Sulphate (SO_4)	mg SO_4/L	48	0
Total Cyanide (CN_t)	mg/L	0.0119	0.0023
Total Ammonia (NH_3 + NH_4)	mg N/L	1.1	0.3
Nitrate (NO_3)	mg N/L	17.9	0.1

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 and Goose Pits are presented in **Figure 4-1** to **Figure 4-17** for the following parameters of concern that were identified in **Section 2.3**.

1. Total Cyanide
2. Total Aluminum
3. Total Arsenic
4. Total Cadmium
5. Total Copper
6. Total Iron
7. Total Lead
8. Total Mercury
9. Total Nickel
10. Total Selenium
11. Total Zinc
12. Total Ammonia
13. Nitrate
14. Total dissolved solids
15. Chloride
16. Sulphate
17. Fluoride

The graphs show the forecasted monthly concentrations of the parameters from 2014 to the end of in-pit tailings deposition in 2026 for the North and South Cell TSF Reclaim Ponds, and until the end of pit reflooding in 2041 for Portage and Goose Pits. A total of two (2) graphs are presented per parameter: the first shows the forecasted concentrations in the North and South Cells TSF Reclaim Ponds and the second shows the forecasted concentrations in the Portage and Goose Pits.

For comparison purposes only, the Water Licence, MDMER and CCME limits (refer to **Table 2-1**) were also included in the figures, where applicable.

Again, it is important to remember that the results presented in the figures in **Section 4.0** of this report are based on the input parameters presented in **Section 3.0**. These results must be reviewed while keeping in mind the assumptions and limitations described in **Sections 3.2** and **3.3**. It is also important to note that the results from this model assume that treatment of the Reclaim Pond effluent shall be undertaken following the end of in-pit deposition and that the treated water shall be discharged to the environment.

4.2 Discussions

4.2.1 Key Dates

The mass balance model presented in this Technical Note is based on the WB 2023. The following key dates are important to keep in mind while reviewing the forecasted concentration data presented in **Figure 4-1** to **Figure 4-17**:

- 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 CDDP 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 m^3 of pond water is transferred from CDDP 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 m^3 of pond water is transferred from CDDP to Goose Pit;
- July 2019: End of processing ore from Portage/Goose/Vault pits at the mill. Start of processing of ore from Whale Tail;
- July 2019: Start of deposition of tailings from Whale Tail Pit;
- July 2019 to August 2020: Deposition of tailings in Goose Pit;
- August 2020 to June 2026: Deposition of tailings in Portage Pit E;
- Reclaim Water from Portage Pit E is returned to the mill or transferred to Portage Pit A;
- Reclaim Water from Portage Pit A is also returned to the mill or transferred to Portage Pit E or Goose Pit;
- Reclaim Water from Goose Pit is transferred to Portage Pit A;
- Allow East Dike Seepage to discharge to Second Portage Lake as long as discharge criteria are met. If not, East Dike Seepage is transferred to Portage Pit A or Pit E;
- July 2020: Start of water transfer from South Cell TSF Reclaim Pond to Portage Pit A;
- As of 2020: North Cell TSF Reclaim Pond is almost completely empty. The pond is maintained empty in the subsequent years by transferring the accumulated runoff water to the South Cell TSF Reclaim Pond;
- September 2020: South Cell TSF Reclaim Pond is almost completely empty. The pond is maintained empty in the subsequent years by transferring the accumulated runoff water to Portage Pit A;
- April 2021: Start of processing at the mill of some ore that comes from the underground mine at Whale Tail. Only a fraction of the ore shall come from the underground mine while the balance shall come from the pit operation at Whale Tail;
- June 2026: End of in-pit tailings deposition;
- July 2026 Start of closure activities;

- July 2028 to December 2038: Treatment of Reclaim Water in Portage and Goose Pits. Water treatment to be done to meet approved effluent criteria and to allow cover construction if deemed necessary. The closure schedule for the overall Project is based on the preliminary closure methods and strategies discussed in the Meadowbank ICRP. It is anticipated that the schedule will be refined throughout the Project life as the designs are advanced, and the closure methods and strategies are further developed;
- January 2039 to July 2041: Active pit reflooding of Portage and Goose Pits;
- August 2041: End of closure (only if water criteria are met).

4.2.2 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 4-1** to **Figure 4-17**.

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

1. For the metal parameters, the fluctuations observed from 2014 to 2019 and from 2021 to 2023 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.
2. 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. The forecasted concentrations are generally more conservative than the field measurements, in particular the ones from 2014 to 2016 and from 2021 to 2023.
3. 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 2019 are more conservative than the measured values. From 2021 to 2023, ammonia concentrations decreased compared to previous years and the forecasted concentrations are more conservative than the measured values.
4. 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 summer and higher in the winter. The forecasted values from 2014 to 2019 and from 2021 to 2023 are in the same range as the measured values in both cells Cell. From 2016 to 2019, nitrate concentrations decreased compared to previous years. Forecasted values are more conservative than the measured values.

5. 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 Licence discharge criteria when tailings depositions were occurring in this area, except for aluminum, arsenic (from 2014 to mid-2021), cadmium (from 2018 to mid-2024), lead, zinc, nitrate (from 2014 to mid-2024) and chloride (from 2016 to 2028). Following the end of tailings deposition, the forecasted values drop below the Water Licence limits.
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 during tailings depositions. Following deposition, the forecasted concentration drops close to or below the CCME guidelines.
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 Licence 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 if the water quality in those pits meets the selected discharge closure criteria.

4.2.3 Forecasted Concentration in Portage and Goose Pits

Table 4-1 presents the forecasted concentration of all parameters for Portage and Goose Pits at the end of in-pit deposition (IPD) projected to be in June 2026 and at the end of pit reflooding projected to be in July 2041.

Based on the model for forecasting of the concentrations in Portage and Goose Pits, the following notes and observations can be made:

1. The 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, IVR Pit and the underground mine at the Whale Tail 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, copper, and nickel.
2. The forecasted concentrations at the end of in-pit deposition are compared to the current Water Licence discharge criteria since the Reclaim Water shall be treated and discharged to the environment prior to pit reflooding. The following observations can be made for each of the parameters of concern:

a. Total Cyanide	Forecasted total concentration is projected to be higher than the Water Licence limit in Portage Pit E and Pit A and lower than this limit in Goose Pit.
b. Total Aluminum	Forecasted total concentration is projected to be higher than the Water Licence limit in Portage Pit E and Pit A and lower than this limit in Goose Pits.
c. Total Arsenic	Forecasted total concentration is projected to be higher than the Water Licence limit at the end of IPD in Portage and Goose Pits. The main source terms for this constituent are from the mill effluent and the pit seepages reporting to the pits.
d. Total Cadmium	Forecasted total concentration is projected to be higher than the Water Licence limit in Portage Pits and close to this limit in Goose Pit.

e. Total Copper	Forecasted total concentration is projected to be higher than the Water Licence limit at the end of IPD in Portage and Goose Pits. The main source terms for this constituent are from the mill effluent and the pit seepages reporting to the pits.
f. Total Iron	Elevated forecasted total concentration is projected in Portage Pit and Goose Pit. The main source terms for this constituent are from the mill effluent, surface runoff and the pit seepages reporting to the pits.
g. Total Lead	Forecasted total concentration is projected to be close to the Water Licence limit in Goose Pit at the end of deposition and lower than this limit in Portage Pits.
h. Total Mercury	Forecasted total concentration is projected to be lower than the Water Licence limit in Goose Pit and in Portage Pits.
i. Total Nickel	Forecasted total concentration is projected to be higher than the Water Licence limit at the end of IPD in Portage and Goose Pits. The main source term for this constituent is from the mill effluent reporting to the pits.
j. Total Selenium	There is no specific Water Licence limit for this constituent. However, total forecasted concentration remains higher than the CCME guidelines in Portage and Goose Pits. An increase is observed once IPD has started, suggesting that the main source term for this constituent is from the mill effluent reporting to the pits.
k. Total Zinc	Forecasted total concentration is projected to be lower than the Water Licence limit in Portage and Goose Pits.
l. Total Ammonia	Ammonia forecasted concentrations are higher than the Water Licence limit in Portage and Goose Pits at the end of IPD. A higher load of ammonia is forecasted in the pits due to the additional ammonia load coming from the mill effluent reporting to the pits (i.e., from cyanate hydrolysis).
m. Nitrate	Forecasted total concentration is projected to be higher than the Water Licence limit in Portage Pit E and lower than this limit in Goose Pit and Portage Pit A.
n. Total Dissolved Solids	Higher forecasted total concentration than the Water Licence limit is projected in Portage Pit E since tailings deposition is mainly occurring in this pit from 2019 to 2027. For Portage Pit A, reclaim water transferred from Pit E as well as natural runoff are allowed to accumulate in the pit, explaining the decrease in concentration. In that same period, for Goose Pit, natural runoff is allowed to accumulate in the pit, explaining the decrease in concentration.

o. Chloride	Forecasted concentration in Portage Pit at the end of IPD is projected to be higher than the Water Licence limit for this constituent. However, the forecasted value in Goose Pit is projected to be lower than this limit.
p. Sulphate	Since 2019, the sulphate forecasted concentrations are compared against a threshold value based on BC Environment guidelines for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013). There is no specific Water Licence limit for this constituent. Forecasted concentration in Portage Pit and Goose Pit was projected to be higher than this guideline. An increase in sulphate concentration is observed once IPD has started, suggesting that the main load for this constituent comes from the mill effluent. Concentration of sulphate is expected to increase in Portage Pits (Pit A and E) due to continued deposition of tailings and decrease in Goose Pit due to water transfer to Portage Pit A.
q. Fluoride	There is no specific Water Licence limit for this constituent. However, total forecasted concentration remains higher than the CCME guidelines in Portage and Goose Pits. The fluoride load to the pits comes from the mill effluent and from pit seepages.

3. Based on the forecasted concentrations at the end of IPD, the new water treatment plant required at closure should be designed to treat and manage the following parameters of concern: **aluminum, arsenic, cadmium copper, mercury, nickel, lead, chloride, nitrate, TDS, total ammonia, and total cyanide.** The new water treatment plant should also be designed to meet **pH** and **total suspended solids** requirements.
4. The assimilative capacity of Third Portage Lake will be assessed with the objective of maintaining a baseline or guideline/protective water quality in the lake. Treated effluent discharge water criteria will be assessed based on this objective.
5. Water quality forecast at the end of pit reflooding:
   a. Pit reflooding shall begin once the Reclaim Water has been treated and discharged to the environment. Pit reflooding shall be done via natural reflooding and active transfer of water from Third Portage Lake.

It is important to note that once the water elevation in the pits reaches a level above 131 m, both Portage and Goose Pits will be hydraulically connected. For this reason, only the forecasted concentrations in the mixed Portage and Goose Pits are considered in the model.

   b. As shown in **Table 4-1**, when assuming complete mixing of both pits, most of the parameters are below the CCME guidelines. However, some total metals and elements such as aluminum, silver, arsenic, cadmium, chromium, nickel, lead, selenium, total nitrogen and total ammonia were above or close to these guidelines. As for copper and mercury concentrations, they are higher than the Water Licence limit.
   c. Total copper is higher than the Water Licence limit but is expected to be lower once the particulates are allowed to settle out in the pits.

d. For comparative purposes 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). However, the mass balance model does not consider any natural nitrogen degradation cycle that could occur over the summer months.

In summary, the forecasted values presented in this section provide an indication of the type of effluent that shall be managed and treated at the end of in-pit deposition and following pit reflooding. This information can be used to initiate the assessment of the type of water treatment system required for closure and initiate planning for water treatability testing. All of the parameters listed in **Table 4-1** shall be monitored in the pits and used to re-evaluate next year's water quality forecast model.

4.2.4 Comparison of Forecasted Values

As of 2019, in-pit tailings deposition has started in Goose Pit and Portage Pit instead of the North and South Cell TSF. For this reason, comparison of the model results shall focus on the trends forecasted in Portage and Goose Pits.

Chloride and sulphate shall be used to compare the model results since these constituents are likely to accumulate over time in the reclaim water and not precipitate out of solutions.

Figure 4-18 and **Figure 4-19** compare the forecasted value based on the Water Balance (WB) 2019, WB 2020, WB 2021, WB 2022, and WB 2023. Measured values for chloride and sulphate sampled in the pits are also presented.

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

- The water quality forecast model based on WB 2019 overestimated the forecasted concentration for chloride in Goose and Portage Pits. The WB from 2020 to 2023 models and the current model correct the forecast to be more in line with the measured values.
- The water quality forecast model based on WB 2019 underestimated the forecasted concentration for sulphate in Goose and Portage Pits. The WB from 2020 to 2023 models and the current model correct the forecast to be more in line with the measured values.

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

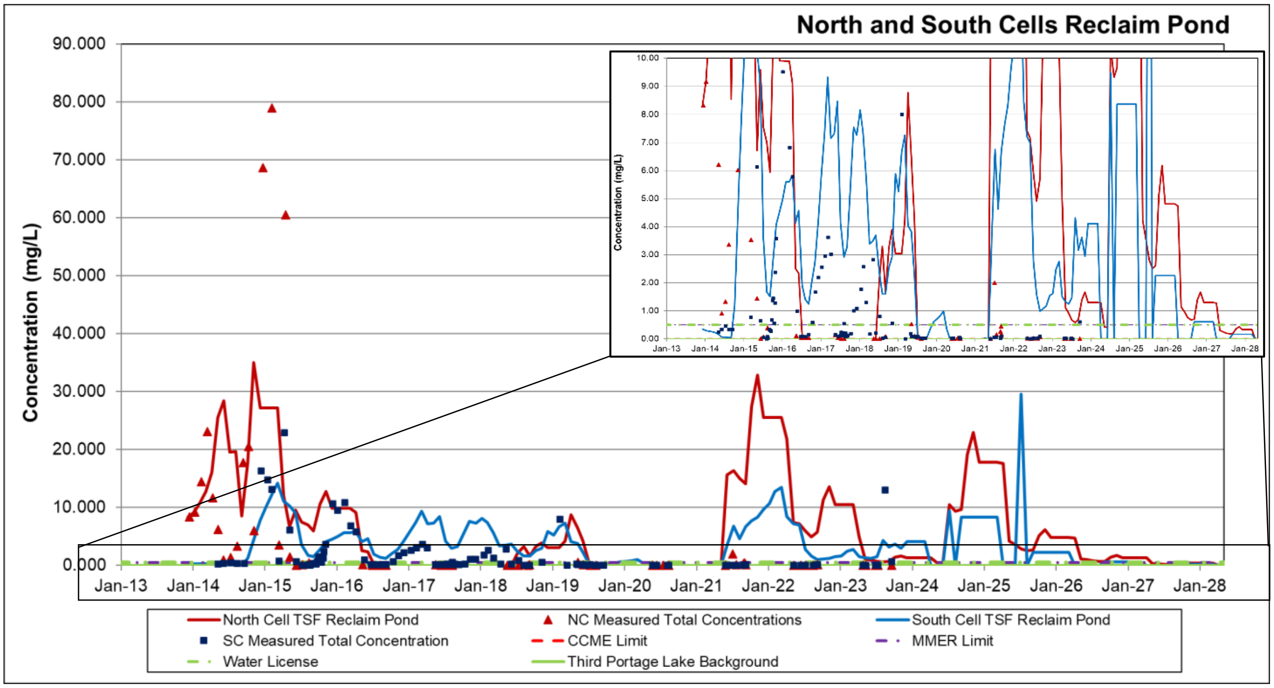
Table 4-1: Summary of Forecasted Concentrations at the End of Deposition and After Pit Reflooding

					END OF DEPOSITION (JUN. 2026)					END OF PIT FLOODING (JUL. 2041)
PARAMETERS	**UNITS**	**WATER LICENCE at ST-9 (3)**	**CCME GUIDELINES**	**3rd PORTAGE LAKE**	**NORTH CELL**	**SOUTH CELL**	**PORTAGE PIT E**	**PORTAGE PIT A**	**GOOSE PIT**	**PORTAGE AND /GOOSE PITS (MIXED PITS)**
pH (assumed)	---	---	---	---	---	---	---	---	---	---
Alkalinity	mg $CaCO_3$/L	n/a	n/a	9.1	18	113	166	193	62	16
Hardness	mg $CaCO_3$/L	n/a	n/a	12.05	136	188	2801	1288	670	85
Total Dissolved Solids (TDS)	mg/L	1400	n/a	22.1	370	293	7682	3634	1598	237
Total Aluminum (Al)	mg/L	1.5	0.10	0.0075	0.263	1.589	4.446	1.890	0.626	0.153
Total Silver (Ag)	mg/L	n/a	0.00025	0.000005	0.00012	0.00009	0.00288	0.00188	0.00152	0.00012
Total Arsenic (As)	mg/L	0.3	0.005	0.0005	0.017	0.020	0.770	0.346	0.511	0.010
Total Barium (Ba)	mg/L	n/a	n/a	0.0037	0.012	0.052	0.180	0.097	0.139	0.013
Total Cadmium (Cd)	mg/L	0.002	0.00004	0.000003	0.00003	0.00004	0.00076	0.00065	0.00306	0.00003
Total Chromium (Cr)	mg/L	n/a	0.001	0.0001	0.00706	0.01471	0.15613	0.07339	0.16174	0.00518
Total Copper (Cu)	mg/L	0.1	0.002	0.0006	0.322	0.014	8.021	3.941	3.063	0.229
Total Iron (Fe)	mg/L	n/a	0.30	0.0173	0.392	3.28	5.16	2.73	2.73	0.26
Total Manganese (Mn)	mg/L	n/a	0.23	0.0016	0.043	0.493	0.631	0.809	0.117	0.066
Total Mercury (Hg)	mg/L	0.0004	0.000026	0.000003	0.00003	0.000014	0.000183	0.000300	0.000075	0.000123
Total Molybdenum (Mo)	mg/L	n/a	0.073	0.0002	0.007	0.006	0.190	0.106	0.205	0.006
Total Nickel (Ni)	mg/L	0.2	0.025	0.0006	0.081	0.062	2.058	1.538	1.912	0.072
Total Lead (Pb)	mg/L	0.1	0.001	0.00003	0.002	0.00356	0.048	0.025	0.144	0.0015
Total Selenium (Se)	mg/L	n/a	0.001	0.00003	0.01479	0.0011	0.3826	0.1457	0.0591	0.0090

					END OF DEPOSITION (JUN. 2026)					END OF PIT FLOODING (JUL. 2041)
PARAMETERS	UNITS	WATER LICENCE at ST-9 (3)	CCME GUIDELINES	3rd PORTAGE LAKE	NORTH CELL	SOUTH CELL	PORTAGE PIT E	PORTAGE PIT A	GOOSE PIT	PORTAGE AND /GOOSE PITS (MIXED PITS)
Total Strontium (Sr)	mg/L	n/a	n/a	0.0132	0.155	0.002	4.294	1.694	0.749	0.113
Total Thallium (Ti)	mg/L	n/a	0.0008	0.000005	0.00014	0.000001	0.00012	0.00013	0.00042	0.00005
Total Uranium (U)	mg/L	n/a	0.015	0.000049	0.001	0.00001	0.0417	0.0377	0.0225	0.0011
Total Zinc (Zn)	mg/L	0.4	0.010	0.0015	0.015	0.014	0.024	0.026	0.073	0.003
Chloride	mg/L	1000	120	0.7925	45	13	1242	484	258	34
Fluoride (F)	mg/L	n/a	0.12	0.07925	0.094	0.26	0.46	0.31	0.41	0.10
Sulphate (SO_4)	mg SO_4/L	n/a	128[2]	5.1	117	107	2646	1721	822	63
Total Cyanide (CNt)	mg/L	0.5	0.005	0.0005	1.14	0.01	22.45	2.01	0.00009	0.00002
Total Ammonia	mg N/L	16.0	1.83	0.0145	4	2	114	66	29	2.7
Nitrate (NO_3)	mg N/L	20.0	2.94	0.03305	3	9	41	17	5	1.3
Total N equivalent	mg N/L	n/a	0.35[1]	0.04755	7	10	155	83	34	4.1

Notes:

1. *Value based on the threshold concentration for the classification of an oligotrophic lake in terms of nutrient concentrations (Nurnberg 1996).*
2. *Threshold value for sulphate based on BC Environment guidelines for the protection of aquatic life for very soft water (0-30 mg/L) (April 2013).*
3. *Mass balance forecasted concentration higher than current Water Licence limits at ST-9. For comparison purposes only.*
4. *Mass balance forecasted concentration higher than CCME limits. For comparison purposes only.*



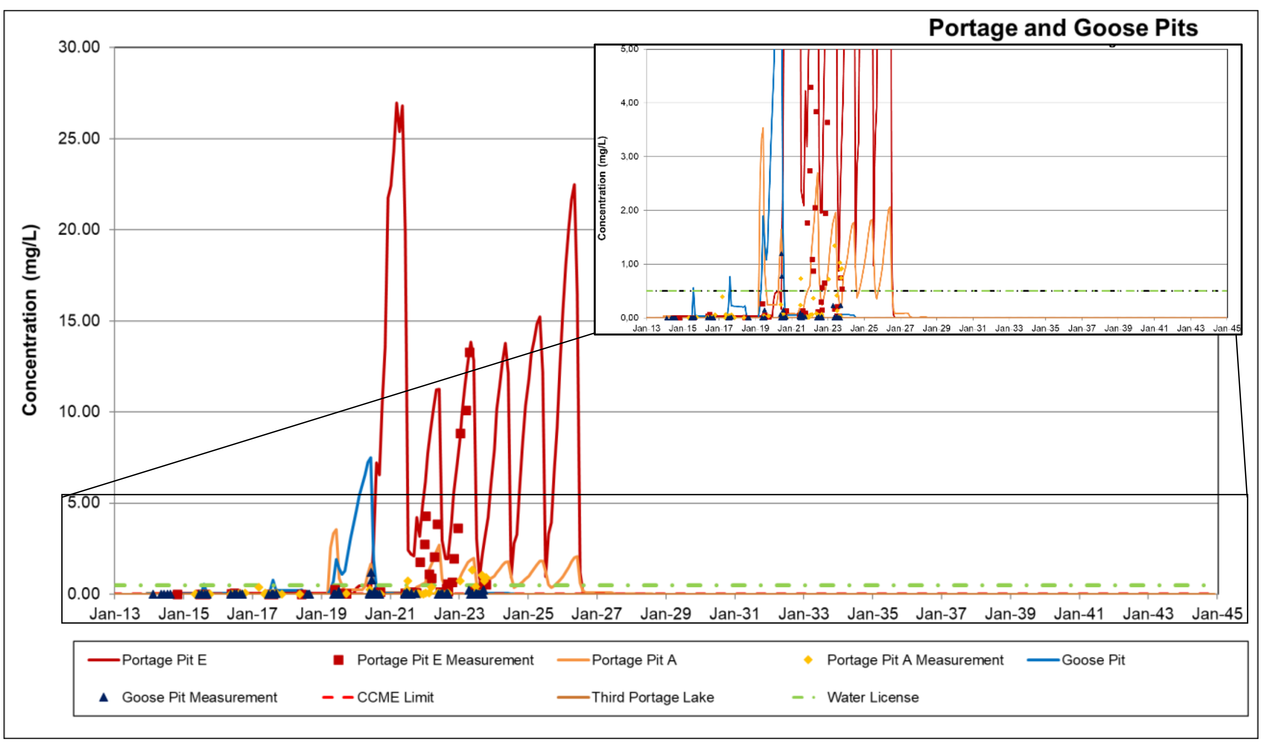
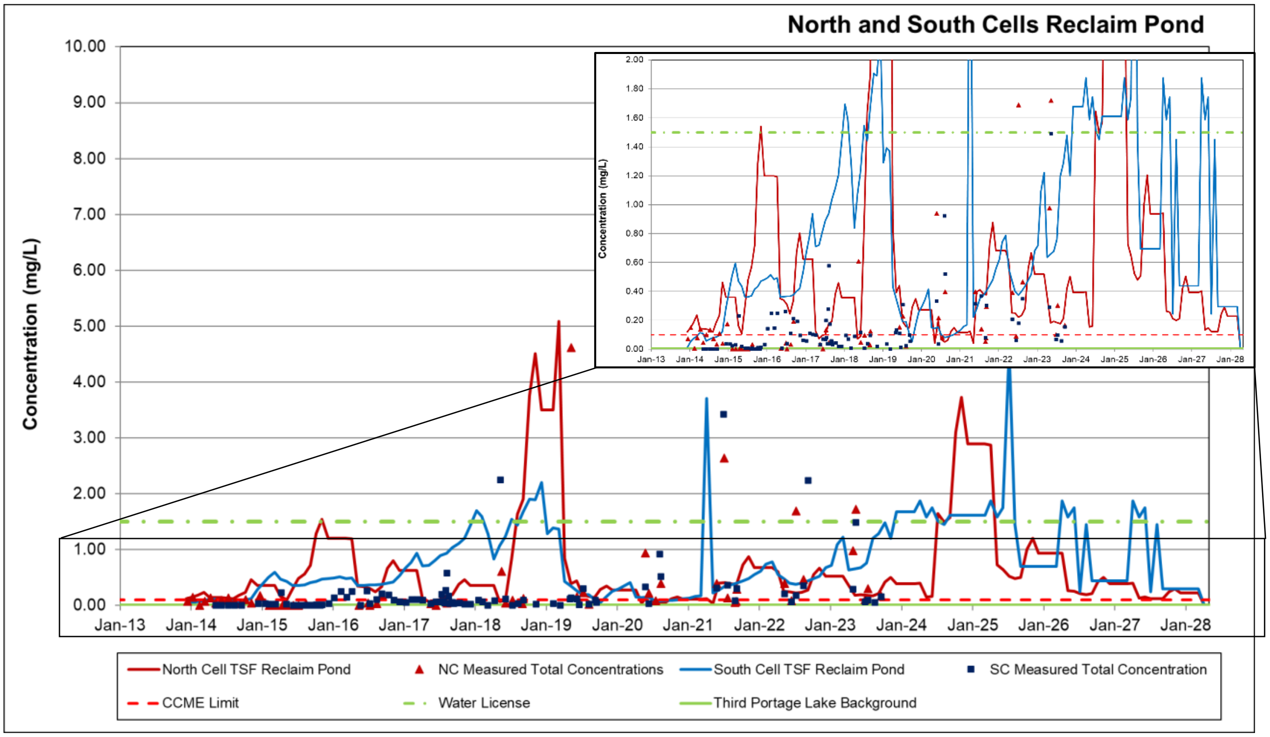


Figure 4-1: Total Cyanide Forecasted Concentration



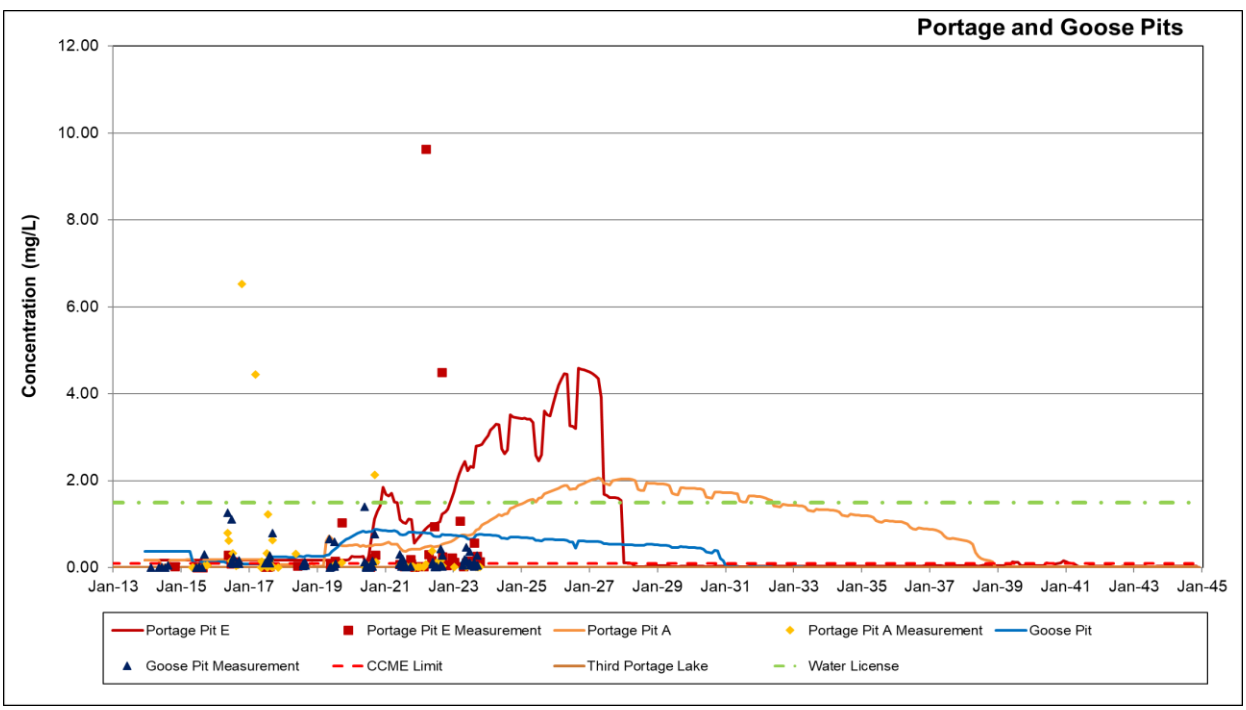
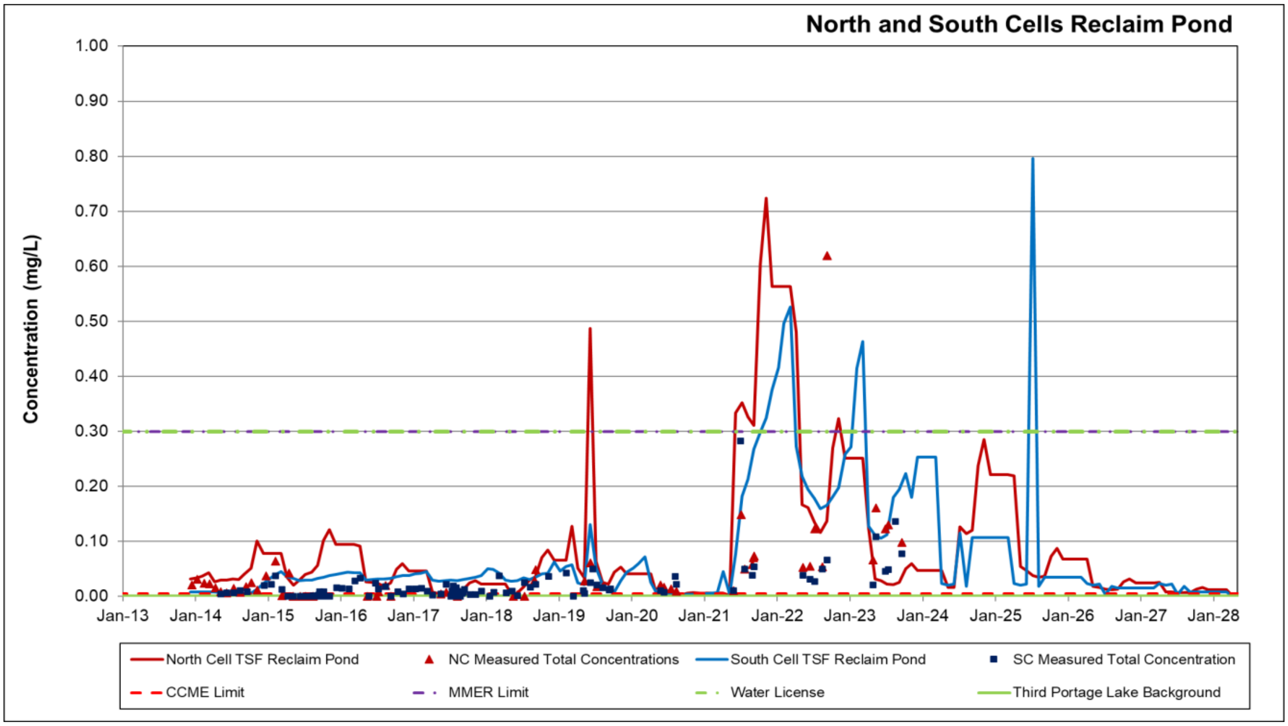


Figure 4-2: Total Aluminum Forecasted Concentration



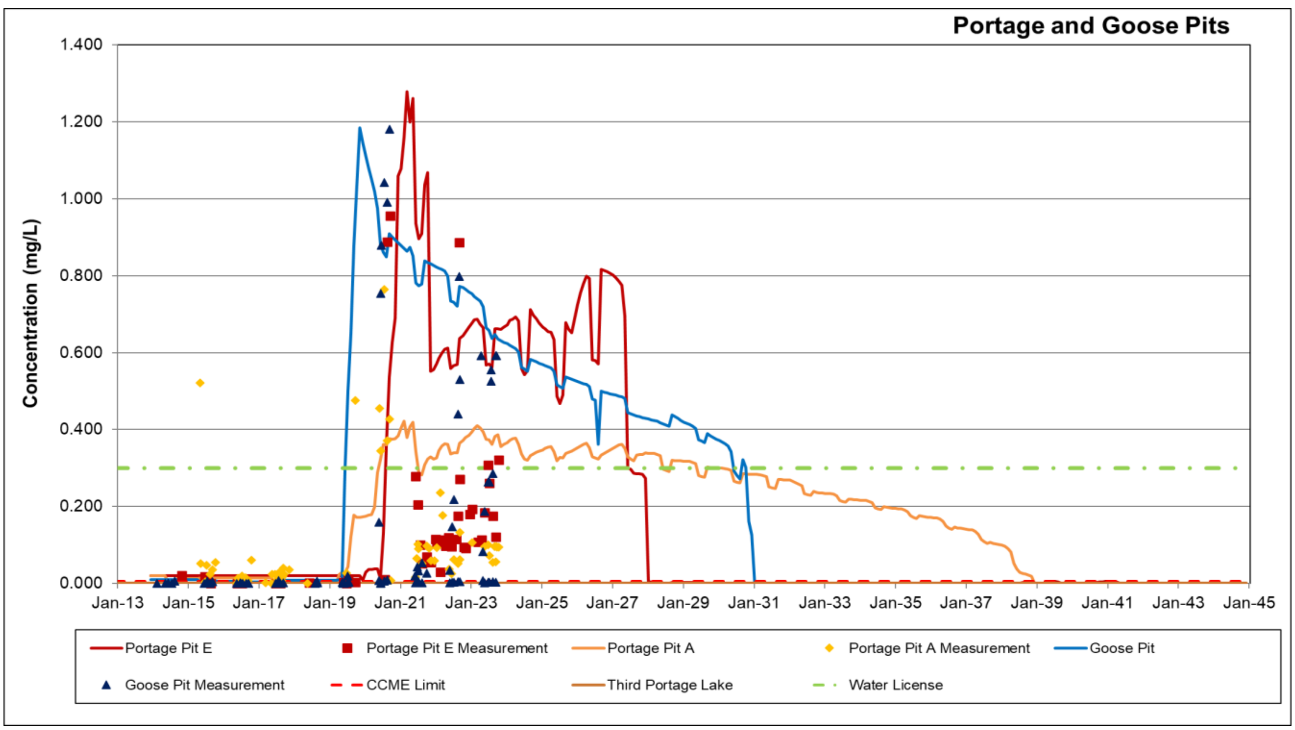
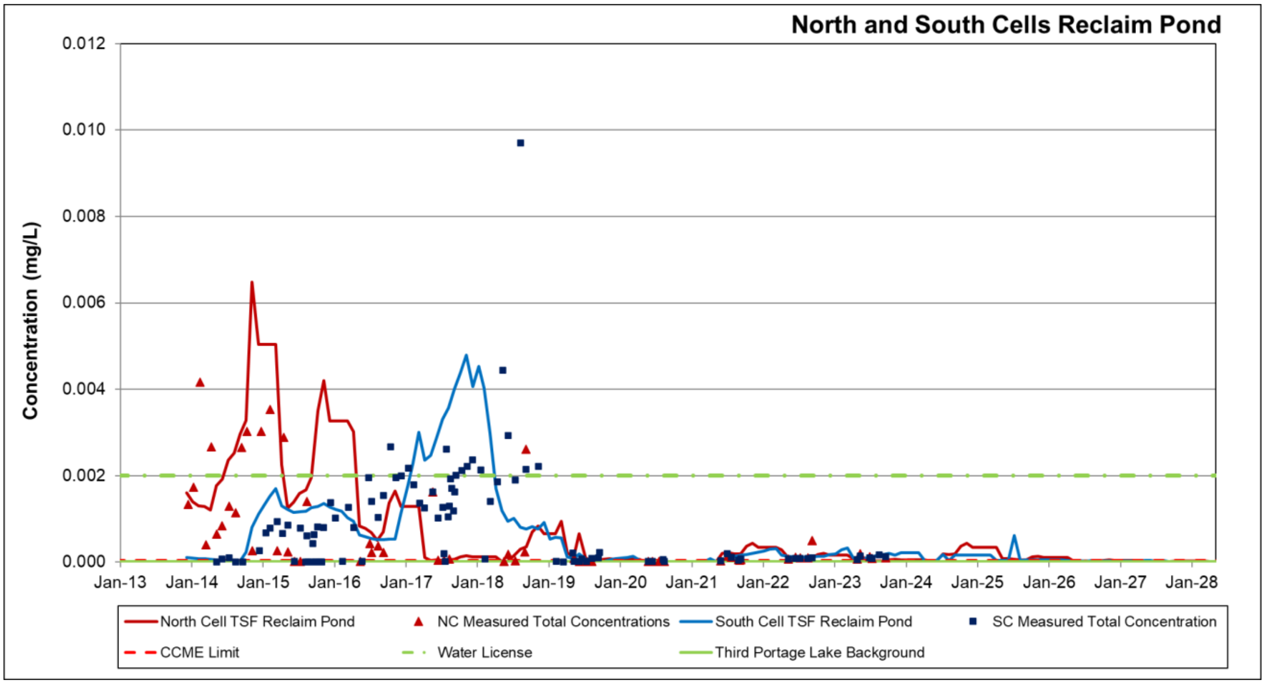


Figure 4-3: Total Arsenic Forecasted Concentration



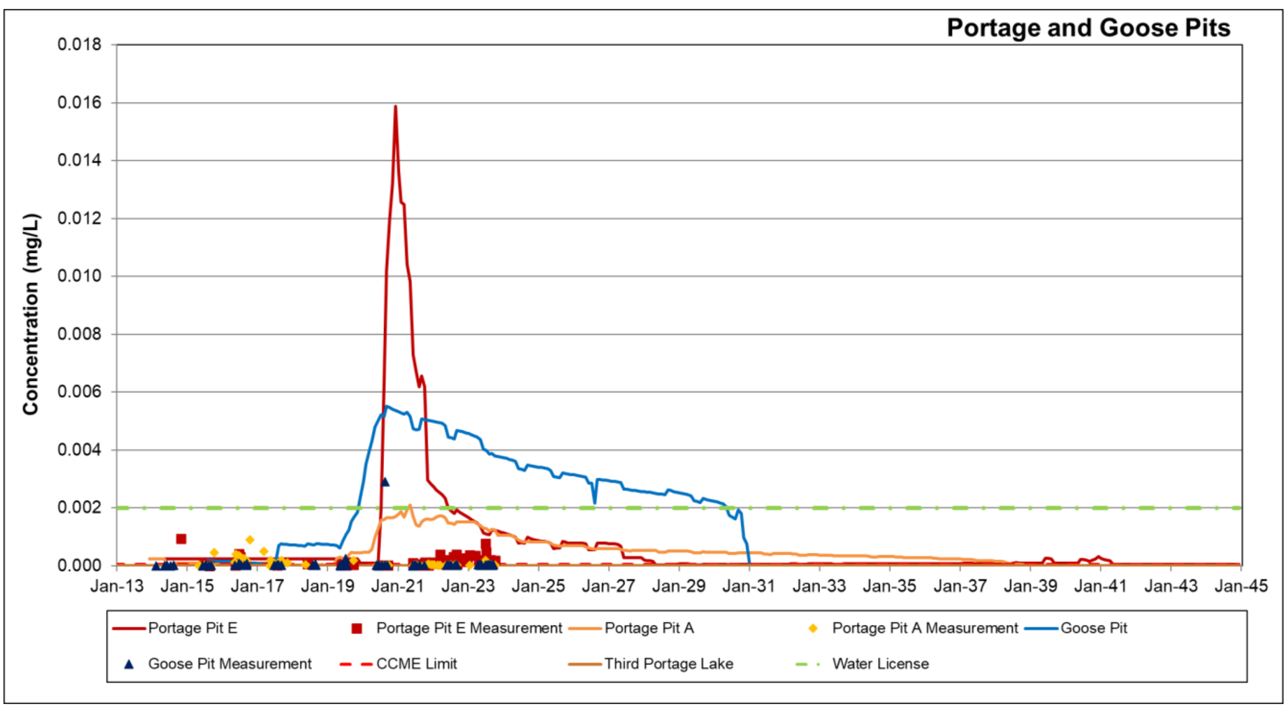
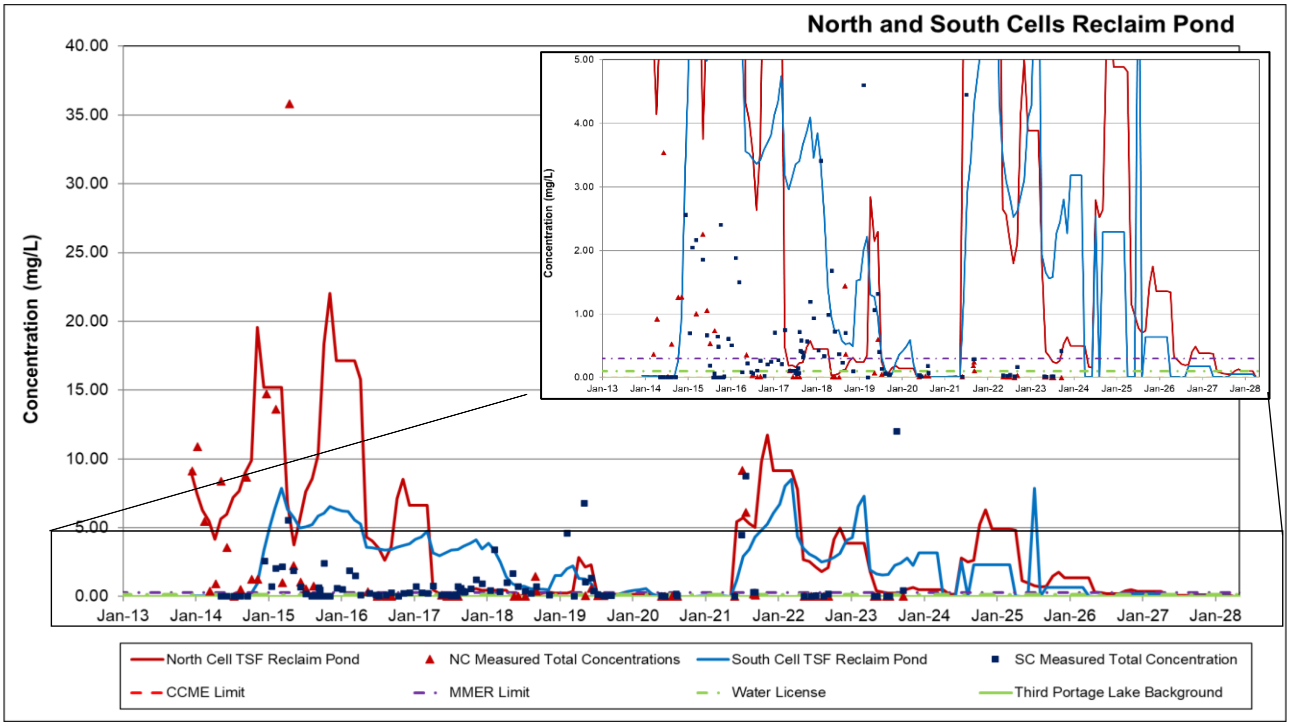


Figure 4-4: Total Cadmium Forecasted Concentration



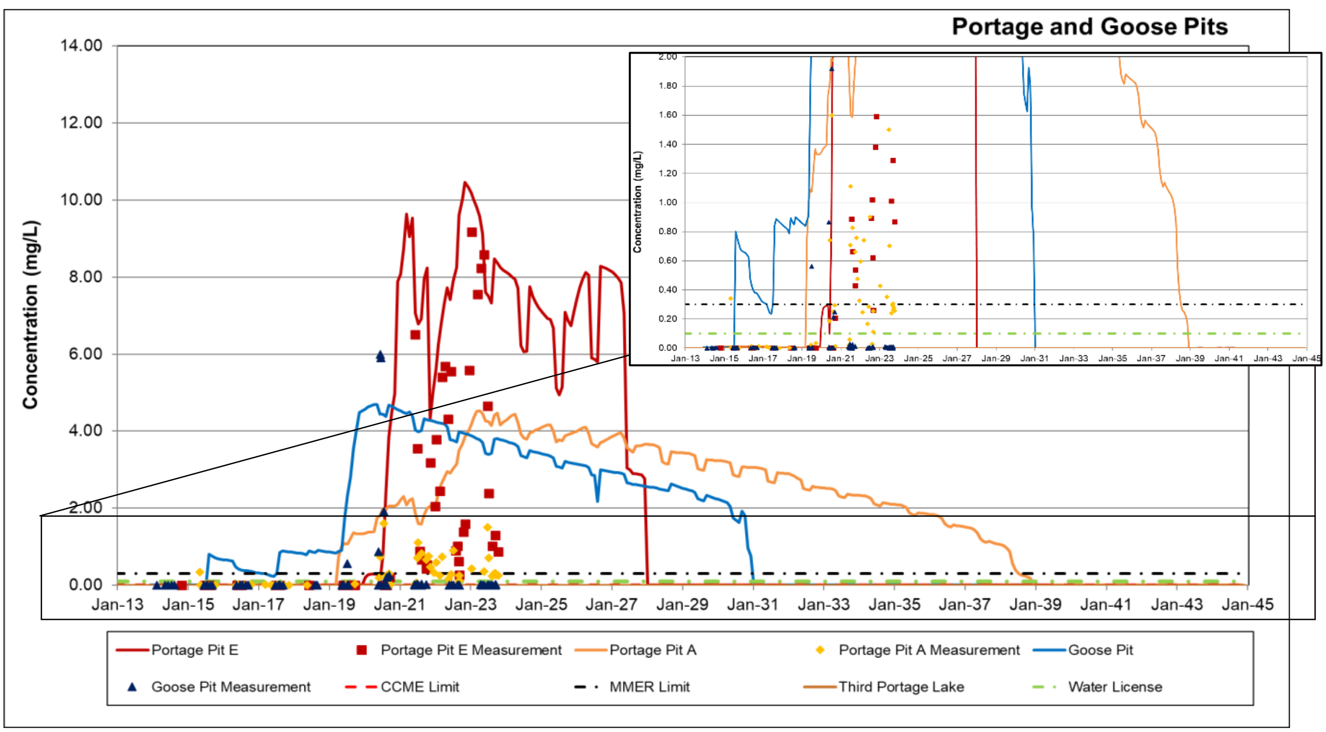
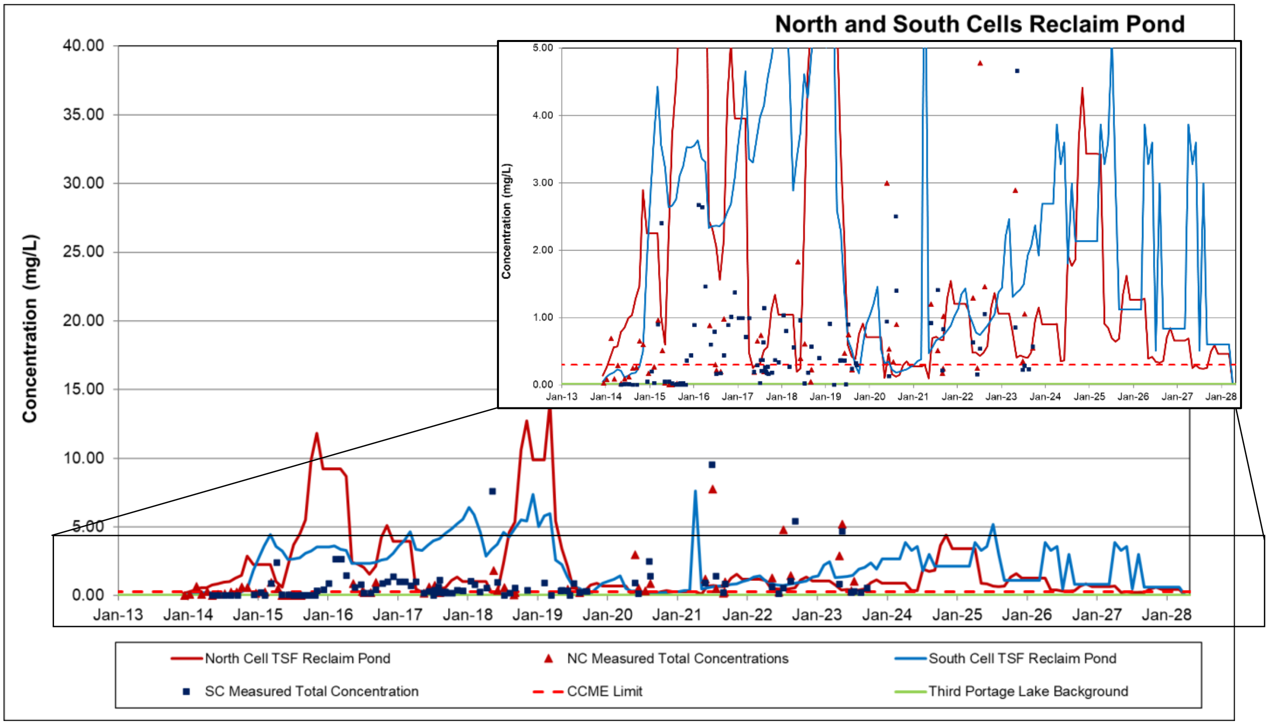


Figure 4-5: Total Copper Forecasted Concentration



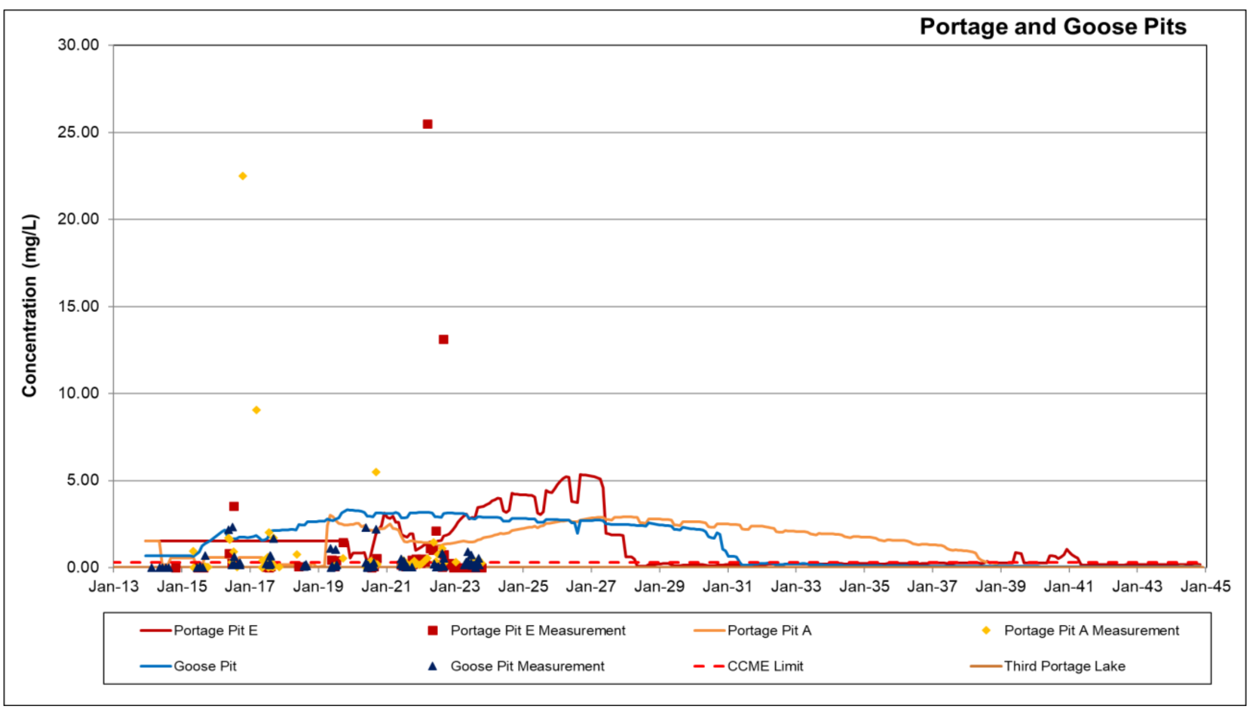
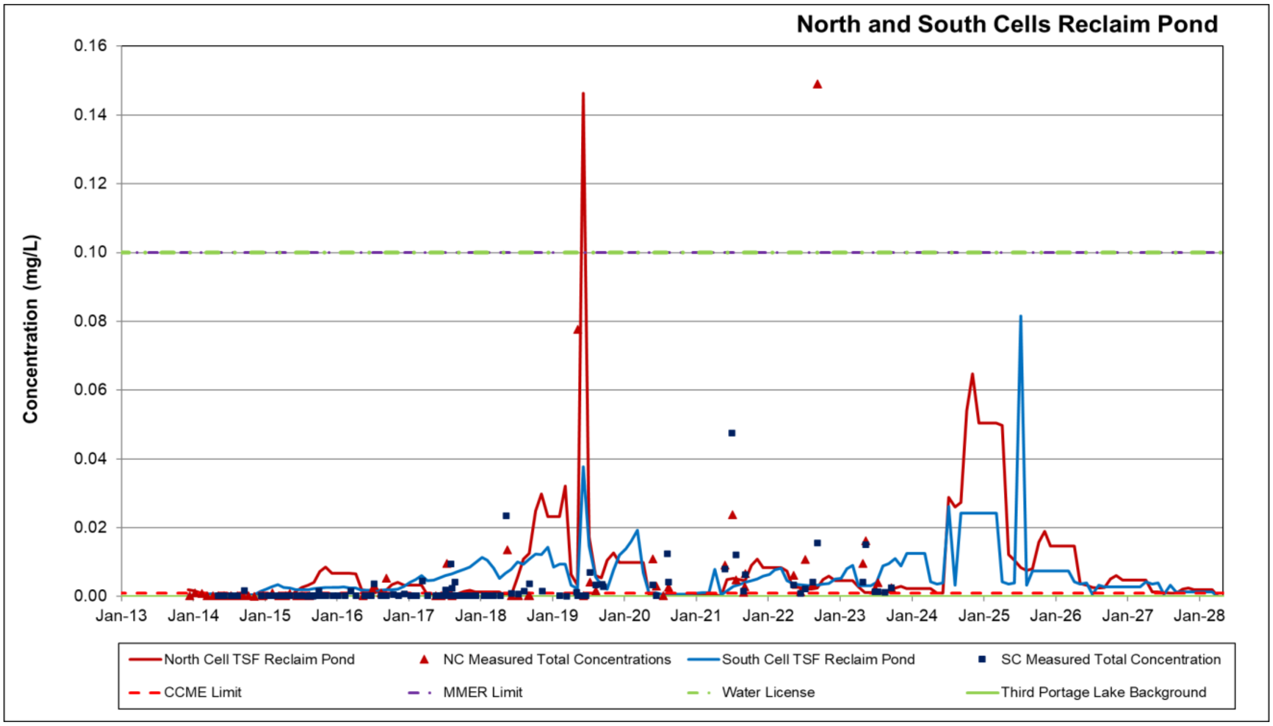


Figure 4-6: Total Iron Forecasted Concentration



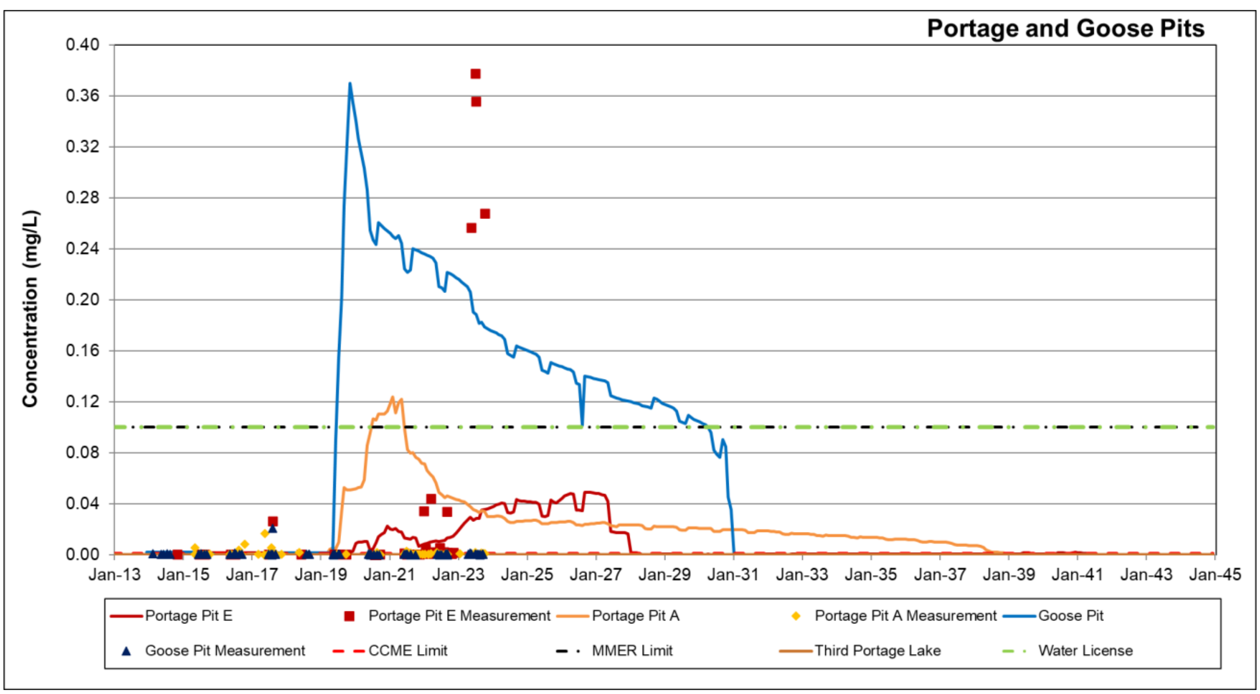
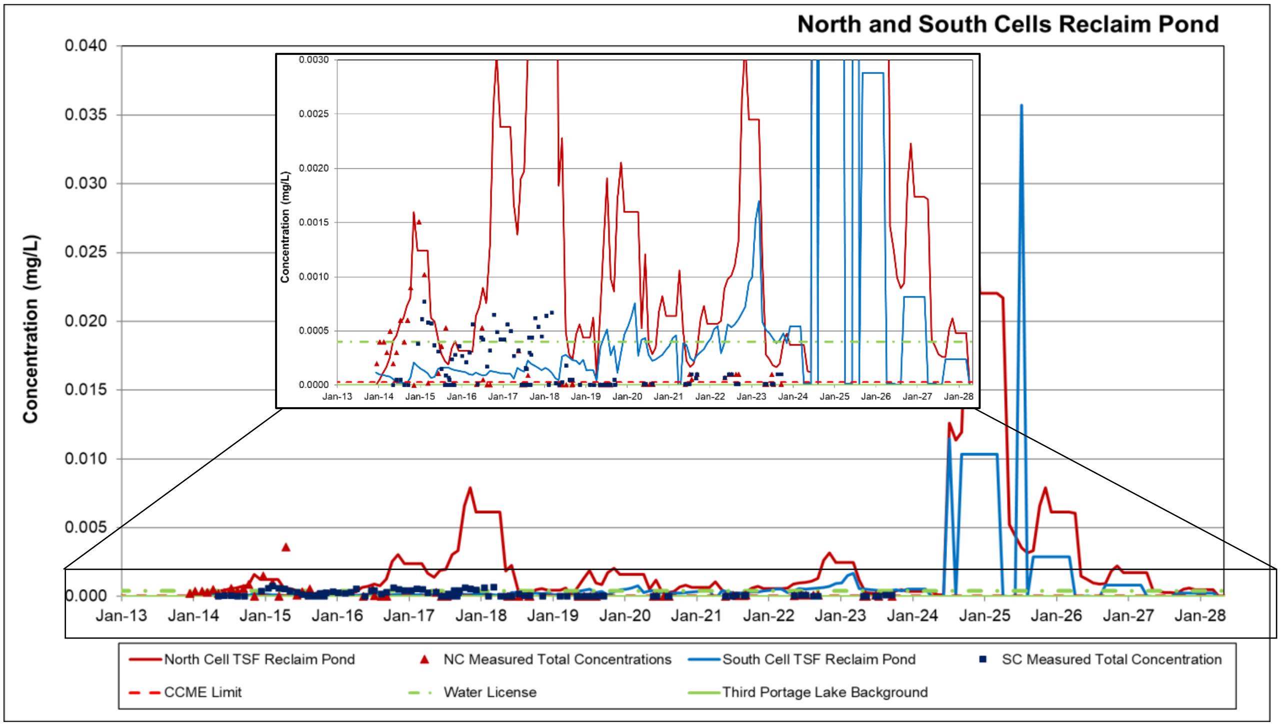


Figure 4-7: Total Lead Forecasted Concentration



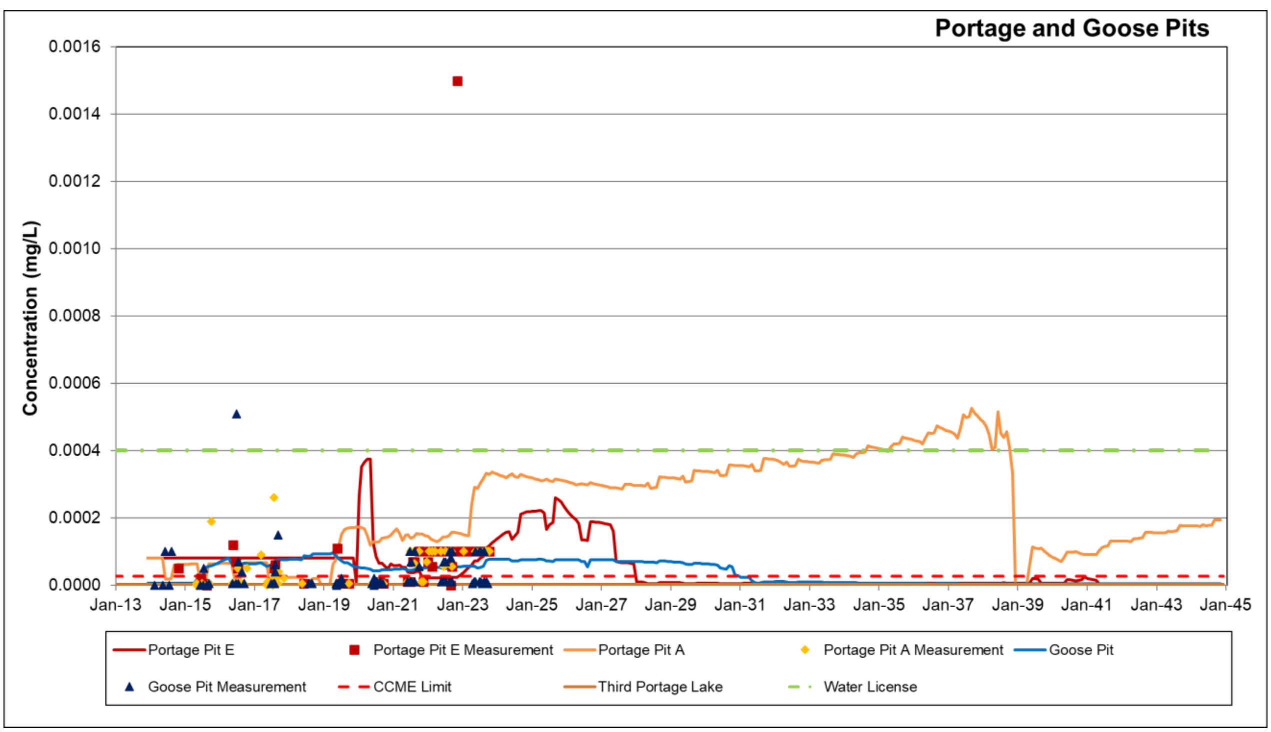
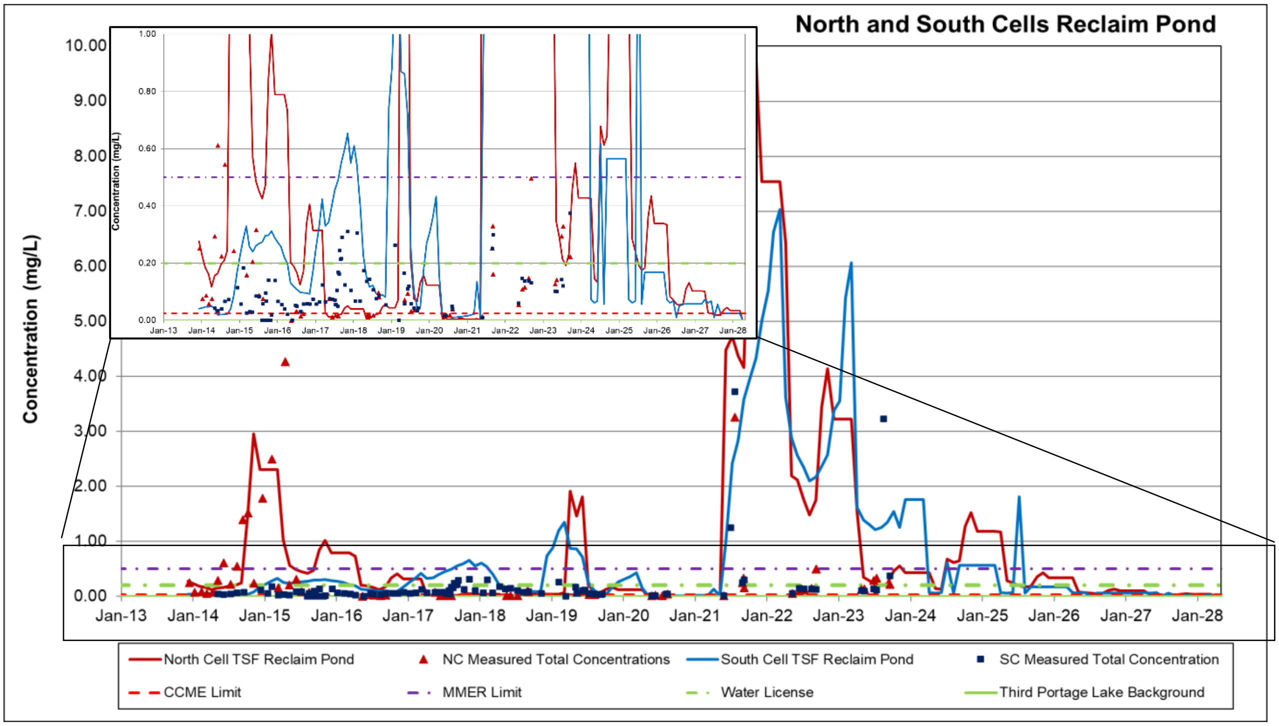


Figure 4-8: Total Mercury Forecasted Concentration



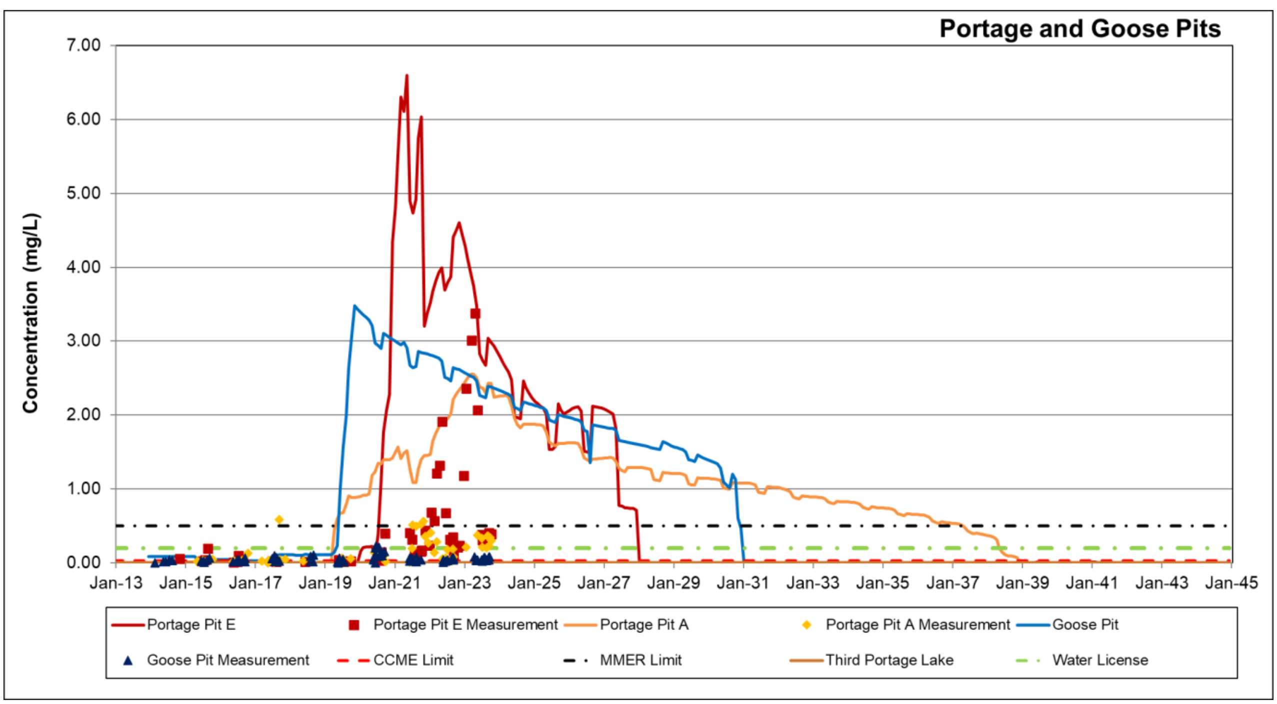
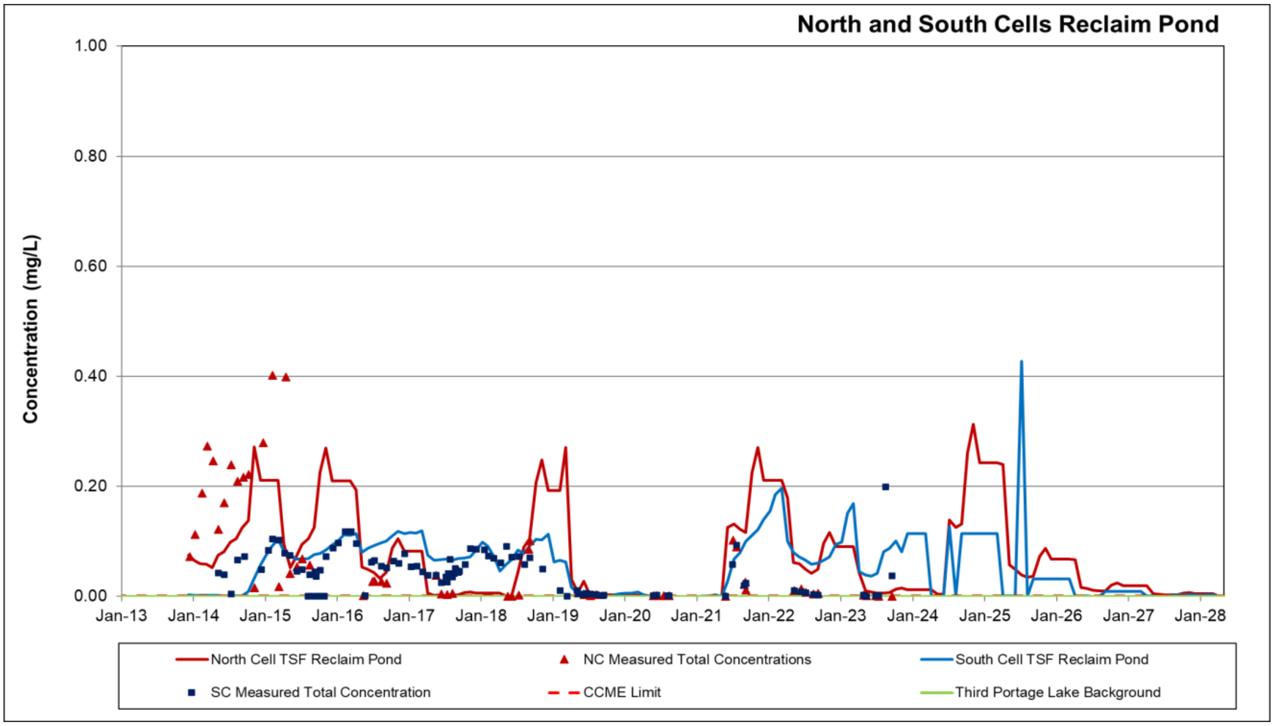


Figure 4-9: Total Nickel Forecasted Concentration



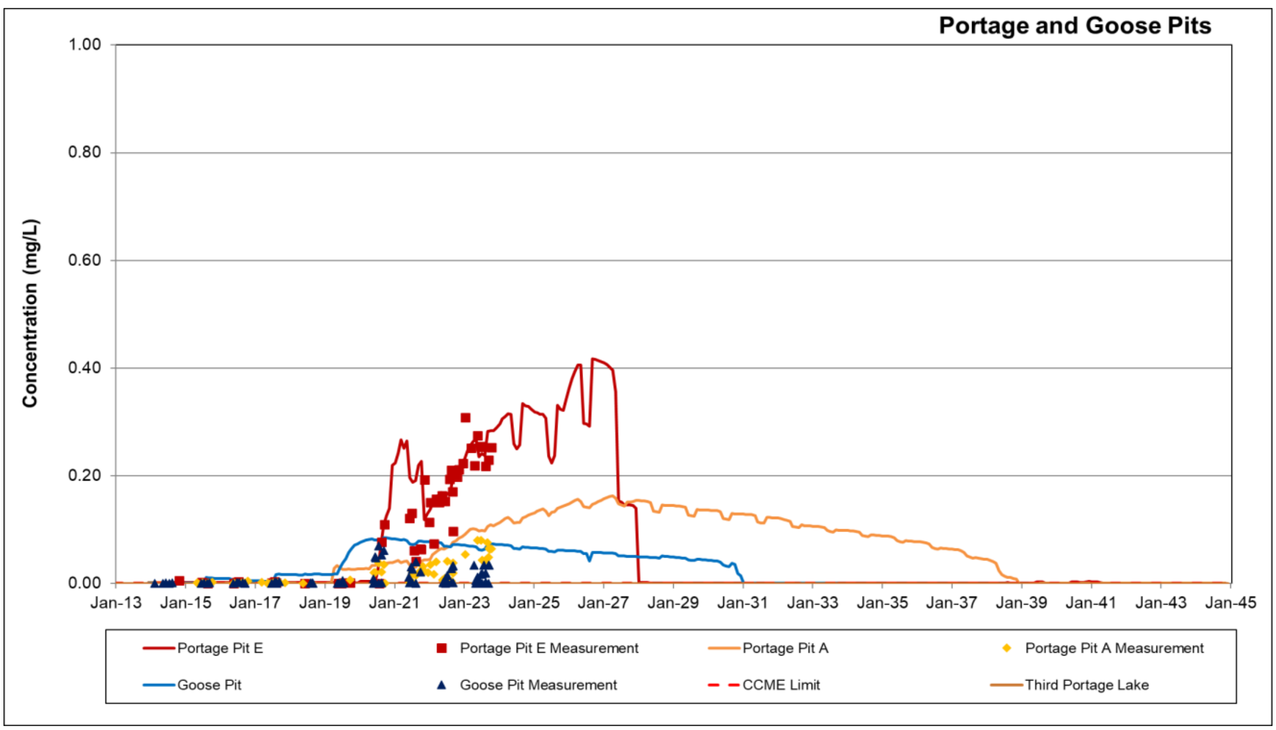
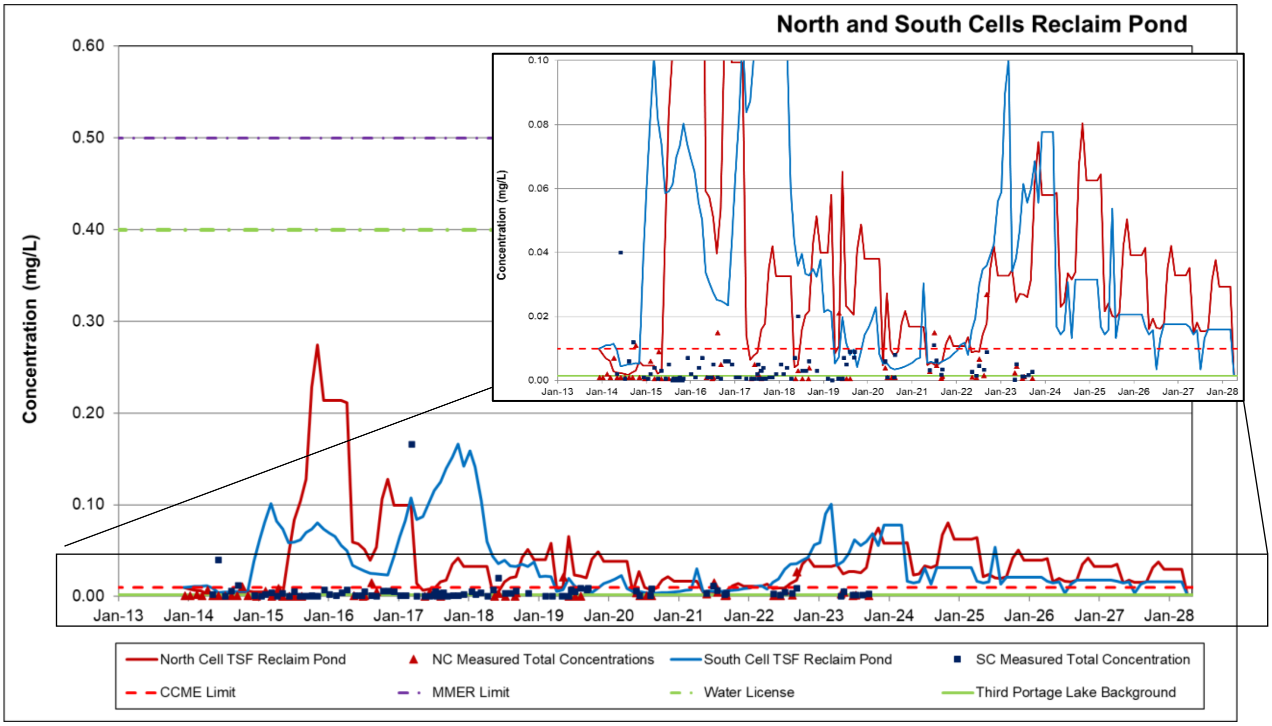


Figure 4-10: Total Selenium Forecasted Concentration



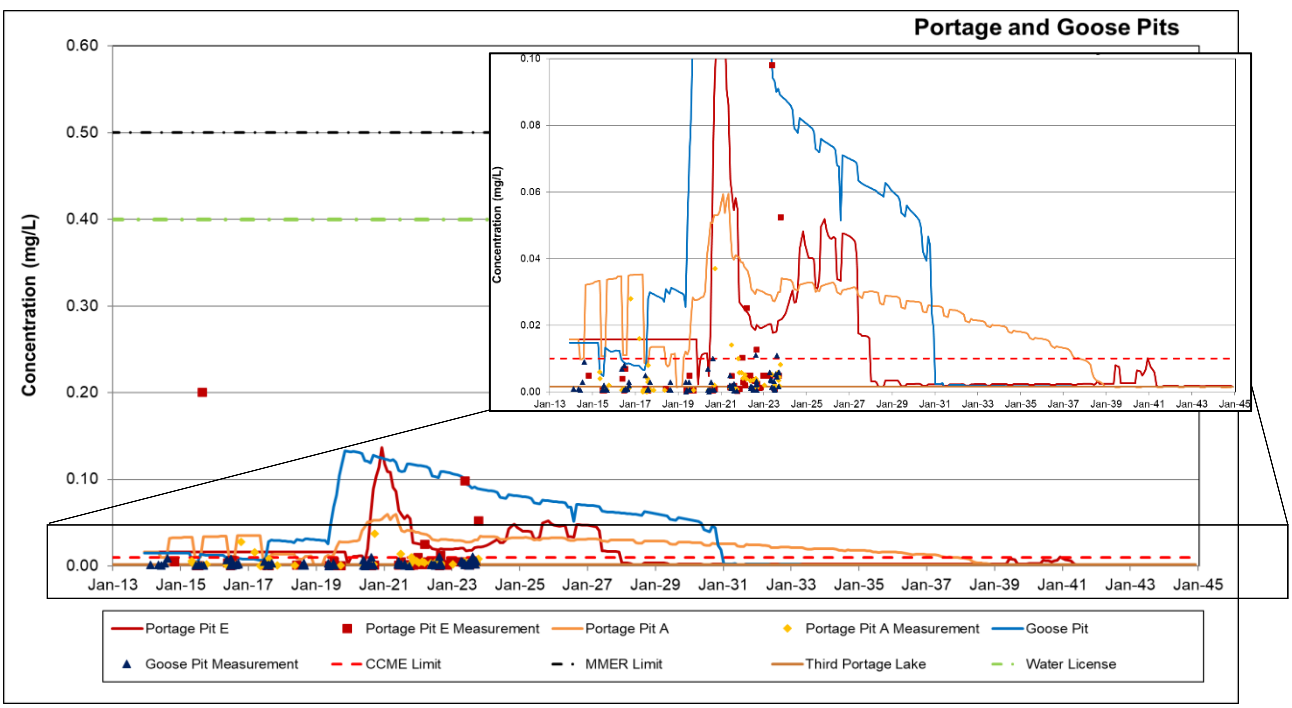
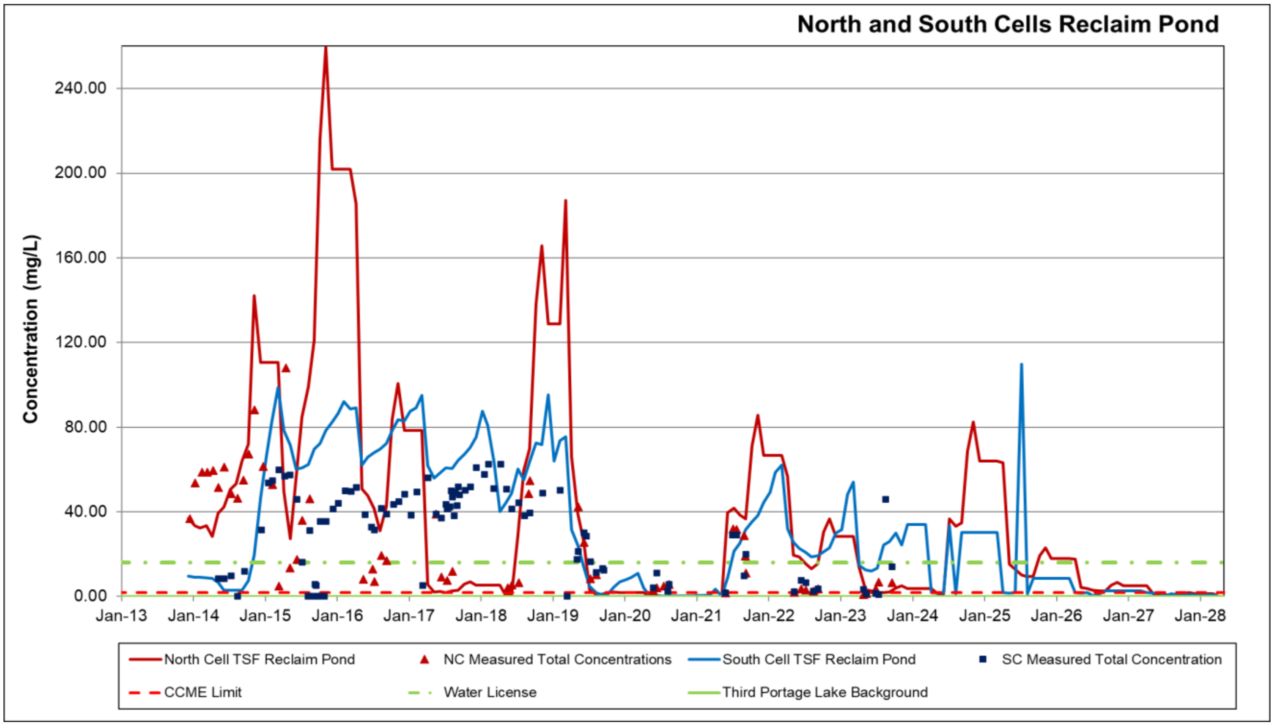


Figure 4-11: Total Zinc Forecasted Concentration



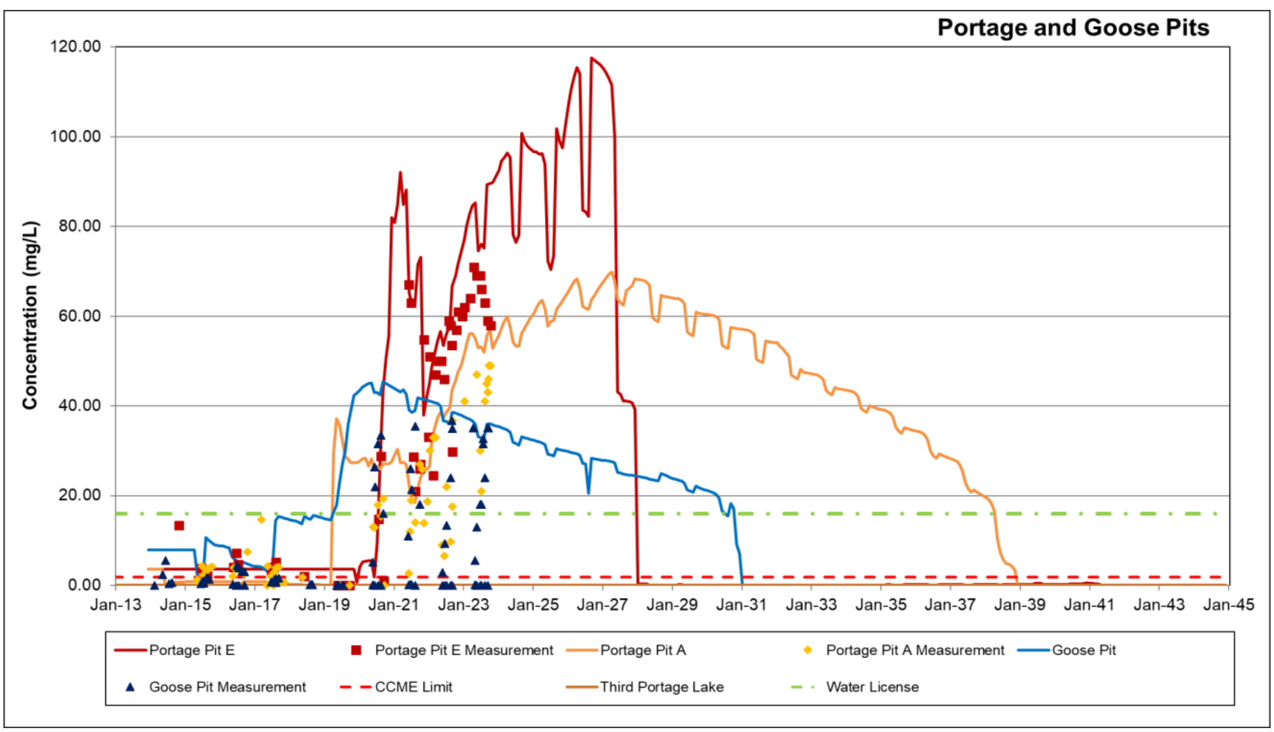
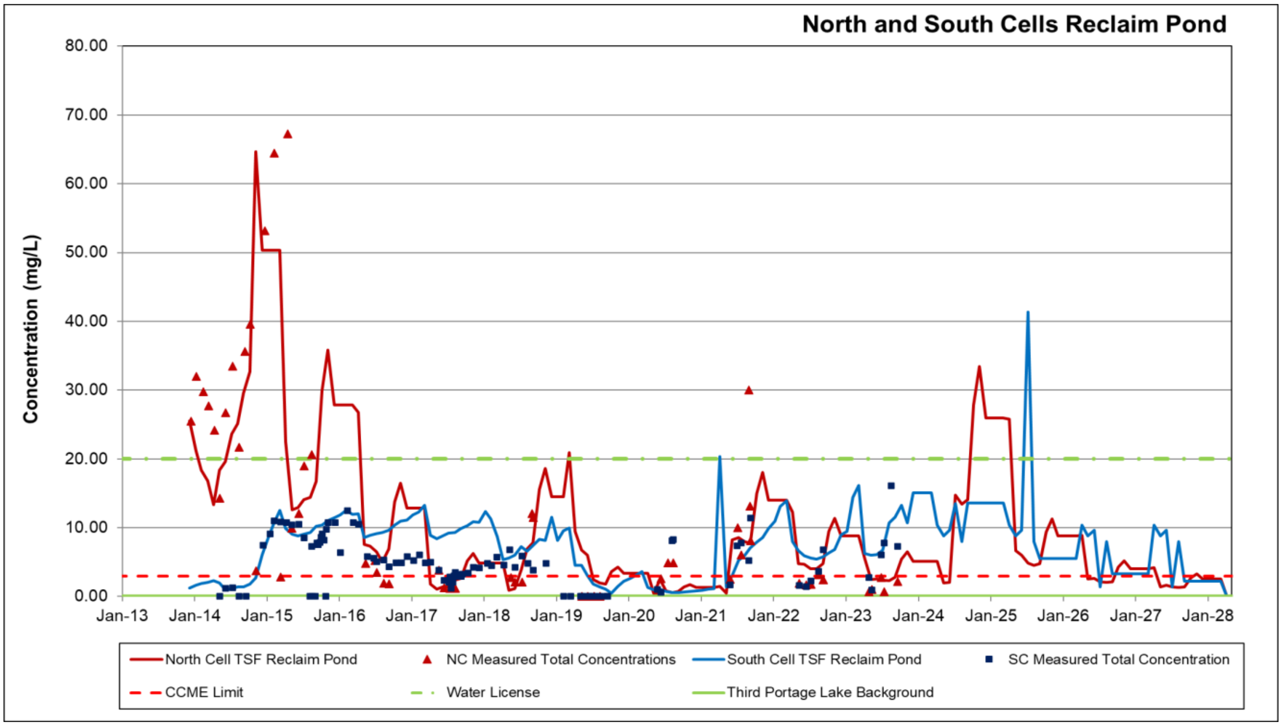


Figure 4-12: Total Ammonia Forecasted Concentration



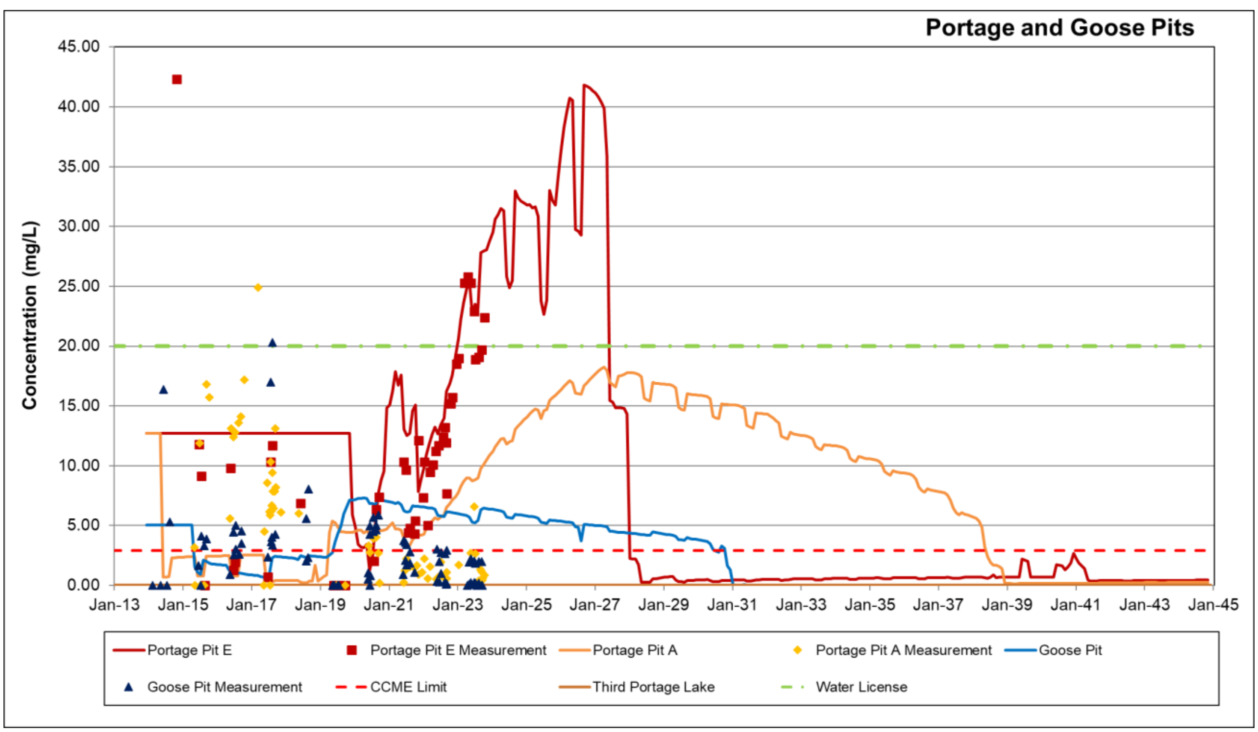
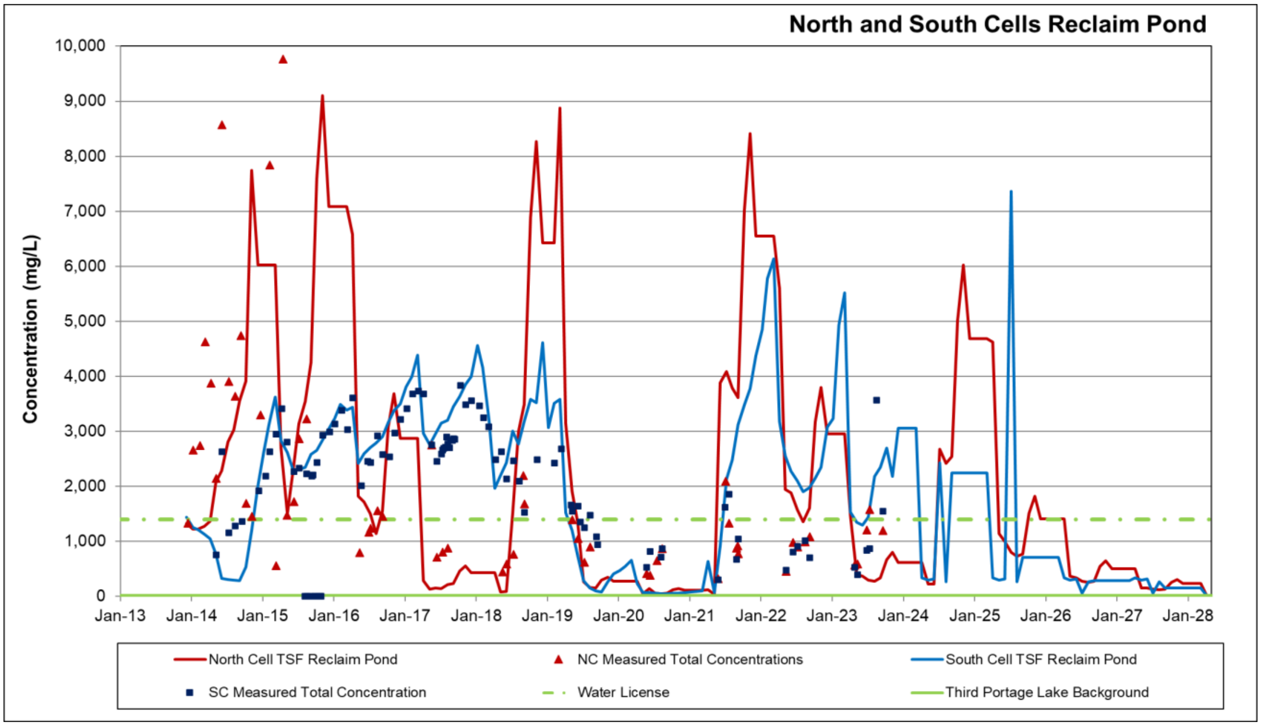


Figure 4-13: Nitrate Forecasted Concentration



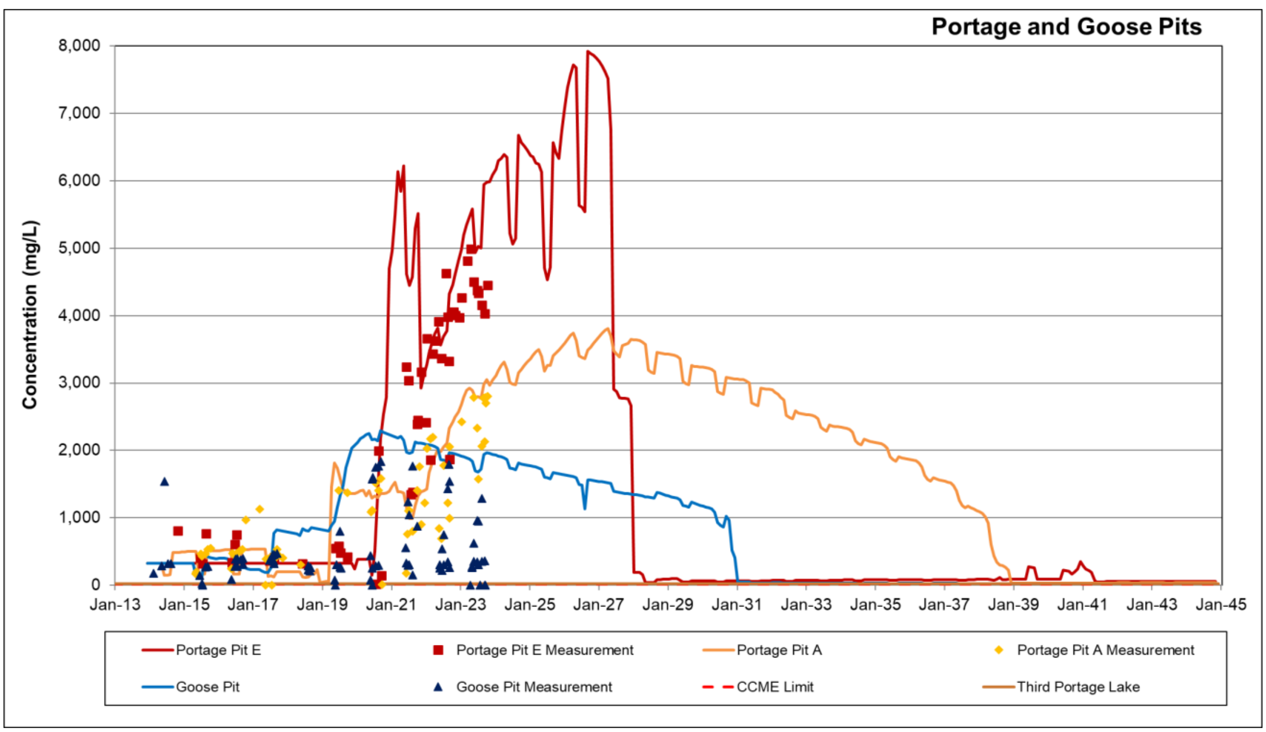
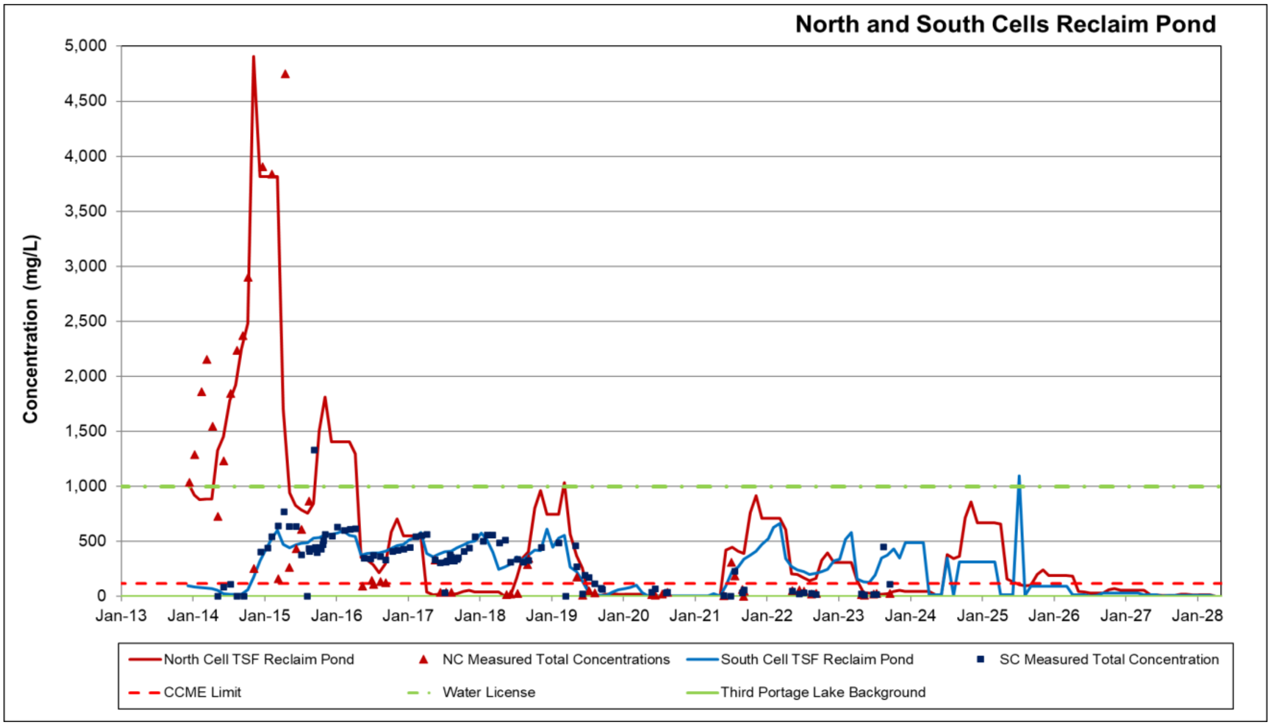


Figure 4-14: Total Dissolved Solids Forecasted Concentration



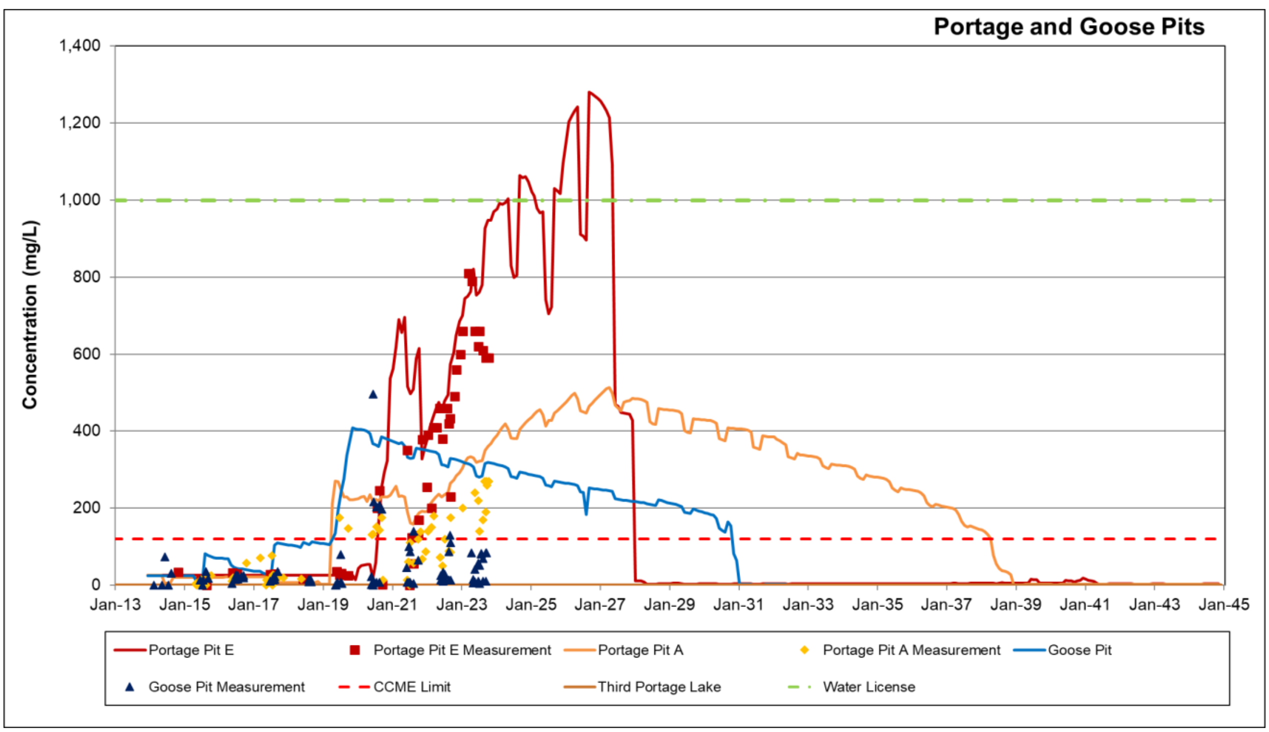
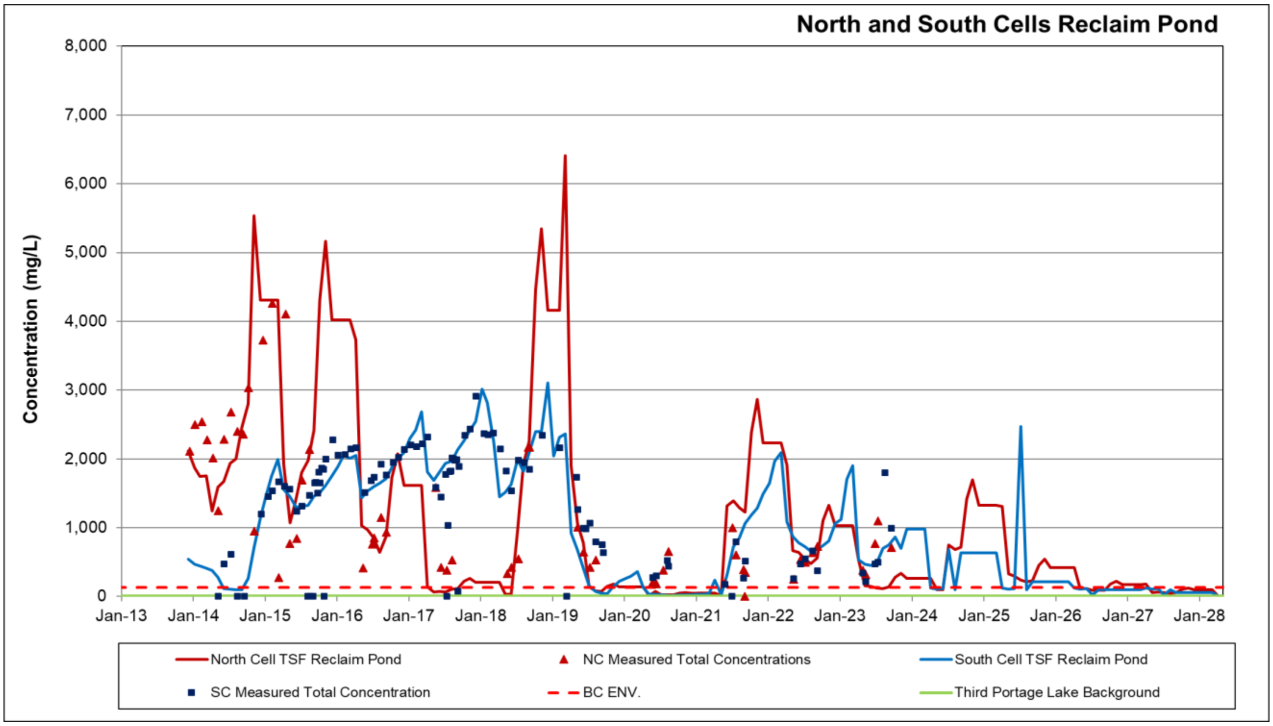


Figure 4-15: Chloride Forecasted Concentration



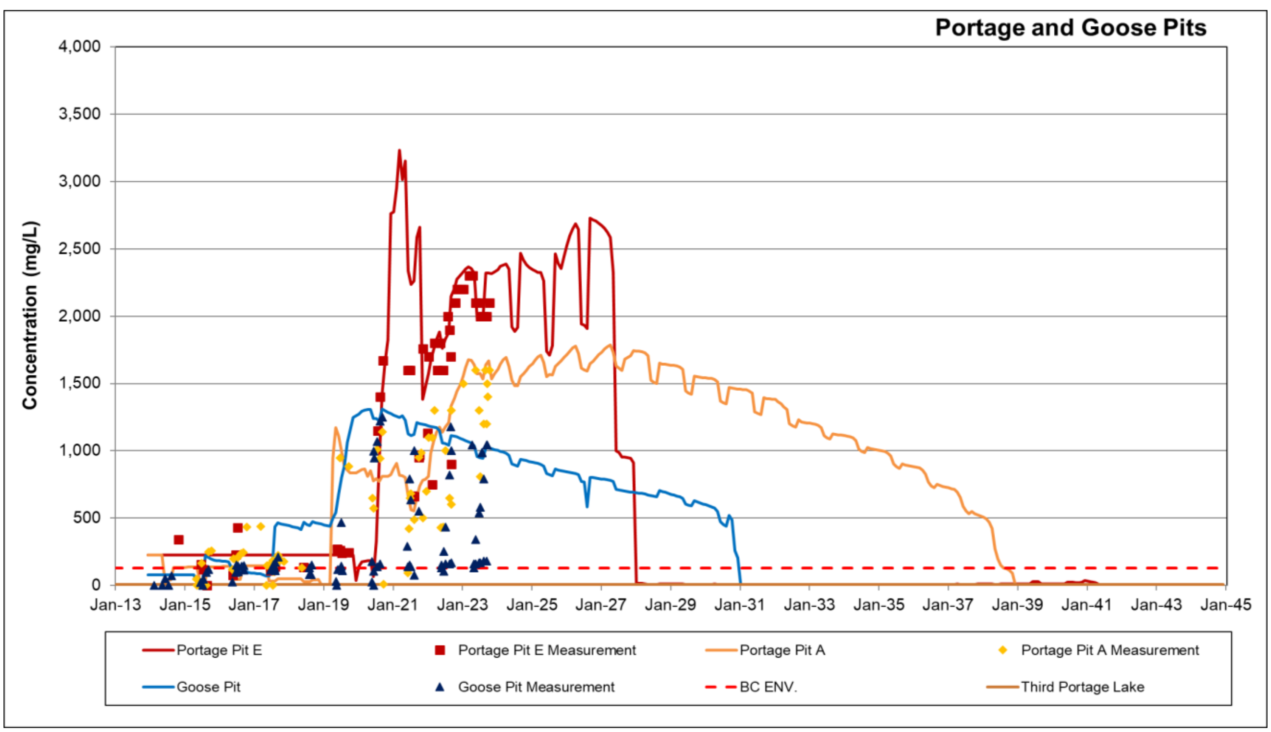
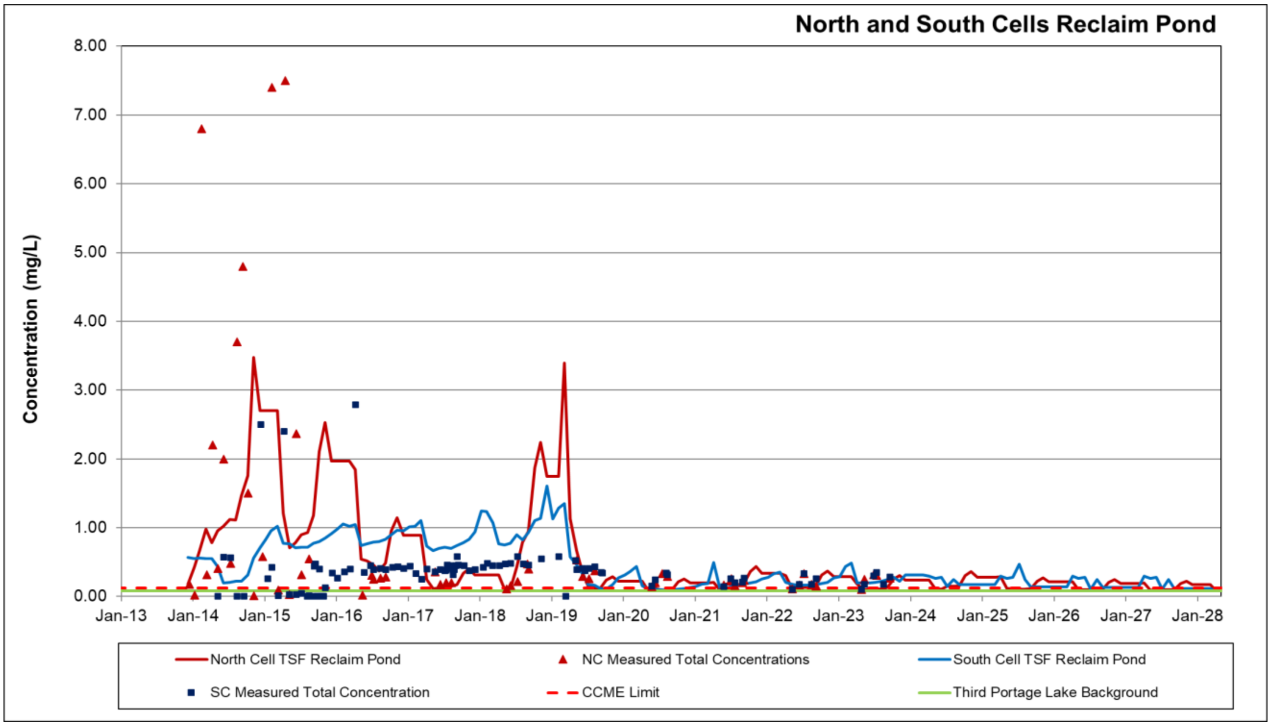


Figure 4-16: Sulphate Forecasted Concentration



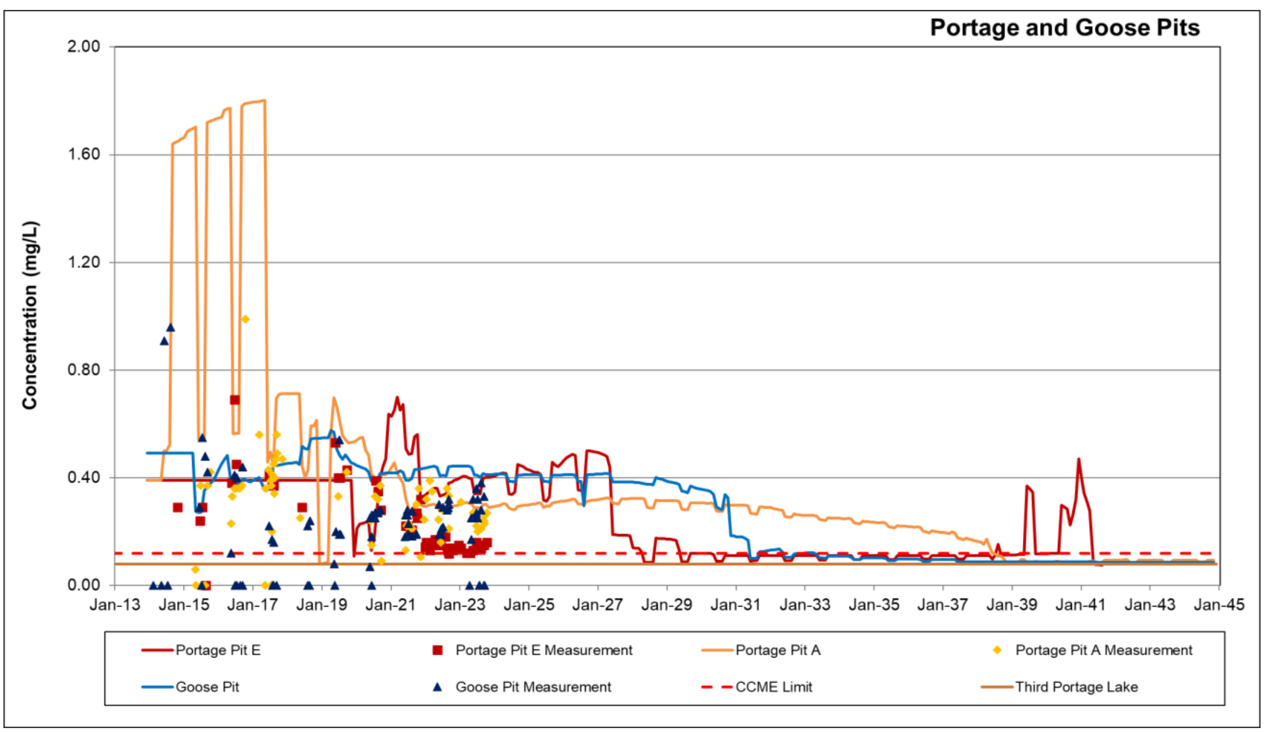


Figure 4-17: Fluoride Forecasted Concentration

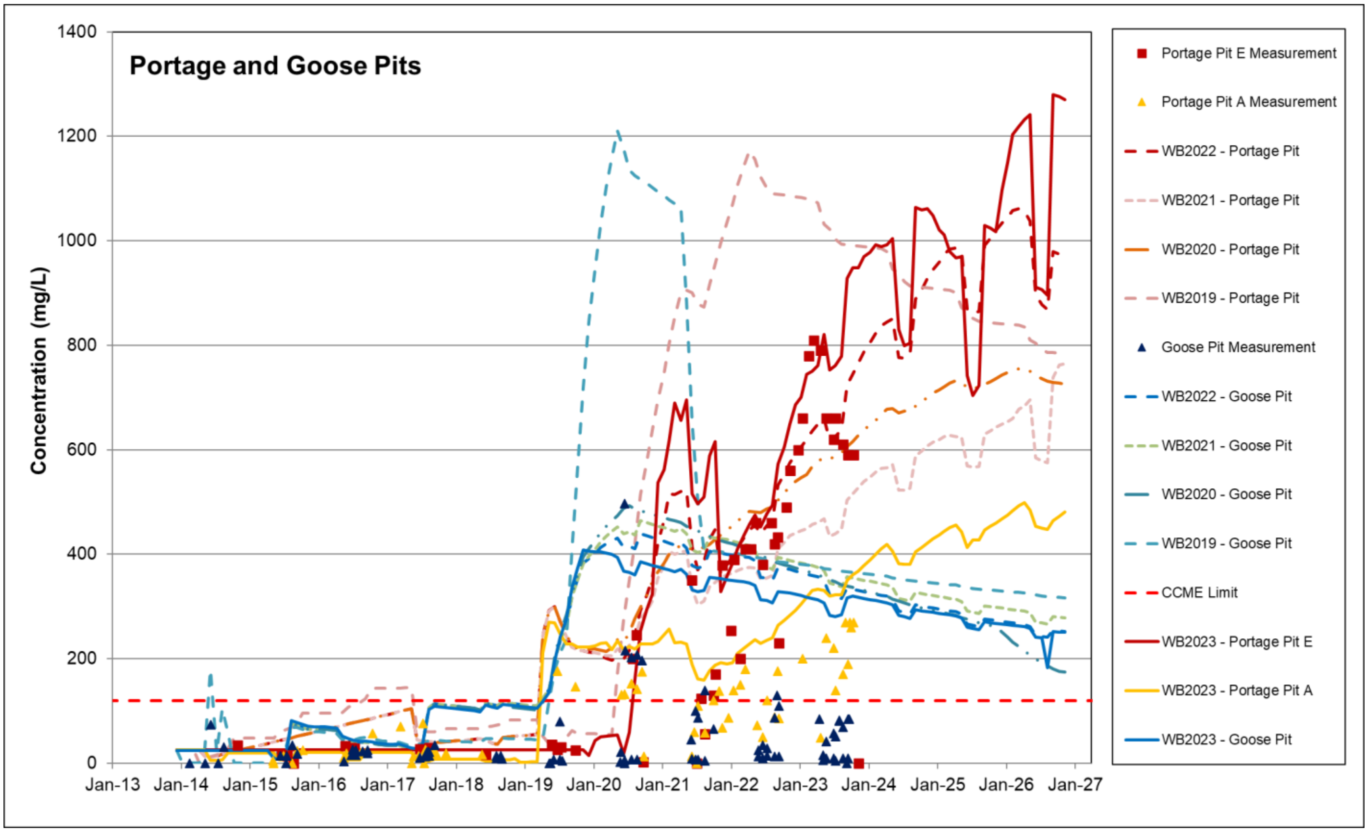


Figure 4-18: Comparison of Forecasted Chloride Concentration in Portage and Goose Pits

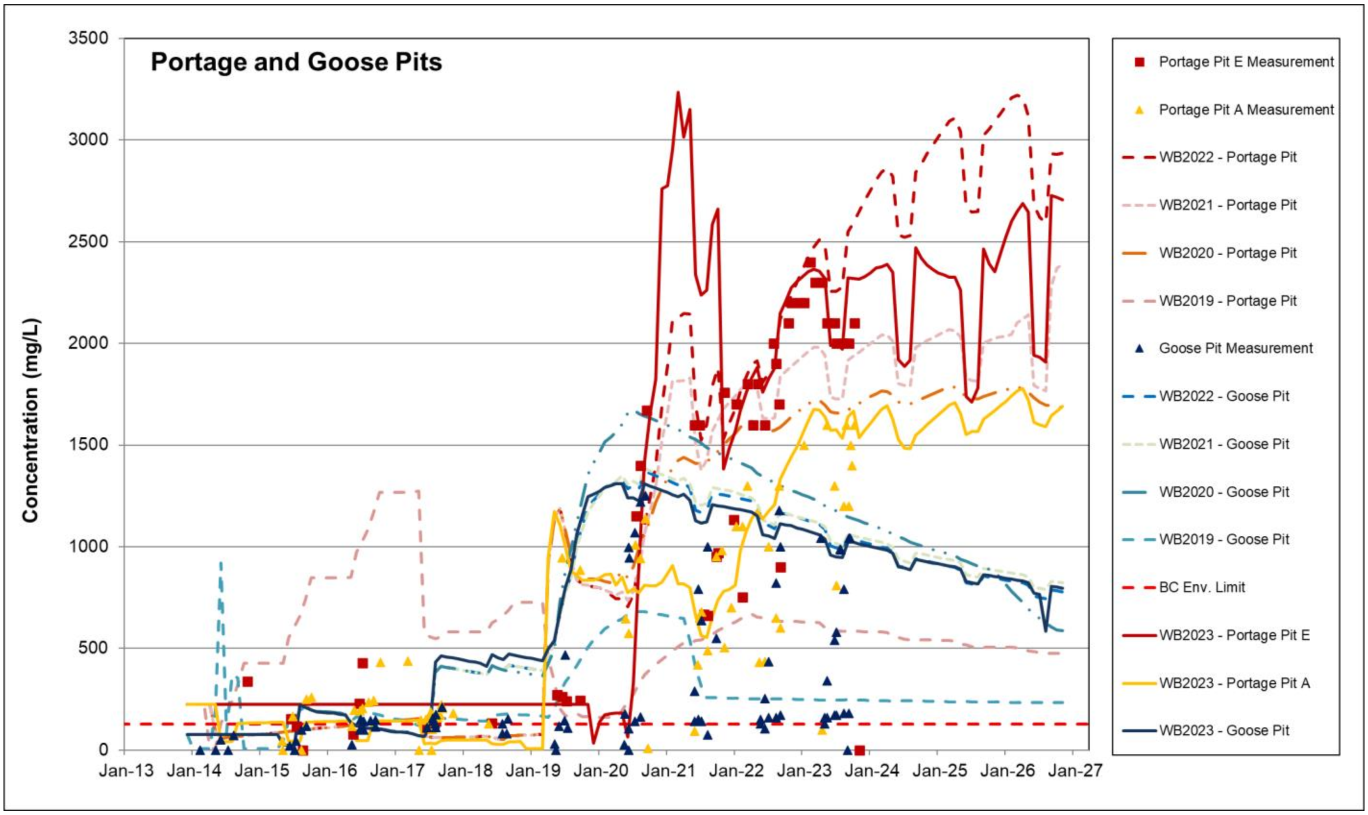


Figure 4-19: Comparison of Forecasted Sulphate Concentration in Portage and Goose Pits

4.2.5 Sensitivy Analysis

The water quality forecast model provides a high-level evaluation of the impact of Mill Effluent on the future water quality in the North and South Cell TSF Reclaim Pond and Portage and Goose Pits. The model provides only an order of magnitude forecast of the concentration trends in these areas.

For demonstration purposes only, a sensitivity analysis was conducted on Total Arsenic, Copper and Nickel in Portage Pit E for year 2023 to 2026 (end of deposition). A water quality forecast for each of these parameters was evaluated assuming a Mill Effluent concentration equal to the 25th and 95th percentile of the water quality data sampled in 2023. The following figures compare the forecasted concentration against the results based on the 25th and 95th percentile data.

It is important to note that every year, the water quality forecast input parameters are adjusted to match the measured values sampled on site in North and South Cell TSF and Portage and Goose Pits.

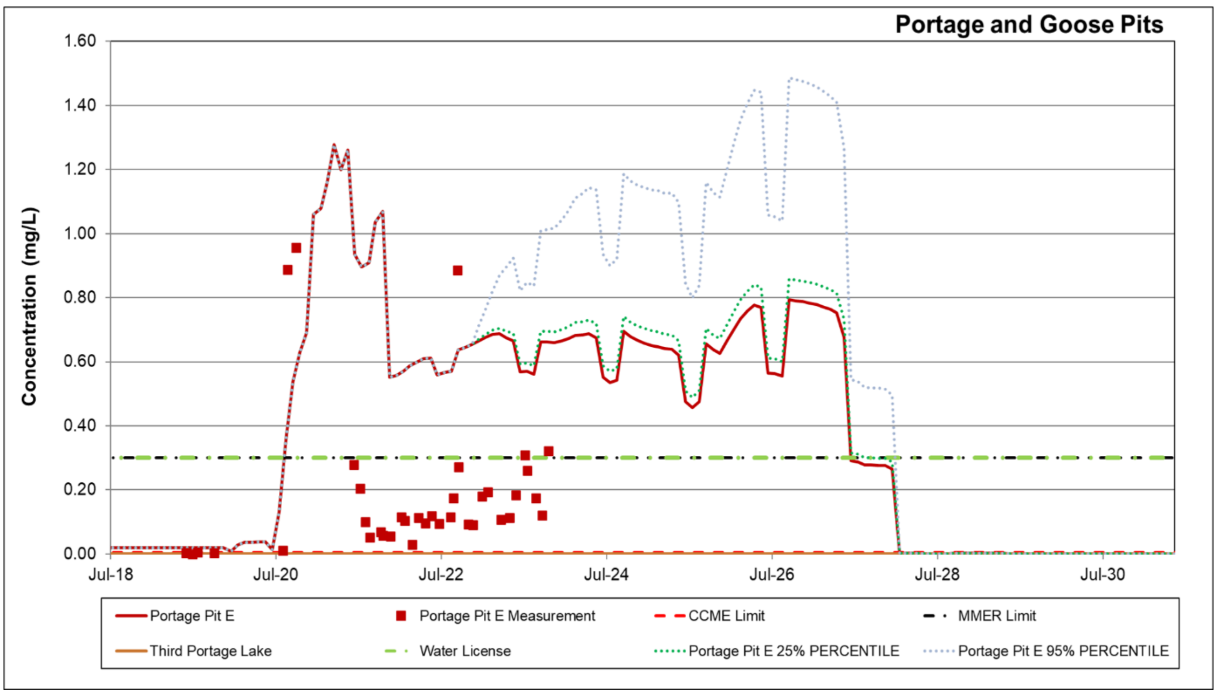


Figure 4-20: Sensitivity Analysis - Total Arsenic Forecasted Concentration in Portage Pit E

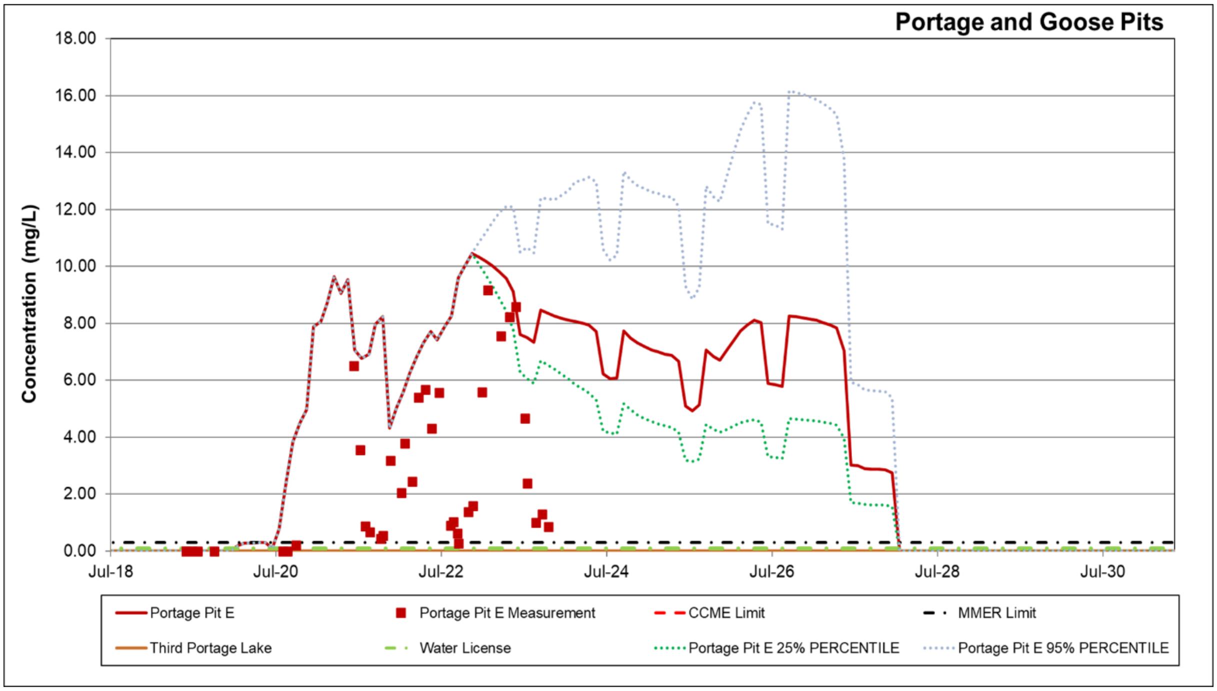


Figure 4-21: Sensitivity Analysis - Total Copper Forecasted Concentration in Portage Pit E

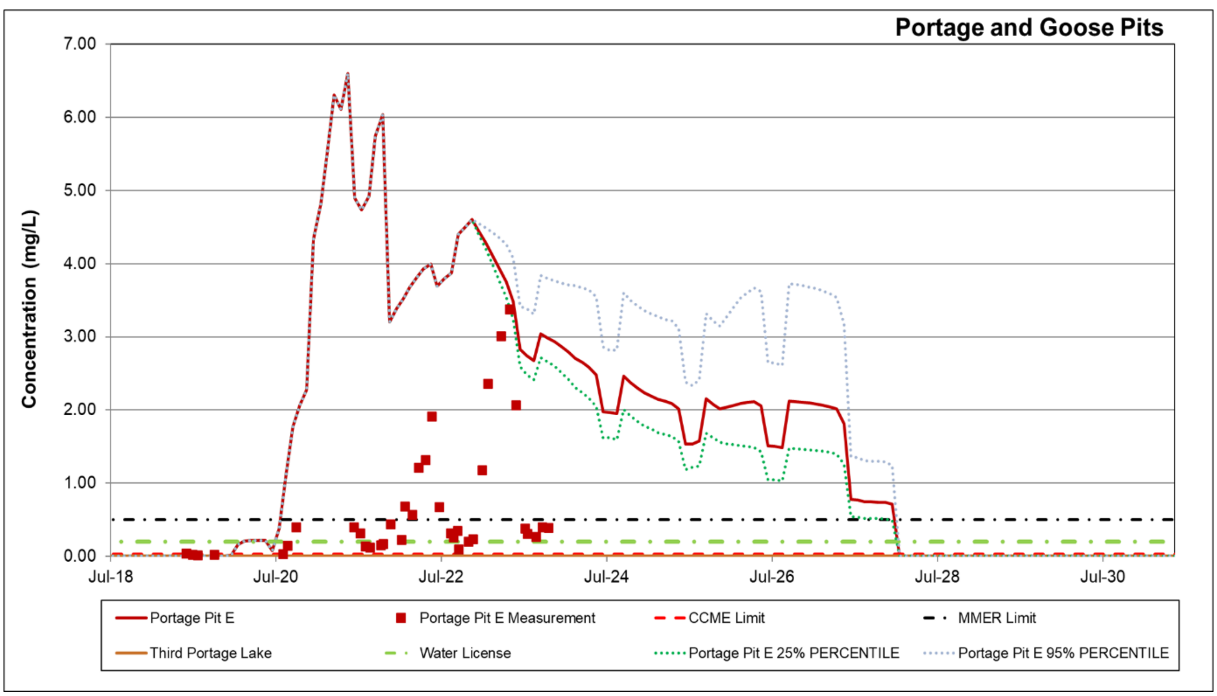


Figure 4-22: Sensitivity Analysis - Total Nickel Forecasted Concentration in Portage Pit E

4.3 Water Treatment Requirements

Based on the results of the water quality forecast mass balance presented in **Section 4.2**, following the end of in-pit tailings deposition, the reclaim water will need to be treated and discharged to Third Portage Lake to be in line with the ICRP updated in 2019. The assimilative capacity of Third Portage Lake will be assessed with the objective of maintaining a baseline or guideline/protective water quality in the lake. Treated effluent discharge water criteria will be assessed based on this objective. Based on the water quality forecast results, treatment may be required for the following parameters:

- Total metals, such as aluminum, arsenic, cadmium, copper, mercury, nickel, and lead.
- Total ammonia.
- Total cyanide.
- Total Dissolved Solids (TDS).
- Chloride and nitrate.

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 copper, nickel, and aluminum, they can be removed through the following process:
    - Hydroxide precipitation: Caustic soda (NaOH) 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 close to Portage Pit, and it will be designed for metal precipitation with the addition of lime or caustic dosing system. The water from Portage Pit can be pumped to the WTP for treatment, with the treated water discharged to TPL via a diffuser.
- Treatment *in situ* at Portage Pit (i.e., batch lime treatment).
- A pH adjustment of the treated water will be required prior to its release.

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 for final polishing, such as:

- Organosulfide precipitation: Organosulfide product can precipitate heavy metal into sulfide solids and with the aid of a typical coagulation/flocculation process, these precipitates can settle out from the water. It should be noted that this process may be combined with caustic/lime precipitation.
- Ion exchange: The heavy metal contaminants in form of cations can also be removed by ion exchange resin (IX). Prior to IX process, raw water needs to be filtered to remove suspended solids which may cause resin fouling.
- Membrane separation: Heavy metals can be removed by membrane techniques including nanofiltration and reverse osmosis. Prior to the membrane process, raw water needs to present very low suspended solids and turbidity and thus multimedia filtration or microfiltration is required.

- If arsenic concentrations are an issue, one of the most efficient techniques to reduce them is a coagulation-clarification/filtration process in order to co-precipitate the arsenic using an iron-based coagulant, such as ferric sulphate, to form a ferric-arsenate precipitate.
- For total dissolved salts, such as chloride and sulphate, membrane separation such as nanofiltration or reverse osmosis can be applied, if necessary.
- For total ammonia present in the Reclaim Water, more active treatment solutions could be implemented, such as:
  - Biological treatment (i.e., nitrification);
  - Ion exchange removal using zeolite;
  - Precipitation of ammonia using ettringite precipitation; or
  - A pH adjustment of the treated water near neutral pH, to ensure that most of the ammonia present is in the form of ammonium (NH_4^+) instead of un-ionized ammonia (NH_3).
- 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.

A high-level closure water treatment strategy for the Meadowbank site was developed with the objectives of identifying conceptual treatment options to meet possible closure discharge criteria, identifying activities required for the development and implementation of the closure water treatment system, and establishing a preliminary schedule to develop and implement the closure water treatment system. The results of this study were presented in the technical note “Meadowbank Closure Water Treatment Strategy”, document 679254-7000-4KER-0001 (SNC Lavalin 2021). Studies are on going to assess water management strategies including water treatment option for closure. The results of these studies will be presented in the next versions of the Closure and Reclamation Plan.

5.0 Vault Water Quality Forecasting

5.1 Review of 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 2023 was performed. The Vault Area includes Vault Pit (ST-26), Vault Attenuation Pond (ST-25), Vault Waste Rock Storage Facility (ST-24), Phaser Pit (ST-41), Phaser Attenuation Pond (ST-43), 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 are 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 purposes only. The water discharged to Wally Lake is governed by the Water Licence and the MDMER requirements. Any parameters measured at the discharge to Wally Lake (ST-10) that have concentrations above the Water Licence discharge criteria would be highlighted in red, which is not the case based on the samples taken in 2023.

In 2023, no water was discharged to Wally Lake. All the water was contained within the Vault Attenuation Pond and surrounding pits. No sample collected was above Water Licence criteria. Furthermore, the concentrations of metals and chloride in the water sampled in the Vault Pit, the Vault Attenuation Pond, the Vault Waste Rock Storage Facility (WRSF), the Phaser Pits, and the Phaser Attenuation Pond are relatively low compared to the Water Licence requirements.

Some elements were above CCME limits in the water sampled in the Vault Pit, the Vault Waste Rock Storage Facility, the Phaser Pits, and the Phaser Attenuation Pond. More precisely the average and the maximum values of the elements were above CCME limits:

- Total aluminum: Maximum values in the Vault WRSF and in Phaser Pit (ST-41) were slightly higher than the CCME limit;
- Dissolved aluminum: Maximum value in the Phaser Pit (ST-41) is slightly higher than the CCME limit;
- Total chromium: Maximum values in the Vault Pit and in the Phaser Pit (ST-41) were slightly higher than the CCME limit;
- Total copper: Average and maximum values were higher than the CCME limit in Vault WRSF, Phaser Pit (ST-41), and Phaser Attenuation Pond;
- Total lead: Maximum value in the Vault Pit is slightly above the CCME limit;
- Fluoride: Maximum value is slightly higher than the CCME limit in Phaser Pit (ST-41).

As in 2022, in 2023 ammonia nitrogen in Vault Pit and Phaser Pit and in Vault and Phaser Attenuation Ponds was below the CCME limit, as were nitrate concentrations.

5.1.2 Ammonia Loading to the Environment

In 2023, no water was discharged to Wally Lake. Thus, for 2023, there is no ammonia loading discharged to the environment.

Table 5-1: Average and Maximum Concentrations Measured in the Vault Area for 2023

Parameters	Units	Vault Pit (ST-26)		Vault Attenuation Pond (ST-25)		Vault Waste Rock Storage Facility (ST-24)		Phaser Pits (ST-41/42)		Phaser Attenuation Pond (ST-43)		Discharge to Wally Lake (ST-10)	*CCME Guidelines*	*Water License Vault, Max. Avg. Conc.*
		Avg. 2023	Max. 2023	Avg. 2023	Max. 2023	Avg. 2023	Max. 2023	Avg. 2023	Max. 2023	Avg. 2023	Max. 2023	No Discharge in 2023		*Part F of License*
Alkalinity	mg $CaCO_3$/L	43.50	53.00	29.00	31.00	47.83	64.00	40.67	55.00	32.00	42.00		*n/a*	*n/a*
Hardness	mg $CaCO_3$/L	95.73	118.00	59.54	61.60	107.62	156.00	77.75	105.00	64.17	82.20		*n/a*	*n/a*
Total Aluminum (Al)	mg/L	0.05660	0.09590	0.01716	0.02460	0.06060	0.17000	0.05848	0.13800	0.03908	0.09090		*0.1*	*1.5*
Dissolved Aluminum (Al)	mg/L	0.01722	0.02890	0.00000	0.00000	0.00000	0.00000	0.03975	0.13700	0.01531	0.02630		*0.1*	*1*
Total Silver (Ag)	mg/L	0.00001	0.00004	0.00002	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001		*0.00025*	*n/a*
Total Arsenic (As)	mg/L	0.00274	0.00331	0.00045	0.00051	0.00185	0.00228	0.00157	0.00183	0.00070	0.00084		*0.005*	*0.1*
Total Barium (Ba)	mg/L	0.01221	0.01360	0.01148	0.01280	0.01027	0.01330	0.01349	0.01860	0.01148	0.01410		*n/a*	*n/a*
Total Cadmium (Cd)	mg/L	0.00001	0.00002	0.00001	0.00001	0.00002	0.00002	0.00001	0.00002	0.00002	0.00003		*0.00004*	*0.002*
Total Chromium (Cr)	mg/L	0.00085	0.00349	0.00100	0.00100	0.00100	0.00100	0.00039	0.00134	0.00023	0.00070		*0.001*	*n/a*
Total Copper (Cu)	mg/L	0.00134	0.00168	0.00152	0.00164	0.00273	0.00296	0.00352	0.00608	0.00283	0.00335		*0.002*	*0.1*
Total Iron (Fe)	mg/L	0.09872	0.19900	0.02040	0.03800	0.10733	0.29700	0.10115	0.23800	0.15217	0.23100		*0.3*	*n/a*
Total Manganese (Mn)	mg/L	0.01186	0.02100	0.00466	0.00990	0.01240	0.02900	0.00749	0.02290	0.01372	0.03130		*n/a*	*n/a*
Total Mercury (Hg)	mg/L	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001		*0.000026*	*0.004*
Total Molybdenum (Mo)	mg/L	0.02009	0.02740	0.00360	0.00400	0.01723	0.02490	0.00768	0.01050	0.00161	0.00199		*0.073*	*n/a*
Total Nickel (Ni)	mg/L	0.00462	0.01610	0.00150	0.00220	0.00212	0.00300	0.00340	0.00704	0.00327	0.00514		*0.025*	*0.2*
Total Lead (Pb)	mg/L	0.00061	0.00197	0.00020	0.00020	0.00024	0.00036	0.00029	0.00075	0.00015	0.00026		*0.0010*	*0.1*
Total Selenium (Se)	mg/L	0.00022	0.00028	0.00010	0.00010	0.00025	0.00037	0.00014	0.00021	0.00007	0.00009		*0.0010*	*n/a*
Total Thallium (Ti)	mg/L	0.00001	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001		*0.0008*	*n/a*
Total Zinc	mg/L	0.00144	0.00328	0.00500	0.00500	0.00500	0.00500	0.00093	0.00169	0.00221	0.00413		*0.03*	*0.2*
Ammonia (unionized NH_3)	mg N/L	-	-	-	-	-	-	-	-	-	-		*0.016*	*n/a*
Total Ammonia Nitrogen (NH_3-NH_4)	mg N/L	0.05317	0.06900	0.05100	0.05500	0.06167	0.12000	0.05000	0.05000	0.05050	0.05300		*1.83*	*20*
Chloride	mg/L	5.83333	8.40000	1.90000	3.10000	1.31667	2.10000	2.30000	3.80000	2.78333	4.40000		*120*	*500*
Fluoride (F)	mg/L	0.10167	0.11000	0.10400	0.11000	0.10333	0.11000	0.11000	0.13000	0.10333	0.11000		*0.12*	*n/a*

Parameters	Units	Vault Pit		Vault Attenuation Pond		Vault Waste Rock Storage Facility		Phaser Pits		Phaser Attenuation Pond		Discharge to Wally Lake	*CCME Guidelines*	*Water License Vault, Max. Avg. Conc.*
		(ST-26)		(ST-25)		(ST-24)		(ST-41/42)		(ST-43)		(ST-10)		
		Avg. 2023	Max. 2023	Avg. 2023	Max. 2023	Avg. 2023	Max. 2023	Avg. 2023	Max. 2023	Avg. 2023	Max. 2023	No Discharge in 2023		*Part F of License*
Nitrate (NO_3)	mg N/L	1.03167	1.47000	0.11600	0.18000	0.76500	1.05000	0.60500	0.86000	0.11667	0.15000		*2.94*	*50*
Total Cyanide (CNt)	mg/L	0.00050	0.00051	0.00050	0.00050	0.00051	0.00054	0.00051	0.00058	0.00050	0.00050		*0.005*	*n/a*
Sulphate (SO_4)	mg SO_4/L	49.00	61.00	40.80	41.00	69.17	100.00	36.17	51.00	34.17	41.00		*128[1]*	*n/a*
Total dissolved solids	mg/L	124.17	175.00	91.00	105.00	160.00	220.00	109.17	150.00	99.17	135.00		*n/a*	*1400*

Notes:

(red)	*Measured concentration higher than Water License requirement.*
(yellow)	*Measured concentration higher than CCME guidelines. Value highlighted for comparison purposes 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 Attenuation Pond (ATP) for ammonia and nitrate. The starting date for the model was set for June 2014.

5.2.2 Assumptions

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

1. The Vault ATP is a combination of Pond A, B, C and D. The model does not take into consideration the transfers between Pond A, B, C and D, only transfers inside and outside the Vault Attenuation Pond.
2. The model considers water transfers to the Vault ATP from Vault Pit, Phaser Pit, Phaser Lake, and runoff from its catchment area.
3. 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).
4. The water quality from Vault Pit, Phaser Pit, and Phaser Lake is based on the yearly average measured values and is assumed to be constant over a given year for ammonia and nitrate.
5. The water mass balance is performed around the Vault ATP. The volume of water transferred out of the Vault ATP to the water treatment plant or Wally Lake is assumed to be completely discharged to the lake.
6. It is assumed that the primary source of ammonia and nitrate loading is from Vault Pit and Phaser Pit. All other inflow contaminant concentrations (Phaser Lake, runoffs, etc.) are assumed to have a negligible impact on ammonia and nitrate loadings.
7. For simplification of the model, ponds and pits are assumed to be completely mixed systems.
8. For simplification of the model, the parameters are assumed to be inert: they do not degrade or react with other elements in the system.
9. 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 / ST-26);
- Phaser Pit (ST-41);
- Phaser Lake (ST-43);
- 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).

Table 5-2 presents the average concentrations used to estimate the loadings from Vault Pit and Phaser Pit to Vault ATP. Transfer of runoff from the Vault Pit area occurred from 2014 to 2018, while runoff transfer from Phaser Pit occurred from 2017 to 2018. As of 2019, surface runoff was allowed to accumulate in the pits.

Table 5-2: Average Concentrations to Estimate Loading to Vault ATP

Year	General Basis	Vault Pit		Phaser Pit	
		Ammonia (mg N/L)	Nitrate (mg N/L)	Ammonia (mg N/L)	Nitrate (mg N/L)
2014	Avg. 2014-15 measured data	18	46	--	--
2015		18	46	--	--
2016	Average 2016 measured data	5	20	--	--
2017	Average 2017 measured data	3.8	4.2	4	30*
2018	Average 2018 measured data	3.1	4.9	7.96	15.8
2019	Average 2019 measured data	1.2	7.5	1.75	3.3
2020	Average 2020 measured data	0.15	2.2	0.06	1.5
2021	Average 2021 measured data	0.07	1.5	0.05	1.1
2022	Average 2022 measured data	0.07	1.4	0.05	0.7
2023	Average 2023 measured data	0.06	1.0	0.05	0.6

Notes:

** Value adjusted so that the forecasted value in Vault ATP is similar to the monitored data.*

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

5.2.4 Forecasting Results

5.2.4.1 Ammonia

Ammonia concentrations sampled in Vault Pit and Phaser 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, Phaser Pit, Vault Attenuation Pond and at the final effluent to Wally Lake.

Two monitored values in Vault Pit exceeded the Water Licence limit in 2014 and 2015 and all values measured from 2016 to 2023 were below the limit. For Phaser Pit, there was one value higher than the limit in 2018. All of the samples taken in the Vault Attenuation Pond (ATP) and the final effluent towards Wally Lake were below the Water Licence discharge requirements. From 2020 to 2023, all ammonia concentrations were below the CCME Guidelines.

When forecasting the concentration of the water in the Vault ATP 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 Licence, 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. As in previous years, forecasted and measured values in Vault ATP continue to decrease.

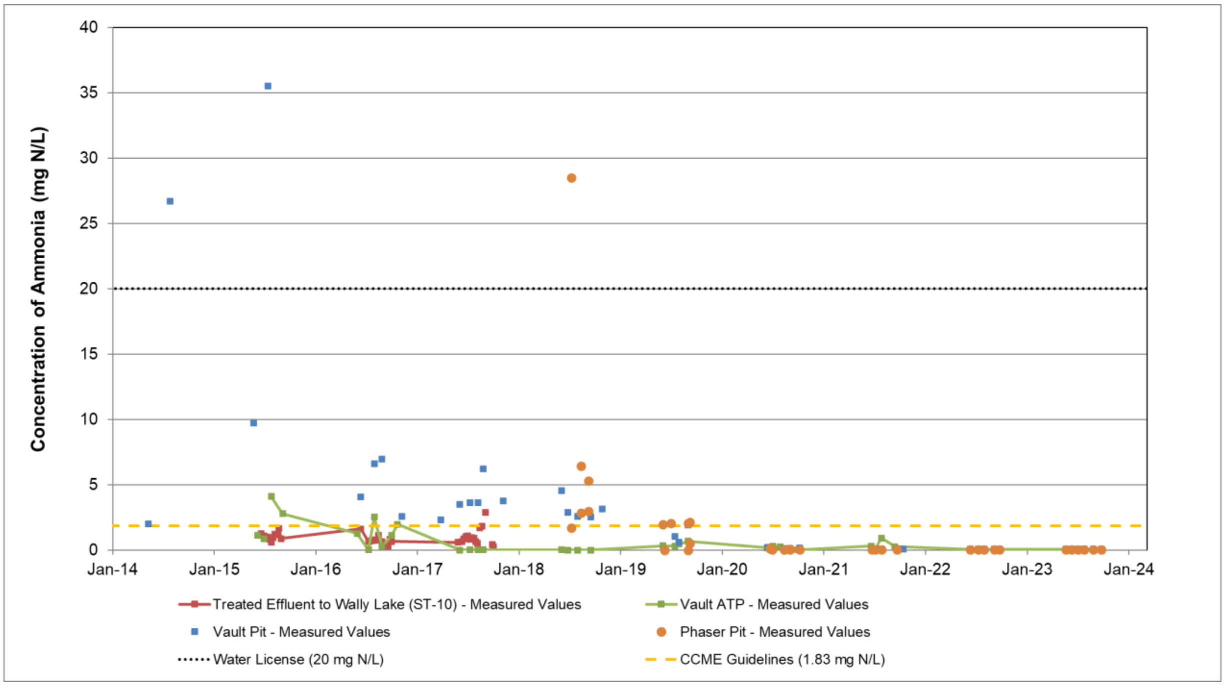


Figure 5-1: Measured Ammonia Concentration in Vault Area

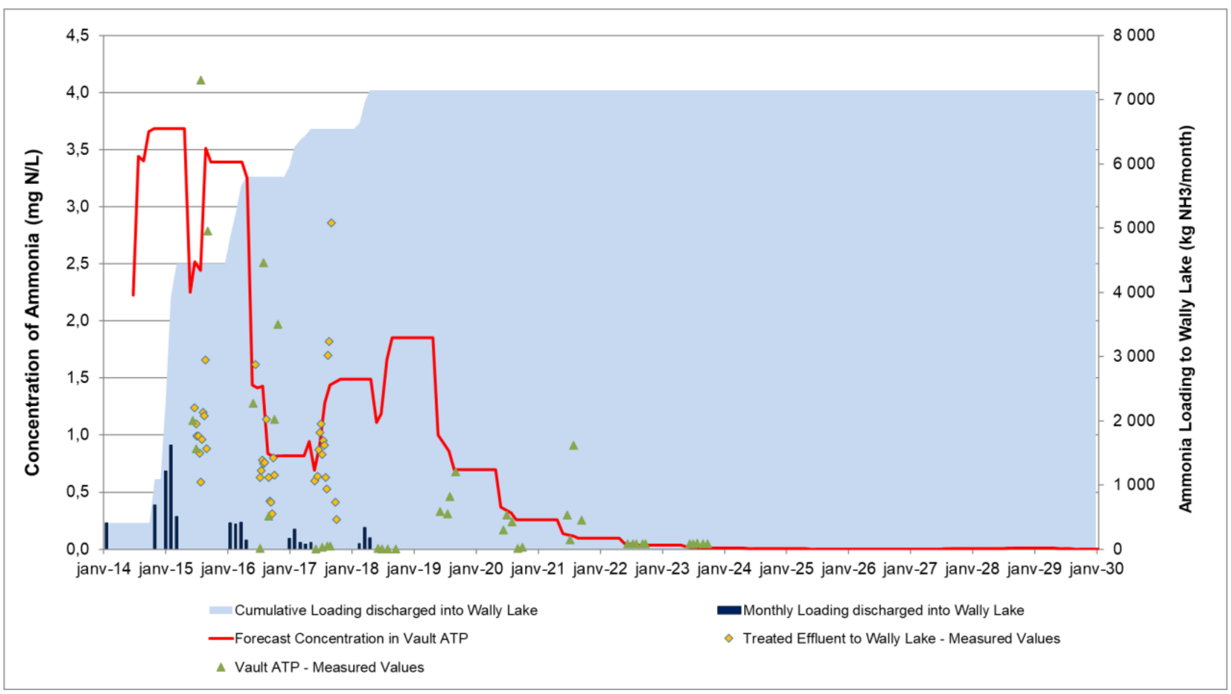


Figure 5-2: Forecasted Ammonia Concentration in Vault Area

5.2.4.2 Nitrate

Nitrate concentrations sampled in the Vault Pit and Phaser 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, Phaser Pit, Vault Attenuation Pond, and at the final effluent towards Wally Lake.

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

The forecasted trend of nitrate concentration in the effluent discharged to Wally Lake until closure is similar to that for ammonia. There is a rise of nitrate to about 8.6 mg-N/L in 2015, and then a decrease to a concentration of approximately 1 mg-N/L before closure. Since the Water Licence 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.

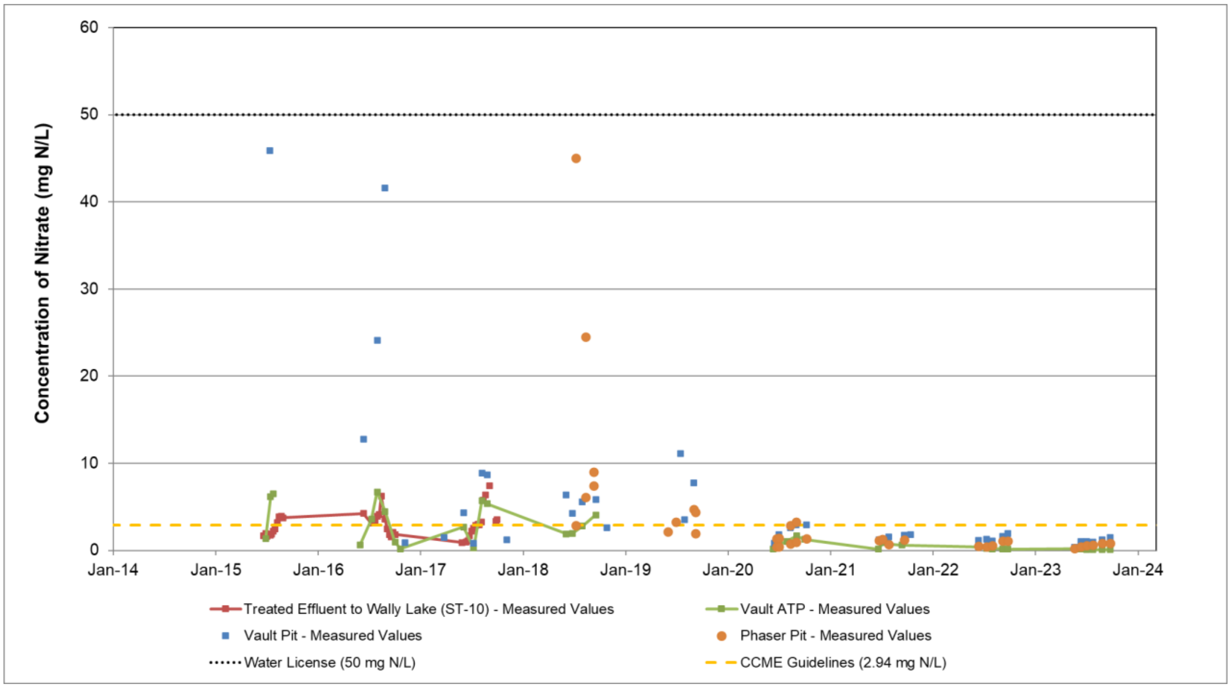


Figure 5-3: Measured Nitrate Concentration in Vault Area

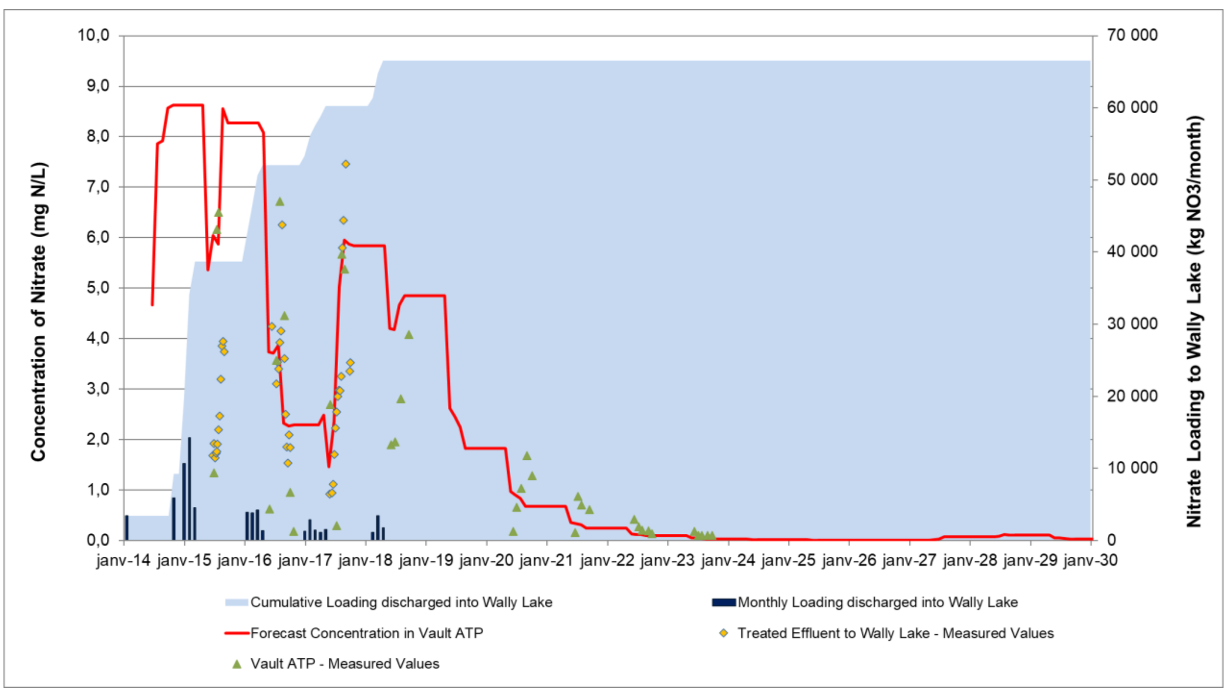


Figure 5-4: Forecasted Nitrate Concentration in Vault Area

5.2.4.3 Final Remarks

In conclusion, the forecasted concentrations of ammonia and nitrate in the Vault ATP are expected to remain below the discharge requirements as defined in the Type A Water Licence. The primary source of ammonia and nitrate in the water comes from the use of an ammonium-nitrate based explosive in the development of the Vault Pit and Phaser Pit. Note that the model results are quite conservative when compared to the monitored data since the end of mining operations at Vault and Phaser pits.

6.0 Conclusion

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:
  - Ponds 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 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;
  - Water quality data collected in Goose and Portage Pits;
  - Water quality data collected from pit seepages.

6.1 Results Summary and Treatment

This year's water quality forecast model ends at the end of in-pit deposition projected for June 2026 and at the end of pit reflooding projected for July 2041 based on the WB 2023. At the end of in-pit deposition, Reclaim Water stored in Goose Pit and Portage Pit shall then be treated and discharged to Third Portage Lake during closure. For the purpose of this study, parameters of concern were identified using the current Water Licence limits. However, final site-specific treated effluent discharge limits for closure will be developed through review of the closure plan by regulatory agencies.

Based on the results of the water quality forecast mass balance presented in **Section 4.2**, the following parameters of concern were detected at the end of deposition:

- Total Aluminum (in Portage Pit E and Pit A)
- **Total Arsenic** (all pits)
- Total Cadmium (in Goose Pit, close to Water Licence limit)
- **Total Copper** (all pits)
- **Total Nickel** (all pits)
- Total Lead (in Goose Pit, slightly higher than Water Licence limit)
- Chloride (in Portage Pit E only)
- **Total Dissolved Solids** (in all pits)
- **Total Ammonia** (in all pits)
- Nitrate (in Portage Pit E only)
- Total Cyanide (in Portage Pit E and Pit A)

Among the parameters listed above, five (5) parameters were identified in this year's water quality forecast report (bolded values). The increasing trend observed in Goose Pit and Portage Pit can be mainly attributed to the following:

- As of 2019, tailings are now being deposited in Goose Pit and Portage Pit. Reclaim water is allowed to accumulate in the pits and is pumped back to the mill for re-use.
- As of 2019, the main ore body processed at the Meadowbank site originates 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 forecasted concentrations of certain elements at the end of in-pit deposition, such as arsenic.
- The water quality forecast model was also adjusted based on the mill effluent sampled from 2019 to 2023. The quality of the mill effluent varies from year to year. The mill effluent is the main source terms for the identified parameters of concern.

Water treatment shall be undertaken at the end of in-pit tailings deposition. A potential treatment option for the removal of the metals in Reclaim Water prior to discharge is caustic or lime precipitation, while ammonia could be removed by ion exchange using a zeolite media. Coagulation with ferric sulphate 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, additional polishing steps, like filtration or membrane treatment, and/or the addition of a biological treatment step to treat for ammonia. Studies are on going to assess water management strategies including water treatment option for closure. The results of these studies will be presented in the next versions of the Closure and Reclamation Plan.

Pit reflooding shall take place following the treatment of the Reclaim Water. The pits shall be reflooded with a combination of natural runoff and active transfer of water from Third Portage Lake. The forecasted water quality concentrations at the end of pit flooding are projected to be lower than the CCME limits. Note that the dikes will only be breached if the water quality within them meets the selected water quality criteria as per the water license requirement.

As for the Vault area, in 2023, the entire area is undergoing natural reflooding. No discharge to Wally Lake was reported in 2023. All the water sampled in the area did not exceed any of the Water Licence discharge limits. For comparison purposes only, copper concentrations were slightly higher than CCME guidelines. Ammonia and nitrate continue to show a decreasing trend as natural reflooding is progressing over time.

6.2 Recommendations

In order to improve the accuracy of the model so that it can better forecast the concentration of certain parameters in the Reclaim Ponds 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 Ponds for cyanide, a complete total and dissolved metal scan, ammonia, nitrate, fluoride, chloride, sulphates, TDS and TSS. This will provide an indication of the runoff quality that is accumulated in these ponds following the end of tailings deposition in these areas.
2. Considering that deposition of the tailings is now occurring in the pits, continue regularly monitor pit water quality (Portage and Goose) when the site can be safely accessed, and analyze for cyanide, total and dissolved metals, ammonia, nitrate, chloride, fluoride, sulphates, TDS and TSS. 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 pit seepages. Continue measuring the conductivity of water in the pits at different depths to detect if there is any stratification occurring in the pit lakes.
3. 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.
4. Continue to sample and analyze, as per the Water Licence requirement, water from the Vault Pit, Vault Attenuation Pond, Phaser Pit, and Phaser Attenuation Pond.
5. Continue bench scale water treatment test to evaluate the contaminant removal efficiency using treatment approaches such as lime neutralization, coagulation/flocculation with aluminum sulphate or ferric sulphate, and coagulation/flocculation with proprietary coagulants designed for metal removal, as well as alternative treatment options such as biological treatment for ammonia.

7.0 References

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APPENDIX D – 2024 FRESHET ACTION PLAN

MEADOWBANK COMPLEX

MEADOWBANK FRESHET ACTION PLAN

MARCH 2024

VERSION 12

1. EXECUTIVE SUMMARY

The purpose of this Freshet Action 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 Plan outlines specified actions that will be taken by Agnico to manage and mitigate areas where environmental incidents could occur, as well as addressing historical incidents, 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). 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 is initiated during the annual snow and ice melt, around mid-May. 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 excavated pits (Pit A, Pit E, Goose Pit and Vault Pit), the North and South Cell TSF surrounding infrastructures (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, Central Dike downstream pond (ST-S-5), Stormwater Dike), the areas around the Portage Waste Rock Storage Facility (RSF) (the northern portions of the NAG waste rock extension, 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, and the Assay Road (Mill) Seepage.

It is important for all water management and associated infrastructure to 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, as well as adequate resource allocation for preparative work. A concise summary of the 2024 preparation works and roles and responsibilities are presented in the attached Appendix 1 (2024 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.

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
09	Agnico	Internal	March 2021	All	Comprehensive update from 2020 Plan
10	Agnico	Internal	March 2022	All	Comprehensive update from 2021 Plan
11	Agnico	Internal	March 2023	3	2.1.3 Water transfers into Pit A were added
				2	Figure 2-1, Figure 2-2, Figure 2-3, Figure 2-4, Figure 2-6, Figure 2-7 were updated
				15	Section 2.9 was added
				Appendix 1	Section 2.9 was added
				Appendix 3	Snow management map was updated
				Appendix 4	Freshet flowchart and plan view was updated
12	Agnico	Internal	March 2024	8	Section 2.3.1.1 was updated
				11	Section 2.3.1.5 was updated
				15	Section 2.8 was updated
				15	Section 2.10 and Figure 2-10 were added
				Appendix 1	Section 2.10 was added
				Appendix 3	Snow management map was updated
				Appendix 4	Freshet flowchart and plan view were updated

Prepared By: Meadowbank Environment

Approved by:

Eric Haley, Environment and Critical Infrastructure Superintendent

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1. INTRODUCTION

The purpose of this Freshet Action Plan is to ensure that Agnico can address and manage excess water associated with the freshet season at the Meadowbank site in a manner to minimize environmental risks, 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 starting approximately May 15th and in some cases, actions and mitigation measures can extend into early fall when freezing re-occurs. There are many areas around the site that are vulnerable to excess water; the goal is to identify these areas and develop a clear plan with defined roles and responsibilities (amongst 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 the health and safety of Agnico employees is protected, especially with respect to mining operations when excess water is present;
2) to ensure that mine contact water from runoff or seepage is managed to prevent adverse environmental impacts; and
3) to ensure 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 2023 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 and Vault area Pits;
- 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;
  - North Cell Internal Structure
- East Dike Seepage
- 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.
- Monitoring Station at KM87 (ST-44)
- Baker Lake Marshalling Facilities

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 Pits

All active 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 in working order (leak free).

2.1.1 *Goose Pit*

Mining in Goose Pit was completed in 2015. Tailings deposition began in July 2019. Water transfers from Goose Pit towards either Pit E or Pit A will be performed as required, as part of the deposition plan and water balance exercise. Water accumulating in the surface area around Goose Pit (Bay Goose Dike ring road, NPAG stockpile, Goose sump) will be pumped to Goose Pit as required.

2.1.2 *Pit E*

Mining in Pit E was completed in 2019. Tailings deposition began in August 2020. Runoff water accumulated at the Pit E crest will be pumped into Pit E as required. The Pit E3 ramp requires proper trenching and snow clearing to ensure safe condition for the planned operations of the tailing deposition and mill reclaim systems. Water accumulating in the pit is either transferred to Pit A or reclaimed for the mill process.

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 requires proper trenching and snow clearing to ensure safe operations of the tailing deposition and mill reclaim systems.

Water from the South Cell, Central Dike seepage, East Dike Seepage (depending on water quality) and Stormwater Pond will be directed to Portage Pit A during freshet, where as accumulating water in Pit A will be reclaimed for mill process, as required.

2.1.4 *Vault & Phaser Pits*

Mining activities were completed in the Vault area (including Phaser and BB Phaser) in 2019. No further discharge to Wally Lake are expected. 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 active water management is planned in that area at freshet. For safety concern the area is restricted. Procedures are in place to safely access the area for sampling purposes.

Figure 2-1: View of Vault area and the surrounding area

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 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 Environment Department and samples must be taken to determine the water quality and source. A mitigation plan will be prepared and implemented if necessary.

Active pumping at the Portage RSF towards the North Cell and Pit A is planned at ST-16 (Section 2.2.1.1), WEP1 (Section 2.3.1.2), and WEP 2 (Section 2.3.1.2).

2.2.1.1 ST-16 Seepage

In July 2013, a seepage from the Rock Storage Facility (RSF) was noted (see ST-16 on Figure 2-3). The seepage contained elevated copper, nickel, ammonia and cyanide. It was determined through investigation that the likely source of the contaminants was reclaim water from the North Cell TSF. Further details and discussion can be found in the Agnico Annual Report (Section 8.5.3.1.7).

Water ponding in ST-16 will be pumped to the North Cell Tailings Storage facility and Portage Pit A. Daily inspections will be undertaken in May until freshet is complete and after rain events to ensure water remains contained within ST-16. Water levels in ST-16 must remain below the till plug. Once the lake or seep area are ice free, the sample monitoring program will commence. If samples detect any concerns or elevated levels, Agnico will review the monitoring plan immediately, including downstream lakes. Pumped volumes will be documented and daily inspections of the area will be undertaken. In addition, 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).

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

Figure 2-2. View ST-16 station and surrounding area.

2.2.1.2 Waste Extension Pool (WEP) sumps

WEP1 and WEP2 sumps were constructed in September 2015 to manage water around the northeast side of the RSF to ensure all water ponding is transferred to the North Cell TSF (see Figure 2-3). The WEP1 and WEP 2 sumps were replaced in 2016 with the WEP collection system. Water collected at WEP1 and WEP2 will be pumped to ST-16. 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 as per the monitoring plan.

2.2.1.3 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. Runoff from this area, while not anticipated to be contaminated, could, if significant, discharge to NP-2 lake after crossing the tundra. The Environmental Department will conduct daily visual inspections during freshet. 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.

2.2.2 *Vault RSF*

The Vault RSF requires 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. In the event that seepage is observed, the Environment Department must be notified and samples taken to determine water quality. The sample monitoring will be in accordance with the Water License requirements. No water quality issues are anticipated as primary drainage is towards the Vault Pit and the waste rock stored in the RSF is primarily NAG. No active pumping system is planned for that area.

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 management infrastructure and to prevent any adverse environmental impacts. Water from the North Cell will be transferred to the South Cell which will then be pumped toward Portage Pit A. 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. Tailings were last discharged in the North Cell in 2021, while tailings were last discharged in the South Cell in 2023.

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, five zones associated with the diversion ditches have been identified where actions will be taken during or before freshet:

1. AWAR culvert – Discharge to Third Portage Lake (ST-6);
2. West Diversion Ditch elbow;
3. Northwest corner of North Cell TSF;
4. East Diversion Ditch Outlet to NP-2 Lake (ST-5);
5. Vault road culvert – NP-2 Lake exit to NP-1 Lake.

Figure 2-3: Location of the areas of interest for the 2023 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) 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 on each side of the culvert to allow water to flow through to prevent upstream ponding prior to freshet 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. 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.

Figure 2-4: West diversion ditch area of interest

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), or visually elevated. If a discharge of TSS occurs, the Environment Department will notify ECCC and NWB.

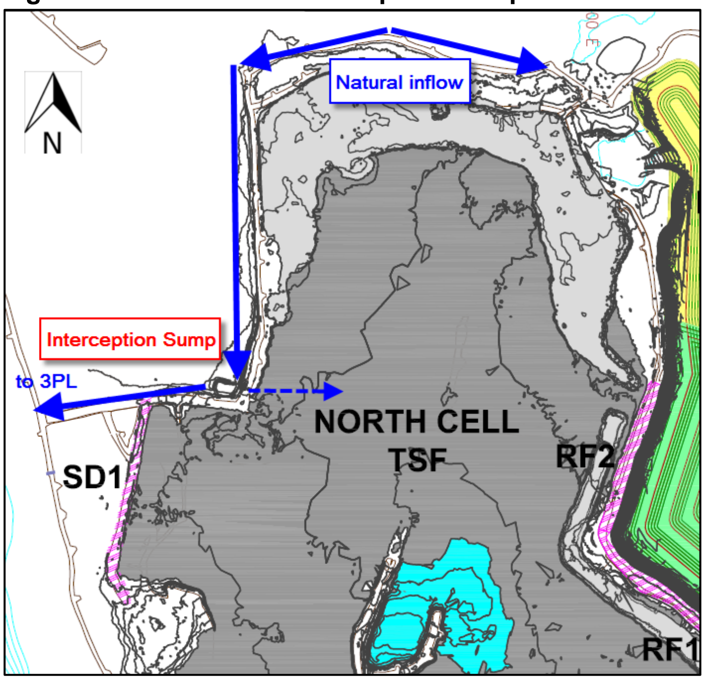
2.3.1.2 West Diversion Ditch Elbow

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 2-5. 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.

As a 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. These measures will prevent any contaminated water from reaching Third Portage Lake. 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. It is planned to let natural overflow to Third Portage Lake, if results are compliant. A pump will be installed preventively and ready to operate.

Figure 2-5. View of the Interception Sump in relation to the Diversion Ditches



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 2-4) was vulnerable to damage from the freshet water flow from the northern watershed (see watercourse flow in Figure 2-5 denoted by blue line). The start of the West Diversion ditch is also located in this area and is designed to collect the freshet. Ponding is limited in this area once the freshet is done.

Agnico will continue to monitor and conduct visual inspections of this area in May until freshet is complete and after rain events.

2.3.1.4 East Diversion ditch outlet to NP-2 Lake

This area of the East Diversion ditch, see Figure 2-6, 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. If a discharge of TSS occurs, the Environmental Department will notify ECCC and NWB (CIRNAC water Inspector).

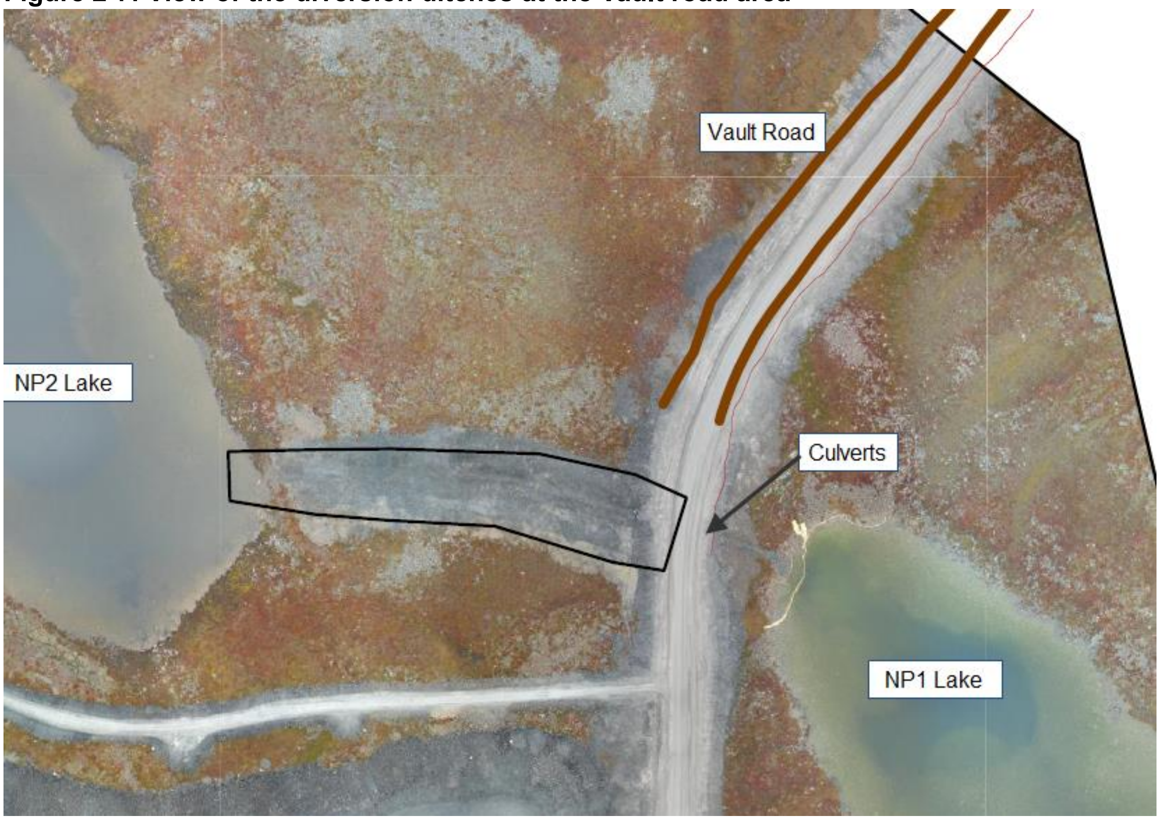
Figure 2-6: View of the East Diversion ditch outlet into NP-2 Lake

2.3.1.5 NP-2 Outlet, Vault Road Culvert and NP1

This area of the East Diversion ditch acts as the outflow of NP-2 Lake through the Vault Road culvert (see Figure 2-3). The culvert 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 snow management plan has been implemented, ensuring no large accumulations of stored snow in this area, to minimize runoff.

Figure 2-7: View of the diversion ditches at the Vault road area



2.3.2 Tailings and Dewatering Dikes

2.3.2.1 Saddle Dam 1

This peripheral dike of the North Cell TSF is required for tailings containment. 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 is installed to pump water in the North Cell. 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 peripheral dike is located South of SD1, is required for tailings containment. 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 it will be pumped back in the North Cell and a water sample could be taken.

2.3.2.3 Saddle Dam 3

This peripheral dike of the South Cell was built in 2015 for water and tailings containment. 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. Localized pooling ponds are sometimes present during the freshet period and will be pumped into the South Cell TSF footprint on their upstream side.

2.3.2.5 North Cell Internal Structure (NCIS)

This internal structure was built as an upstream raise in the North Cell in 2018 and allowed for increased tailings storage capacity. Additional sump (NC-A, NC-B, NC-C, NC-D, NC-E) were implemented within the footprint of the North Cell in strategic point at the downstream of this structure to ensure proper water management. Water reporting to these sumps is pumped in the North Cell to reach the main water management station in the North Cell.

2.3.2.6 Central Dike

Central Dike seepage, monitoring station ST-S-5, is located at the downstream area of the Central Dike embankment, a peripheral structure of the South Cell used for tailings retention. A permanent pumping system is in place to manage the seeping water beneath the dike by keeping the downstream pond at a constant elevation. More details to be found in the Meadowbank Water Management Plan. Water in this sump is pumped to Portage Pit A. Weekly inspections of the area will be held by environment. Environment department will also conduct monthly sample as per the Water License.

2.3.2.7 Stormwater Dike

The Stormwater dike separates the North Cell from the South Cell, and is required for tailings containment. A small pump is installed on the Western edge of the dike to collect water and pump it in the North Cell. This will prevent pooling of water against the toe of the dike. The pumping system will be installed and checked in early May to ensure proper operation.

2.3.2.8 East Dike

The water quality of the East Dike seepage is monitored throughout the year. When the criteria for discharge are met the water is send to Second Portage lake, otherwise it is sent to the Portage Pits. Historically, at freshet, the water quality of the East Dike seepage does not meet TSS requirement.

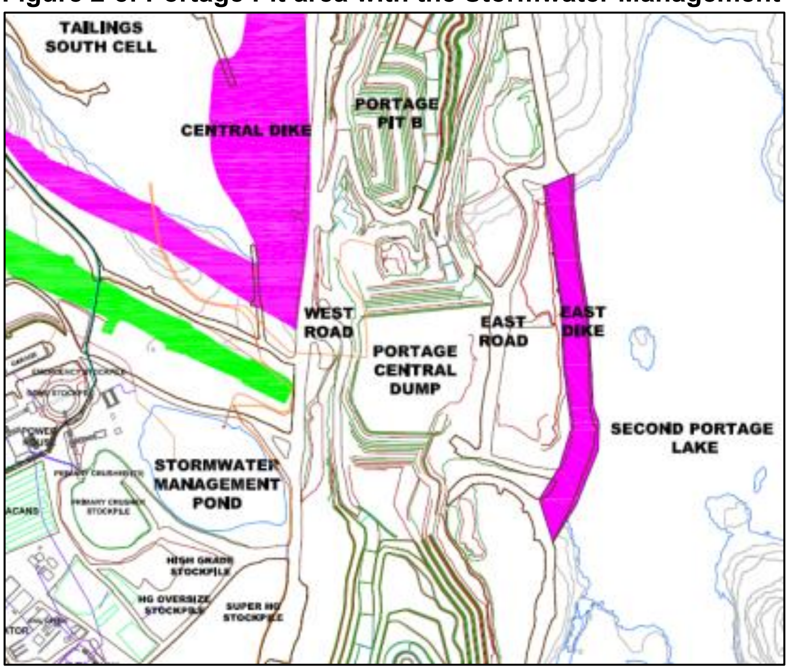
2.4 Vault Road Culvert

The Vault road crosses over a connection between two water bodies, Turn Lake and Drill Tail Lake, at approximately km 113. 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 2-8 adjacent to Portage Pit. Treated sewage is discharged into this pond before being transferred to one of the 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.

Figure 2-8: Portage Pit area with the Stormwater Management Pond



2.6 Bulk Fuel Storage Facilities

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. Environmental inspection of the setup is required prior to starting the discharge. 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

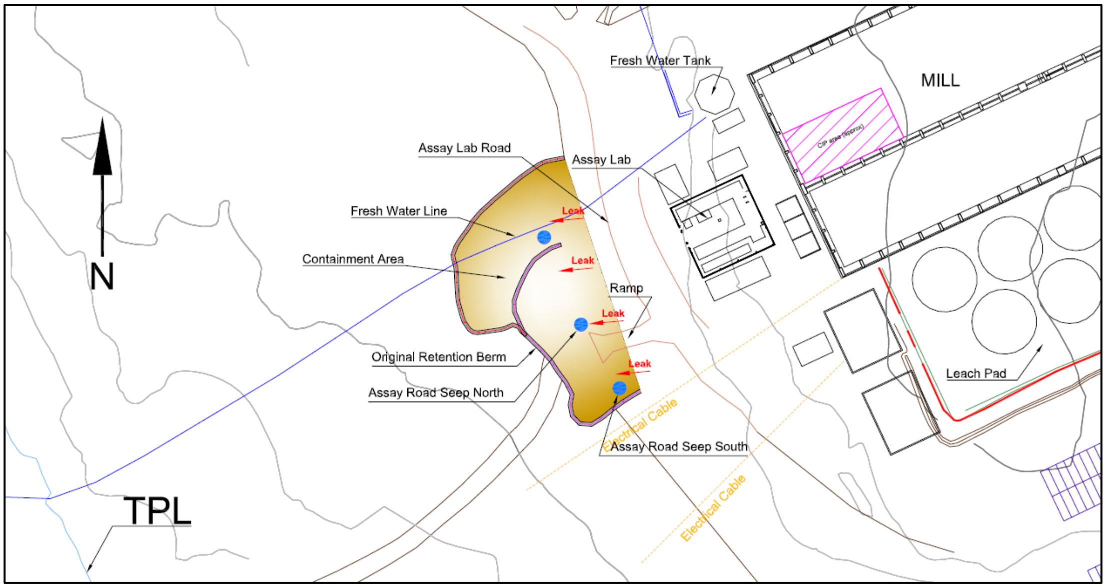
Weekly inspections will be undertaken starting in May at all culverts along the AWAR to ensure that water during freshet is flowing freely and no erosion is occurring. If elevated TSS/Turbidity levels are observed, sampling will occur and the results assessed. Turbidity barrier will be installed if required. 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.

2.8 Mill Seepage

In November 2013, Agnico observed seepage containing cyanide and copper at a location west of the access road in front of the Assay Lab (see Figure 2-9). An investigation determined the source was several containments areas within the mill. Repairs to seal all the mill sumps and containment areas were completed in 2014 thus stopping the source of the seep. An interception/collection trench between the mill and TPL was built in 2014. The seepage appears to have been effectively contained and the source area has been repaired. Additional information and discussion surrounding previous sample results are available in the Annual Report in Section 8.5.8.1.6.

On December 15 2023, Agnico observed water inflow within the Assay Road Seep South retention berm. An investigation was undertaken to identify potential sources of the water, to date the exact source of the water inflow has not been identified but no water inflow has been observed since December 26 2023. The water inflow was contained within the existing water management infrastructure that was built in 2014.

Figure 2-9. View of the mill seepage area and initial retention berm construction



As soon as the trench, monitoring wells and Third Portage Lake are unfrozen a comprehensive monitoring program is implemented. Regular inspections will be conducted of the pumping, collection systems and perimeter area and the pumped volumes will continue to be recorded.

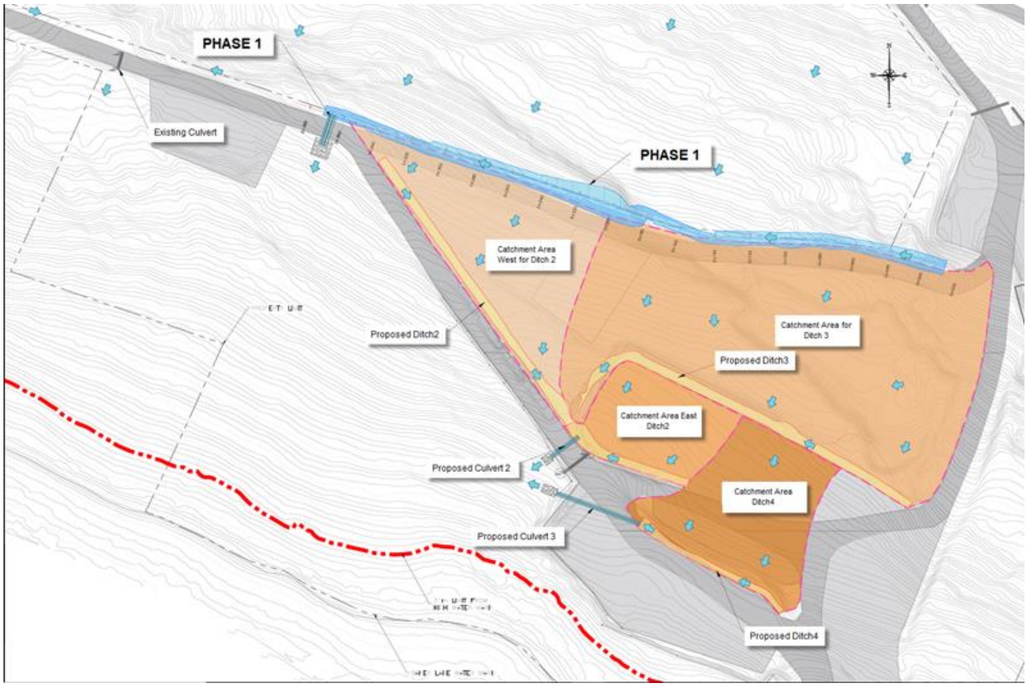
2.9 Monitoring Station at KM87 (ST-44)

In November 2022, a tractor trailer overturned at kilometer 87 on the AWAR resulting in a spill of diesel fuel. A downstream monitoring location, ST-44, will be sampled weekly during freshet and the results assessed. Additional internal sampling points may be identified during the monitoring. Routine visual inspections of the partially excavated contamination zone and collection sump(s) will occur. The inspections will include petroleum testing of any ponding water using test strips and PID. In the event of a positive result for petroleum or the presence of a visible sheen the collection sump(s) will be monitored daily, and contaminated water collected and sent to the Stormwater Management Pond or TSF.

2.10 Baker Lake Marshalling Facilities

In June 2022, a turbid flow of water was observed travelling through the Agnico Eagle facilities towards Baker Lake, resulting in a plume of total suspended solids (TSS) along the shore. Agnico Eagle received authorization to build a water diversion ditch in March of 2023 and construction of the first phase was completed in Fall 2023. Snow management practices at the marshalling facilities are in place to ensure manage snow melt reports to the diversion ditch. Weekly inspections will be undertaken starting in May of the Baker Lake Marshalling Facilities and the new water diversion ditch structure to ensure that water during freshet is being collected and flowing to the intended location. If elevated TSS/Turbidity levels are observed, sampling will occur and the results assessed. Turbidity barrier will be installed downstream of the diversion ditch outlet if required.

Figure 2-10. Design stages for the Water Management Improvement at Baker Lake Design Report



3. 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

2024 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.	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 ENV	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) 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.	ENV	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	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	May - as soon as freshet starts until freeze up
2.2.1.1 ST-16	1) Check Piping from pump to discharge area at North Cell TSF.	ENV and E&I	Early May
	2) If the snow accumulation is judged to be too great, then snow must be removed.	ENV to coordinate with E&I	Early May
	3) Perform daily inspections or inspections as required, and keep records.	ENV	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**	ENV	May/early June - as soon as free water present and ice has melted until freeze

	5) **time periods - i.e. < 2 - 3 hours. For emergencies the water truck can be requested. Start pumping.**		
	6) Any seepage through rockfill road to NP-2 must immediately be reported to Env Dept and authorities.	ENV and E&I	May/early June - as soon as water is present until freeze
2.2.1.2 Waste Extension Pool sumps	1) Snow removal to allow free water flow.	ENV to coordinate with E&I	Early May
	2) Perform daily inspections or inspections as required, and keep records.	ENV	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	May - until Freshet complete and after rain events
2.2.1.3 North portion of NAG Waste Rock Expansion	1) Perform daily inspections or inspections as required, and keep records.	ENV	May - until Freshet complete and after rain events
	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	May - as soon as freshet starts until freeze up

		3) Prevent **contaminated** contact water from reaching NP-2.	ENV	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	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	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.	ENV to coordinate with E&I	Before May 20
		2) If needed, steam to free any ice blockage.	ENV 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.	ENV to coordinate with E&I	Before May 20
		4) Perform daily inspections or inspections as required, and keep records.	ENV	May - until Freshet complete and after rain events

		5) ST-6 sampling as per Water License and TSF weekly inspection (keep record).	ENV	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	TSS result dependent
		7) Have turbidity and silt barriers in place at TPL (2) and maintain.	ENV	May - before freshet starts and until water freezes
		8) Report any discharge of TSS to ECCC/NWB (grab > 30 mg/L).	ENV	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.	ENV to coordinate with E&I	Early May
		2) Perform daily inspections or inspections as required, and keep records.	ENV	May - until Freshet complete and after rain events

		3) Sample for TSS monthly (external Lab) and as needed for Turbidity	ENV	May - until Freshet complete and after rain events
2.3.1.3	Northwest corner of North Cell TSF (West Diversion ditch)	1) Perform daily inspections or inspections as required, and keep records.	ENV	May - until Freshet complete and after rain events
2.3.1.4	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.	ENV to coordinate with E&I	Early May
		2) If needed, steam to free any ice blockage.	ENV to coordinate with E&I	Before May 20
		3) Perform daily inspections or inspections as required, and keep records.	ENV	May - until Freshet complete and after rain events
		4) ST-5 sampling as per Water License and TSF Weekly inspection (keep record).	ENV	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	TSS result dependent

		6) Install turbidity barriers in NP-2, if needed, and maintain.	ENV	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	May - as soon as freshet starts and until water freezes
2.3.1.5	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.	ENV to coordinate with E&I	Early May
		2) If needed, steam culvert to free any ice/snow blockage.	ENV to coordinate with E&I	Before May 20
		3) Daily inspection - keep record.	ENV	May - until Freshet complete and after rain events
		4) Install turbidity barriers in NP-1, if needed, and maintain.	ENV	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	May - until Freshet complete and after rain events

		6) Report any discharge of TSS to ECCCO/NWB (if grab > 30 mg/L).	ENV	May - as soon as freshet starts and until water freezes
2.3.2	**TSF Dikes**			
2.3.2.1	Saddle Dam 1	1) Inspect pumping system	E&I	Early May
		2) Perform daily inspections or inspections as required, and keep records.	ENV and E&I	May and until water freezes
		3) Start pumping to TSF when water observed. Keep volume pumped out.	ENV and E&I	May until water freezes
		4) ST-S-2 sampling as per Water License.	ENV	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.	ENV	May and until water freezes
		3) Start pumping to TSF when water observed. Keep volume pumped out.	ENV and E&I	May until water freezes
2.3.2.3	Saddle Dam 3	1) Inspect pumping system	E&I	Early May

		2) Perform daily inspections or inspections as required, and keep records.	GENV and E&I	May and until water freezes
		3) Start pumping to TSF when water observed. Keep volume pumped out.	ENV and E&I	After May and until water freezes
		4) ST-32 sampling as per Water License.	ENV	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.	ENV	May until water freezes
		3) Start pumping to TSF when water observed. Keep volume pumped out.	ENV and E&I	May until water freezes
2.3.2.5	North Cell Internal Structure	1) Prepare pumping system	E&I	Early May
		2) Weekly Inspection - keep record.	ENV	May and until water freezes
		3) Start pumping to TSF when water observed. Keep volume pumped out.	ENV and E&I	May until water freezes
2.3.2.6	Central Dike ST-S-5	1) Pump water to the South Cell TSF - volumes documented.	E&I and ENV	All year round

		2) Daily inspection of pumping, collection systems, bermed areas and perimeter area – keep record.	E&I & ENV	All year round
2.3.2.7	Stormwater Dike	1) Prepare pumping system	E&I	Early May
		2) Weekly Inspection - keep record.	ENV	May and until water freezes
		3) Start pumping to TSF when water observed. Keep volume pumped out.	ENV and E&I	May until water freezes
2.3.2.8	East Dike	1) Monitor East dike water quality & coordinate with E&I to stop SPL discharge	ENV & E&I	All year long
2.4	**VAULT ROAD CULVERT**			
2.4	Vault road culvert from Turn Lake to Drill Trail Lake (~km 2 on Vault road)	1) Perform daily inspections or inspections as required, and keep records.	ENV	May - until Freshet complete and after rain events
		2) Install turbidity barriers, if needed (elevated TSS observed), and maintain	ENV	May - until freshet complete and after rain events
		3) Sample monitoring for TSS, if excess turbidity observed - use external lab.	ENV	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	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 ENV	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	As required during summer
		2) Sample water in accordance with Water License to ensure compliance with limits prior to release.	ENV	As required during summer
		3) Provide notice to Inspector 10 days prior to pumping.	ENV	As required during summer
		4) Advise Energy and Infrastructure Dept if pumping can begin based on sample results.	ENV	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 & inspection
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	As required during summer
		2) Sample water in accordance with Water License to ensure compliance with limits prior to release.	ENV	As required during summer
		3) Provide notice to Inspector 10 days prior to pumping.	ENV	As required during summer
		4) Advise Energy and Infrastructure Dept if pumping can begin based on sample results.	ENV	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	Following ENV. Authorization & Inspection

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	May
		2) Sample for TSS and Turbidity if elevated TSS observed.	ENV	May - until freeze
		3) Notify E&I Dept if severe erosion/scouring observed - for repair action.	ENV	May - until freeze
		4) Install turbidity barriers if required.	ENV	May - until freeze
2.8	**Mill Seepage**			
2.8	Mill Seepage	1) Pump water from the trench to the mill - volumes documented.	ENV 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	Start May/early June when water present until freeze
2.9	**Monitoring Station at KM87 (ST-44)**			

2.9 Monitoring Station at KM87 (ST-44)		1) Weekly sampling of downstream monitoring station ST-44	ENV	Start of May/early June when water present until freeze
		2) Pumping and removal of contaminated/contact water	E&I	As required during the summer
		3) Visual Inspection and testing of collection sump and contaminated area (Every second day)	ENV	Start of May/early June when water present until freeze or until location is deemed remediated
		4) Monthly soil sampling of spill location	ENV	Start of thaw until snow cover or until results are compliant
2.10	**Baker Lake Marshalling Facilities**			
2.10	Baker Lake Marshalling Facilities	1) Weekly inspection of Baker Lake Marshalling Facilities	ENV	May - until freeze
		2) Sample for TSS and Turbidity if elevated TSS observed.	ENV	May - until freeze
		3) Install turbidity barriers downstream of the diversion ditch outlet, if needed (elevated TSS observed), and maintain	ENV	May - until freeze

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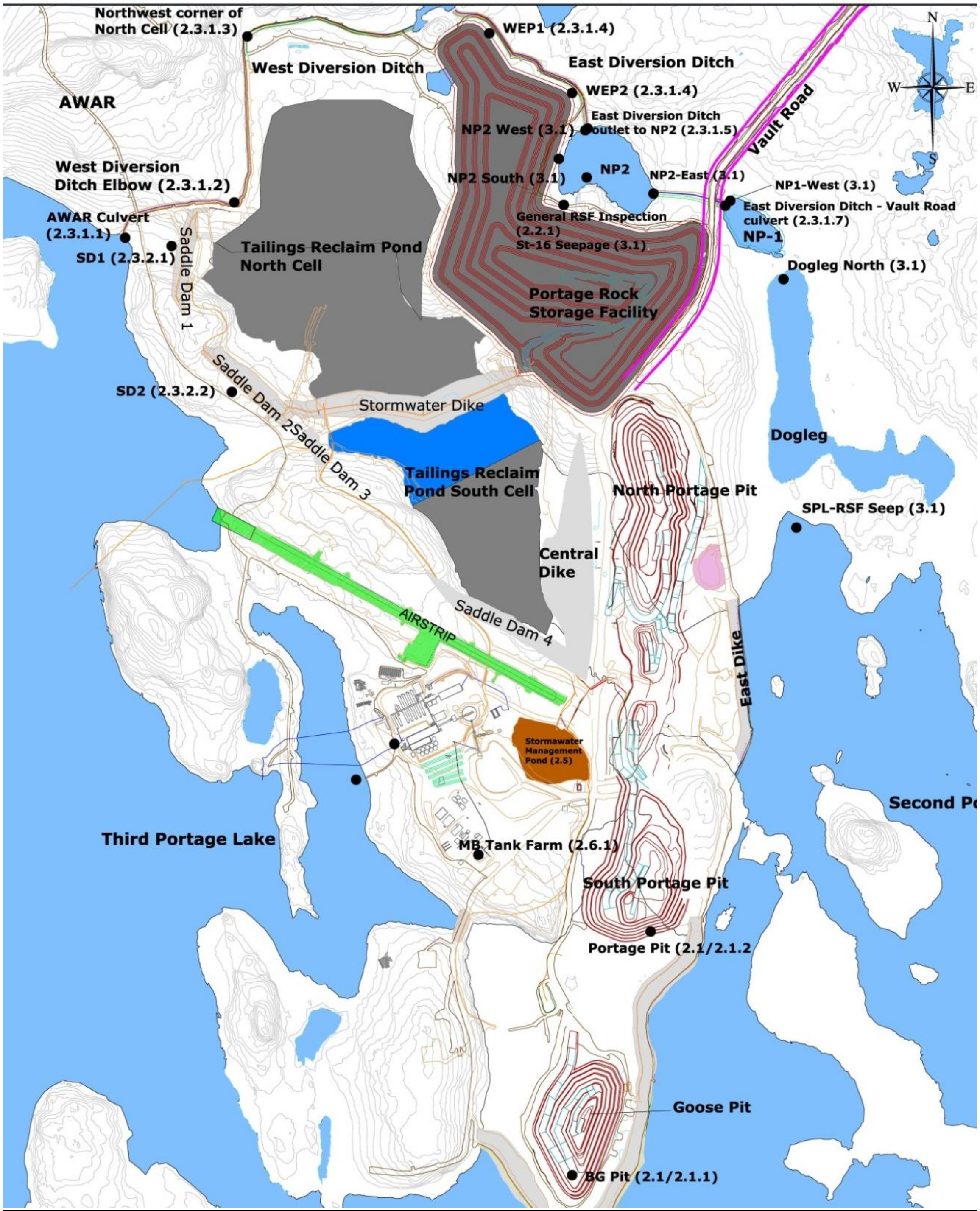
MEADOWBANK

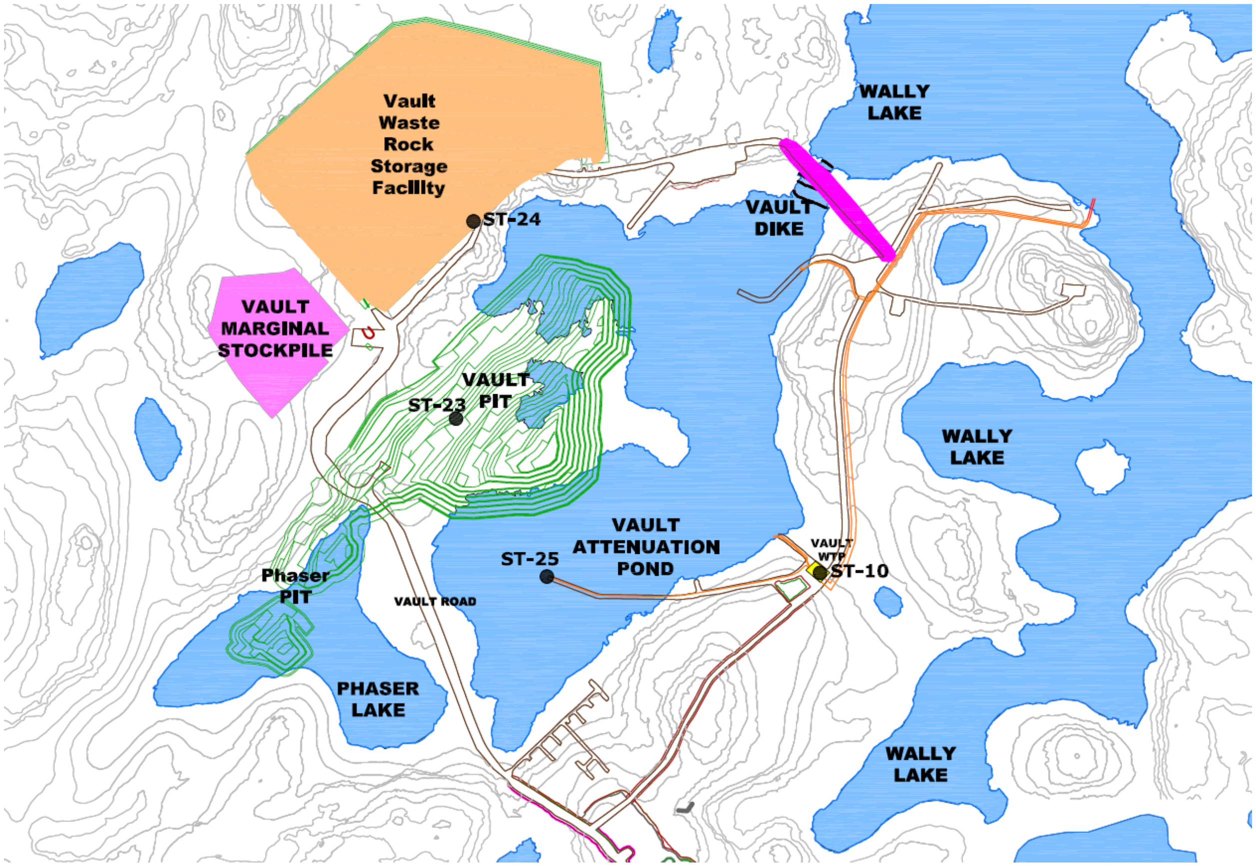
APPENDIX 2

2024 Monitoring Locations and Areas of Concern for the Freshet Action

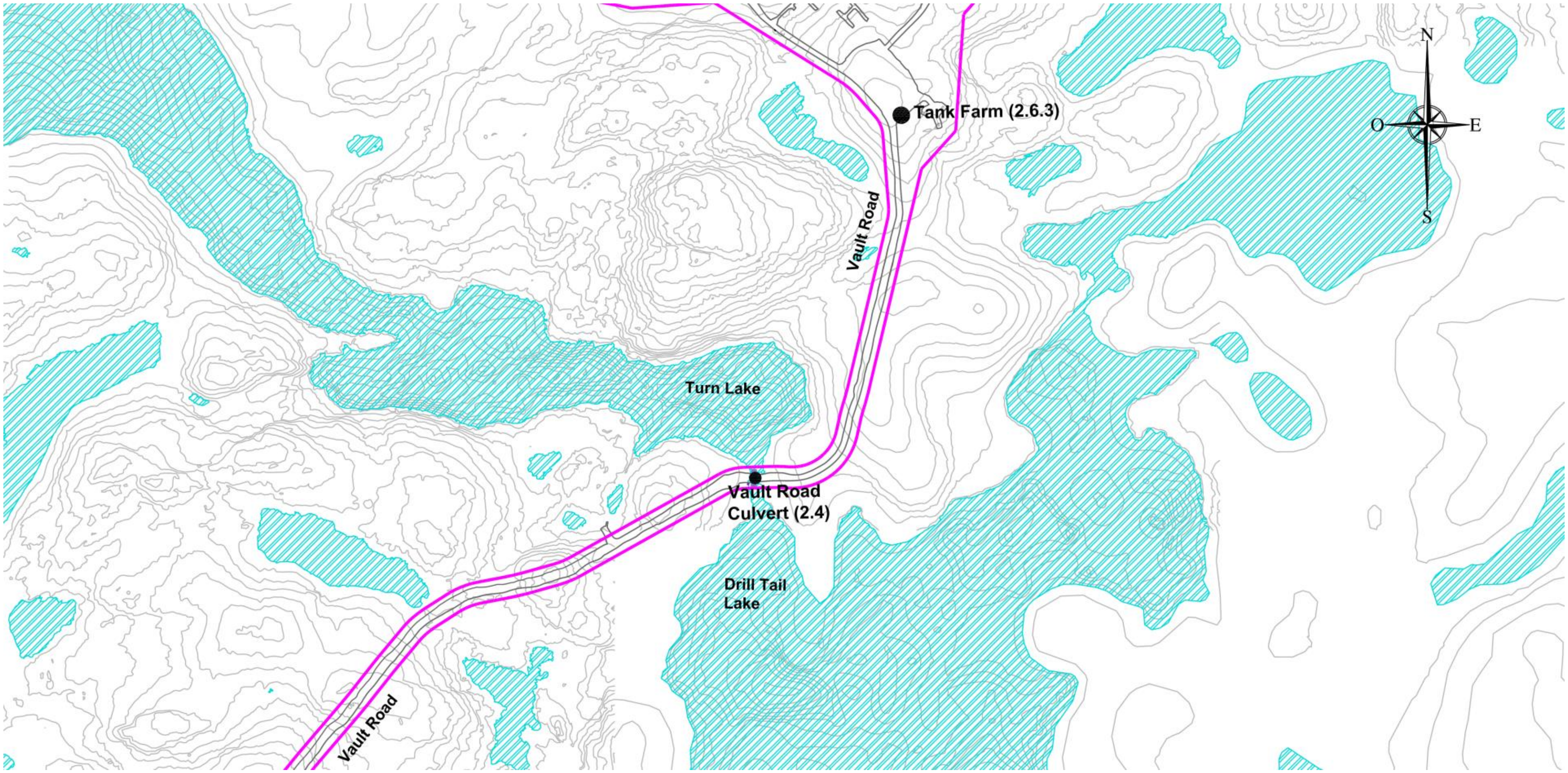
Meadowbank Areas of Concern and Monitoring Locations



Vault areas of concern



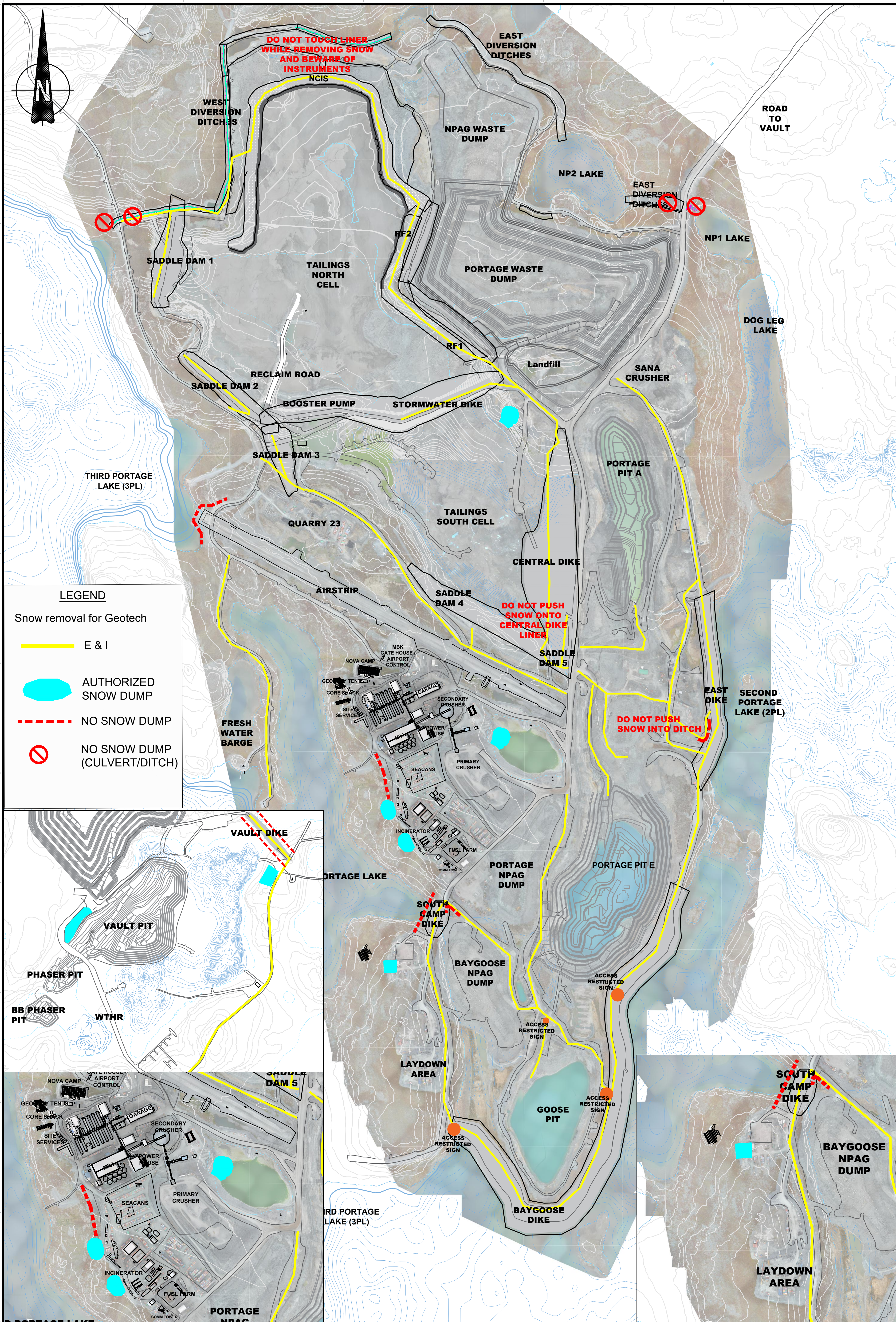
Vault Road areas of concern



APPENDIX 3

2023-2024 Snow management

FORMAT ANSI B–PORTRAIT



TECHNICAL SPECIFICATION
None

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DRAWN BY	DATE
SURVEY CHECK	DATE
GEOLOGY CHECK	DATE
ENGINEERING CHECK	DATE

MODIFIED BY	DATE
G.Baril/T. Dahm	2022-10-30
C. Pelletier	2023-10-13

MEADOWBANK DIVISION
GEOTECH REQUIREMENTS
MBK SNOW CLEARING MAP
2023-2024

SCALE | DATE | FILE .DWG

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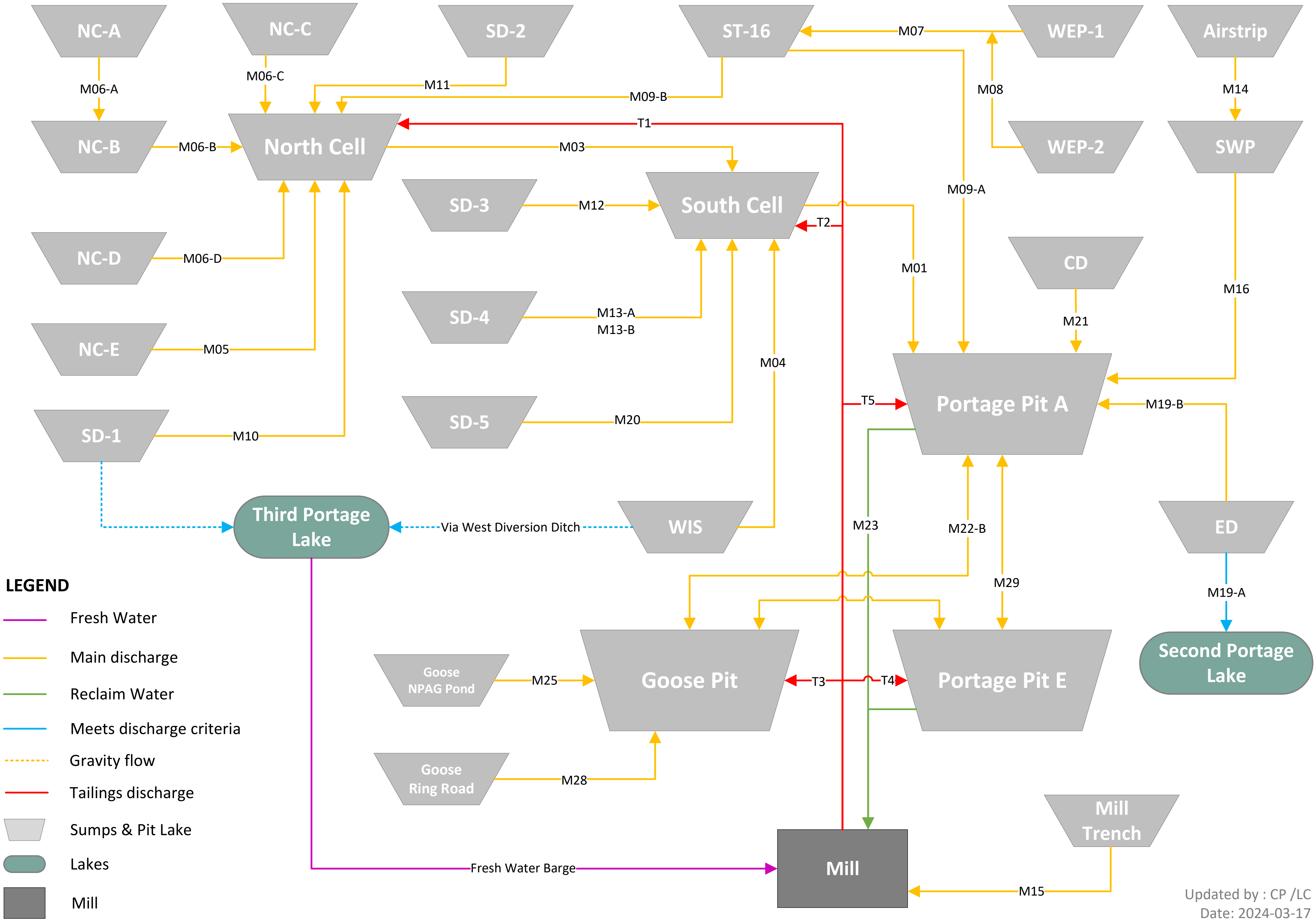
APPENDIX 4

2024 Freshet flowchart and plan view

Meadowbank Freshet Detailed Flowsheet - 2024



Updated by : CP /LC
Date: 2024-03-17

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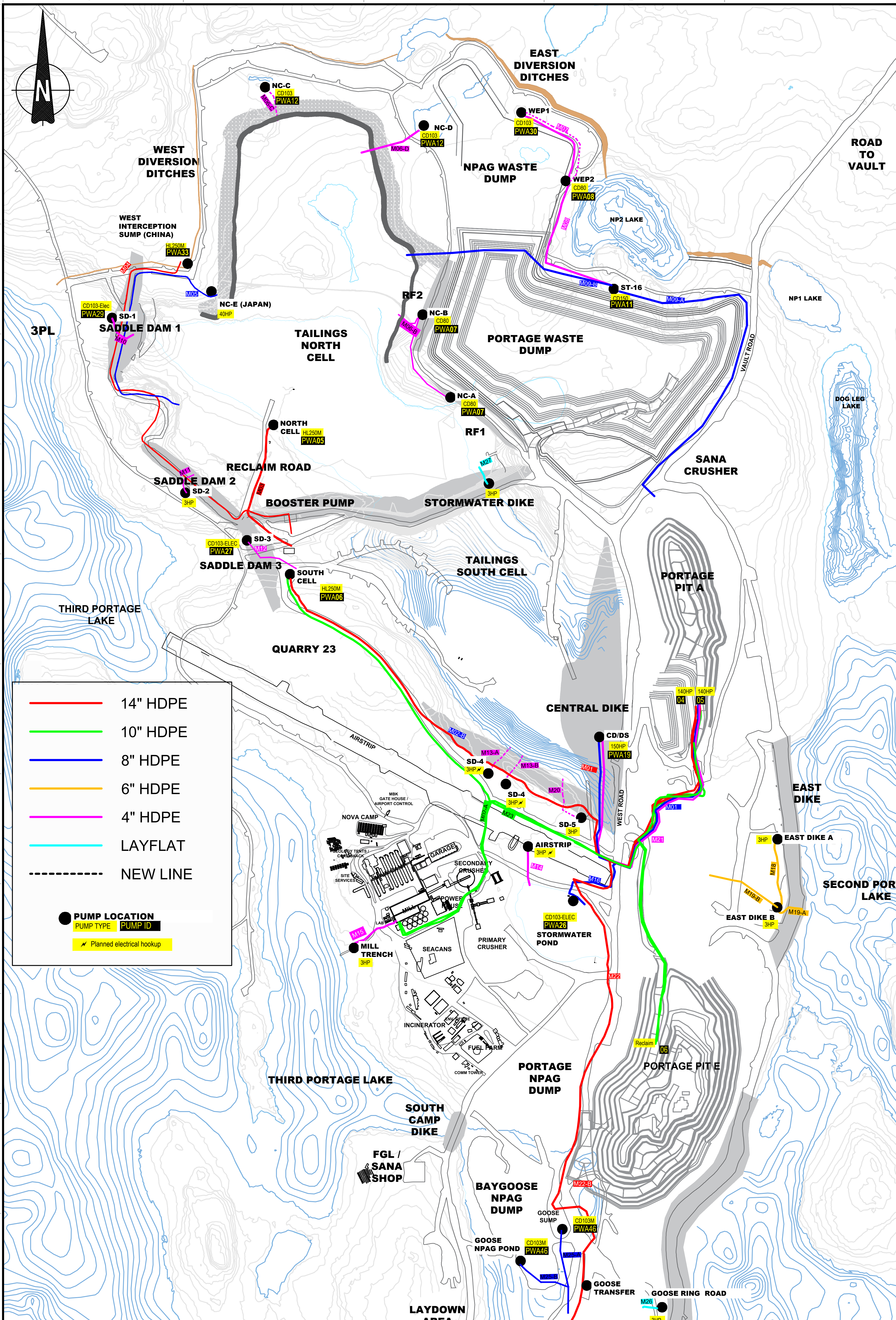

TECHNICAL SPECIFICATION

None

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DRAWN BY	LC	DATE	4/22/2020	MODIFIED BY	DATE
SURVEY CHECK		DATE		C. Pelletier	02-29-2024
GEOLOGY CHECK		DATE			
ENGINEERING CHECK		DATE			

MEADOWBANK DIVISION
ENGINEERING - GEOTECH
MBK DEWATERING
Freshet Plan
Revision 9

SCALE 1:12500 | DATE | FILE .DWG

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APPENDIX E – 2024 AMMONIA MANAGEMENT PLAN

MEADOWBANK COMPLEX

AMMONIA MANAGEMENT PLAN

JANUARY 2024

VERSION 5

EXECUTIVE SUMMARY

In accordance with the Type A Water Licenses (2AM-MEA1530 & 2AM-WTP1830) Agnico Eagle is updating the Ammonia Management at the Meadowbank and Whale Tail sites (e.g., the Meadowbank Complex), which includes monitoring for ammonia in all mine pit sumps, storage pond, tailings storage facility, seeps, etc. Furthermore, Agnico Eagle 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 continues to perform continuous review of analysis results such that mitigation measures can be implemented when increasing trends of ammonia are determined. Agnico Eagle 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 Licenses.

DOCUMENT CONTROL

Revision				Pages Revised	Remarks
#	Prep.	Rev.	Date		
00	SNC		February 2013	All	
01	Agnico Eagle	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 Eagle	WT	June 2016		Included Whale Tail Pit operations in the updated plan
02_NIRB	Agnico Eagle	2	Dec 2018		For WT Expansion permitting process
02_NWB	Agnico Eagle	2	April 2019		For WT Expansion permitting process
02	Agnico Eagle	2	April 2020	All	Comprehensive review of the plan + incorporates WT
03	Agnico Eagle	3	March 2021	All	Comprehensive update to reflect the current operation
04	Agnico Eagle	4	December 2021	Appendix 5, p.27	Update inspection sheet
				Section 2.1.1, p.9	Update to reflect WT emulsion plan construction
05	Agnico Eagle	5	January 2024	Section 2.1.1 and 2.1.2, p.9	Updated to reflect current operation
				Appendix 1, p.21	Updated Figures
				Appendix 3, p.25	Updated Emergency Response Plan
				Appendix 4, p.26	Updated MSDS

Prepared By: Environmental Department

Approved by: Eric Haley
Environmental and Critical Infrastructures Superintendent

TABLE OF CONTENTS

List of Appendix

ACRONYMNS

AGNICO EAGLE	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. This version was subsequently updated in preparation for the Type-A Water License Application for the Meadowbank Mine. The WMP was then updated in 2011. 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 Meadowbank 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 Mine 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 Whale Tail Haul Road (WTHR) between the Whale Tail and the Meadowbank Mine sites.

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 centered on ammonia loading resulting from mine infrastructure in particular from cyanidation in the Tailings Storage Facility (TSF), the use and management of explosives, 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 Eagle has not reached any level of concern (no trigger levels have been reached for ammonia).

Ammonia management at Whale Tail site follows the same practices as outlined in this approved plan and similarly includes conducting routine monitoring in the receiving environment at the Whale Tail site under the CREMP.

This 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, TSF, seeps, etc. in accordance with the Type A Water Licenses. Furthermore, Agnico Eagle implemented 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. Agnico Eagle 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 TSF. The cyanate can then hydrolyze to ammonia in the TSF 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 favored 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 guidelines 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 AMP proposes monitoring of blasting practices for the assessment of explosive quantity used and blast performance, as well as monitoring of water quality to determine ammonia levels in waters within the mine 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 Whale Tail emulsion plant areas (see Appendix 1). The explosive products arrive by barge at the Baker Lake marshalling area. They are then transported by ground to the Whale Tail emulsion plant. There is no explosive storage at Meadowbank since the beginning of 2022.

Explosive products at the plant facilities are packaged 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 emulsion plant areas. Surface areas are graded to collect water runoff within the storage facilities.

The emulsion plant area at Meadowbank is located north of the Meadowbank mill, pits, and camp site and approximately 76 km from Whale Tail Mine. The storage area is accessible from the AWAR. Some ammonium nitrate prill containers are temporary stored at the Meadowbank emulsion plant (no longer in operation) and brought to Whale Tail as needed due to the limited storage capacity on Whale Tail site. The Whale Tail Emulsion Plant is located in a remote area of Whale Tail Mine, southwest of the pits and the main camp. The plant was commissioned in January 2022. The infrastructure presently consists of an emulsion plant for the preparation of bulk emulsion explosives, two buildings for the storage of AN, a nitrate pad and seven explosive magazines along the access road to the plant.

Similar to the previous Meadowbank operations, the emulsion is trucked to Whale Tail Pit, IVR Pit and Underground operation. The current plan for emulsion delivery is to directly deliver to the open pits and underground however, emulsion is also stored in a remote emulsion storage building located where the Whale Tail mine 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, IVR Pit and underground.

2.1.2 Roads

The AWAR and the WTHR are use to transport explosive products from the Baker Lake site facilities to Whale Tail Mine.

Agnico Eagle will continue to enforce restricted access from km 85 north to the Meadowbank Mine and will enforce the same restrictions along the WTHR (refer to the Whale Tail Haul Road Management Plan).

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 and Underground Operations

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 Pit, IVR Pit, and underground mines.

2.2 AMMONIA PATHWAYS

Emulsion not fully detonated in pit blasting operations provides several pathways for ammonia mobilization. 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 attenuation ponds. Residuals from the ore may be carried in the tailings to the TSF. All these pathways (mine sumps, attenuation ponds, TSF) are monitored in accordance with the Water License.

At 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, or the IVR WRSF contact water collection system. For ore stored within the dewatered portion of Whale Tail 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.

To avoid any case of poor or incomplete detonation, Agnico Eagle employs the following measures:

- inspection of drilling depth to ensure it is in accordance with blast design;
- inspection of quantity of explosives in each drillhole to ensure it is in accordance with blast design;
- inspection of blast tie-in execution; and
- reporting of any anomalies during loading and priming of explosives to correct situations prior to initiation.

These measures will be reviewed should ongoing cases of poor or incomplete detonation be encountered. This will be included in the next revision of the AMP.

2.3 EXPLOSIVES AND BLASTING

Based on experience at Meadowbank and at other open pit mines in the Canadian Arctic, the largest potential source of ammonia in mine water will be 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 ammonium-nitrate 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, blast design, procedures, and practices. 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.

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. Meadowbank and Whale Tail use emulsion as the primary bulk explosive for blasting operations.

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

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

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

2.3.2 Procedures and Practices

Quality control procedures are in place to verify AN content in bulk explosives. Quality control procedures for the emulsion occur at the plant and density tests are done at the blast site (on the trucks). Loading procedures specify that blastholes be loaded with emulsion from the bottom of the blastholes to provide a continuous explosive column. Details on the explosive quality control and loading procedures have been established by Dyno Nobel 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 muck pile. Muck piles 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 muck pile 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 TSF/in-pit disposal where the tailings particles can 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 flooding activities This modeling has been updated for Whale Tail 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.

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, please refer to the Meadowbank Water Management Report and Plan and the Whale Tail Water Management Plan.

In addition to controlling contact water through design, the Meadowbank Water Quality and Flow Monitoring Plans 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 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 as part of the AMP:

- If runoff or seepage is detected at the rock storage facility, water samples collected at the Portage, Vault, Whale Tail, or IVR WRSFs during late operations 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 attenuation or storage ponds to the receiving environment 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 ponds at Whale Tail will collect all drainage from the WRSFs. Any drainage from the ore storage area will collect in the Whale Tail/IVR Attenuation Ponds. The open pit, water storage ponds and the Attenuation Ponds at Whale Tail and IVR Pits 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 Nunavut Impact Review Board (NIRB) Kivalliq Inuit Association (KivIA), and Nunavut Water Board (NWB) and include, but may not be limited to:

- Brief monthly reports of the compiled water quality monitoring results, sent to the NWB, the CIRNAC Water License Inspector and to the KivIA; and
- An annual report submitted to the NWB, KivIA, CIRNAC, 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 License 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 Eagle will notify the NWB and KivIA as early as practical. Results of these further studies and/or changes to the AMP monitoring actions will be transmitted to the NWB 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, and corrective measures will be put in place. See Appendix 5 for copy of the Emulsion plant 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 NWB for review.

9 REFERENCES

Agnico Eagle (2020), Meadowbank Water Quality and Flow Monitoring Plan. July 2020.

Agnico Eagle (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 (2020). Water License No: 2AM-MEA1530. Agnico- Eagle Mines Ltd. March 2020.

NWB (2020). Water License No: 2AM-WTP1830. Agnico- Eagle Mines Ltd. March 2020.

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

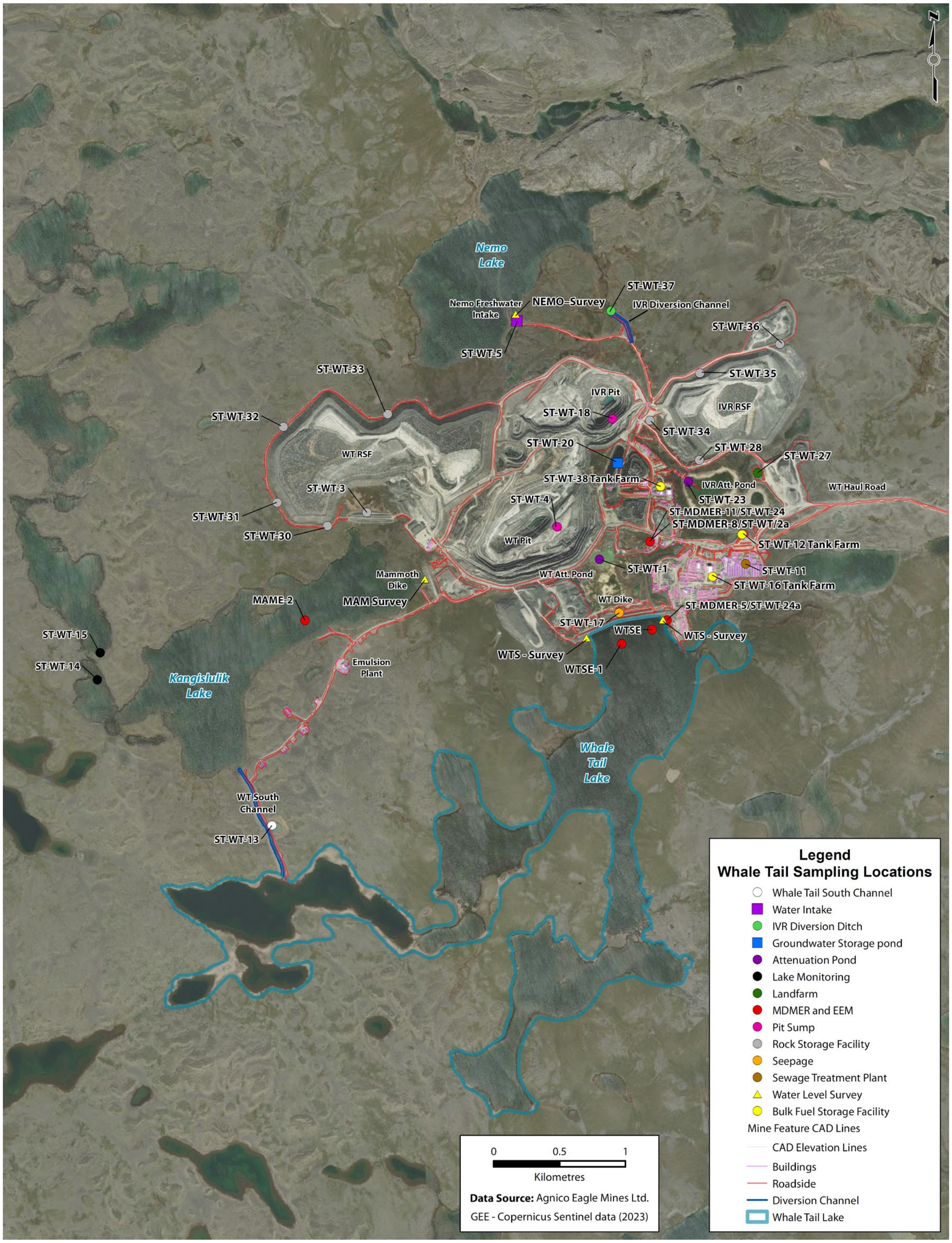
SLI (2012). Water Quality Forecasting for the Portage Area 2012-2025. Agnico-Eagle Mines. Document No. 610756-0000-40ER-0002, Rev. 01. March 2013

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

Dyno Nobel

DYNO NOBEL CANADA

EMERGENCY RESPONSE PLAN

AMARUQ NUNAVUT

REVISION STATUS

Revision #	Date	Revision Description	By	Checked by	Approved by	Revision Due
1.0	July 31, 2019	New Standard	P.St-Georges	D. Wall; P. Piprell	T. Medak	
1.1	October 26, 2020	Site Manager change		P.Piprell a& Shanno Ryan	T.Medak	
1.2	October 26, 2021	Review ERP	PSt-G.			October 2022
1.3	October 26, 2022	Review ERP Mod. In Blue*	P.St-G.			October 2023
1.4	October 17, 2023	Review ERP Mod. In Blue*	P.St-G.			October 2024

* Modification done in the site ERP are in blue

Approved for release by:

Signature: Patrick Piprell _______________ Date: October 17, 2023

Title: Site Supervisor

CONTENTS

External Reports

All incident involving the manufacturing, importation, exportation, sales or storage of explosives and restricted components, and the use of fireworks, must be reported to the Chief Inspector of Explosives as soon as circumstances permit. For accident involving fatality, serious injuries or major property damage, call 1-855-912-0012 as soon as possible. All other accident/incidents must be reported to 1-613-948-5200. The completed Explosive Incident Report form F07-01 should be sent by email to ERDmms@nrcan.gc.ca or by fax to 613-948-5195. The inspector of explosives responsible for your area should also be contacted.

1.0 SITE INFORMATION

The entrance to the site is south of AMARUQ mine site at the Explosive Manufacturing Road (EMR).
Latitude (North): 65° 23’43.45”N
Longitude (West): 96° 44’1.00”W
Office: +1 819 759-3555 ext 4606808

2.0 PURPOSE

The purpose of the ‘Emergency Response Plan’ is to provide guidelines for the protection of all employees and company property in the event of an emergency occurring on company premises. It outlines the setting up of emergency control within the site and the emergency procedures in place to ensure the safety and protection of people, property and the environment.

- Notifying all on-site personnel of emergencies.
- Organizing the site based emergency response, where applicable.
- Facilitating communications with Emergency Services.
- The plan provides procedures for:
    - Training of site personnel in emergency response.
    - Reviewing and updating emergency procedures.
    - Facilitating recovery operations.

To provide a management system for Dyno Nobel Canada and stakeholders, to deal with emergencies to protect people, property and the environment.

Objectives:

- To minimize adverse effects on people, property and the environment
- To control or limit the effects of an emergency
- To facilitate an emergency response and to provide appropriate assistance to the emergency services
- To communicate vital information to all relevant persons as soon as possible
- To provide for competency-based training so that a high level of preparedness can be continually maintained
- To provide a basis for updating and reviewing emergency procedures
- To provide a system to manage an emergency
- To link current site plans with the corporate plan
- To identify and utilize an effective communication system

3.0 SCOPE

This plan has been prepared for Dyno Nobel Canada Inc. The plan covers the emergency response requirements for Dyno Nobel's AMARUQ Operations.

SCOPE OF OPERATION

Bulk Explosives Factory Site includes;

Emulsion Manufacturing site
storage of emulsion, Ammonium Nitrate 182,500 NEQ
- 50,000 liters of diesel;

4.0 REFERENCES

- Site Emergency Response Plan (Template)
- Emergency Risk Assessment Worksheet
- IPL HSE MS Element 9.1, Emergency Response Planning
- CSA-Z731-03 Standard – Emergency Procedures
- Regulatory Agencies, Groups, Industry and Community
- Environmental Emergency Regulation – Environment Canada

The regulatory agencies administering explosives are:

- Transportation of Dangerous Goods (TDG)
- Natural Resource Canada (NRC)
- Explosives Regulatory Division (ERD)
- Environment Canada (EC)

5.0 EMERGENCIES COVERED UNDER THE PLAN

Based on a risk assessment conducted the following natural or man made disasters could impact our business:

On-site Emergencies

- White outs
- High Winds
- Explosion – equipment (boiler/fuel or other)
- Fire in plant
- Injury or illness
- Wildlife interaction (wolverine; bear; caribou; other)
- Environmental contamination
- Spills
- Severe weather
- Product shortage
- Raw ingredient shortage
- Critical replacement parts unavailable
- NOX gas release possible.

Off-site Emergencies (including transportation)

- Transportation incident rollover or collision
- Blast pattern incident with drill
- Blast pattern incident near highwall
- Blast patten incident – lightning
- Fire –threat to vehicle
- Fire – toxic fumes
- Explosion – product detonation
- Security
- Injury or illness
- Wildlife interaction (wolverine; bear; caribou; other)
- Spills
- Severe weather
- NOX gas release possible.

6.0 HAZARDOUS OPERATIONS

The following zones, activities and equipment are hazardous and may require an emergency response:
The following is a prioritized list of hazardous operations and storage areas.

	Operation	Comments / Instructions
1.	Manufacture Emulsion	Plant and emulsion storage with chemicals. Emulsion storage in ISO tank.
2.	Operating loader	Yard; site access road
3.	Fuel storage area (bulk)	Bulk tank in yard
4.	Product delivery to blast pattern	Plant; Site yard; Mine road; pit
5.	Driving on a pattern	Pit
6.	Transferring chemicals	Plant; Process vehicles
7.	PTW activities	Confined Space Entry; Working at Height; Hot Work; Loading and unloading (Emulsion, Traces, Fuel); Lockout/Tagout; Critical Lifts

7.0 HAZARD CHEMICALS AND MATERIALS

The following is a prioritized list of or hazardous chemicals, materials and intermediates of significant quanities on site or transported by site:

	Chemical / Material	Quanties	Location
1.	Fuel oil	50,000L	Outside plant
2.	Trace 1 (citric acid)	284 L	
3.	Trace 2 (sodium nitrite)	284 L	
4.	ANP	120,000 kg	Outside

8.0 EMERGENCY CONTACT INFORMATION

Dial 6-9-1-1 in an emergency or call CODE 1 – CODE 1 – CODE 1

Non-Emergency Police / Fire

- Baker Lake RCMP (867) 93-1111

Regulatory Contacts: (NRCan via H&S or Regulatory Compliance Manager)
- H&S: Seamus Kilcommons Cell: 403 815-4066
- Reg: Pierre St-Georges Cell: 613 677-1051

DN Title	Name	Cell Phone	Work Phone	Home Phone
Manager of the Site	Patrick Piprell & Shannon Ryan	NA	819 759-3555 EXT 4606608	
Operations Manager	Krisnar Cruz	587-839-0654	587-839-0654	
General Manager	Jim O'Brien	913-940-5170	913-940-5170	
HSEC Manager	Seamus Kilcommons	403-837-2685	403-723-7547	
Emergency Supervisor (ES)	Shannon Ryan Patrick Piprell		819-759-3555 EXT: 4606808	

Local Emergency Services may be required to take control of the emergency situation. Dyno Nobel personnel will assist the Local Emergency Services with information and advice and will ensure that the Emergency Services are briefed with all appropriate information when attempting to take control of the situation.

9.0 EMERGENCY FUNCTIONS AND RESPONSIBILITIES

The following people will participate in emergency planning and crisis management.

Name	Role / Responsibitlies
	Responsible for updating emergency response plan
Patrick Piprell & Shannon Ryan	Site Supervisors will be the EMERGENCY MANAGER, or in his/her absence the next most senior manager on site will assume this role. Responsibilities are to ensure ERP is site specific: Lead drills twice a year
Jim O'Brien	General Manager: Overall reviewer and sign off. General Manager; Media Liaison.
Krisnar Cruz	Operations Manager: responsible to review and ensure adequate: review of drills conducted; Bulk Site Operations Advisor
Seamus Kilcommons	HSEC Manager: responsible to review and ensure adequate: review of drills conducted; Liaison with regulatory authorities

Benoit Choquette	Environment Manager; Liaison with relevant regulatory authorities
Pierre St Georges	Regulatory Compliance Manager; Liaison with all relevant regulatory authorities

Emergency response responsibilities for all personnel on site are describe as follows:

Roles	Responsibilities
Emergency Manager (EM)	This position will usually be filled by the Site Supervisor / Acting Site Supervisor and will be responsible for: • Overall responsibility for management of the emergency. • Contact with other external organizations (e.g. Police) • Contact with employees and relatives • Declaration of “All clear” to approve re-entry • Implementation of the DNA Crisis Communication Plan
Emergency Supervisor (ES)	This position will usually be filled by the one of the operators or designate and will be responsible for: • Liaison with the EM. • Arrange the removal of equipment (e.g. truck explosives). • On-site security. • Collect visitors book during evacuation (if safe to do so) • Conducting head count of all personnel on site In the event that there is only 1 person on site then that person will assume responsibilities of both the EM & ES.
Other personnel on site	This position will usually be filled by any other employee on site. • If safe to do so, personnel holding appropriate licenses will attempt to remove all explosive trucks from the vicinity of the fire and shut down all equipment. • Follow the direction by EM to control the situation (e.g. extinguish fire) if directed • Make their way to the nearest designated evacuation point. • Visitors and contractors must proceed directly to the evacuation / muster point: The scale house.

10.0 ALARM COMMUNICATION SYSTEM

- Type of warning/alarm system (including back-up): Alarms tied into AMARUQ mine site Notified system to security / ERT
- The communication system used: Two way radios and phone
- Location of Alarms: Emulsion plant and office – Internal and external alarms

- We will communicate an on-site in an emergency situation to employees by:
- Alarm System Bell. In the event of a disaster we will communicate with employees by: Two way radio
- In case of an emergency the triggered alarm communicate with the bitshop, crusher pad, magazines pads. The employees will gather at the muster point where a head count will be performed.
- In event no one is on site, the alarm system will activate by: Automatic alarm: sensored for smoke and heat??
- We will test the warning system and record results at least __1___ time per year. Results are recorded by the mine. Mine owns the Dyno Nobel building

11.0 EMERGENCY RESPONSE EQUIPMENT

The following emergency response equipment is located on site:

Location	Equipment
Emulsion plant	**Spill Kits; Fire extinguishers; First Aid Kits**
Process Vehicles	**Spill Kits; Fire extinguishers; First Aid Kits**
Pickup trucks	**Fire extinguishers; First Aid Kits**

EMERGENCY RESPONSE KITS & MATERIAL

All DNCI worksites will maintain the following emergency response equipment, that is appropriately packaged, stored and easily loaded onto a pick-up truck and / or aircraft for immediate transfer to an accident scene:

VERIFY WHAT IS READILY AVAILABLE IN SPILL KITS AS PER LIST BELOW

I - Spill Recovery Material
1000 ft. of 3 inch fluorescent yellow security tape
3 explosion-proof lanterns / flashlights
1 roll (200 ft.) of 10 mil. clear plastic for ground or product cover
3 "explosives" signs plus assorted 1.1 / 1.5 "placards and labels"
4 polyethylene / non-ferrous 45 gal. drums with removable lids
1 doz. large heavy duty garbage bags (to line drums and for trash)
3 non-ferrous shovels
1 spill kit containing 1 - 25 lb. bag of granular absorbent material
30 ft. of 5 in. sorbent booms
10 ft of 3 in. sorbent socks

1 case of sorbent pads
1 - 3 ft. x 3 ft. neoprene sheet (drain seal)
6 heavy-duty cardboard boxes for repackaging broken boxes
2 rolls of 3″ duct tape
2 rolls of 3″ packing tape
1 push broom
6 blank (TDG) shipping documents

II – Personal Protective Equipment
6 reflective safety vests
6 safety "goggles"
6 particulate respirators (dust masks)
1 doz. disposable ear plugs
6 pr. nitrile gloves
6 pr. cotton gloves
Industrial First Aid Kit

(Note: all DNCI Emergency Responders must wear CSA approved protective footwear and Type II (lateral protection) hard hats when on the job. As well, a camera should be readily available to photograph the scene of an accident and remedial measures for inclusion in the accident investigation report).

An inventory list of the emergency response kit/material will be kept with the cache, which must be inspected quarterly, to ensure the contents are present and in good working order (note: Emergency response kit cache may be witness/lock-wired closed, in which case only an annual verification that the contents are present and in good working order is necessary, so long as the witness/lock-wire is present and unbroken).

12.0 EMERGENCY CONTROL CENTER

The Site Manager or Supervisor will nominate the most appropriate location of the Site Emergency Control Centre when all site personnel, contractors and visitors have mustered at the designed evacuation area. The Site Emergency Control Centre will depend upon type and location of the emergency.

In the event of an emergency that requires all personnel to be evacuated from the site, the Site Emergency Control Center will be located at the main gate.

13.0 EMERGENCY INSTRUCTIONS

- Ring the alarm.
- Evacuation Procedure.
- Evacuation of people includes alarms, designation of staging areas and alternative routes/assembly points, and a system of head counts to determine if all individuals have been evacuated.

- Activating the emergency plan.
- Activating the emergency services.
- Terminating the emergency.
- Health and safety functions, such as roll call and search and rescue.
- To identify those responsible for conducting this work and detail procedure to clean and contain spills.

13.1 EXTREME TEMPERATURES

Working in cold environments can be not only hazardous to your health but also life threatening. It is critical that the body be able to preserve core body temperature steady at + 37°C (+ 98.6°F). This thermal balance must be maintained to preserve normal body functioning as well as provide energy for activity (or work!). The body's mechanisms for generating heat (its metabolism) has to meet the challenge presented by low temperature, wind and wetness - the three major challenges of cold environments.

Uncomfortably cold working conditions can lead to lower work efficiency and higher accident rates. Cold impairs the performance of complex mental tasks. Manual tasks are also impaired because the sensitivity and dexterity of fingers are reduced in the cold. At even lower temperatures, the cold affects the deeper muscles resulting in reduced muscular strength and stiffened joints. Mental alertness is reduced due to cold-related discomfort. For all these reasons accidents are more likely to occur in very cold working conditions.

Protective clothing is needed for work at or below 4°C. Clothing should be selected to suit the temperature, weather conditions (e.g., wind speed, rain), the level and duration of activity, and job design. These factors are important to consider so that you can regulate the amount of heat and perspiration you generate while working. If the work pace is too fast or if the type and amount of clothing are not properly selected, excessive sweating may occur. The clothing next to body will become wet and the insulation value of the clothing will decrease dramatically. This increases the risk for cold injuries.

13.2 INJURY/ILLNESS

Medical emergencies may arise due to serious injury caused by machinery, entrapment, heart stoke. Limited first aid is available on site and casualties would likely be transferred by ambulance to nearess Hospital for treatment. A transport vehicle is always readily available on site for transportation needs. The site is accesible to local emergency services at all time.

A means of communication is mandatory for all employees working on site at all time. For emergencies requiring immediate medical attention, quickly assess the scene then call for assistance. Qualified Site First Aiders will assess the casualty, and if required, **call 6911** or CODE 1 – CODE 1 – CODE 1 on Two Way radio

The site has several trained first aid attendants and these people will be the first to assist in an emergency.

FIRST AID ATTENDANTS	EXPIRY DATE
Chris Paul	
Patrick Piprell	
Shannon Ryan	
Aubrey Chaulk	
Billy Harrison	

*** Report incident details in SHAERS database when the Emergency is over.**

13.3 EXPLOSION / FIRE CONTROL PROCEDURE

EXPLOSION

All site personnel should be evacuated as soon as possible. In the event of an explosion the Emergency Services should be contacted immediately and the evacuated personnel assembled at the Muster area. No personnel should enter the site until at least one hour after the explosion or until the resultant fire has burnt out.

Dyno Nobel personnel should restrict access to the plant and nearby area until the Police and emergency services arrive at which time all access roads should be blocked off at a suitable distance. Emergency services should be advised not to enter the site but if they choose to do so they should be fully briefed before entering.

The Dyno Nobel Compliance Manager shall be notified of any explosion immediately so as to inform Government authorities of any incident that has occurred. There should be no attempt made at clean up or repair of the site until authorisation from the appropriate authorities has been received.

13.3 EXPLOSION / FIRE CONTROL PROCEDURE (Continued)

FIRE CONTROL PROCEDURES

Fires will vary in location and the materials involved. Each kind of fire shall have inherent risks associated with them. In general the following guidelines should be adhered to:

- Do not fight a fire that has become established which involves explosives or precursors used in the manufacture of explosives;
- Proceed with extreme caution when fighting fires involving Oxidizing agents as toxic fumes may be evolved;
- Never fight a fire unless you are comfortable to do so and have the correct equipment;
- Always leave an escape route when approaching or fighting a fire; and
- Always fight a fire from upwind.

IF YOU ARE UNABLE TO CONTAIN THE FIRE WITH A FIRE EXTINGUISHER THEN YOU MUST EVACUATE THE AREA.

13.4 SECURITY

The Site can be secured by a locked gate at the main entrance (main emergency exit and gathering point) of the site. Due to 24 hour operation the gate is not locked to allow access for DYNO personell and mine blasters. A sign in, sign out book is located at the main entrance for visitor and employee manlimits as per the site ERD Factory License. Only Dyno Employee's have keys to the locked gate.

'A' & 'B'. Sign includes ; Danger - Explosives, No Trespassing, Penalty-Section 18, Canada Explosives Act, $ 5,000.00 fine. Man Limit. No smoking. A match/lighter box. PPE requirements, and a 24 hour Emergency Contact Number.

13.5 BOMB THREAT

In the event of a "Bomb" threat the telephone operator or other person receiving the call should obtain as much information as possible. Where practicable the person receiving the call should have access to the "Bomb Threat Checklist".

Action if bomb or other explosive device is found:
If object or parcel, suspected of being a "bomb" or other type of explosive device is found by anyone, the following action should be taken:

- Do not touch, tilt or otherwise tamper with the object, whether it is a bomb, improvised explosive device (IED) or other suspect object.
- Immediately evacuate the area surrounding the object.

13.5 BOMB THREAT (Continued)

- Consider the consequential damage and effect - both on site and off site -if process equipment, storages or pipelines are involved.

Use the following guidelines:

- Evacuate the area concerned.
- The possibility of shrapnel must be considered.
- Evacuate all persons to the emergency evacuation area. Safety perimeters must be maintained until the device is rendered safe.
- Quick detailed observations should be taken of a suspected IED. Time spent near an IED must be kept to absolute minimum.

Observations should include:

- Exact location and proximity to hazards such as dangerous chemicals or substances.
- Size, shape and colour of object.
- Any writings or labels appended to the device.
- Any other peculiarities.
- Notify Police simultaneously with the commencement of evacuation.
- approach police upon their arrival to supply all details of information.
- Police will, upon their arrival, coordinate and control all necessary procedures.

13.6 CHEMICAL SPILL/RELEASE

Spills of materials on site are most likely to originate from damaged containers and drums whilst unloading raw materials. The action taken to deal with a spill is dependent on the type of material spilt and the associated hazards with that material.

Environmental considerations should be taken into account when cleaning up a spill. To ensure that the appropriate action is taken to clean up a spill the MSDS (Material Safety Data Sheet) should always be consulted before any clean up attempt is made.

Care should also be taken that the spill does not mix with other raw materials as violent reactions or the generation of toxic fumes may be possible. In the case of reactions or fume generation the emergency services should be called and the area evacuated.

The Ministry of Environment is to be notified. Contact Dyno Nobel Canada Environmental Manager.

13.7 TRESPASSING/VANDALISM

If there has been a breech of security or obvious signs of trespassers, notify the police. Do not disturb scene.

Determine if there has been any damage or theft. Follow instructions of the mine security or police. If there has been a theft of explosive materials proceed to the appropriate section of this Plan.

Take temporary actions to prevent recurrence until permanent actions can be implemented.

13.8 LOSS/THEFT OF EXPLOSIVES

LOSS

Determine the nature of the loss. **Implement** the appropriate sections of the Notification Plan. **Retrace** all routes of travel. **Verify** security and inventory level with personnel at the place of origin and destination. **If material cannot** be accounted for, the HSE Advisor and Site Manager shall notify ERD & the RCMP.

THEFT OF EXPLOSIVES

Immediately call the police. **Implement** the Emergency Notification Plan.

The Site Manager, HSE Advisor or Regional Operations Manager will call, as soon as possible and within 24 hours, the RCMP & ERD. **Determine** exactly what product, how much and code date(s) was stolen from the magazine(s). **Be careful** not to disturb the magazine or its contents so as not to destroy evidence such as fingerprints, shoe marks, etc. **Do not** handle tools or equipment that may have been used to break in. **Allow** Police personnel access but protect the scene from others that may disturb the evidence.

Do not permit news media personnel or any other non-company personnel (excluding Police) to enter the site. **Do not** make any statements to the media or non-company personnel. Refer the media to the Company Spokesperson. **The** Site Manager shall be the direct liaison between the company and the police and regulatory agencies. **Keep a log,** (documentation), of all activities regarding the break-in investigation for the company record. **The** Regional Operations Manager, HSE Advisor, and Site Manager will review all information and determine prevention measures to be taken to deter future break-ins.

13.9 PROCESS LOSS/INTERRUPTION

The possibility of a power outage on the site is very thin. The site has a generator.

13.11 TRANSPORTATION VEHICLE ACCIDENT

Ensure the accident scene is safe. Check if there are injuries. Whether the victim is conscious. Ask someone to call emergency assistance. Provide First aid and take control of the scene of an accident. Take care of the victims until help arrives.

13.12 TRANSPORTATION VEHICLE BREAKDOWN

Call **911** and contact
Regulatory Manager Pierre St-Georges at (613) 677-1051.
Environment manager Benoit Choquette at (514) 249-6285

13.13 BLAST SITE INCIDENT

If the emergency involves a blasting incident, the crew at the blast site shall follow the emergency instructions outlined in the Blasting Guidelines and Procedures. This site shall implement the appropriate sections of the Notification Plan as directed. The site shall support the blasting crew with personnel and equipment as needed.

13.14 TRANSPORTATION CHEMICAL SPILL

Initiate the ERAP by calling 1-800-367-4629 and call 911. The Emergency Response Advisor will contact the authorities.

Determine what material(s) has spilled or leaked and secure the area. Do not walk through the spilled material. **Put** on appropriate Personal Protective Equipment.

Protect the area from ignition sources. If a vehicle is involved, engage the battery disconnect switch. **Keep** unauthorized persons away.

Make every effort to confine and contain the spill, using spill kit and all available resources. **Determine** the source of the spill, and stop the leak if possible. **Make** every attempt to see that the material does not reach any waterway. **Prevent** rain or water from coming in contact with the product. Diking may be possible with gravel, soil or any ground material. **Use** what resources you have to begin cleaning up the product, outside equipment may be required. **Return** uncontaminated product to the original containers.

If the material has spilled into a waterway, an outside clean-up contractor will be called to assist with the clean-up operation. Call the main office as soon as possible. Seek corporate counsel as soon as the situation is stable.

13.15 TRANSPORTATION FIRE/EXPLOSION INCIDENT

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 of an explosion. Help organize perimeter guards to prevent people from entering the evacuation zone. The minimal distance to evacuate for a 20,000 kg tanker is 1.2 km or 4000 feet.

14.0 AMMONIUM NITRATE (E2 REGULATION)

14.1 Physical and chemical properties

Ammonium nitrate in solid form (prill) is of a light or off-light color and is commercially available in small beads of various sizes. It gives off a light ammonia smell. It is considered an oxidizer (risk class 5.1). Its density varies between 0.72 and 1.0 g/cc. Its solubility in water is high at 192 g/100 ml at 20°C. Its boiling point (decomposition) varies between 177 and 210 °C and its fusion point is 170°C.

Ammonium nitrate is stable in normal conditions. However, when involved in a fire, it will give off toxic compounds of nitrogen oxides and may emit ammonia vapors in the air. When confined or exposed at high temperatures, it can explode. It becomes more sensitive to explosion when contaminated by organic matters or other combustible materials.

14.2 Potential environmental impact

Ammonium nitrate is a fertilizer composed of nitrate ion (NO_3^-) and ammonium nitrogen ion (NH_4^+). Nitrate is essential to life. Most crop requires a large quantity of nitrates to support growth. In moderate quantities, nitrate is a harmless component of food and water. The nitrate ions are very soluble in water. They are easily solubilized and transported by surface and groundwater. Ammonium nitrogen is a reduced form of nitrogen which has the potential in water to release ammonia gas and be toxic to aquatic life. This ion is not very mobile in soils. This ion normally stays attached to clay or humus soil particles. Ammonium nitrogen will normally be converted in nitrates by soil bacteria in a few weeks.

A high level of nutrients (nitrates) combined with the presence of phosphorus in water support the rapid growth of algae and aquatic plants in water. It may reduce dissolved oxygen level in water. Insufficient oxygen levels may create dead zones where fish species requiring cold and well oxygenated water could no longer live in. Nitrates can therefore contribute to the eutrophication phenomena of lakes and rivers. The closest water bodies that can be impacted by a spill are located within a kilometer of the plant site and testing is completed by Meadowbank environment regularly. No potable water wells are present at the site.

14.3 What to do in case of a spill

In case of a spill, the product must be recovered rapidly to avoid exposure to water. Protect it with tarp and build berms around it if necessary to avoid exposure to surface water and rain. Avoid any contact with a flame. The product can be recovered manually using plastic shovels or brooms and put into plastic bags or containers. A HEPA filter can also be used if desired. In case of a very large spill, the product can be recovered using a mechanical shovel or loader and put in a sealed steel (20 cubic yards) bin equipped with a cover. The bin must be clean and not contaminated by any organic material.

In low concentrations in water, nitrates will be absorbed by surrounding vegetation and will support their growth. If there are water wells nearby, there is a potential to contaminate the potable water. The drinking water standards for nitrates is 10 mg/l (as N). Therefore, prevent contaminated water to enter sanitary and surface water drains. Recovered product can be re-used if clean, recycled as a fertilizer or disposed off-site as an oxidizer to an approved waste disposal company. Do not fight fires involving ammonium nitrate because of the risks of explosion.

14.4 Maximum quantity planned during the year:

10,000,000 kg.

14.5 Location of the subtance :

In seacans at plant site (EMR)

14.6 Training required for emergency responders

- First aid
- Transportation of Dangerous Goods
- WHMIS
- Emergency Response Plan (this plan)

Emergency Response equipment

- Danger tape
- Tote bags with internal plastic liner
- Plastic shovels
- Drain cover
- Brooms
- Polyethylene tarps

Note: equipment must be readily available at the Quaatuq location.

14.7 Personnel Protective Equipment

- Reflective vests
- Safety Glasses
- Dust masks
- Plastic gloves
- Safety boots
- First aid kit

Note: equipment must be readily available at the Quaatuq site location.

15.0 TRAFFIC CONTROL

In the event of an emergency it is essential that the traffic movements to the site be limited to essential vehicles only. The control of traffic will be achieved by posting sentries at the evacuation point. The sentry shall use the company vehicles onsite so that they can stay in contact via cell phone with the Emergency Manager or Emergency Services Coordinator.

During an emergency the only vehicles that will be allowed to enter the site will be:

- Emergency Services;
- Any equipment providers which have been requested to attend to the emergency; and
- Dyno Nobel personnel that are directly involved in the response effort.

Any other entry to site will require the permission of the Emergency Manager after consultation with the Emergency Services Coordinator.

If an employee or visitor is injured and can safely be transported to the mine without incurring additional harm to the employee/worker, or posing any additional risk to the safety of the person, Dyno vehilces can be used to transport.
Where specific stabilization of an injured person is required, or where moving an injured person may result more serious injury or life threatening concerns, the injured person is to be stabilized as per first aid training and AMARUQ emergency services dispatched to site.

In the event that there is a chance of an explosion or release of toxic fumes roadblocks should be at least **1200m** from the scene.

The Mine security or local Police are the only personnel authorised to close any public roads, as a result, the need to close the road should be established early. The road would need to be closed at a distance of no less than **1200m** from the facility in order to prevent damage to vehicles or people outside the site.

16.0 PROTECTION OF VITAL ASSETS / EMERGENCY SHUTDOWN

Under no circumstance are lives to be put at unacceptable risk in order to preserve material assets or intellectual property.

To avoid knock on effects of an emergency such as escalated destruction or business disruption, consideration should be given to preserve critical company assets by shutdown or removal of equipment such as:

- Mobile Processing Units (MPU's)
- Raw Materials/Handling equipment

Materials handling equipment and energy sources should be shutdown or isolated by activating emergency stop buttons or closing valves on the following systems:

- Electrical

Isolation are clearly identified by color coded labeling. All personnel must know location and operation of these devices.

- Switches

The decision to isolate energy sources or remove assets may be made at the time of evacuation notification or post evacuation by the Emergency Manager or Supervisor. Either way, this action must not be made if it is considered that it will not delay the evacuation process or put personnel at an unacceptable level of risk in terms personal injury or health.

Energy Source / Equipment	Type of Isolation	Location
Electrical Systems & Equipment	Switch	

17.0 SEARCH AND RESCUE

Search and rescue shall be the responsibility of emergency services only as Dyno Nobel are not equipped to carry out search and rescue operations in a safe manner.

Search and rescue operations should only be conducted if it is safe to do so and if there is no potential of an explosion occurring. Very careful consideration should be made to limiting casualties.

Before attempting search and rescue, personnel must be knowledgeable of the following:

- Site layout;
- Hazardous effects from hazardous substances;
- Fumes/poisoning;
- Explosion;
- Burns;
- Use of proper PPE;
- Breathing apparatus;
- Fire extinguishers;
- Recovery gear;
- Practiced search and rescue techniques; and
- Possible casualties.

18.0 RECOVERY PLAN

The Emergency Manager has the responsibility to declare the emergency over after consultation and agreement with Local Emergency Services:

- When the damage is localised to the extent that normal operations could resume in unaffected areas;
- Work in unaffected areas will not contaminate the emergency scene and destroy causal evidence;
- Affected areas are secure with actual or potential energy sources neutralized and controlled; and
- The all clear / re-entry approval should be communicated to all personnel in consideration of any special conditions.

19.0 CLEAN UP

Environmental aspects and impacts need to be considered when dealing with chemical waste and approval for disposal of chemicals must be obtained before disposal.

20.0 RESUMPTION OF BUSINESS

The EM will carry out the following:

- Arrange for appropriate personnel to complete a risk assessment of the area and assess the impact of the emergency; and
- Provide DNA appropriate personnel with an update as soon as practicable.

In conjunction with Dyno Nobel's VP of HSEQ and VP of Operations, the Emergency Manager shall develop an action plan to ensure that:

- The site is secure and safe for all personnel;
- Pollution due to leaking storages and firewater run-off is minimised;
- Production facilities are re-established; and
- Supply contingencies are activated.

Senior Management shall be informed of any loss and they will ensure that the underwriters are informed. It is essential that all costs of recovery and increased costs due to the incident be identified.

21.0 CRISIS COMMUNICATION PLAN

The Site Media plan is only activated if the media has arrived at your site and is asking questions.

If the media is contacting you by phone, fax or email, refer them to Diana Roising, Crisis Media Advisor in Salt Lake City, cell: 801- 321 5338 or office: 801 328 6536

IF THE MEDIA HAS ARRIVED AT YOUR SITE

The First Critical Statement may be made by a trained spokesperson (generally the Manager on Site) who has received permission from a member of the DNA Crisis Management Team. ***In most cases Media contact will be referred to the General Manager, Mike Soter, or his designate.***

If permission is granted, the Supervisor of the Site should fill in the information in the First Critical Statement template

After the statement is presented to the media on site, it is important <u>not</u> to attempt to answer additional questions. All other information will be done at the direction of the DNA Crisis Management Team, unless otherwise directed.

If additional personnel are available, have an assistant to this spokesperson remain behind to gather business cards and write down questions while the spokesperson leaves. This person must NOT answer any questions

Fax/email a copy of the Statement to DNA Crisis Management Team member and wait for further instructions

When the Media Arrives at Your Site Say <u>ONLY</u> the following:

Site Media Statement

At approximately _________ am/pm on ___________ we experienced

____

____

(Only obvious facts - No explanation - No elaboration)

This is all I can confirm at the present time. I am sure you understand that we are assessing the situation so we can provide the most accurate information.

Our company spokesperson will be in touch with you and other media representatives as soon as possible to provide more information. In the interim, we ask for your patience as we conduct our investigation.

(You are now free to turn and walk away.

(If you are asked additional questions, make the following statement:)

22.0 TRAINING

All Dyno Nobel employees will be trained to cope with an outbreak of fire in the site and MPU operation, at minimum all DNCI employees should be fully trained in the use of fire extinguishers.

All employees shall be trained in the roles they are expected to play during an emergency and/or an evacuation.

Regular evacuation and emergency drills shall be conducted in order to evaluate the effectiveness of the overall strategy and identify any deficiencies in the procedures. Emergency drills should be conducted every six months for DNCI internal drills with at least one of these involving local Emergency Service teams. Local Emergency Service providers shall be briefed on potential site emergencies by the Site Management team.

After conducting drills has a meeting shall be conducted to identify the gaps found during the emergency drill.

Training shall include:

- Fire extinguisher training;
- WHMIS;
- Transportation of Dangerous Goods,
- Emergency Response Training.

23.0 INFORMATION

Emergency procedures are posted on the Safety board. A copy of the Emergency Response Plan was provided to all employees during the Training.

Information on this Emergency Response Plan is recorded electronically on NEXUS.

APPENDIX I – BOMB THREAT

INITIAL INFORMATION:	
Date :	
Person receiving call:	
Exact time of call:	
Time of the call end:	
Exact words of caller :	
QUESTIONS TO ASK	
Where is the bomb?	
When is bomb going to explode?	
What does it look like?	
Did you place the bomb?	
Why?	
Where are you calling from?	
Are you an employee?	
Caller Gender : F / M	Age :

CALLER'S VOICE (circle)				
Calm	Fast	Distinct	Joker	Throat clearing
Angry	Soft	Lisp	Disguised	Deep breathing
Excited	Mocking	Nasal	Loud	Stuttering
Slow	Crying	Irregular	Deep	Mumble
LANGUAGE OF THE CALLER				
Articulate	Educated	Coarse	Irrational	Incoherent
Recorded	Message read by the author of the threat			

BACKGROUND NOISES					
Traffic	Telephone booth	House sound	Music	Motor	Dishes
Soft	Long Distance/Local call	Machinery	Static	None	Animal
Others :					

APPENDIX II – EMPLOYEE ACKNOWLEDGEMENT, REVIEW & TRAINING CERTIFICATION RECORD

Signature indicates that person has been given an opportunity to review and make comments regarding this safe work instruction and revisions. Signature indicates that person has received training about and understands the information contained in this document, related operating procedures, and requirements imposed by this program.

PRINT NAME	SIGNATURE	DATE

APPENDIX 4

MSDS FOR BULK EMULSION AND SENATEL

1. MSDS – Dyno Bulk Emulsion

2. MSDS – Senatel

Safety Data Sheet

SECTION 1 – IDENTIFICATION

Name, Address, and Telephone of the Responsible Party

Dyno Nobel Inc.
2795 East Cottonwood Parkway, Suite 500
Salt Lake City, Utah 84121
Phone: 801-364-4800 Fax 801-321-6703
E-Mail: dnna.hse@am.dynonobel.com www.dynonobel.com

SDS #: 1052
Date: 10/02/2018
Supersedes: 06/10/2016

Product Identifier
Product Form: Mixture
Product Name: Bulk Emulsion

Other Means of Identification
Synonyms:

DYNO GOLD®
DYNO GOLD® LITE
EXTRAMITE 1000
RUG-1 (Canada Only)
TITAN® 1000
TITAN® 1000 GREEN
TITAN® 1000G
TITAN® 1000G GREEN
TITAN® XL1000
SMS 1116, 1116A, 1126P, 1136P, 1146P
DX5037
TITAN® 2000
TITAN® 2000G
TITAN® PB 1000
TITAN® PB 2000
TITAN® PB 2000 HF
TITAN® SME 1000
TITAN® SME 1000 GREEN
TITAN® XL1000 GREEN
TITAN® HD
TITAN® SME 2000
TITAN® 5000
TITAN® 5000 G

Intended Use of the Product
Industrial blasting applications as emulsion explosive precursor

Emergency Telephone Number
FOR 24 HOUR EMERGENCY, CALL CHEMTREC (USA) 800-424-9300
CANUTEC (CANADA) 613-996-6666

SECTION 2 – HAZARD(S) IDENTIFICATION

Classification of the Substance or Mixture
Classification (GHS-US)

Ox. Liq. 2	H272
Acute Tox. 4 (Oral)	H302
Skin Irrit. 2	H315
Carc. 2	H351
STOT RE 2	H373
Asp. Tox. 1	H304
Eye Irrit. 2B	H320

Label Elements
GHS-US Labeling
Hazard Pictograms (GHS-US) :

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) : H272 - May intensify fire; oxidizer
H302 - Harmful if swallowed
H304 – May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H320 – Causes eye irritation
H351 - Suspected of causing cancer
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P220 - Keep/Store away from clothing, combustible materials, combustibles
P221 - Take any precaution to avoid mixing with combustible materials, clothing, combustibles
P233 - Keep container tightly closed
P260 - Do not breathe dust, fume, mist, spray, vapors
P264 - Wash exposed areas thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P308+P313 - If exposed or concerned: Get medical advice/attention
P332+P313 - If skin irritation occurs: Get medical advice/attention
P362 - Take off contaminated clothing and wash before reuse
P370+P378 - In case of fire: Use appropriate media to extinguish
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container according to local, regional, national, and international regulations

Other Hazards
Hazards Not Otherwise Classified (HNOC): Not available
Other Hazards: Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product identifier	% (w/w)	Ingredient Classification (GHS-US)
Ammonium nitrate	(CAS No) 6484-52-2	45 - 80	Ox. Sol. 3, H272 Eye Irrit. 2A, H319
Calcium nitrate	(CAS No) 10124-37-5	0.1 - 35	Ox. Sol. 3, H272 Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318
Sodium nitrate	(CAS No) 7631-99-4	0.1 - 18	Ox. Sol. 3, H272

			Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319
*Methylamine nitrate	(CAS No) 22113-87-7	0.1 – 3	Expl. 1.5, H205 Skin Corr. 1A, H314 Eye Dam. 1 – H318
**Fuels, diesel, no. 2	(CAS No) 68476-34-6	0.1 - 10	Flam. Liq. 4, H227 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Carc. 2, H351 STOT RE 2, H373 Asp. Tox. 1, H304
Distillates, petroleum, chemically neutralized light naphthenic	(CAS No) 64742-35-4	0.1 - 6	Asp. Tox. 1, H304

* This ingredient is not used in most products, including in GREEN-named products.
** This ingredient is not used in GREEN-named 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).
Full text of H-phrases: see section 16

SECTION 4 - FIRST AID MEASURES

Description of First Aid Measures
General: Never give anything orally to an unconscious person. If you feel unwell, seek medical advice (provide this Safety Data Sheet to medical personnel).
Inhalation: If symptoms occur, go into fresh air and ventilate suspected area. Seek medical attention.
Skin Contact: Remove contaminated clothing. Wash with soap and water followed by rinsing with water. Seek medical attention if irritation develops or persists. Wash contaminated clothing before reuse.
Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Obtain medical attention if irritation develops or persists.
Ingestion: Rinse mouth. Do NOT induce vomiting. Seek medical attention immediately.
Most Important Symptoms and Effects Both Acute and Delayed
General: May be harmful if swallowed. May cause eye or skin irritation.
Inhalation: May cause respiratory irritation.
Skin Contact: May cause skin irritation.
Eye Contact: May cause eye irritation.
Ingestion: Likely to be harmful if swallowed.
Chronic Symptoms: Contains an ingredient which may cause cancer. Causes damage to organs through prolonged or repeated exposure.
Indication of Any Immediate Medical Attention and Special Treatment Needed
If symptoms occur, seek medical attention.

SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media
Suitable Extinguishing Media: Do not attempt to fight fires involving explosive materials or emulsion explosive precursors. Evacuate all personnel to a predetermined safe location, no less than 1/2 mile (800 meters) in all directions.
Unusual Fire and Explosion Hazards: May explode or detonate under fire conditions. Burning material may produce toxic vapors.
Unsuitable Extinguishing Media: Not available
Special Hazards Arising from the Substance or Mixture
In large, intense fires the emulsion can behave more like an explosive and detonate from confinement or strong shocks. Evacuation of at least 1 mile is recommended if a largeamount of emulsion is involved in a large fire.

Fire Hazard: May intensify fire; oxidizer. Will burn if exposed to heat, and in addition, will accelerate the burning of other combustibles, resulting in more rapid spread of fire.
Explosion Hazard: Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries. May explode when subjected to fire, supersonic shock or high-energy projectile impact, especially when confined or in large quantities.
Reactivity: May cause or intensify fire; oxidizer. May accelerate the burning of other combustible materials.
Advice for Firefighters
Precautionary Measures Fire: DO NOT ATTEMPT TO FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Evacuate all personnel to a predetermined safe location, no less than 1/2 mile (800 meters) in all directions. Can explode or detonate under fire conditions. Burning material may produce toxic vapors.

Firefighting Instructions: DO NOT ATTEMPT TO FIGHT FIRE. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. Thermal decomposition can lead to release of irritating gases and vapors.
Protection During Firefighting: When controlling fire before involvement of explosives or explosive precursors, fire-fighters should wear positive pressure self-containing breathing apparatus (SCBA) and full turnout gear.
Hazardous Combustion Products: Nitrogen oxides. Carbon oxides (CO, CO_2). Ammonia.
Other information: Do not attempt to fight fires involving explosive materials or emulsion explosive precursors. Evacuate all personnel to a predetermined safe location, no less than 1/2 mile (800 meters) in all directions.
Reference to Other Sections: Refer to section 9 for flammability properties.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures
General Measures: Avoid all contact with skin, eyes, or clothing. Avoid breathing dust, mist, or spray. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Eliminate every possible source of ignition. Evacuate danger area.
For Non-Emergency Personnel
Protective Equipment: Use appropriate personal protection equipment (PPE).
Emergency Procedures: Evacuate unnecessary personnel.
For Emergency Personnel
Protective Equipment: Use appropriate personal protection equipment (PPE).
Emergency Procedures: Ventilate area.

Environmental Precautions
Prevent entry to sewers and public waters.

Methods and Material for Containment and Cleaning Up
For Containment: Contain any spills with dikes as necessary to prevent migration and entry into sewers or streams. Do not take up in combustible material such as: saw dust or cellulosic material.
Methods for Cleaning Up: Collect spillage for possible reuse. Clean up spills immediately and dispose of waste in accordance with appropriate state, federal and local regulations.
Reference to Other Sections
See heading 8, Exposure Controls and Personal Protection

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling
It is recommended that users of explosives material be familiar with the Institute of Makers of Explosives Safety Library publications.
Additional Hazards When Processed: When heated to decomposition, emits toxic fumes. Do not puncture or incinerate containers.
Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.
Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep /store away from combustible materials, extremely high or low temperatures, direct sunlight, ignition sources, incompatible materials.
Incompatible Materials: Corrosives, strong acids, strong bases and alkalis.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Occupational Exposure Limits

Ingredients:	Product identifier:	ACGIH TLV-TWA	OSHA PEL-TWA
Ammonium nitrate	(CAS No) 6484-52-2	None	None
Sodium nitrate	(CAS No) 7631-99-4	None	None
Calcium nitrate	(CAS No) 10124-37-5	None	None
Methylamine nitrate	(CAS No) 22113-87-7	None	None
Fuels, diesel, no. 2	(CAS No) 68476-34-6	100 ppm	None
Distillates, petroleum, chemically neutralized light naphthenic	(CAS No) 64742-35-4	5 mg/m^3 (mist)	None

Exposure Controls
Under normal conditions of use, over-exposure is not expected to occur.
Appropriate Engineering Controls: Ensure all national/local regulations are observed. Ensure adequate ventilation, especially in confined areas. Keep containers tightly sealed.
Personal Protective Equipment: Protective goggles. Gloves. Protective clothing.

Materials for Protective Clothing: Chemically resistant materials and fabrics.
Hand Protection: Wear chemically resistant protective gloves.
Eye Protection: Chemical goggles or face shield.
Skin and Body Protection: Not available.
Respiratory Protection: Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of vapor or mist are expected to exceed exposure limits. Under normal conditions of use and handling there is minimal likelihood for the this exposure limit to be reached.
Other Information: When using or handling, do not eat, drink or smoke.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	:	Liquid
Appearance	:	Translucent to opaque viscous liquid.
Odor	:	Fuel
Odor Threshold	:	Not available
pH	:	Not available
Relative Evaporation Rate (butylacetate=1)	:	< 1
Melting Point	:	Not available
Freezing Point	:	Not available
Boiling Point	:	Not available
Flash Point	:	Not available
Auto-ignition Temperature	:	Not available

Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Not available
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Vapor Pressure	:	Not available
Relative Vapor Density at 20 °C	:	Not available
Relative Density	:	Not available
Specific Gravity	:	0.8 - 1.5 g/cc
Solubility	:	Water: Nitrate salts are completely soluble, but emulsion dissolution is very slow.
Partition coefficient: n-octanol/water	:	Not available
Viscosity	:	Not available
Explosion Data – Sensitivity to Mechanical Impact	:	Not sensitive to mechanical impact. May be sensitive to supersonic explosively driven projectile impacts.
Explosion Data – Sensitivity to Static Discharge	:	Not sensitive to static discharge.

SECTION 10 - STABILITY AND REACTIVITY

Reactivity: May cause or intensify fire. May accelerate the burning of other combustible materials.

Chemical Stability: May intensify fire. May explode when subjected to fire, supersonic shock or high-energy projectile impact, especially when confined or in large quantities.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Direct sunlight. Extremely high temperatures. Heat. Sparks. Overheating. Open flame. Combustible materials. Sources of ignition. Incompatible materials.

Incompatible Materials: Corrosives, strong acids, strong bases and alkalis.

Hazardous Decomposition Products: Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Nitrogen oxides. Toxic vapors. Ammonia. Carbon monoxide.

SECTION 11 - TOXICOLOGICAL INFORMATION

Under normal conditions of use, over-exposure is not expected to occur. Minor skin exposure is most likely.

Information on Toxicological Effects - Product

Acute Toxicity: Harmful if swallowed.

LD50 and LC50 Data: ATE Oral 1,510 (mg/kg)

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: May cause eye irritation

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: Contains a substance which has been shown to cause cancer in laboratory animals. IARC Group 2A Probably carcinogenic to humans.

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.

Reproductive Toxicity: Not classified
Specific Target Organ Toxicity (Single Exposure): Not classified
Aspiration Hazard: May be fatal if swallowed and enters airways.
Symptoms/Injuries After Inhalation: May cause respiratory irritation.
Symptoms/Injuries After Skin Contact: May cause skin irritation.
Symptoms/Injuries After Eye Contact: May cause eye irritation.
Symptoms/Injuries After Ingestion: May be harmful if swallowed. May be harmful if swallowed and enters airways. Aspiration into the lungs can occur during ingestion or vomiting and may cause lung injury.
Chronic Symptoms: May cause cancer. May cause damage to organs through prolonged or repeated exposure.
Information on Toxicological Effects - Ingredient(s)
LD50 and LC50 Data:

Ammonium nitrate (6484-52-2)	
LD50 Oral Rat	2217 mg/kg (REACH dossier 2950 mg/kg)
LC50 Inhalation Rat	> 88.8 mg/l/4h
ATE CLP (oral)	2217.000 mg/kg body weight
Sodium nitrate (7631-99-4)	
LD50 Oral Rat	1267 mg/kg (REACH dossier 3430 mg/kg)
ATE CLP (oral)	1267.000 mg/kg body weight
Fuels, diesel, no. 2 (68476-34-6)	
ATE CLP (vapors)	11.000 mg/l/4h
Distillates, petroleum, chemically neutralized light naphthenic (64742-35-4)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

Toxicity Harmful to aquatic life with long lasting effects.

Ammonium nitrate (6484-52-2)	
LC50 Fish 1	95-102 mg/l (Exposure time: 48 h - Cyprinus carpio (Common carp))
EC 50 Aquatic Invertebrates	490 mg/l (Exposure time 48 h - Daphnia magna)
Sodium nitrate (7631-99-4)	
LC50 Fish 1	2000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
LC 50 Fish 2	994.4 - 1107 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
Fuels, diesel, no. 2 (68476-34-6)	
LC50 Fish 1	35 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
Calcium nitrate (10124-37-5)	
LC50 Fish 1	10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

Persistence and Degradability

Bulk Emulsion	
Persistence and Degradability	Not established.
Sodium nitrate (7631-99-4)	
Persistence and Degradability	**Readily biodegradable in water.**

Bioaccumulative Potential	
Bulk Emulsion	
Bioaccumulative Potential	Not established.
Ammonium nitrate (6484-52-2)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)
Sodium nitrate (7631-99-4)	
Log Pow	-3.8 (at 25 °C)
Bioaccumulative Potential	Not expected to bioaccumulate.

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Treatment Methods: Contact manufacturer for advice on proper disposal methods.
Waste Disposal Recommendations: Collect spillage for possible reuse. Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.
Additional Information: Clean up even minor leaks or spills if possible without unnecessary risk.

SECTION 14 - TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : AMMONIUM NITRATE EMULSION
Hazard Class : 5.1
Identification Number : UN3375
Label Codes : 5.1

Packing Group : II
ERG Number : 140

14.2 In Accordance with IMDG

Proper Shipping Name : AMMONIUM NITRATE EMULSION
Hazard Class : 5.1
Identification Number : UN3375
Packing Group : II
Label Codes : 5.1
EmS-No. (Fire) : F-H
EmS-No. (Spillage) : S-Q

14.3 In Accordance with IATA

Proper Shipping Name : AMMONIUM NITRATE EMULSION
Identification Number : UN3375
Hazard Class : 5
Label Codes : 5.1

ERG Code (IATA) : 5L

14.4 In Accordance with TDG

No UN number exists for blasting intermediates for Transport Canada (use the following for Canadian shipments)

Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Packing Group : II
Hazard Class : 1.5D
Identification Number : UN0332

Label Codes	: 1.5D

SECTION 15 - REGULATORY INFORMATION

US Federal Regulations

Bulk Emulsion	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Reactive hazard Delayed (chronic) health hazard Fire hazard

Ammonium nitrate (6484-52-2)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Sodium nitrate (7631-99-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Fuels, diesel, no. 2 (68476-34-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Calcium nitrate (10124-37-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Distillates, petroleum, chemically neutralized light naphthenic (64742-35-4)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

Ammonium nitrate (6484-52-2)

U.S. – California – Air Toxics “Hot Spots” (A-I)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. – Rhode Island – RTK (Right to Know) List

Sodium nitrate (7631-99-4)

U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. – Rhode Island – RTK (Right to Know) List

Fuels, diesel, no. 2 (68476-34-6)

U.S. - New Jersey - Right to Know Hazardous Substance List

Calcium nitrate (10124-37-5)

U.S. - New Jersey - Right to Know Hazardous Substance List

Canadian Regulations

Bulk Emulsion	
WHMIS Classification	**Note: Explosives are not regulated under WHMIS. They are subject to the regulations of the Explosives Act of Canada.**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date	:	10/02/2018
Other Information	:	This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 2	Carcinogenicity Category 2
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Flam. Liq. 3	Flammable liquids Category 3
Ox. Liq. 2	Oxidizing liquids Category 2
Ox. Sol. 3	Oxidizing solids Category 3
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H205	May mass explode in fire
H227	Combustible liquid
H272	May intensify fire; oxidizer
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H319	Causes serious eye irritation
H332	Harmful if inhaled
H351	Suspected of causing cancer
H373	May cause damage to organs through prolonged or repeated exposure
H373	May cause damage to organs (Thymus, Liver, bone marrow) through prolonged or repeated exposure

Party Responsible for the Preparation of This Document

Dyno Nobel Inc.
2795 East Cottonwood Parkway, Suite 500
Salt Lake City, Utah 84121
Phone: 801-364-4800

Disclaimer

Dyno Nobel SDS

Safety Data Sheet

SECTION 1 – IDENTIFICATION

Name, Address, and Telephone of the Responsible Party

Dyno Nobel Inc.
6440 S. Millrock Drive, Suite 150
Salt Lake City, Utah 84121
Phone: 801-364-4800   Fax 801-321-6703
E-Mail: dnna.hse@am.dynonobel.com www.dynonobel.com

SDS #: 1062
Date: 07/20/2020
Supersedes: 11/01/2018

Product Identifier
Product Form: Mixture
Product Name: Bulk Emulsion Explosive

Other Means of Identification
Synonyms:

DYNO® RU	TITAN® 2000 LD
DYNO® RU Alaska	TITAN® 2000 SD
DYNO® RU SX	TITAN® PB 2000 LD
DYNO® RU Uphole	TITAN® PB 2000 SD
EXTRAMITE 2000	TITAN® 7000 RU
FRAGMITE	TITAN® 7000 RU-A
TITAN® 1000 LD-E2	TITAN® 7000 RU-SX
TITAN® 1000 LD	TITAN® 5000 LD
TITAN® 1000 LD GREEN	TITAN® 7000
TITAN® 1000 SD	TITAN® 7000 A
TITAN® 1000 SD GREEN	TITAN® 7000 SX
TITAN® PB 1000 LD	DX5103
TITAN® PB 1000 SD	DX5108

Intended Use of the Product
Industrial applications

Emergency Telephone Number
FOR 24 HOUR EMERGENCY, CALL   CHEMTREC (USA)   800-424-9300
CANUTEC (CANADA)   613-996-6666

SECTION 2 – HAZARD(S) IDENTIFICATION

Classification of the Substance or Mixture
Classification (GHS-US)

Expl. 1.5	H205
Acute Tox. 4 (Oral)	H302
Skin Irrit. 2	H315
Eye Irrit. 2B	H320
Carc. 2	H351
STOT RE 2	H373
Asp. Tox. 1	H304

Label Elements
GHS-US Labeling
Hazard Pictograms (GHS-US) :

GHS07   GHS08

Signal Word (GHS-US) : Danger
Hazard Statements (GHS-US) : H205 - May mass explode in fire
H302 - Harmful if swallowed

H304 - May be fatal if swallowed and enters airways
H315 - Causes skin irritation
H320 - Causes eye irritation
H351 - Suspected of causing cancer
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary Statements (GHS-US) : P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, open flames, sparks. - No smoking
P220 - Keep/Store away from clothing, combustible materials, combustibles
P221 - Take any precaution to avoid mixing with combustible materials, clothing, combustibles
P233 - Keep container tightly closed
P260 - Do not breathe dust, fume, mist, spray, vapors
P264 - Wash exposed areas thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P280 - Wear protective gloves/protective clothing/eye protection/face protection
P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
P370+P380 - In case of fire: Evacuate area
P372 - Explosion risk in case of fire
P373 - DO NOT fight fire when fire reaches explosives
P401 - Store local, regional, national, and international regulations
P403+P235 - Store in a well-ventilated place. Keep cool
P405 - Store locked up
P501 - Dispose of contents/container according to local, regional, national, and international regulations

Other Hazards
Hazards Not Otherwise Classified (HNOC): Not available
Other Hazards: Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions.

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product identifier	% (w/w)	Ingredient Classification (GHS-US)
Ammonium nitrate	(CAS No) 6484-52-2	30 - 80	Ox. Sol. 3, H272 Eye Irrit. 2A, H319
Calcium nitrate	(CAS No) 10124-37-5	0.1 - 35	Ox. Sol. 3, H272 Acute Tox. 4 (Oral), H302 Eye Dam. 1, H318
Sodium nitrate	(CAS No) 7631-99-4	0.1 - 18	Ox. Sol. 3, H272 Acute Tox. 4 (Oral), H302 Eye Irrit. 2A, H319
*Fuels, diesel, no. 2	(CAS No) 68476-34-6	0.1 - 8	Flam. Liq. 3, H226 Acute Tox. 4 (Inhalation), H332

			Skin Irrit. 2, H315 Carc. 2, H351 STOT RE 2, H373 Asp. Tox. 1, H304
Distillates, petroleum, chemically neutralized light naphthenic	(CAS No) 64742-35-4	0.1 - 6	Asp. Tox. 1, H304

* This ingredient is not used in GREEN-named 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).

Full text of H-phrases: see section 16

SECTION 4 - FIRST AID MEASURES

Description of First Aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: If symptoms occur, go into fresh air and ventilate suspected area. Seek medical attention.

Skin Contact: Remove contaminated clothing. Wash with soap and water followed by rinsing with water. Seek medical attention if irritation develops or persists. Wash contaminated clothing before reuse.

Eye Contact: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention if irritation develops or persists.

Ingestion: Rinse mouth. Do NOT induce vomiting. Seek medical attention immediately.

Most Important Symptoms and Effects Both Acute and Delayed

General: May be harmful if swallowed. Causes serious eye damage. Skin irritation.

Inhalation: May cause respiratory irritation.

Skin Contact: May cause skin irritation.

Eye Contact: Causes eye irritation.

Ingestion: May be harmful if swallowed. May be harmful if swallowed and enters airways.

Chronic Symptoms: Contains an ingredient that may cause cancer. Causes damage to organs through prolonged or repeated exposure.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If symptoms occur, seek medical attention.

SECTION 5 - FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: DO NOT FIGHT FIRES INVOLVING EXPLOSIVES.

Unsuitable Extinguishing Media: Not available

Special Hazards Arising from the Substance or Mixture

Fire Hazard: In case of fire involving explosives: Evacuate area. DO NOT fight fires involving explosives. Consult the most current Emergency Response Guidebook (ERG), Guide 112 for additional information. Extreme risk of explosion from shock, friction, fire or other sources of ignition.

Explosion Hazard: Extreme risk of explosion by shock, friction, fire, impact, heat or other sources of ignition.

Reactivity: Accelerates the rate of burning materials.

Advice for Firefighters

Precautionary Measures Fire: DO NOT ATTEMPT TO FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions. Can explode or detonate under fire conditions. Burning material may produce toxic vapors. It is recommended that users of explosives material be familiar with the Institute of Makers of Explosives Safety Library publications.

Hazardous Combustion Products: Nitrogen oxides. Carbon oxides (CO, CO_2). Ammonia.

Other information: Do not attempt to fight fires involving explosive materials. Evacuate all personnel to a predetermined safe location, no less than 2,500 feet in all directions.

Reference to Other Sections: Refer to section 9 for flammability properties.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Evacuate all non-essential personnel from immediate area and establish a "regulated zone" with site control and security.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Ventilate area.

Environmental Precautions

Prevent entry to sewers and public waters.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes as necessary to prevent migration and entry into sewers or streams. Do not take up in combustible material such as: saw dust or cellulosic material.

Methods for Cleaning Up: Collect spillage for possible reuse. Clean up spills immediately and dispose of waste in accordance with appropriate State, Federal and local regulations.

Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection

SECTION 7 - HANDLING AND STORAGE

Precautions for Safe Handling: It is recommended that users of explosives material be familiar with the Institute of Makers of Explosives Safety Library publications.

Additional Hazards When Processed: When heated to decomposition, emits toxic fumes. Do not puncture or incinerate container.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

Conditions for Safe Storage, Including Any Incompatibilities

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Keep/Store away from combustible materials, extremely high temperatures, direct sunlight, ignition sources, incompatible materials.

Incompatible Materials: Corrosives, strong acids, strong bases and alkalis.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Fuels, diesel, no. 2 (68476-34-6)		
USA ACGIH	ACGIH TWA (mg/m^3)	100 mg/m^3
Alberta	OEL TWA (mg/m^3)	100 mg/m^3
British Columbia	OEL TWA (mg/m^3)	100 mg/m^3
Manitoba	OEL TWA (mg/m^3)	100 mg/m^3
Newfoundland & Labrador	OEL TWA (mg/m^3)	100 mg/m^3
Nova Scotia	OEL TWA (mg/m^3)	100 mg/m^3
Ontario	OEL TWA (mg/m^3)	100 mg/m^3
Prince Edward Island	OEL TWA (mg/m^3)	100 mg/m^3
Saskatchewan	OEL STEL (mg/m^3)	150 mg/m^3
Saskatchewan	OEL TWA (mg/m^3)	100 mg/m^3

Exposure Controls

Appropriate Engineering Controls: Ensure all national/local regulations are observed. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment: Protective goggles. Gloves. Insufficient ventilation: wear respiratory protection. Protective clothing.

Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical goggles or face shield.

Skin and Body Protection: Not available

Respiratory Protection: Use NIOSH-approved air-purifying or supplied-air respirator where airborne concentrations of vapor or mist are expected to exceed exposure limits.

Other Information: When using, do not eat, drink or smoke.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	:	Liquid
Appearance	:	White, yellow or pink opaque viscous liquid.
Odor	:	Slight fuel oil odor.
Odor Threshold	:	Not available
pH	:	Not available
Relative Evaporation Rate (butylacetate=1)	:	< 1
Melting Point	:	Not available
Freezing Point	:	Not available
Boiling Point	:	Not available
Flash Point	:	Not available
Auto-ignition Temperature	:	Not available
Decomposition Temperature	:	Not available
Flammability (solid, gas)	:	Not available
Lower Flammable Limit	:	Not available
Upper Flammable Limit	:	Not available
Vapor Pressure	:	Not available
Relative Vapor Density at 20 °C	:	Not available
Relative Density	:	Not available
Specific Gravity	:	1.00 - 1.45 g/cc
Solubility	:	Water: Nitrate salts are completely soluble, but emulsion dissolution is very slow.
Partition coefficient: n-octanol/water	:	Not available
Viscosity	:	Not available
Explosion Data – Sensitivity to Mechanical Impact	:	Not sensitive to mechanical impact. May be sensitive to supersonic explosively driven projectile impacts.
Explosion Data – Sensitivity to Static Discharge	:	Not sensitive to static discharge.

SECTION 10 - STABILITY AND REACTIVITY

Reactivity: Accelerates the rate of burning materials. Oxidizer. May react violently with strong acids, strong oxidizing and reducing agents.

Chemical Stability: May intensify fire; oxidizer. May explode when subjected to fire, supersonic shock or high-energy projectile impact, especially when confined or in large quantities.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Direct sunlight. Extremely high temperatures. Heat. Sparks. Overheating. Open flame. Combustible materials. Sources of ignition. Incompatible materials.

Incompatible Materials: Corrosives, strong acids, strong bases and alkalis.

Hazardous Decomposition Products: Nitrogen oxides. Toxic vapors. Ammonia. Carbon monoxide.

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Harmful if swallowed.

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Not classified

Serious Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not available

Carcinogenicity: Contains an ingredient suspected of causing cancer.

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: May be fatal if swallowed and enters airways.

Symptoms/Injuries After Inhalation: May cause respiratory irritation.

Symptoms/Injuries After Skin Contact: May cause skin irritation.

Symptoms/Injuries After Eye Contact: Causes eye irritation.

Symptoms/Injuries After Ingestion: May be harmful if swallowed. May be harmful if swallowed and enters airways. Aspiration into the lungs can occur during ingestion or vomiting and may cause lung injury.

Chronic Symptoms: Contains an ingredient that may cause cancer. Causes damage to organs through prolonged or repeated exposure.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Ammonium nitrate (6484-52-2)	
LD50 Oral Rat	2217 mg/kg
LC50 Inhalation Rat	> 88.8 mg/l/4h
ATE CLP (oral)	2217.000 mg/kg body weight

Sodium nitrate (7631-99-4)	
LD50 Oral Rat	1267 mg/kg
ATE CLP (oral)	1267.000 mg/kg body weight

Fuels, diesel, no. 2 (68476-34-6)	
ATE CLP (vapors)	11.000 mg/l/4h

Distillates, petroleum, chemically neutralized light naphthenic (64742-35-4)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

Toxicity Not classified

Sodium nitrate (7631-99-4)	
LC50 Fish 1	2000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
LC 50 Fish 2	994.4 - 1107 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

Calcium nitrate (10124-37-5)	
LC50 Fish 1	10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

Fuels, diesel, no. 2 (68476-34-6)	
LC50 Fish 1	35 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

Persistence and Degradability

Bulk Emulsion	
Persistence and Degradability	Not established.

Sodium nitrate (7631-99-4)	
Persistence and Degradability	**Readily biodegradable in water.**

Bioaccumulative Potential

Bulk Emulsion	
Bioaccumulative Potential	Not established.

Ammonium nitrate (6484-52-2)	
BCF fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)

Sodium nitrate (7631-99-4)	
Log Pow	-3.8 (at 25 °C)
Bioaccumulative Potential	Not expected to bioaccumulate.

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Treatment Methods: Contact manufacturer for advice on proper disposal methods.
Waste Disposal Recommendations: Collect spillage for possible reuse. Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.
Additional Information: Clean up even minor leaks or spills if possible without unnecessary risk.

SECTION 14 - TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE Eor Agent blasting, Type E
Hazard Class : 1.5D
Identification Number : UN0332
Label Codes : 1.5D

Packing Group : II
ERG Number : 140

14.2 In Accordance with IMDG

Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E (AGENT, BLASTING, TYPE E)
Hazard Class : 1.5D
Identification Number : UN0332
Label Codes : 1.5D
EmS-No. (Fire) : F-B
EmS-No. (Spillage) : S-Y

Safety Data Sheet

14.3 In Accordance with IATA

Proper Shipping Name : AGENT, BLASTING TYPE E
Identification Number : UN0332
Hazard Class : 1
Label Codes : 1.5D

ERG Code (IATA) : 1L

14.4 In Accordance with TDG

Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Packing Group : II
Hazard Class : 1.5D
Identification Number : UN0332
Label Codes : 1.5D

SECTION 15 - REGULATORY INFORMATION

US Federal Regulations

Bulk Emulsion

SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Reactive hazard Delayed (chronic) health hazard Fire hazard

Ammonium nitrate (6484-52-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Sodium nitrate (7631-99-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Calcium nitrate (10124-37-5)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Fuels, diesel, no. 2 (68476-34-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Distillates, petroleum, chemically neutralized light naphthenic (64742-35-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

US State Regulations

Ammonium nitrate (6484-52-2)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Sodium nitrate (7631-99-4)
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List

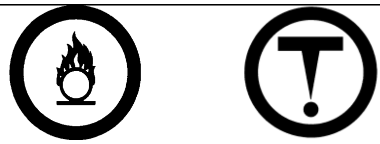
Calcium nitrate (10124-37-5)
U.S. - New Jersey - Right to Know Hazardous Substance List

Fuels, diesel, no. 2 (68476-34-6)
U.S. - New Jersey - Right to Know Hazardous Substance List

Canadian Regulations

Bulk Emulsion

WHMIS Classification	Class C - Oxidizing Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects



Ammonium nitrate (6484-52-2)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
WHMIS Classification	Class C - Oxidizing Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Sodium nitrate (7631-99-4)	
Listed on the Canadian DSL (Domestic Substances List) inventory. Listed on the Canadian Ingredient Disclosure List	
WHMIS Classification	Class C - Oxidizing Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects
Calcium nitrate (10124-37-5)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
Fuels, diesel, no. 2 (68476-34-6)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
Distillates, petroleum, chemically neutralized light naphthenic (64742-35-4)	
Listed on the Canadian DSL (Domestic Substances List) inventory.	
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all of the information required by CPR.	

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision date : 07/20/2020

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

GHS Full Text Phrases:

Acute Tox. 4 (Inhalation)	Acute toxicity (inhalation) Category 4
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Asp. Tox. 1	Aspiration hazard Category 1
Carc. 2	Carcinogenicity Category 2
Expl. 1.5	Explosive Category 1.5
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H205	May mass explode in fire
H302	Harmful if swallowed
H304	May be fatal if swallowed and enters airways
H315	Causes skin irritation
H320	Causes eye irritation
H332	Harmful if inhaled
H351	Suspected of causing cancer
H373	May cause damage to organs through prolonged or repeated exposure

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Dyno Nobel SDS

Senatel Powersplit

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Revision Date: 02/08/2017 Date of Issue: 06/15/2011 Supersedes Date: 11/12/2013 Version: 2.0

SECTION 1: IDENTIFICATION

Product Identifier

Product Form: Mixture

Product Name: Senatel Powersplit

Product Code: 3020

Synonyms: Magnum Powersplit

Intended Use of the Product

A detonator sensitive emulsion explosive. For professional use only.

Name, Address, and Telephone of the Responsible Party

USA:

Orica USA Inc.
33101 E. Quincy Avenue
Watkins, CO 80137-9406
For SDS Requests: 1-855-26-ORICA (1-855-266-7422)
sds.na@orica.com

Canada:

Orica Canada Inc.
301 Rue Hotel-de-Ville
Brownsburg-Chatham, QC
J8G 3B5
For SDS Requests:
1-855-26-ORICA (1-855-266-7422)
sds.na@orica.com
www.oricaminingservices.com

Emergency Telephone Number

Emergency Number : **Canada:** 1-877-561-3636 (Orica Transportation Emergency Response)
USA: 1-800-424-9300 (CHEMTREC)

FOR CHEMICAL EMERGENCIES (24 HOUR) INVOLVING TRANSPORTATION, SPILL, LEAK, RELEASE, FIRE OR ACCIDENTS: **IN CANADA CALL:** THE ORICA TRANSPORTATION EMERGENCY RESPONSE SYSTEM AT **1-877-561-3636. IN THE U.S. CALL: CHEMTREC 1-800-424-9300. IN THE U.S.:** FOR LOST, STOLEN, OR MISPLACED EXPLOSIVES CALL: BATF **1-800-800-3855.** FORM ATF F 5400.5 MUST BE COMPLETED AND LOCAL AUTHORITIES (STATE/MUNICIPAL POLICE, ETC.) MUST BE ADVISED.

SECTION 2: HAZARDS IDENTIFICATION

Classification of the Substance or Mixture

GHS-US/CA Classification

The explosive classification below only applies to US 29 CFR 1910.1200 (HCS/HazCom 2012). The explosive classification is excluded from Canada Hazardous Products Regulations (HPR, SOR/2015-17), it is regulated under the Canada Explosives Act (R.S.C., 1985, c. E-17).

Explosives, Division 1.1	H201
Ox. Liq. 3	H272
Acute Tox. 4 (Oral)	H302
Eye Irrit. 2A	H319
Carc. 1B	H350
STOT RE 2	H373
Aquatic Acute 3	H402
Aquatic Chronic 3	H412

Full text of hazard classes and H-statements : see section 16

Label Elements

GHS-US/CA Labeling

Any labeling elements (pictograms, signal word, hazard, and precautionary statements) related to explosive classifications apply to the OSHA Hazard Communication Standard (HCS, 29 CFR 1910.1200) only and are excluded from Canada's Hazardous Products Regulations (HPR, SOR/2015-17).

Hazard Pictograms (GHS-US/CA) :

GHS01 GHS03 GHS07 GHS08

Signal Word (GHS-US/CA) : Danger

Hazard Statements (GHS-US/CA) : H201 - Explosive; mass explosion hazard.
H272 - May intensify fire; oxidizer.
H302 - Harmful if swallowed.
H319 - Causes serious eye irritation.
H350 - May cause cancer.
H373 - May cause damage to organs through prolonged or repeated exposure.
H402 - Harmful to aquatic life.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary Statements (GHS-US/CA) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 - Keep away from clothing and other combustible materials.
P260 - Do not breathe fumes, vapors, mist, or spray.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, and eye protection.
P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P330 - Rinse mouth.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with the Explosives Act of Canada and the provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR part 555.
P240 - Ground/bond container and receiving equipment.
P250 - Do not subject to friction, grinding, shock.
P370+P380 - In case of fire: Evacuate area.
P372 - Explosion risk in case of fire.
P373 - DO NOT fight fire when fire reaches explosives.
P401 - Store in accordance with the Explosives Act of Canada and the provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR part 555.

Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Overexposure may cause methemoglobinemia. Initial manifestation of methemoglobinemia is cyanosis, characterized by navy lips, tongue and mucous membranes, with skin color being slate grey. Further manifestation is characterized by headache, weakness, dyspnea, dizziness, stupor, respiratory distress and death due to anoxia.

Unknown Acute Toxicity (GHS-US/CA)

No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Name	Product Identifier	% *
Ammonium nitrate	(CAS No) 6484-52-2	70 - 80

Sodium nitrate	(CAS No) 7631-99-4	7 - 13
Sodium perchlorate	(CAS No) 7601-89-0	5 - 10
Petroleum	(CAS No) 8002-05-9	3 - 7
Pentaerythrite tetranitrate	(CAS No) 78-11-5	0.5 - 2

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

Eye Contact: Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Obtain medical attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

Most Important Symptoms and Effects Both Acute and Delayed

General: Causes serious eye irritation. Harmful if swallowed. There are potential chronic health effects to consider. Overexposure to this material may result in methemoglobinemia. Methemoglobinemia decreases the blood's ability to carry oxygen and results in symptoms such as dizziness, drowsiness, headache, shortness of breath, blue skin and lips, rapid heart rate, unconsciousness, and possibly death.

Inhalation: Prolonged exposure may cause irritation.

Skin Contact: Prolonged exposure may cause skin irritation.

Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.

Ingestion: This material is harmful orally and can cause adverse health effects or death in significant amounts.

Chronic Symptoms: May cause cancer. May cause damage to organs through prolonged or repeated exposure.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: DO NOT FIGHT FIRES INVOLVING EXPLOSIVES. Water may be applied through fixed extinguishing system (sprinklers) as long as people need not be present for the system to operate.

Unsuitable Extinguishing Media: DO NOT fight fires involving explosives.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Explosive, could cause fire and secondary explosions. May intensify fire; oxidizer.

Explosion Hazard: Explosives, Division 1.1 - Chemicals and items which have a mass explosion hazard (a mass explosion is one which affects almost the entire quantity present virtually instantaneously). Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

Reactivity: Extreme risk of explosion by shock, friction, fire or other sources of ignition. Oxidizer: increases the burning rate of combustible materials.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. This product is an explosive with mass detonation hazard. DO NOT FIGHT FIRES INVOLVING EXPLOSIVE MATERIALS.

Firefighting Instructions: DO NOT ATTEMPT TO FIGHT FIRE. Immediately evacuate all personnel from the area to a safe distance. Guard against re-entry. Thermal decomposition can lead to release of irritating gases and vapors. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO_2), hydrocarbons, nitrogen oxides. At temperatures above 210 °C (410 °F), decomposition may be explosive, especially if confined.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Keep away from heat, sparks, open flames, hot surfaces. – No smoking. Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray. Evacuate danger area. Keep away from heat, hot surfaces, sparks, open flames, and other ignition sources. No smoking. Keep away from combustible material. Avoid all contact with skin, eyes, or clothing.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel. Evacuate danger area.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area. Eliminate ignition sources.

Environmental Precautions

Prevent entry to sewers and public waters. Avoid release to the environment.

Methods and Materials for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Absorb and contain with inert material. Place contents in suitable container for disposal. Use only non-sparking tools.

Methods for Cleaning Up: Use only non-sparking tools. Be careful to avoid shock, friction, and contact with grit. Collect product for recovery or disposal. For release to land, contain discharge by constructing dykes or applying inert absorbent; for release to water, utilize damming and/or water diversion to minimize the spread of contamination. Collect contaminated soil and water, and absorbent for proper disposal. Notify applicable government authority if release is reportable or could adversely affect the environment. Absorb and/or contain spill with inert material, then place in suitable container. Do not take up in combustible material such as: saw dust or cellulosic material.

Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: May cause or intensify fire; oxidizer.

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Keep away from sources of ignition - No smoking. Keep away from extremely high or low temperatures, ignition sources, and incompatible materials. - No smoking. Handle empty containers with care because they may still present a hazard. Do not get in eyes, on skin, or on clothing. Do not handle until all safety precautions have been read and understood. Do not breathe fumes, vapors, mist, spray. Avoid contact with skin, eyes and clothing.

Hygiene Measures: This product is an explosive and should only be used under the supervision of trained and licensed personnel. Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed. Ground/bond container and receiving equipment.

Storage Conditions: Store under moderate temperatures recommended by competent authority. Store under dry conditions in a well ventilated magazine that has been approved for either detonator storage or explosive storage. Do NOT store explosives in a detonator magazine or detonators in an explosive magazine. Keep away from heat, spark and flames. Keep containers closed. Explosives should be kept well away from initiating explosives; protected from physical damage; separated from oxidizing materials, combustibles, and sources of heat. Isolate from incompatibles. . Keep/Store away from combustible materials, organic material, ignition sources, incompatible materials. Keep in fireproof place.

Incompatible Materials: Oxidizable materials, metal powder, bronze & copper alloys, fuels (e.g. lubricants, machine oils), fluorocarbon lubricants, acids, corrosive liquids, chlorate, sulphur, sodium nitrite, charcoal, coke and other finely divided combustibles. Strong oxidizing and reducing agents.

Special Rules on Packaging: Keep only in the original container.

Specific End Use(s)

A detonator sensitive emulsion explosive. For professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

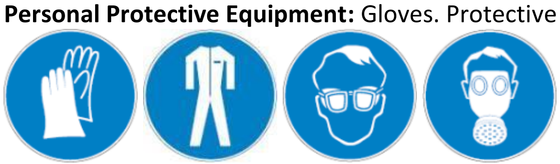
For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), or Canadian provincial governments.

Petroleum (8002-05-9)		
USA OSHA	OSHA PEL (TWA) (mg/m³)	2000 mg/m³
USA OSHA	OSHA PEL (TWA) (ppm)	500 ppm
USA NIOSH	NIOSH REL (TWA) (mg/m³)	350 mg/m³
USA NIOSH	NIOSH REL (ceiling) (mg/m³)	1800 mg/m³ (15 min)
USA IDLH	US IDLH (ppm)	1100 ppm (10% LEL)

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed. Proper grounding procedures to avoid static electricity should be followed. Product to be handled in a closed system and under strictly controlled conditions. Use explosion-proof equipment. Gas detectors should be used when flammable gases or vapors may be released.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Chemically resistant materials and fabrics. Wear fire/flame resistant/retardant clothing.

Hand Protection: Wear protective gloves.

Eye Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	:	Liquid
Appearance	:	Viscous. String of plastic wrapped material traced internally with detonating cord. If the outer plastic is perforated, the exposed product appears putty-like.
Odor	:	Odorless
Odor Threshold	:	Not available
pH	:	Not available
Evaporation Rate	:	Not available
Melting Point	:	Not available
Freezing Point	:	Not available
Boiling Point	:	Not available
Flash Point	:	Not available
Auto-ignition Temperature	:	Not available
Decomposition Temperature	:	Detonating Cord 70 °C (158 °F) / Ammonium Nitrate 210 °C (410 °F)
Flammability (solid, gas)	:	Not available
Lower Flammable Limit	:	Not available

Upper Flammable Limit	:	Not available
Vapor Pressure	:	0 mm Hg @ 20 °C (68 °F)
Relative Vapor Density at 20°C	:	Not available
Relative Density	:	1.2 - 1.3
Density	:	1.2 - 1.3 g/cc
Specific Gravity	:	1.2 - 1.3
Solubility	:	Slightly soluble in standard organic solvents. Insoluble in water.
Partition Coefficient: N-Octanol/Water	:	Not available
Viscosity	:	Not available
Explosive Properties	:	Explosives, Division 1.1 - Chemicals and items which have a mass explosion hazard (a mass explosion is one which affects almost the entire quantity present virtually instantaneously)

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Extreme risk of explosion by shock, friction, fire or other sources of ignition. Oxidizer: increases the burning rate of combustible materials.

Chemical Stability: Extreme risk of explosion by shock, friction, fire or other sources of ignition. May intensify fire; oxidizer.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Keep away from open flames, hot surfaces and sources of ignition. Incompatible materials. Direct sunlight, extremely high or low temperatures, ignition sources, combustible materials, incompatible materials.

Incompatible Materials: Oxidizable materials, metal powder, bronze & copper alloys, fuels (e.g. lubricants, machine oils), fluorocarbon lubricants, acids, corrosive liquids, chlorate, sulphur, sodium nitrite, charcoal, coke and other finely divided combustibles. Strong oxidizing and reducing agents.

Hazardous Decomposition Products: None expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity (Oral): Oral: Harmful if swallowed.
Acute Toxicity (Dermal): Not classified
Acute Toxicity (Inhalation): Not classified
LD50 and LC50 Data:

Senatel Powersplit	
ATE US/CA (oral)	1,733.41 mg/kg body weight

Skin Corrosion/Irritation: Not classified

Eye Damage/Irritation: Causes serious eye irritation.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer.

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.
Symptoms/Injuries After Skin Contact: Prolonged exposure may cause skin irritation.
Symptoms/Injuries After Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.
Symptoms/Injuries After Ingestion: This material is harmful orally and can cause adverse health effects or death in significant amounts.
Chronic Symptoms: May cause cancer. May cause damage to organs through prolonged or repeated exposure.

Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Ammonium nitrate (6484-52-2)	
LD50 Oral Rat	2217 mg/kg

LC50 Inhalation Rat	> 88.8 mg/l/4h

Petroleum (8002-05-9)	
LD50 Oral Rat	> 4300 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg
LC50 Inhalation Rat	2.18 mg/l/4h

Sodium nitrate (7631-99-4)	
LD50 Oral Rat	> 2000 mg/kg

Sodium perchlorate (7601-89-0)	
LD50 Oral Rat	2100 mg/kg
ATE US/CA (oral)	500.00 mg/kg body weight

Pentaerythrite tetranitrate (78-11-5)	
LD50 Oral Rat	1660 mg/kg

Petroleum (8002-05-9)	
IARC Group	3

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Ecology - General: Harmful to aquatic life with long lasting effects.

Ammonium nitrate (6484-52-2)	
LC50 Fish 1	542 mg/l
EC50 Daphnia 1	555 mg/l

Petroleum (8002-05-9)	
LC50 Fish 1	< 7.1 mg/l (Species: Pimephales promelas, Exposure time 96 h)
LC50 Other Aquatic Organisms 1	2.7 mg/l LL50 96 hr (Kelp forest mysid shrimp)
EC50 Daphnia 1	6.9 mg/l (Exposure time: 48 h)

Sodium nitrate (7631-99-4)	
LC50 Fish 1	2000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
LC50 Fish 2	994.4 - 1107 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

Persistence and Degradability

Senatel Powersplit	
Persistence and Degradability	May cause long-term adverse effects in the environment.

Sodium nitrate (7631-99-4)	
Persistence and Degradability	Readily biodegradable in water.

Bioaccumulative Potential

Senatel Powersplit	
Bioaccumulative Potential	Not established.

Ammonium nitrate (6484-52-2)	
BCF Fish 1	(no bioaccumulation expected)
Log Pow	-3.1 (at 25 °C)

Sodium nitrate (7631-99-4)	
Log Pow	-3.8 (at 25 °C)
Bioaccumulative Potential	Not expected to bioaccumulate.

Mobility in Soil

Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Recommendations: Dispose of contents/container in accordance with the Explosives Act of Canada and the provisions of the Bureau of Alcohol, Tobacco and Firearms regulations contained in 27 CFR part 555

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology - Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

In Accordance with DOT

Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Hazard Class : 1.1D
Identification Number : UN0241
Label Codes : 1.1D

Packing Group : II
ERG Number : 112

In Accordance with IMDG

Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Hazard Class : 1.1D
Identification Number : UN0241
Label Codes : 1.1D

EmS-No. (Fire) : F-B
EmS-No. (Spillage) : S-X
MFAG Number : 112

In Accordance with IATA

Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Identification Number : 1.1D
Hazard Class : UN0241
ERG Code (IATA) : 1L

In Accordance with TDG

Proper Shipping Name : EXPLOSIVE, BLASTING, TYPE E
Hazard Class : 1.1D
Identification Number : UN0241
Label Codes : 1.1D

Packing Group : II

SECTION 15: REGULATORY INFORMATION

US Federal Regulations

Senatel Powersplit	
SARA Section 311/312 Hazard Classes	Sudden release of pressure hazard Fire hazard Immediate (acute) health hazard Delayed (chronic) health hazard

Ammonium nitrate (6484-52-2)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Petroleum (8002-05-9)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Sodium nitrate (7631-99-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Sodium perchlorate (7601-89-0)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Pentaerythrite tetranitrate (78-11-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
EPA TSCA Regulatory Flag	T - T - indicates a substance that is the subject of a Section 4 test rule under TSCA

US State Regulations

Ammonium nitrate (6484-52-2)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List
U.S. - Pennsylvania - RTK (Right to Know) List

Petroleum (8002-05-9)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Sodium nitrate (7631-99-4)
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) List

Sodium perchlorate (7601-89-0)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Pentaerythrite tetranitrate (78-11-5)
U.S. - New Jersey - Right to Know Hazardous Substance List

Canadian Regulations

Ammonium nitrate (6484-52-2)
Listed on the Canadian DSL (Domestic Substances List)

Petroleum (8002-05-9)
Listed on the Canadian DSL (Domestic Substances List)

Sodium nitrate (7631-99-4)
Listed on the Canadian DSL (Domestic Substances List)

Sodium perchlorate (7601-89-0)
Listed on the Canadian DSL (Domestic Substances List)

Pentaerythrite tetranitrate (78-11-5)
Listed on the Canadian DSL (Domestic Substances List)

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 02/08/2017

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR).

GHS Full Text Phrases:

Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Carc. 1B	Carcinogenicity Category 1B
Expl. 1.1	Explosive Category 1.1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Ox. Liq. 3	Oxidizing liquids Category 3
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
H201	Explosive; mass explosion hazard
H272	May intensify fire; oxidizer
H302	Harmful if swallowed
H319	Causes serious eye irritation

H350	May cause cancer
H373	May cause damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects

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NA GHS SDS 2015 (Can, US)

APPENDIX 5

EMULSION PLAN / BLAST AREA INSPECTION SHEET

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

Date:
Time:
Location: Emulsion Plant

Inspected By:

Weekly Inspection

In Compliance with	Subject	Conform	Non-conform	N/A	Comments
NWB Part B Item 10	Sign posted to inform of a waste disposal facility				
NWB Part D Item 17 MBK SCP MBK NIRB Condition 26	Are there any visual spills?				
NWB Part F Item 10	All Hazardous Waste disposal is located 30m from the ordinary high water mark.				
NWB Part H Item 2	Resources in place to prevent any chemicals, petroleum products, or unauthorized Wastes from entering a water body.				
NWB Part H Item 3 Ammonia Management Plan	Is secondary containment for chemical storage provided.				
NWB Part I Item 7	Monitoring signs are posted in English, French, and Inuktitut.				
MBK SCP	Spill Kits Present				
MBK 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.				
MBK NIRB Condition 25	Management and control waste in a manner that reduces or eliminates the attraction to carnivores and/or raptors.				

MBK NIRB Condition 27 Ammonia Management Plan	Ensure the hazardous material are contained using environmentally protective methods based on practical best management practices				
Hazardous Management Plan	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 17 MBK SCP MBK 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 10	All Hazardous Waste disposals are located 30m from the ordinary high water mark.				

NWB Part H Item 2	Resources in place to prevent any chemicals, petroleum products, or unauthorized Wastes from entering a water body.				
NWB Part H Item 3 Ammonia Management Plan	Is secondary containment for chemical storage provided?				
MBK 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:

Actions Corrected: None

____
____
____
____
____

Dyno Nobel Supervisor Name: ___________________________________

Signature: ___________________________________